



**CHILDREN'S EDUCATION SOCIETY (Regd.)**

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

**THE OXFORD COLLEGE OF ENGINEERING**

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

**CROSSCUTTING ISSUES 2023-24**

Sl. No.	Particulars	Page No.
1.	Summary on Crosscutting Institution integrates crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability into the Curriculum	2
2.	Departmental wise - Course Outcome's (COs) with Cross-cutting Issues	3-4
3.	Institution integrates crosscutting issues – Curriculum CO-PO-PSO Mapping	5-13
4.	Crosscutting issues relevant to Professional Ethics, into the Curriculum	14-65
5.	Crosscutting issues relevant to Gender, into the Curriculum	66-82
6.	Crosscutting issues relevant to Human Values, into the Curriculum	83-128
7.	Crosscutting issues relevant to Environment and Sustainability, into the Curriculum	129-171

  
PRINCIPAL  
The Oxford College of Engineering  
Bommanahalli, Hosur Road  
Bengaluru-560 068



**CHILDREN'S EDUCATION SOCIETY (Regd.)**

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

## **THE OXFORD COLLEGE OF ENGINEERING**

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

## Summary on Institution integrates crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability into the Curriculum

The Oxford College of Engineering, Bangalore, is dedicated to providing a holistic education that integrates crosscutting issues into its curriculum, ensuring students emerge as socially responsible and well-rounded professionals. Professional ethics form the foundation of this approach, with dedicated modules instilling a strong commitment to ethical standards across various disciplines. Gender perspectives are thoughtfully incorporated, promoting awareness of equality and inclusivity. The institution also emphasizes the cultivation of human values such as empathy and integrity, preparing students to navigate complex professional challenges with a moral compass. Environmental awareness is seamlessly embedded in the subjects, fostering an understanding of the ecological impact of professional practices. Sustainability principles are emphasized, encouraging students to evaluate the long-term economic, social, and environmental consequences of their decisions. Collaborative learning is a key feature of the curriculum, with group projects and team-based activities fostering engagement with peers from diverse backgrounds. This approach mirrors real-world professional environments, enhancing interpersonal skills and cultural competence essential for success. By combining technical expertise with a deep understanding of societal and environmental responsibilities, the institution ensures its graduates are prepared to address global challenges. This comprehensive educational framework shapes conscientious professionals capable of making meaningful contributions to their fields and society.



**CHILDREN'S EDUCATION SOCIETY (Regd.)**

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

## THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

### Departmental wise- Course Outcome's (Cos) with Crosscutting Issues- Academic Year 2023-24

Department	Total Number of Courses	Total Cos	Core Cos	Ethics	Gender	Human Values	Environment	Field Visit
								Research
								Internship
								Project
CSE	59	291	221	6	2	18	9	35
CIVIL	55	246	193	9	2	8	12	22
ECE	66	316	248	4	2	16	4	42
Mechatronics	60	252	200	5	2	15	6	24
Biotechnology	53	231	156	10	2	11	25	27
ISE	62	282	215	6	2	18	14	27
EEE	63	291	227	9	3	15	9	28
Mech	62	290	223	8	2	16	14	27
AIML	47	224	171	5	2	15	6	25
PG CSE	20	81	52	0	0	0	0	29
PG CIVIL	19	82	67	0	0	0	0	15
PG ECE	18	96	64	0	0	0	0	32
MBA	34	152	113	6	2	5	0	26
MCA	34	158	129	6	0	2	0	21
<b>Total</b>	<b>652</b>	<b>2992</b>	<b>2275</b>	<b>74</b>	<b>21</b>	<b>141</b>	<b>102</b>	<b>379</b>



**CHILDREN'S EDUCATION SOCIETY (Regd.)**

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

## THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

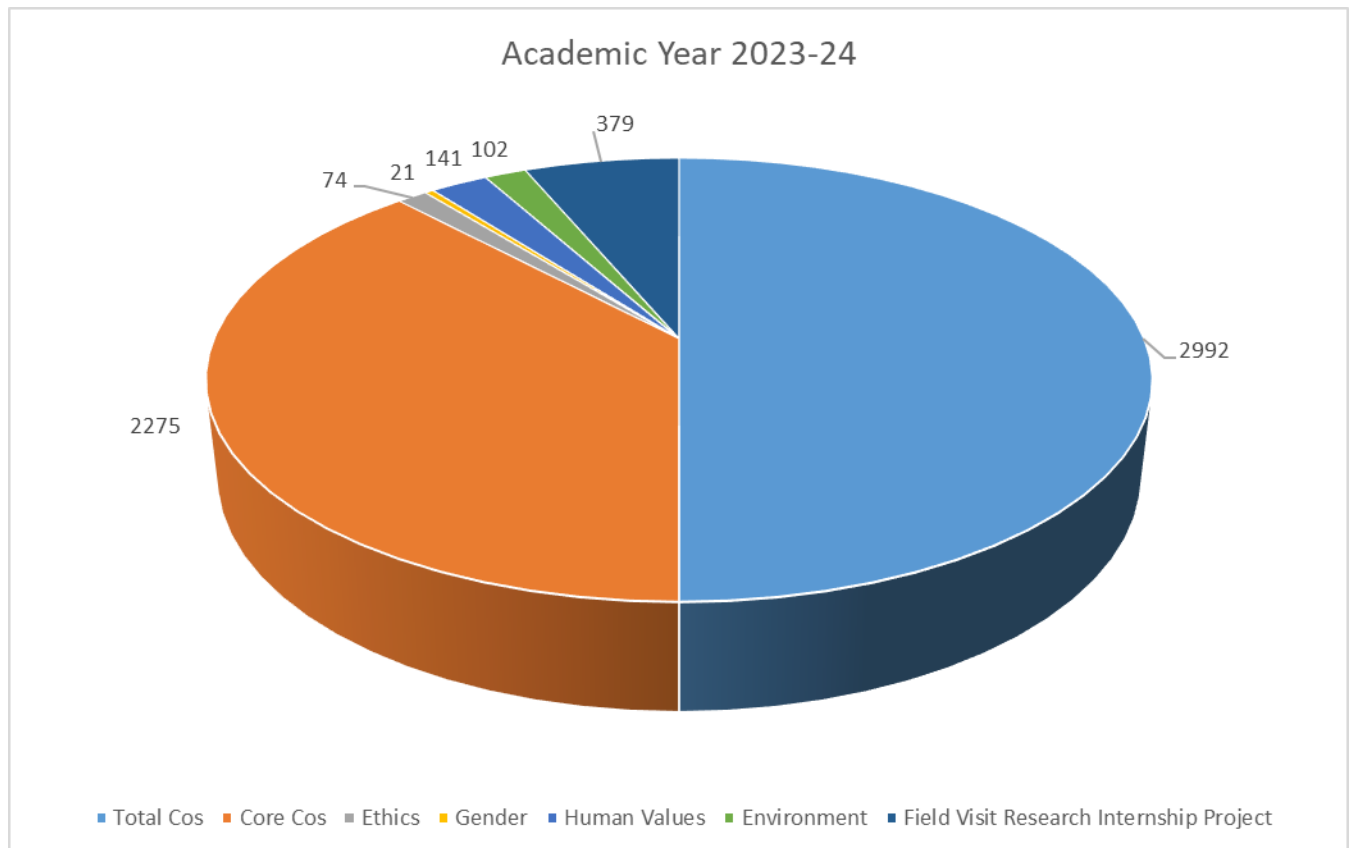
Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

### Departmental wise- Course Outcome's (Cos) with Crosscutting Issues- Academic Year 2023-24

Total Cos	Core Cos	Ethics	Gender	Human Values	Environment	Field Visit
						Research
						Internship
						Project
2992	2275	74	21	141	102	379







**CHILDREN'S EDUCATION SOCIETY (Regd.)**

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

## **THE OXFORD COLLEGE OF ENGINEERING**

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

### **Institution integrates crosscutting issues – Curriculum CO-PO-PSO Mapping 2023-24**

S.No	Year /Semester	Name of the Program	Name of the Course	Course Code	Cross Cutting issues	PO, CO, PSO, Mapping
1	2nd Year/ 3rd sem	Department of Biotechnology	Bio-Lab Management and Risk Assessment	BBT358A	Professional Ethics	PO 8- CO 1- PSO 2
2	1st Year/1st sem	Department of Biotechnology	Indian Constitution	BICOK107-207	Professional Ethics	PO 8- CO 5- PSO 2
3	3rd Year/ 6th sem	Department of Biotechnology	Stem Cell Technology	21BT644	Professional Ethics	PO 8- CO 3- PSO 2
4	4th Year/ 8th sem	Department of Biotechnology	Bioethics, Biosafety & IPR	18BT741	Professional Ethics	PO 8- CO 1- PSO 2
5	2nd Year/ 4th sem	Department of Information Science & Engineering	Physical Education (PE) (Sports and Athletics)	BPEK459	Professional Ethics	PO 8- CO 1- PSO 2
6	1st Year/1st sem	Department of Information Science & Engineering	Indian Constitution	BICOK107-207	Professional Ethics	PO 8- CO 5- PSO 2
7	2nd Year/3rd and 4th sem	Department of Information Science & Engineering	Research Methodology & Intellectual Property Rights	21RMI56	Professional Ethics	PO 8- CO 4- PSO 2
8	1st Year/1st sem	Department of Mechanical Engineering	Indian Constitution	BICOK107-207	Professional Ethics	PO 8- CO 5- PSO 2
9	2nd Year/ 4th sem	Department of Mechanical Engineering	Physical Education (PE) (Sports and Athletics)	BPEK459	Professional Ethics	PO 8- CO 1- PSO 2
10	2nd Year/4th sem	Department of Mechanical Engineering	Research Methodology & Intellectual Property Rights	21RMI56	Professional Ethics	PO 8- CO 4- PSO 2
11	2nd Year/ 4th sem	Department of Computer Science & Engineering	Physical Education (PE) (Sports and Athletics)	BPEK459	Professional Ethics	PO 8- CO 1- PSO 2
12	1st Year/1st sem	Department of Computer Science & Engineering	Indian Constitution	BICOK107-207	Professional Ethics	PO 8- CO 5- PSO 2



**CHILDREN'S EDUCATION SOCIETY (Regd.)**

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

**THE OXFORD COLLEGE OF ENGINEERING**

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

13	1st Year/1st sem	Department of Electrical and Communication Engineering	Indian Constitution	BICOK107-207	Professional Ethics	PO 8- CO 5- PSO 2
14	1st Year/1st sem	Department of Artificial Intelligence and Machine Learning	Indian Constitution	BICOK107-207	Professional Ethics	PO 8- CO 5- PSO 4
15	2rd Year/4th sem	Department of Artificial Intelligence and Machine Learning	Research Methodology & Intellectual Property Rights	21RMI56	Professional Ethics	PO 8- CO 5- PSO 4
16	1st Year/1st sem	Department of Mechatronics	Indian Constitution	BICOK107-207	Professional Ethics	PO 8- CO 5- PSO 1
17	3rd Year/4th sem	Department of Mechatronics	Research Methodology & Intellectual Property Rights	21RMI56	Professional Ethics	PO 8- CO 4- PSO 1
18	2rd Year/4th sem	Department of Civil Engineering	Building Materials Testing Laboratory	BCVL404	Professional Ethics	PO 8- CO 4- PSO 3
19	3rd Year/5 <sup>th</sup> sem	Department of Civil Engineering	Design of RC Structural Elements	21CV53	Professional Ethics	PO 8- CO 4- PSO 3
20	4th Year/8th sem	Department of Civil Engineering	Technical Seminar	18CVS84	Professional Ethics	PO 8- CO 4- PSO 3
21	1st Year/2nd Sem	Department of Civil Engineering	Indian Constitution	BICOK207	Professional Ethics	PO 8- CO 4- PSO 3
22	2rd Year/3rd sem	Department of Electrical & Electronics Engineering	Social Connect and Responsibility	BSCK307	Professional Ethics	PO 8- CO 2- PSO 3
23	1st Year/2nd Sem	Department of Electrical & Electronics Engineering	Indian Constitution	BICOK207	Professional Ethics	PO 8- CO 5- PSO 3
24	2nd Year/ 4th sem	Department of Electrical & Electronics Engineering	Physical Education (PE) (Sports and Athletics)	BPEK459	Professional Ethics	PO 8- CO 1- PSO 3
25	3rd Year/4th sem	Department of Electrical & Electronics Engineering	Research Methodology & Intellectual Property Rights	21RMI56	Professional Ethics	PO 8- CO 4- PSO 3
26	4th Year/8th sem	Department of Electrical & Electronics Engineering	Technical Seminar	18CVS84	Professional Ethics	PO 8- CO 4- PSO 3



## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

27	1st Year/1st Sem	Department of Business Administration	Entrepreneurship Development	22MBA12	Professional Ethics	PO 8- CO 5- PSO 3
28	1st Year/2 <sup>nd</sup> Sem	Department of Business Administration	Research Methodology and IPR	22MBA23	Professional Ethics	PO 8- CO 5- PSO 3
29	1st Year/2 <sup>nd</sup> Sem	Department of Business Administration	Managerial Economics	22MBA26	Professional Ethics	PO 8- CO 5- PSO 3
30	2nd Year/3rd Sem	Department of Business Administration	Recruitment And Selection	22MBAHR303	Professional Ethics	PO 8- CO 1- PSO 3
31	2nd Year/4th Sem	Department of Business Administration	International Business	22MBA401	Professional Ethics	PO 8- CO 1- PSO 3
32	2nd Year/4th Sem	Department of Business Administration	Integrated Marketing Communications	22MBAMM404	Professional Ethics	PO 8- CO 4- PSO 3
33	1st Year/1 <sup>st</sup> Sem	Master of Computer Applications	Research Methodology	22RMI18	Professional Ethics	PO 8- CO 5- PSO 3
34	1st Year/1 <sup>st</sup> Sem	Master of Computer Applications	Software Engineering	22MCA23	Professional Ethics	PO 8- CO 2- PSO 3
35	1st Year/2nd Sem	Master of Computer Applications	User Interface Design	22MCA254	Professional Ethics	PO 8- CO 3- PSO 3
36	1st Year/1st sem	Department of Biotechnology	Indian Constitution	BICOK107-207	Gender	PO 6- CO 2- PSO 2
37	1st Year/1st sem	Department of Information Science & Engineering	Indian Constitution	BICOK107-207	Gender	PO 6- CO 2- PSO 2
38	1st Year/1st sem	Department of Mechanical Engineering	Indian Constitution	BICOK107-207	Gender	PO 6- CO 2- PSO 2
39	1st Year/1st sem	Department of Computer Science & Engineering	Indian Constitution	BICOK107-207	Gender	PO 6- CO 2- PSO 2
40	1st Year/1st sem	Department of Electrical and Communication Engineering	Indian Constitution	BICOK107-207	Gender	PO 6- CO 2- PSO 2



## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

41	1st Year/1st sem	Department of Artificial Intelligence and Machine Learning	Indian Constitution	BICOK107-207	Gender	PO 6- CO 2- PSO 2
42	1st Year/1st sem	Department of Mechatronics	Indian Constitution	BICOK107-207	Gender	PO 6- CO 2- PSO 2
43	1st Year/2nd Sem	Department of Civil Engineering	Indian Constitution	BICOK207	Gender	PO 6- CO 2- PSO 2
44	3rd Year/6 <sup>th</sup> sem	Department of Electrical & Electronics Engineering	Management and Entrepreneur ship	21EE61	Gender	PO 6- CO 2- PSO 2
45	1st Year/2nd Sem	Department of Electrical & Electronics Engineering	Indian Constitution	BICOK207	Gender	PO 6- CO 2- PSO 2
46	2nd Year/3 <sup>rd</sup> Sem	Department of Business Administration	Recruitment And Selection	22MBAHR303	Gender	PO 6- CO 2- PSO 2
47	2nd Year/4th Sem	Department of Business Administration	Conflict & Negotiation Management	22MBAHR403	Gender	PO 6- CO 4- PSO 2
48	1st Year/1st sem	Department of Biotechnology	Scientific Foundations of Health	BSFHK158/258	Human Values	PO 3- CO 3- PSO 2
49	2nd Year/4th sem	Department of Biotechnology	Universal Human Values	BUHK408	Human Values	PO 3- CO 3- PSO 2
50	2nd Year/3rd sem	Department of Information Science & Engineering	Social Connect & Responsibility	BSCK307	Human Values	PO 3- CO 5- PSO 2
51	2nd Year/4th sem	Department of Information Science & Engineering	Universal Human Values	BUHK408	Human Values	PO 3- CO 3- PSO 2
52	2nd Year/4th sem	Department of Information Science & Engineering	Physical Education (PE) (Sports and Athletics)	BPEK459	Human Values	PO 3- CO 3- PSO 2
53	1st Year/1st sem	Department of Information Science & Engineering	Scientific Foundations of Health	BSFHK158/258	Human Values	PO 3- CO 3- PSO 2



## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

54	2nd Year/3rd sem	Department of Mechanical Engineering	Universal Human Values	BUHK408	Human Values	PO 3- CO 3- PSO 2
55	2nd Year/4th sem	Department of Mechanical Engineering	Physical Education (PE) (Sports and Athletics)	BPEK459	Human Values	PO 3- CO 3- PSO 2
56	1st Year/1st sem	Department of Mechanical Engineering	Scientific Foundations of Health	BSFHK158/258	Human Values	PO 3- CO 3- PSO 2
57	2nd Year/3rd sem	Department of Computer Science & Engineering	Social Connect & Responsibility	BSCK307	Human Values	PO 3- CO 5- PSO 2
58	2nd Year/4th sem	Department of Computer Science & Engineering	Universal Human Values	BUHK408	Human Values	PO 3- CO 3- PSO 2
59	2nd Year/4th sem	Department of Computer Science & Engineering	Physical Education (PE) (Sports and Athletics)	BPEK459	Human Values	PO 3- CO 3- PSO 2
60	1st Year/1st sem	Department of Computer Science & Engineering	Scientific Foundations of Health	BSFHK158/258	Human Values	PO 3- CO 3- PSO 2
61	2nd Year/3rd sem	Department of Electrical and Communication Engineering	Social Connect & Responsibility	BSCK307	Human Values	PO 9- CO 5- PSO 3
62	2nd Year/4th sem	Department of Electrical and Communication Engineering	Universal Human Values	BUHK408	Human Values	PO 9- CO 3- PSO 3
63	1st Year/1st sem	Department of Electrical and Communication Engineering	Scientific Foundations of Health	BSFHK158/258	Human Values	PO 9- CO 3- PSO 3
64	2nd Year/3rd sem	Department of Artificial Intelligence and Machine Learning	Social Connect & Responsibility	BSCK307	Human Values	PO 3- CO 5- PSO 2
65	2nd Year/4th sem	Department of Artificial Intelligence and Machine Learning	Universal Human Values	BUHK408	Human Values	PO 3- CO 3- PSO 2
66	1st Year/1st sem	Department of Artificial Intelligence and Machine Learning	Scientific Foundations of Health	BSFHK158/258	Human Values	PO 3- CO 3- CO 2





## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

67	2nd Year/3rd sem	Department of Mechatronics	Social Connect & Responsibility	BSCCK307	Human Values	PO 3- CO 5- PSO 1
68	2nd Year/4th sem	Department of Mechatronics	Universal Human Values	BUHK408	Human Values	PO 3- CO 3- PSO 1
69	1st Year/1st sem	Department of Mechatronics	Scientific Foundations of Health	BSFHK158/258	Human Values	PO 3- CO 3- PSO 1
70	1st Year/1st sem	Department of Civil Engineering	Scientific Foundations of Health	BSFHK158/258	Human Values	PO 3- CO 3- PSO 3
71	2nd Year/3rd sem	Department of Civil Engineering	Social Connect & Responsibility	BSCCK307	Human Values	PO 3- CO 5- PSO 3
72	2nd Year/3rd sem	Department of Electrical & Electronics Engineering	Social Connect & Responsibility	BSCCK307	Human Values	PO 3- CO 5- PSO 3
73	1st Year/1st sem	Department of Electrical & Electronics Engineering	Scientific Foundations of Health	BSFHK158/258	Human Values	PO 3- CO 3- PSO 3
74	1st Year/1st Sem	Department of Business Administration	Principles of Management and Organisational Behaviour	22MBA11	Human Values	PO 3- CO 3- PSO 3
75	1st Year/1st Sem	Department of Business Administration	Business Communication	22MBA16	Human Values	PO 3- CO 1- PSO 3
76	1st Year/2nd Sem	Department of Business Administration	Human Resource Management	22MBA21	Human Values	PO 3- CO 3- PSO 3
77	2nd Year/4th Sem	Department of Business Administration	Innovation And Design Thinking	22MBA402	Human Values	PO 3- CO 3- PSO 3
78	1st Year/2 <sup>nd</sup> Sem	Master of Computer Applications	Software Engineering	22MCA23	Human Values	PO 3- CO 3- PSO 3
79	2nd Year/4th Sem	Master of Computer Applications	Software Project Management	22MCA414	Human Values	PO 3- CO 4- PSO 3
80	1st Year/1 <sup>st</sup> or 2nd Sem	Department of Biotechnology	Engineering Chemistry	22CHE12/22	Environment and Sustainability	PO 7- CO 2- PSO 1



## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(F),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

81	2nd Year/3rd Sem	Department of Biotechnology	Microbiology	BBT304	Environment and Sustainability	PO 7- CO 5- PSO 1
82	2nd Year/3rd Sem	Department of Biotechnology	Plant Physiology and Phytohormones	BBT306D	Environment and Sustainability	PO 7- CO 3- PSO 1
83	2nd Year/4th Sem	Department of Biotechnology	Biopesticides and Biofertilizers	BBT456D	Environment and Sustainability	PO 7- CO 1- PSO 1
84	2nd Year/4th Sem	Department of Biotechnology	Biology For Engineers	BBOK407	Environment and Sustainability	PO 7- CO 4- PSO 1
85	4th Year/7th sem	Department of Biotechnology	Bioethics, Biosafety & IPR	18BT741	Environment and Sustainability	PO 7- CO 4- PSO 1
86	4th Year/7th sem	Department of Biotechnology	Energy and Environment	18ME751	Environment and Sustainability	PO 7- CO 3- PSO 1
87	4th Year/8th sem	Department of Biotechnology	Industrial Microbiology	18BT822	Environment and Sustainability	PO 7- CO 2- PSO 1
88	3rd Year/5th sem	Department of Information Science & Engineering	Environmental Studies	21CIV57	Environment and Sustainability	PO 7- CO 1- PSO 2
89	3rd Year/5th sem	Department of Information Science & Engineering	Conservation of natural Resources	21cv654	Environment and Sustainability	PO 7- CO 5- PSO 2
90	4th Year/7th sem	Department of Information Science & Engineering	Disaster Management Plan	18EE753	Environment and Sustainability	PO 7- CO 5- PSO 2
91	1st Year/1 <sup>st</sup> or 2nd Sem	Department of Information Science & Engineering	Engineering Chemistry	22CHE12/22	Environment and Sustainability	PO 7- CO 2- PSO 2
92	2nd Year/3rd Sem	Department of Mechanical Engineering	Electric and Hybrid Vehicle Technology	BME306A	Environment and Sustainability	PO 7- CO 4- PSO 2
93	3rd Year/5th sem	Department of Mechanical Engineering	Environmental Studies	21CIV57	Environment and Sustainability	PO 7- CO 1- PSO 2



## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

94	3rd Year/6th Sem	Department of Mechanical Engineering	Renewable Energy Power Plants	21ME652	Environment and Sustainability	PO 7- CO 5- PSO 2
95	4th Year/8th sem	Department of Mechanical Engineering	Energy Engineering	18ME81	Environment and Sustainability	PO 7- CO 3- PSO 2
96	1st Year/1 <sup>st</sup> or 2nd Sem	Department of Mechanical Engineering	Engineering Chemistry	22CHE12/22	Environment and Sustainability	PO 7- CO 2- PSO 2
97	3rd Year/5th Sem	Department of Computer Science & Engineering	Environmental Studies	21CIV57	Environment and Sustainability	PO 7- CO 1- PSO 2
98	4th Year/7th sem	Department of Computer Science & Engineering	Disaster Management Plan	18EE753	Environment and Sustainability	PO 7- CO 5- PSO 2
99	1st Year/1 <sup>st</sup> or 2nd Sem	Department of Computer Science & Engineering	Engineering Chemistry	22CHE12/22	Environment and Sustainability	PO 7- CO 2- PSO 2
100	2nd Year/4th Sem	Department of Electrical and Communication Engineering	National Service Scheme (NSS)	BNSK459	Environment and Sustainability	PO 7- CO 2- PSO 3
101	3rd Year/5th Sem	Department of Electrical and Communication Engineering	Environmental Studies	21CIV57	Environment and Sustainability	PO 7- CO 1- PSO 3
102	3rd Year/5th sem	Department of Mechatronics	Environmental Studies	21CIV57	Environment and Sustainability	PO 7- CO 1- PSO 1
103	1st Year/1 <sup>st</sup> or 2nd Sem	Department of Mechatronics	Engineering Chemistry	22CHE12/22	Environment and Sustainability	PO 7- CO 2- PSO 1
104	2nd Year/3rd Sem	Department of Civil Engineering	Water Supply And Wastewater Engineering	BCV304	Environment & Sustainability	PO 7- CO 2- PSO 3
105	3rd Year/5th Sem	Department of Civil Engineering	Environmental Studies	21CIV57	Environment & Sustainability	PO 7- CO 1- PSO 3
106	3rd Year/6th Sem	Department of Civil Engineering	Alternate Building Materials	21CV646	Environment & Sustainability	PO 7- CO 1- PSO 3





**CHILDREN'S EDUCATION SOCIETY (Regd.)**

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

**THE OXFORD COLLEGE OF ENGINEERING**

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

107	1st Year/1 <sup>st</sup> or 2nd Sem	Department of Civil Engineering	Engineering Chemistry	22CHE12/22	Environment & Sustainability	PO 7- CO 2- PSO 3
108	3rd Year/5th sem	Department of Electrical & Electronics Engineering	Environmental Studies	21CIV57	Environment and Sustainability	PO 7- CO 1- PSO 3
109	3rd Year/6th sem	Department of Electrical & Electronics Engineering	Renewable Energy Power Plants	21ME652	Environment and Sustainability	PO 7- CO 5- PSO 3
110	1st Year/1 <sup>st</sup> or 2nd Sem	Department of Electrical & Electronics Engineering	Engineering Chemistry	22CHE12/22	Environment and Sustainability	PO 7- CO 2- PSO 3



**CHILDREN'S EDUCATION SOCIETY (Regd.)**

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

## **THE OXFORD COLLEGE OF ENGINEERING**

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

# Professional Ethics

## Department of Biotechnology

<b>BIO-LAB MANAGEMENT AND RISK ASSESSMENT</b>		Semester	III
Course Code	<b>BBT358A</b>	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	1:0:0:0	SEE Marks	50
Total Hours of Pedagogy	15	Total Marks	100
Credits	01	Exam Hours	1
Examination type (SEE)	Theory		
<p><b>Course objectives:</b></p> <ul style="list-style-type: none"> <li>To enable the students to develop an understanding biolab management and risk and its assessment.</li> <li>To enable the students to learn the methods to minimize and mitigate the risks at various steps of lab processes.</li> <li>To enable the students to perform the risk-benefit analysis in biotechnological processes.</li> </ul>			
<p><b>Teaching-Learning Process (General Instructions)</b> These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.</p> <ul style="list-style-type: none"> <li>Explanation via real life problem, situation modelling, and deliberation of solutions, hands-on sessions, reflective and questioning /inquiry-based teaching.</li> <li>Instructions with interactions in classroom lectures (physical/hybrid).</li> <li>Use of ICT tools, including YouTube videos, related MOOCs, AR/VR/MR tools.</li> <li>Flipped classroom sessions (~10% of the classes).</li> <li>Industrial visits, Guests talks and competitions for learning beyond the syllabus.</li> <li>Students' participation through audio-video based content creation for the syllabus (as assignments).</li> <li>Use of gamification tools (in both physical/hybrid classes) for creative learning outcomes.</li> <li>Students' seminars (in solo or group) /oral presentations.</li> </ul>			
<b>Module-1 (3 Hours)</b>			
<p><b>BIO LABORATORY MANAGEMENT:</b> Essentials of lab management- Designing the lab, spacing, inventory organization and its management, automation via use of technology, documentation, safety requirements, biosafety levels, planning experiments, storage space, waste generation and its disposal. Case studies.</p>			
<b>Module-2 (3 Hours)</b>			



**CHILDREN'S EDUCATION SOCIETY (Regd.)**

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

**THE OXFORD COLLEGE OF ENGINEERING**

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

<p><b>INTRODUCTION TO RISK ASSESSMENT:</b> Definition and meaning of Risk. Difference between risk and hazard. Probability of occurrence of risk. Risk assessment, risk control, risk review, risk management tools, HACCP, risk ranking and filtering. Case studies.</p>
<p><b>Module-3 (3 Hours)</b></p>
<p><b>BASICS OF BIOSAFETY:</b> Biosafety- meaning, levels of biosafety- BSL 1, BSL2, BSL 3 and BSL 4, examples, applications of each and hazards involved there in for products derived out of biotechnology. International protocols and Case studies.</p>
<p><b>Module-4 (3 Hours)</b></p>
<p><b>BIOSAFETY AND RISK ASSESSMENT:</b> Principles of safety assessment (for infectious organisms, agents, microbes- genetically altered/ metabolically engineered, transgenic plants, GMOs /LMOs used in food, pharma, bioremediation etc., Sequential steps in risk assessment; concepts of familiarity and substantial equivalence; environmental risk assessment and food and feed safety assessment. Case studies.</p>
<p><b>Module-5 (3 Hours)</b></p>
<p><b>RISK MINIMIZATION AND/OR RISK MITIGATION:</b> Risk assessment through omics approach. Ethical, legal, and social implications of health privacy and policy laws for mitigation/minimization (Indian and Global contexts). Risk characterization and development of analysis plan. Case studies.</p>
<p><b>Course outcome (Course Skill Set)</b> <b>At the end of the course the student will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Apply principles of biology to understand risk and its assessment.</li> <li>2. Deduce methods to minimize and mitigate the risks.</li> <li>3. Evaluate risk-benefit analysis of different genetic engineering interventions based upon case studies.</li> <li>4. Correlate laws pertaining to biological risk to the sustainable use of GMOs in different applications.</li> </ol>

Course Title:	<b>Indian Constitution</b>		
Course Code:		CIE Marks	50
Course Type (Theory/Practical /Integrated)	<b>BIO107-207</b>	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01

**Course objectives :**

The course **INDIAN CONSTITUTION (22IC017 / 27)** will enable the students,

1. To know about the basic structure of Indian Constitution.
2. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
3. To know about our Union Government, political structure & codes, procedures.
4. To know the State Executive & Elections system of India.
5. To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.



## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

### Teaching-Learning Process

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

- (i) Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools),
- (iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion.
- (iii) Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

### Module-1

**(03 hours of pedagogy)**

Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to the Indian constitution, Making of the Constitution, Role of the Constituent Assembly.

### Module-2

**(03 hours of pedagogy)**

Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. Fundamental Rights (FR's) and its Restriction and limitations in different Complex Situations. building.

### Module-3

**(03 hours of pedagogy)**

Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.

### Module-4

**(03 hours of pedagogy)**

Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India, Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.

### Module-5

**(03 hours of pedagogy)**

State Executive and Governor, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.

### Course outcome (Course Skill Set)

At the end of the course 22IC017/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.
CO4	Understand our State Executive & Elections system of India.
CO5	Remember the Amendments and Emergency Provisions, other important provisions given by the constitution.



## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

<b>STEM CELL TECHNOLOGY</b>			
Course Code	21BT644	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	3:0:0:1	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	03
<b>Course objectives:</b> <ul style="list-style-type: none"> <li>➤ To provide a broad overview of stem cells, reviewing the different types and how they are cultured.</li> <li>➤ To familiarize the students with stem cell technology and its bioengineering applications.</li> <li>➤ To understand the potential of Stem cells towards treatment of human diseases.</li> </ul>			
<b>Teaching-Learning Process (General Instructions)</b> <b>These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.</b> <ul style="list-style-type: none"> <li>✓ Explanation via real life problem, situation modelling, and deliberation of solutions, hands-on sessions, reflective and questioning /inquiry-based teaching.</li> <li>✓ Instructions with interactions in classroom lectures (physical/hybrid).</li> <li>✓ Use of ICT tools, including YouTube videos, related MOOCs, AR/VR/MR tools.</li> <li>✓ Flipped classroom sessions (~10% of the classes).</li> <li>✓ Industrial visits, Guests talks and competitions for learning beyond the syllabus.</li> <li>✓ Students' participation through audio-video based content creation for the syllabus (as assignments).</li> <li>✓ Use of gamification tools (in both physical/hybrid classes) for creative learning outcomes.</li> <li>✓ Students' seminars (in solo or group) /oral presentations.</li> </ul>			
<b>Module-1 (8 Hours)</b>			
<b>STEM CELLS AND TYPES:</b> <b>Stem cells: Definition, Classification, Sources and Properties –Types of stem cells: methods of isolation, study of stem cells and their viability IPSC, embryonic stem cells, cancer stem cells. Preservations of Stem cell. Embryonic stem cell: Isolation, Culturing, Differentiation, Properties – Adult stem cell: Isolation, Culturing, Differentiation, Trans-differentiation, Plasticity, and Properties, Molecular mechanisms. fate mapping, application.</b>			
<b>Module-2 (8 Hours)</b>			
<b>STEM CELL MEDIA AND REGENERATION:</b> <b>Cell Culture Media, Cell culture methods, Cell isolation, selection, maintenance of primary and early passage cultures. Clinical potential of stem cells: Organ and tissue regeneration. Germ cells, hematopoietic organs, and kidney, cord blood transplantation, donor selection, HLA matching, patient selection, peripheral blood and Hematopoietic Stem Cell Disorders and bone marrow transplantation, Stem cell Techniques: fluorescence activated cell sorting (FACS), time lapse video, green fluorescent protein tagging.</b>			
<b>Module-3 (8 Hours)</b>			
<b>STEM CELLS IN PLANTS AND ANIMALS:</b> <b>Stem cell and founder zones in plants–particularity their roots– stem cells of shoot meristems of higher plants. Skeletal muscle stem cell – Mammary stem cells – intestinal stem cells – keratinocyte stem cells of cornea – skin and hair follicles –tumour stem cells.</b>			



**CHILDREN'S EDUCATION SOCIETY (Regd.)**

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

**THE OXFORD COLLEGE OF ENGINEERING**

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

**Module-4 (8 Hours)**

**STEM CELL IN DRUG DISCOVERY AND TISSUE ENGINEERING:**

Target identification, Manipulating differentiation pathways, stem cell therapy Vs cell protection, stem cell in cellular assays for screening – stem cell based drug discovery, drug screening and toxicology. Tissue engineering application – production of complete organ - kidney – eyes - heart – brain.

**Module-5 (8 Hours)**

**APPLICATIONS AND ETHICAL ISSUES :**

Gene therapy – genetically engineered stem cells – stem cells and Animal cloning – transgenic animals and stem cells – Therapeutic applications – Cardiovascular treatment, Cell deficiency therapy, treatment of brain related defects. Neurological disorder (AD,PD), limb amputation, heart disease - spinal cord injuries – diabetes -burns - HLA typing- hepatic and pancreatic disorders. Stem cell policy and ethics, stem cell research: Hype, hope and controversy.

**Course outcomes (Course Skill Set)**

At the end of the course the student will be able to:

- Understand the basics of stem cell biology, the various types and their isolation and identification.
- Correlate stem cell technology in treatment of various diseases and disorders.
- **Apply the basics of stem cells in drug discovery and tissue engineering in line with ethical considerations.**

**B. E. BIOTECHNOLOGY**

Outcome Based Education (OBE) and Choice Based Credit System (CBCS) SEMESTER - VII

**BIOETHICS , BIOSAFETY & IPR**

Course Code	<b>18BT741</b>	CIE Marks	40
Teaching Hours/Week (L:T:P)	(3:0:0)	SEE Marks	60
Credits	03	Exam Hours	03

**Course Learning Objectives:** : This course will enable students

- To introduce the biosafety regulations
- To understand the ethical concepts in biotechnology
- To emphasize on IPR issues and need for knowledge in patents in biotechnology

**Module-1**

**BIOTECHNOLOGY AND SOCIETY**

Introduction to science, technology and society, issues of access-Case studies/experiences from developing and developed countries. Ownership, monopoly, traditional knowledge, biodiversity, benefit sharing, environmental sustainability, public vs. private funding, biotechnology in international relations, globalization and development divide. Public acceptance issues for biotechnology. Biotechnology and hunger: Challenges for the Indian Biotechnological research and industries.

**Module-2**





**CHILDREN'S EDUCATION SOCIETY (Regd.)**

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

**THE OXFORD COLLEGE OF ENGINEERING**

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

**BIOETHICS & LEGAL ISSUES:**

Principles of bioethics: Legality, morality and ethics, autonomy, human rights, beneficence, privacy, justice, equity etc. The expanding scope of ethics from biomedical practice to biotechnology, bioethics vs. business ethics, ethical dimensions of IPR, technology transfer and other global biotech issues.

The legal, institutional and socioeconomic impacts of biotechnology; biotechnology and social responsibility, Public education to increase the awareness of bioethics with regard to generating new forms of life for informed decision making – with case studies.

**Module-3**

**BIO SAFETY CONCEPTS AND ISSUES:**

Ethical conflicts in biotechnology - interference with nature, fear of unknown, unequal distribution of risks and benefits of biotechnology, Rational vs. subjective perceptions of risks and benefits, relationship between risk, hazard, exposure and safeguards, Biotechnology and biosafety concerns at the level of individuals, institutions,

society, region, country and the world. The Cartagena protocol on biosafety. Biosafety management.

Ethical implications of biotechnological products and techniques.

**Module-4**

**REGULATIONS:**

Biosafety assessment procedures in India and abroad. International dimensions in biosafety, bioterrorism and convention on biological weapons. Social and ethical implications of biological weapons. Biosafety regulations and national and international guidelines with regard to recombinant DNA technology. Guidelines for research in transgenic plants. Good manufacturing practice and Good lab practices (GMP and GLP). National and international regulations for food and pharma products.

**Module-5**

**IPR, PATENTS AND PATENT LAWS:**

Intellectual property rights-TRIP- GATT International conventions patents Methods of application of patents Legal implications Biodiversity and farmer rights

Objectives of the patent system Basic principles and general requirements of patent law Biotechnological inventions and patent law .Legal development-Patentable subjects and protection in biotechnology .The patenting of living organisms.

**Course Outcomes:** At the end of the course the student will be able to

- Describe the rules governing manufacture, use/import/export and storage of hazardous microorganisms/genetically engineered organisms or cells.
- Describe the ethical issues related to biotechnology research
- Explain the various forms of IPR, methods of application of Patents, Protection of Plant varieties and farmer rights
- Overview of the Indian Patent Law, knowledge on patentability requirements, patenting biotechnological inventions and innovations



## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

## Department of Information Science & Engineering

### Physical Education (Sports and Athletics) syllabus

Semester: IV			
PHYSICAL EDUCATION (SPORTS & ATHLETICS) – II			
<b>Course Code</b>	: BPEK459	<b>CIE</b>	: 100 Marks
<b>Credits: L:T:P</b>	: 0:0:1		
<b>Total Hours</b>	: 24 P		
<b>Course Outcomes:</b> At the end of the course, the student will be able to			
<ol style="list-style-type: none"> <li>1. Understand the ethics and moral values in sports and athletics</li> <li>2. Perform in the selected sports or athletics of student's choice.</li> <li>3. Understand the roles and responsibilities of organisation and administration of sports and games.</li> </ol>			
<b>Module I : Ethics and Moral Values</b>			<b>4 Hours</b>
<ol style="list-style-type: none"> <li>A. Ethics in Sports</li> <li>B. Moral Values in Sports and Games</li> </ol>			
<b>Module II : Specific Games (Any one to be selected by the student)</b>			<b>16 Hours</b>
<ol style="list-style-type: none"> <li>A. Volleyball – Attack, Block, Service, Upper Hand Pass and Lower hand Pass.</li> <li>B. Athletics (Track Events) – Any event as per availability of Ground.</li> </ol>			
<b>Module III: Role of Organisation and administration</b>			<b>4 Hours</b>

### Scheme and Assessment for auditing the course and Grades:

Sl. No.	Activity	Marks
1.	Participation of student in all the modules	20
2.	Quizzes – 2, each of 15 marks	30
3.	Final presentation / exhibition / Participation in competitions/ practical on specific tasks assigned to the students	50
<b>Total</b>		<b>100</b>

@#@ 16092024





**CHILDREN'S EDUCATION SOCIETY (Regd.)**

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

**THE OXFORD COLLEGE OF ENGINEERING**

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

Course Title:	<b>Indian Constitution</b>		
Course Code:		CIE Marks	50
Course Type (Theory/Practical /Integrated)	<b>22ICO107-207</b>	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01
<b>Course objectives :</b>			
The course <b>INDIAN CONSTITUTION (22ICO17 / 27)</b> will enable the students,			
<ol style="list-style-type: none"> <li>To know about the basic structure of Indian Constitution.</li> <li>To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.</li> <li>To know about our Union Government, political structure &amp; codes, procedures.</li> <li>To know the State Executive &amp; Elections system of India.</li> <li>To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.</li> </ol>			
<b>Teaching-Learning Process</b>			
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.			
<ol style="list-style-type: none"> <li>Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools),</li> <li>Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion.</li> <li>Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.</li> </ol>			
<b>Module-1</b>		<b>(03 hours of pedagogy)</b>	
Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to the Indian constitution, Making of the Constitution, Role of the Constituent Assembly.			
<b>Module-2</b>		<b>(03 hours of pedagogy)</b>	
Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. Fundamental Rights (FR's) and its Restriction and limitations in different Complex Situations. building.			
<b>Module-3</b>		<b>(03 hours of pedagogy)</b>	
Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.			
<b>Module-4</b>		<b>(03 hours of pedagogy)</b>	
Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India, Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.			
<b>Module-5</b>		<b>(03 hours of pedagogy)</b>	
State Executive and Governor, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.			



**CHILDREN'S EDUCATION SOCIETY (Regd.)**

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

## **THE OXFORD COLLEGE OF ENGINEERING**

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

### **Course outcome (Course Skill Set)**

At the end of the course 22IC017/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.
CO4	Understand our State Executive & Elections system of India.
CO5	Remember the Amendments and Emergency Provisions, other important provisions given by the constitution.



## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

<b>RESEARCH METHODOLOGY &amp; INTELLECTUAL PROPERTY RIGHTS</b>			
Course Code:	<b>21RMI56</b>	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1:2:0:0	SEE Marks	50
Total Hours of Pedagogy	25	Total Marks	100
Credits	02	Exam Hours	03
<b>Course Objectives:</b>			
CO1. To Understand the knowledge on basics of research and its types.			
CO2. To Learn the concept of Literature Review, Technical Reading, Attributions and Citations. CO3. To learn Ethics in Engineering Research.			
CO4. To Discuss the concepts of Intellectual Property Rights in engineering.			
<b>Teaching-Learning Process (General Instructions)</b>			
These are sample Strategies; which teachers can use to accelerate the attainment of the various courseoutcomes.			
<ol style="list-style-type: none"> <li>Lecturer methods (L) need not be only the traditional lecture methods, but alternativeeffective teaching methods could be adopted to attain the outcomes.</li> <li>Use of Video to explain various concepts on IPR.</li> <li>Encourage collaborative (Group Learning) Learning in the class.</li> <li>Ask at least three HOT (Higher Order Thinking) questions in the class, which promotes criticalthinking.</li> <li>Introduce Topics in manifold representations.</li> <li>Show the different ways to analyze the research problem and encourage the students to comeup withtheir own creative ways to solve them.</li> <li>Discuss how every concept can be applied to the real world - and when that's possible, it helpsImprove the students' understanding.</li> </ol>			
<b>Module-1 (5 Hours)</b>			
<b>Introduction:</b> Meaning of Research, Objectives of Engineering Research, and Motivation in EngineeringResearch, Types of Engineering Research, Finding and Solving a Worthwhile Problem.			
Ethics in Engineering Research, Ethics in Engineering Research Practice, Types of Research Misconduct,Ethical Issues Related to Authorship.			
<b>Teaching- Learning Process</b>	Chalk and talk method / PowerPoint Presentation.		
<b>Module-2(5 Hours)</b>			
<b>Literature Review and Technical Reading,</b> New and Existing Knowledge, Analysis and Synthesis of Prior Art Bibliographic Databases, Web of Science, Google and Google Scholar, Effective Search: The Way Forward Introduction to Technical Reading Conceptualizing Research, Critical and Creative Reading, Taking Notes While Reading, Reading Mathematics and Algorithms, Reading a Datasheet.			
<b>Attributions and Citations:</b> Giving Credit Wherever Due, Citations: Functions and Attributes, Impact of Title and Keywords on Citations, Knowledge Flow through Citation, Citing Datasets, Styles for Citations, Acknowledgments and Attributions, What Should Be Acknowledged, Acknowledgments in, Books Dissertations, Dedication or Acknowledgments.			
<b>Teaching-Learning Process</b>	Chalk and talk method / PowerPoint Presentation		
<b>Module-3(5 Hours)</b>			



## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

**Introduction To Intellectual Property:** Role of IP in the Economic and Cultural Development of the Society, IP Governance, IP as a Global Indicator of Innovation, Origin of IP History of IP in India. Major Amendments in IP Laws and Acts in India.

**Patents:** Conditions for Obtaining a Patent Protection, To Patent or Not to Patent an Invention. Rights Associated with Patents. Enforcement of Patent Rights. Inventions Eligible for Patenting. Non-Patentable Matters. Patent Infringements. Avoid Public Disclosure of an Invention before Patenting. Process of Patenting. Prior Art Search. Choice of Application to be Filed. Patent Application Forms. Jurisdiction of Filing Patent Application. Publication. Pre-grant Opposition. Examination. Grant of a Patent. Validity of Patent Protection. Post-grant Opposition. Commercialization of a Patent. Need for a Patent Attorney/Agent. Can a Worldwide Patent be Obtained. Do I Need First to File a Patent in India. Patent Related Forms. Fee Structure. Types of Patent Applications. Commonly Used Terms in Patenting. National Bodies Dealing with Patent Affairs. Utility Models.

**Process of Patenting.** Prior Art Search. Choice of Application to be Filed. Patent Application Forms. Jurisdiction of Filing Patent Application. Publication. Pre-grant Opposition. Examination. Grant of a Patent. Validity of Patent Protection. Post-grant Opposition. Commercialization of a Patent. Need for a Patent Attorney/Agent. Can a Worldwide Patent be Obtained. Do I Need First to File a Patent in India. Patent Related Forms. Fee Structure. Types of Patent Applications. Commonly Used Terms in Patenting. National Bodies Dealing with Patent Affairs. Utility Models.

### Teaching- Learning Process

Chalk and talk method / PowerPoint Presentation.

### Module-4(5 Hours)

**Copyrights and Related Rights:** Classes of Copyrights. Criteria for Copyright. Ownership of Copyright. Copyrights of the Author. Copyright Infringements. Copyright Infringement is a Criminal Offence. Copyright Infringement is a Cognizable Offence. Fair Use Doctrine. Copyrights and Internet. Non-Copyright Work. Copyright Registration. Judicial Powers of the Registrar of Copyrights. Fee Structure. Copyright Symbol. Validity of Copyright. Copyright Profile of India. Copyright and the word 'Publish'. Transfer of Copyrights to a Publisher. Copyrights and the Word 'Adaptation'. Copyrights and the Word 'Indian Work'. Joint Authorship. Copyright Society. Copyright Board. Copyright Enforcement Advisory Council (CEAC). International Copyright Agreements, Conventions and Treaties. Interesting Copyrights Cases.

**Trademarks:** Eligibility Criteria. Who Can Apply for a Trademark. Acts and Laws. Designation of Trademark Symbols. Classification of Trademarks. Registration of a Trademark is Not Compulsory. Validity of Trademark. Types of Trademark Registered in India. Trademark Registry. Process for Trademarks Registration. Prior Art Search. Famous Case Law: Coca-Cola Company vs. Bisleri International Pvt. Ltd.

### Module-5(5 Hours)

**Industrial Designs:** Eligibility Criteria. Acts and Laws to Govern Industrial Designs. Design Rights. Enforcement of Design Rights. Non-Protectable Industrial Designs India. Protection Term. Procedure for Registration of Industrial Designs. Prior Art Search. Application for Registration. Duration of the Registration of a Design. Importance of Design Registration. Cancellation of the Registered Design. Application Forms. Classification of Industrial Designs. Designs Registration Trend in India. International Treaties. Famous Case Law: Apple Inc. vs. Samsung Electronics Co.

**Geographical Indications:** Acts, Laws and Rules Pertaining to GI. Ownership of GI. Rights Granted to the Holders. Registered GI in India. Identification of Registered GI. Classes of GI. Non-Registerable GI. Protection of GI. Collective or Certification Marks. Enforcement of GI Rights. Procedure for GI Registration Documents Required for GI Registration. GI Ecosystem in India.

**Case Studies on Patents.** Case study of Curcuma (Turmeric) Patent, Case study of Neem Patent, Case study of Basmati patent. **IP Organizations In India. Schemes and Programmes**



## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

## Department of Mechanical Engineering

### Physical Education (Sports and Athletics) syllabus

Semester: IV			
PHYSICAL EDUCATION (SPORTS & ATHLETICS) – II			
<b>Course Code</b>	: BPEK459	<b>CIE</b>	: 100 Marks
<b>Credits: L:T:P</b>	: 0:0:1		
<b>Total Hours</b>	: 24 P		
<b>Course Outcomes:</b> At the end of the course, the student will be able to			
<ol style="list-style-type: none"> <li>1. Understand the ethics and moral values in sports and athletics</li> <li>2. Perform in the selected sports or athletics of student's choice.</li> <li>3. Understand the roles and responsibilities of organisation and administration of sports and games.</li> </ol>			
<b>Module I : Ethics and Moral Values</b>			<b>4 Hours</b>
<ol style="list-style-type: none"> <li>A. Ethics in Sports</li> <li>B. Moral Values in Sports and Games</li> </ol>			
<b>Module II : Specific Games (Any one to be selected by the student)</b>			<b>16 Hours</b>
<ol style="list-style-type: none"> <li>A. Volleyball – Attack, Block, Service, Upper Hand Pass and Lower hand Pass.</li> <li>B. Athletics (Track Events) – Any event as per availability of Ground.</li> </ol>			
<b>Module III: Role of Organisation and administration</b>			<b>4 Hours</b>

### Scheme and Assessment for auditing the course and Grades:

Sl. No.	Activity	Marks
1.	Participation of student in all the modules	20
2.	Quizzes – 2, each of 15 marks	30
3.	Final presentation / exhibition / Participation in competitions/ practical on specific tasks assigned to the students	50
<b>Total</b>		<b>100</b>

@#@ 16092024

Course Title:	<b>Indian Constitution</b>		
Course Code:		CIE Marks	50
Course Type (Theory/Practical /Integrated)	<b>BPEK107-207</b>	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01





## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

### Course objectives :

The course **INDIAN CONSTITUTION (22ICO17 / 27)** will enable the students,

6. To know about the basic structure of Indian Constitution.
7. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
8. To know about our Union Government, political structure & codes, procedures.
9. To know the State Executive & Elections system of India.
10. To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.

### Teaching-Learning Process

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

- (i) Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools),
- (iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion.
- (iii) Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

### Module-1

**(03 hours of pedagogy)**

Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to the Indian constitution, Making of the Constitution, Role of the Constituent Assembly.

### Module-2

**(03 hours of pedagogy)**

Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. Fundamental Rights (FR's) and its Restriction and limitations in different Complex Situations. building.

### Module-3

**(03 hours of pedagogy)**

Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.

### Module-4

**(03 hours of pedagogy)**

Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India, Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.

### Module-5

**(03 hours of pedagogy)**

State Executive and Governor, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.

### Course outcome (Course Skill Set)

At the end of the course 22ICO17/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.



## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

<b>RESEARCH METHODOLOGY &amp; INTELLECTUAL PROPERTY RIGHTS</b>			
Course Code:	<b>21RMI56</b>	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1:2:0:0	SEE Marks	50
Total Hours of Pedagogy	25	Total Marks	100
Credits	02	Exam Hours	03
<b>Course Objectives:</b>			
CO1. To Understand the knowledge on basics of research and its types.			
CO2. To Learn the concept of Literature Review, Technical Reading, Attributions and Citations.CO3. To learn Ethics in Engineering Research.			
CO4. To Discuss the concepts of Intellectual Property Rights in engineering.			
<b>Teaching-Learning Process (General Instructions)</b>			
These are sample Strategies; which teachers can use to accelerate the attainment of the various courseoutcomes.			
8. Lecturer methods (L) need not be only the traditional lecture methods, but alternativeeffective teaching methods could be adopted to attain the outcomes.			
9. Use of Video to explain various concepts on IPR.			
10. Encourage collaborative (Group Learning) Learning in the class.			
11. Ask at least three HOT (Higher Order Thinking) questions in the class, which promotes criticalthinking.			
12. Introduce Topics in manifold representations.			
13. Show the different ways to analyze the research problem and encourage the students to comeup withtheir own creative ways to solve them.			
14. Discuss how every concept can be applied to the real world - and when that's possible, it helpsImprove the students' understanding.			
<b>Module-1 (5 Hours)</b>			
<b>Introduction:</b> Meaning of Research, Objectives of Engineering Research, and Motivation in EngineeringResearch, Types of Engineering Research, Finding and Solving a Worthwhile Problem.			
Ethics in Engineering Research, Ethics in Engineering Research Practice, Types of Research Misconduct,Ethical Issues Related to Authorship.			
<b>Teaching- Learning Process</b>	Chalk and talk method / PowerPoint Presentation.		
<b>Module-2(5 Hours)</b>			
<b>Literature Review and Technical Reading,</b> New and Existing Knowledge, Analysis and Synthesis of Prior Art Bibliographic Databases, Web of Science, Google and Google Scholar, Effective Search: The Way Forward Introduction to Technical Reading Conceptualizing Research, Critical and Creative Reading, Taking Notes While Reading, Reading Mathematics and Algorithms, Reading a Datasheet.			
<b>Attributions and Citations:</b> Giving Credit Wherever Due, Citations: Functions and Attributes, Impact of Title and Keywords on Citations, Knowledge Flow through Citation, Citing Datasets, Styles for Citations, Acknowledgments and Attributions, What Should Be Acknowledged, Acknowledgments in, Books Dissertations, Dedication or Acknowledgments.			
<b>Teaching-Learning Process</b>	Chalk and talk method / PowerPoint Presentation		
<b>Module-3(5 Hours)</b>			



## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

**Introduction To Intellectual Property:** Role of IP in the Economic and Cultural Development of the Society, IP Governance, IP as a Global Indicator of Innovation, Origin of IP History of IP in India. Major Amendments in IP Laws and Acts in India.

**Patents:** Conditions for Obtaining a Patent Protection, To Patent or Not to Patent an Invention. Rights Associated with Patents. Enforcement of Patent Rights. Inventions Eligible for Patenting. Non-Patentable Matters. Patent Infringements. Avoid Public Disclosure of an Invention before Patenting. Process of Patenting. Prior Art Search. Choice of Application to be Filed. Patent Application Forms. Jurisdiction of Filing Patent Application. Publication. Pre-grant Opposition. Examination. Grant of a Patent. Validity of Patent Protection. Post-grant Opposition. Commercialization of a Patent. Need for a Patent Attorney/Agent. Can a Worldwide Patent be Obtained. Do I Need First to File a Patent in India. Patent Related Forms. Fee Structure. Types of Patent Applications. Commonly Used Terms in Patenting. National Bodies Dealing with Patent Affairs. Utility Models.

**Process of Patenting.** Prior Art Search. Choice of Application to be Filed. Patent Application Forms. Jurisdiction of Filing Patent Application. Publication. Pre-grant Opposition. Examination. Grant of a Patent. Validity of Patent Protection. Post-grant Opposition. Commercialization of a Patent. Need for a Patent Attorney/Agent. Can a Worldwide Patent be Obtained. Do I Need First to File a Patent in India. Patent Related Forms. Fee Structure. Types of Patent Applications. Commonly Used Terms in Patenting. National Bodies Dealing with Patent Affairs. Utility Models.

### Teaching- Learning Process

Chalk and talk method / PowerPoint Presentation.

### Module-4(5 Hours)

**Copyrights and Related Rights:** Classes of Copyrights. Criteria for Copyright. Ownership of Copyright. Copyrights of the Author. Copyright Infringements. Copyright Infringement is a Criminal Offence. Copyright Infringement is a Cognizable Offence. Fair Use Doctrine. Copyrights and Internet. Non-Copyright Work. Copyright Registration. Judicial Powers of the Registrar of Copyrights. Fee Structure. Copyright Symbol. Validity of Copyright. Copyright Profile of India. Copyright and the word 'Publish'. Transfer of Copyrights to a Publisher. Copyrights and the Word 'Adaptation'. Copyrights and the Word 'Indian Work'. Joint Authorship. Copyright Society. Copyright Board. Copyright Enforcement Advisory Council (CEAC). International Copyright Agreements, Conventions and Treaties. Interesting Copyrights Cases.

**Trademarks:** Eligibility Criteria. Who Can Apply for a Trademark. Acts and Laws. Designation of Trademark Symbols. Classification of Trademarks. Registration of a Trademark is Not Compulsory. Validity of Trademark. Types of Trademark Registered in India. Trademark Registry. Process for Trademarks Registration. Prior Art Search. Famous Case Law: Coca-Cola Company vs. Bisleri International Pvt. Ltd.

### Module-5(5 Hours)

**Industrial Designs:** Eligibility Criteria. Acts and Laws to Govern Industrial Designs. Design Rights. Enforcement of Design Rights. Non-Protectable Industrial Designs India. Protection Term. Procedure for Registration of Industrial Designs. Prior Art Search. Application for Registration. Duration of the Registration of a Design. Importance of Design Registration. Cancellation of the Registered Design. Application Forms. Classification of Industrial Designs. Designs Registration Trend in India. International Treaties. Famous Case Law: Apple Inc. vs. Samsung Electronics Co.

**Geographical Indications:** Acts, Laws and Rules Pertaining to GI. Ownership of GI. Rights Granted to the Holders. Registered GI in India. Identification of Registered GI. Classes of GI. Non-Registerable GI. Protection of GI. Collective or Certification Marks. Enforcement of GI Rights. Procedure for GI Registration Documents Required for GI Registration. GI Ecosystem in India.

**Case Studies on Patents.** Case study of Curcuma (Turmeric) Patent, Case study of Neem Patent, Case study of Basmati patent. **IP Organizations In India. Schemes and Programmes**





## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

## Department of Computer Science & Engineering

### Physical Education (Sports and Athletics) syllabus

Semester: IV			
PHYSICAL EDUCATION (SPORTS & ATHLETICS) – II			
Course Code	: BPEK459	CIE	: 100 Marks
Credits: L:T:P	: 0:0:1		
Total Hours	: 24 P		
<b>Course Outcomes:</b> At the end of the course, the student will be able to			
<ol style="list-style-type: none"> <li>Understand the ethics and moral values in sports and athletics</li> <li>Perform in the selected sports or athletics of student's choice.</li> <li>Understand the roles and responsibilities of organisation and administration of sports and games.</li> </ol>			
<b>Module I : Ethics and Moral Values</b>			<b>4 Hours</b>
<ol style="list-style-type: none"> <li>Ethics in Sports</li> <li>Moral Values in Sports and Games</li> </ol>			
<b>Module II : Specific Games (Any one to be selected by the student)</b>			<b>16 Hours</b>
<ol style="list-style-type: none"> <li>Volleyball – Attack, Block, Service, Upper Hand Pass and Lower hand Pass.</li> <li>Athletics (Track Events) – Any event as per availability of Ground.</li> </ol>			
<b>Module III: Role of Organisation and administration</b>			<b>4 Hours</b>

### Scheme and Assessment for auditing the course and Grades:

Sl. No.	Activity	Marks
1.	Participation of student in all the modules	20
2.	Quizzes – 2, each of 15 marks	30
3.	Final presentation / exhibition / Participation in competitions/ practical on specific tasks assigned to the students	50
<b>Total</b>		<b>100</b>

@#@ 16092024

Course Title:	<b>Indian Constitution</b>		
Course Code:		CIE Marks	50
Course Type (Theory/Practical /Integrated)	<b>BPEK107-207</b>	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01



**CHILDREN'S EDUCATION SOCIETY (Regd.)**

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

**THE OXFORD COLLEGE OF ENGINEERING**

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

**Course objectives :**

The course **INDIAN CONSTITUTION (22ICO17 / 27)** will enable the students,

1. To know about the basic structure of Indian Constitution.
2. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
3. To know about our Union Government, political structure & codes, procedures.
4. To know the State Executive & Elections system of India.
5. To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.

**Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

- (i) Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools),
- (iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion.
- (iii) Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

**Module-1 (03 hours of pedagogy)**

Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to the Indian constitution, Making of the Constitution, Role of the Constituent Assembly.

**Module-2 (03 hours of pedagogy)**

Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. Fundamental Rights (FR's) and its Restriction and limitations in different Complex Situations. building.

**Module-3 (03 hours of pedagogy)**

Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.

**Module-4 (03 hours of pedagogy)**

Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India, Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.

**Module-5 (03 hours of pedagogy)**

State Executive and Governor, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.

**Course outcome (Course Skill Set)**

At the end of the course 22ICO17/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.



## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

## Department of Electrical and Communication Engineering

Course Title:	<b>Indian Constitution</b>		
Course Code:		CIE Marks	50
Course Type (Theory/Practical /Integrated)	<b>B160K107-207</b>	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01
<b>Course objectives :</b>			
The course <b>INDIAN CONSTITUTION (22IC017 / 27)</b> will enable the students,			
<ol style="list-style-type: none"> <li>To know about the basic structure of Indian Constitution.</li> <li>To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.</li> <li>To know about our Union Government, political structure &amp; codes, procedures.</li> <li>To know the State Executive &amp; Elections system of India.</li> <li>To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.</li> </ol>			
<b>Teaching-Learning Process</b>			
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.			
<ol style="list-style-type: none"> <li>Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools),</li> <li>Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion.</li> <li>Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.</li> </ol>			
<b>Module-1</b>		<b>(03 hours of pedagogy)</b>	
Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to the Indian constitution, Making of the Constitution, Role of the Constituent Assembly.			
<b>Module-2</b>		<b>(03 hours of pedagogy)</b>	
Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. Fundamental Rights (FR's) and its Restriction and limitations in different Complex Situations. building.			
<b>Module-3</b>		<b>(03 hours of pedagogy)</b>	
Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.			
<b>Module-4</b>		<b>(03 hours of pedagogy)</b>	
Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India, Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.			
<b>Module-5</b>		<b>(03 hours of pedagogy)</b>	
State Executive and Governor, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral			



## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.

### Course outcome (Course Skill Set)

At the end of the course 22IC017/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.

## Department of Artificial Intelligence and Machine Learning

Course Title:	<b>Indian Constitution</b>		
Course Code:		CIE Marks	50
Course Type (Theory/Practical /Integrated)	<b>22IC017-207</b>	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01

### Course objectives :

The course **INDIAN CONSTITUTION (22IC017 / 27)** will enable the students,

- To know about the basic structure of Indian Constitution.
- To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
- To know about our Union Government, political structure & codes, procedures.
- To know the State Executive & Elections system of India.
- To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.

### Teaching-Learning Process

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

- Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools),
- Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion.
- Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

### Module-1

**(03 hours of pedagogy)**

Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to the Indian constitution, Making of the Constitution, Role of the Constituent Assembly.

### Module-2

**(03 hours of pedagogy)**

Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. Fundamental Rights (FR's) and its Restriction and limitations in different Complex Situations. building.

### Module-3

**(03 hours of pedagogy)**



**CHILDREN'S EDUCATION SOCIETY (Regd.)**

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

**THE OXFORD COLLEGE OF ENGINEERING**

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.

**Module-4**

**(03 hours of pedagogy)**

Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India, Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.

**Module-5**

**(03 hours of pedagogy)**

State Executive and Governor, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency

Provisions.

**Course outcome (Course Skill Set)**

At the end of the course 22IC017/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.





## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

RESEARCH METHODOLOGY & INTELLECTUAL PROPERTY RIGHTS			
Course Code:	21RMI56	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1:2:0:0	SEE Marks	50
Total Hours of Pedagogy	25	Total Marks	100
Credits	02	Exam Hours	03
<p><b>Course Objectives:</b></p> <p>CO1. To Understand the knowledge on basics of research and its types.</p> <p>CO2. To Learn the concept of Literature Review, Technical Reading, Attributions and Citations.</p> <p>CO3. To learn Ethics in Engineering Research.</p> <p>CO4. To Discuss the concepts of Intellectual Property Rights in engineering.</p>			
<p><b>Teaching-Learning Process (General Instructions)</b></p> <p>These are sample Strategies; which teachers can use to accelerate the attainment of the various courseoutcomes.</p> <ol style="list-style-type: none"> <li>Lecturer methods (L) need not be only the traditional lecture methods, but alternativeeffective teaching methods could be adopted to attain the outcomes.</li> <li>Use of Video to explain various concepts on IPR.</li> <li>Encourage collaborative (Group Learning) Learning in the class.</li> <li>Ask at least three HOT (Higher Order Thinking) questions in the class, which promotes criticalthinking.</li> <li>Introduce Topics in manifold representations.</li> <li>Show the different ways to analyze the research problem and encourage the students to comeup withtheir own creative ways to solve them.</li> <li>Discuss how every concept can be applied to the real world - and when that's possible, it helpsImprove the students' understanding.</li> </ol>			
<b>Module-1 (5 Hours)</b>			
<p><b>Introduction:</b> Meaning of Research, Objectives of Engineering Research, and Motivation in EngineeringResearch, Types of Engineering Research, Finding and Solving a Worthwhile Problem.</p> <p>Ethics in Engineering Research, Ethics in Engineering Research Practice, Types of Research Misconduct,Ethical Issues Related to Authorship.</p>			
<b>Teaching- Learning Process</b>	Chalk and talk method / PowerPoint Presentation.		
<b>Module-2(5 Hours)</b>			
<p><b>Literature Review and Technical Reading,</b> New and Existing Knowledge, Analysis and Synthesis of Prior Art Bibliographic Databases, Web of Science, Google and Google Scholar, Effective Search: The Way Forward Introduction to Technical Reading Conceptualizing Research, Critical and Creative Reading, Taking Notes While Reading, Reading Mathematics and Algorithms, Reading a Datasheet.</p> <p><b>Attributions and Citations:</b> Giving Credit Wherever Due, Citations: Functions and Attributes, Impact of Title and Keywords on Citations, Knowledge Flow through Citation, Citing Datasets, Styles for Citations, Acknowledgments and Attributions, What Should Be Acknowledged, Acknowledgments in, Books Dissertations, Dedication or Acknowledgments.</p>			
<b>Teaching-Learning Process</b>	Chalk and talk method / PowerPoint Presentation		
<b>Module-3(5 Hours)</b>			



## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

**Introduction To Intellectual Property:** Role of IP in the Economic and Cultural Development of the Society, IP Governance, IP as a Global Indicator of Innovation, Origin of IP History of IP in India. Major Amendments in IP Laws and Acts in India.

**Patents:** Conditions for Obtaining a Patent Protection, To Patent or Not to Patent an Invention. Rights Associated with Patents. Enforcement of Patent Rights. Inventions Eligible for Patenting. Non-Patentable Matters. Patent Infringements. Avoid Public Disclosure of an Invention before Patenting. Process of Patenting. Prior Art Search. Choice of Application to be Filed. Patent Application Forms. Jurisdiction of Filing Patent Application. Publication. Pre-grant Opposition. Examination. Grant of a Patent. Validity of Patent Protection. Post-grant Opposition. Commercialization of a Patent. Need for a Patent Attorney/Agent. Can a Worldwide Patent be Obtained. Do I Need First to File a Patent in India. Patent Related Forms. Fee Structure. Types of Patent Applications. Commonly Used Terms in Patenting. National Bodies Dealing with Patent Affairs. Utility Models.

**Process of Patenting.** Prior Art Search. Choice of Application to be Filed. Patent Application Forms. Jurisdiction of Filing Patent Application. Publication. Pre-grant Opposition. Examination. Grant of a Patent. Validity of Patent Protection. Post-grant Opposition. Commercialization of a Patent. Need for a Patent Attorney/Agent. Can a Worldwide Patent be Obtained. Do I Need First to File a Patent in India. Patent Related Forms. Fee Structure. Types of Patent Applications. Commonly Used Terms in Patenting. National Bodies Dealing with Patent Affairs. Utility Models.

### Teaching- Learning Process

Chalk and talk method / PowerPoint Presentation.

### Module-4(5 Hours)

**Copyrights and Related Rights:** Classes of Copyrights. Criteria for Copyright. Ownership of Copyright. Copyrights of the Author. Copyright Infringements. Copyright Infringement is a Criminal Offence. Copyright Infringement is a Cognizable Offence. Fair Use Doctrine. Copyrights and Internet. Non-Copyright Work. Copyright Registration. Judicial Powers of the Registrar of Copyrights. Fee Structure. Copyright Symbol. Validity of Copyright. Copyright Profile of India. Copyright and the word 'Publish'. Transfer of Copyrights to a Publisher. Copyrights and the Word 'Adaptation'. Copyrights and the Word 'Indian Work'. Joint Authorship. Copyright Society. Copyright Board. Copyright Enforcement Advisory Council (CEAC). International Copyright Agreements, Conventions and Treaties. Interesting Copyrights Cases.

**Trademarks:** Eligibility Criteria. Who Can Apply for a Trademark. Acts and Laws. Designation of Trademark Symbols. Classification of Trademarks. Registration of a Trademark is Not Compulsory. Validity of Trademark. Types of Trademark Registered in India. Trademark Registry. Process for Trademarks Registration. Prior Art Search. Famous Case Law: Coca-Cola Company vs. Bisleri International Pvt. Ltd.

### Module-5(5 Hours)

**Industrial Designs:** Eligibility Criteria. Acts and Laws to Govern Industrial Designs. Design Rights. Enforcement of Design Rights. Non-Protectable Industrial Designs India. Protection Term. Procedure for Registration of Industrial Designs. Prior Art Search. Application for Registration. Duration of the Registration of a Design. Importance of Design Registration. Cancellation of the Registered Design. Application Forms. Classification of Industrial Designs. Designs Registration Trend in India. International Treaties. Famous Case Law: Apple Inc. vs. Samsung Electronics Co.

**Geographical Indications:** Acts, Laws and Rules Pertaining to GI. Ownership of GI. Rights Granted to the Holders. Registered GI in India. Identification of Registered GI. Classes of GI. Non-Registerable GI. Protection of GI. Collective or Certification Marks. Enforcement of GI Rights. Procedure for GI Registration Documents Required for GI Registration. GI Ecosystem in India.

**Case Studies on Patents.** Case study of Curcuma (Turmeric) Patent, Case study of Neem Patent, Case study of Basmati patent. **IP Organizations In India. Schemes and Programmes**



**CHILDREN'S EDUCATION SOCIETY (Regd.)**

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

**THE OXFORD COLLEGE OF ENGINEERING**

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

**Department of Mechatronics**

Course Title:	<b>Indian Constitution</b>		
Course Code:		CIE Marks	50
Course Type (Theory/Practical /Integrated)	<b>22IC0107-207</b>	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01
<b>Course objectives :</b>			
The course <b>INDIAN CONSTITUTION (22IC017 / 27)</b> will enable the students,			
<ol style="list-style-type: none"> <li>6. To know about the basic structure of Indian Constitution.</li> <li>7. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.</li> <li>8. To know about our Union Government, political structure &amp; codes, procedures.</li> <li>9. To know the State Executive &amp; Elections system of India.</li> <li>10. To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.</li> </ol>			
<b>Teaching-Learning Process</b>			
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching -Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.			
<ol style="list-style-type: none"> <li>(i) Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools),</li> <li>(iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion.</li> <li>(vii) Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.</li> </ol>			
<b>Module-1</b>		<b>(03 hours of pedagogy)</b>	
Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to the Indian constitution, Making of the Constitution, Role of the Constituent Assembly.			
<b>Module-2</b>		<b>(03 hours of pedagogy)</b>	
Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. Fundamental Rights (FR's) and its Restriction and limitations in different Complex Situations. building.			
<b>Module-3</b>		<b>(03 hours of pedagogy)</b>	
Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.			
<b>Module-4</b>		<b>(03 hours of pedagogy)</b>	
Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India, Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.			





## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

### Module-5 (03 hours of pedagogy)

State Executive and Governor, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.

#### Course outcome (Course Skill Set)

At the end of the course 22IC017/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.

### RESEARCH METHODOLOGY & INTELLECTUAL PROPERTY RIGHTS

Course Code:	21RMI56	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1:2:0:0	SEE Marks	50
Total Hours of Pedagogy	25	Total Marks	100
Credits	02	Exam Hours	03

#### Course Objectives:

- CO1. To Understand the knowledge on basics of research and its types.  
 CO2. To Learn the concept of Literature Review, Technical Reading, Attributions and Citations. CO3. To learn Ethics in Engineering Research.  
 CO4. To Discuss the concepts of Intellectual Property Rights in engineering.

#### Teaching-Learning Process (General Instructions)

These are sample Strategies; which teachers can use to accelerate the attainment of the various courseoutcomes.

8. Lecturer methods (L) need not be only the traditional lecture methods, but alternativeeffective teaching methods could be adopted to attain the outcomes.
9. Use of Video to explain various concepts on IPR.
10. Encourage collaborative (Group Learning) Learning in the class.
11. Ask at least three HOT (Higher Order Thinking) questions in the class, which promotes criticalthinking.
12. Introduce Topics in manifold representations.
13. Show the different ways to analyze the research problem and encourage the students to comeup withtheir own creative ways to solve them.
14. Discuss how every concept can be applied to the real world - and when that's possible, it helpsImprove the students' understanding.

#### Module-1 (5 Hours)

**Introduction:** Meaning of Research, Objectives of Engineering Research, and Motivation in EngineeringResearch, Types of Engineering Research, Finding and Solving a Worthwhile Problem.

Ethics in Engineering Research, Ethics in Engineering Research Practice, Types of Research Misconduct,Ethical Issues Related to Authorship.

<b>Teaching- Learning Process</b>	Chalk and talk method / PowerPoint Presentation.
-----------------------------------	--

#### Module-2(5 Hours)



## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

**Literature Review and Technical Reading.** New and Existing Knowledge, Analysis and Synthesis of Prior Art Bibliographic Databases, Web of Science, Google and Google Scholar, Effective Search: The Way Forward Introduction to Technical Reading Conceptualizing Research, Critical and Creative Reading, Taking Notes While Reading, Reading Mathematics and Algorithms, Reading a Datasheet.

**Attributions and Citations:** Giving Credit Wherever Due, Citations: Functions and Attributes, Impact of Title and Keywords on Citations, Knowledge Flow through Citation, Citing Datasets, Styles for Citations, Acknowledgments and Attributions, What Should Be Acknowledged, Acknowledgments in, Books Dissertations, Dedication or Acknowledgments.

<b>Teaching-Learning Process</b>	Chalk and talk method / PowerPoint Presentation
----------------------------------	---

### Module-3(5 Hours)

**Introduction To Intellectual Property:** Role of IP in the Economic and Cultural Development of the Society, IP Governance, IP as a Global Indicator of Innovation, Origin of IP History of IP in India. Major Amendments in IP Laws and Acts in India.

**Patents:** Conditions for Obtaining a Patent Protection, To Patent or Not to Patent an Invention. Rights Associated with Patents. Enforcement of Patent Rights. Inventions Eligible for Patenting. Non-Patentable Matters. Patent Infringements. Avoid Public Disclosure of an Invention before Patenting. Process of Patenting. Prior Art Search. Choice of Application to be Filed. Patent Application Forms. Jurisdiction of Filing Patent Application. Publication. Pre-grant Opposition. Examination. Grant of a Patent. Validity of Patent Protection. Post-grant Opposition. Commercialization of a Patent. Need for a Patent Attorney/Agent. Can a Worldwide Patent be Obtained. Do I Need First to File a Patent in India. Patent Related Forms. Fee Structure. Types of Patent Applications. Commonly Used Terms in Patenting. National Bodies Dealing with Patent Affairs. Utility Models.

**Process of Patenting.** Prior Art Search. Choice of Application to be Filed. Patent Application Forms. Jurisdiction of Filing Patent Application. Publication. Pre-grant Opposition. Examination. Grant of a Patent. Validity of Patent Protection. Post-grant Opposition. Commercialization of a Patent. Need for a Patent Attorney/Agent. Can a Worldwide Patent be Obtained. Do I Need First to File a Patent in India. Patent Related Forms. Fee Structure. Types of Patent Applications. Commonly Used Terms in Patenting. National Bodies Dealing with Patent Affairs. Utility Models.

<b>Teaching- Learning Process</b>	Chalk and talk method / PowerPoint Presentation.
-----------------------------------	--

### Module-4(5 Hours)

**Copyrights and Related Rights:** Classes of Copyrights. Criteria for Copyright. Ownership of Copyright. Copyrights of the Author. Copyright Infringements. Copyright Infringement is a Criminal Offence. Copyright Infringement is a Cognizable Offence. Fair Use Doctrine. Copyrights and Internet. Non-Copyright Work. Copyright Registration. Judicial Powers of the Registrar of Copyrights. Fee Structure. Copyright Symbol. Validity of Copyright. Copyright Profile of India. Copyright and the word 'Publish'. Transfer of Copyrights to a Publisher. Copyrights and the Word 'Adaptation'. Copyrights and the Word 'Indian Work'. Joint Authorship. Copyright Society. Copyright Board. Copyright Enforcement Advisory Council (CEAC). International Copyright Agreements, Conventions and Treaties. Interesting Copyrights Cases.

**Trademarks:** Eligibility Criteria. Who Can Apply for a Trademark. Acts and Laws. Designation of Trademark Symbols. Classification of Trademarks. Registration of a Trademark is Not Compulsory. Validity of Trademark. Types of Trademark Registered in India. Trademark Registry. Process for Trademarks Registration. Prior Art Search. Famous Case Law: Coca-Cola Company vs. Bisleri International Pvt. Ltd.

### Module-5(5 Hours)

**Industrial Designs:** Eligibility Criteria. Acts and Laws to Govern Industrial Designs. Design Rights. Enforcement of Design Rights.



**CHILDREN'S EDUCATION SOCIETY (Regd.)**

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

## **THE OXFORD COLLEGE OF ENGINEERING**

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

Non-Protectable Industrial Designs India. Protection Term. Procedure for Registration of Industrial Designs. Prior Art Search. Application for Registration. Duration of the Registration of a Design. Importance of Design Registration. Cancellation of the Registered Design. Application Forms. Classification of Industrial Designs. Designs Registration Trend in India. International Treaties. Famous Case Law: Apple Inc. vs. Samsung Electronics Co.

**Geographical Indications:** Acts, Laws and Rules Pertaining to GI. Ownership of GI. Rights Granted to the Holders. Registered GI in India. Identification of Registered GI. Classes of GI. Non-Registerable GI. Protection of GI. Collective or Certification Marks. Enforcement of GI Rights. Procedure for GI Registration Documents Required for GI Registration. GI Ecosystem in India.

**Case Studies on Patents.** Case study of Curcuma (Turmeric) Patent, Case study of Neem Patent, Case study of Basmati patent. **IP Organizations In India. Schemes and Programmes**



**CHILDREN'S EDUCATION SOCIETY (Regd.)**

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

**THE OXFORD COLLEGE OF ENGINEERING**

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

**Department of Civil Engineering**

Course Title:	<b>Indian Constitution</b>		
Course Code:		CIE Marks	50
Course Type (Theory/Practical /Integrated)	<b>BIC0107-207</b>	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01
<b>Course objectives :</b>			
The course <b>INDIAN CONSTITUTION (22IC017 / 27)</b> will enable the students,			
<ol style="list-style-type: none"> <li>1. To know about the basic structure of Indian Constitution.</li> <li>2. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.</li> <li>3. To know about our Union Government, political structure &amp; codes, procedures.</li> <li>4. To know the State Executive &amp; Elections system of India.</li> <li>5. To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.</li> </ol>			
<b>Teaching-Learning Process</b>			
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.			
<ol style="list-style-type: none"> <li>(i) Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools),</li> <li>(iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion.</li> <li>(vii) Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.</li> </ol>			
<b>Module-1</b>		<b>(03 hours of pedagogy)</b>	
Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to the Indian constitution, Making of the Constitution, Role of the Constituent Assembly.			
<b>Module-2</b>		<b>(03 hours of pedagogy)</b>	
Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. Fundamental Rights (FR's) and its Restriction and limitations in different Complex Situations. building.			
<b>Module-3</b>		<b>(03 hours of pedagogy)</b>	
Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.			
<b>Module-4</b>		<b>(03 hours of pedagogy)</b>	
Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India, Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.			





## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

### Module-5 (03 hours of pedagogy)

State Executive and Governor, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.

#### Course outcome (Course Skill Set)

At the end of the course 22IC017/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.

BUILDING MATERIALS TESTING LABORATORY		Semester	4
Course Code	BCVL404	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	0:0:2:0	SEE Marks	50
Credits	01	Total Marks	100
		Exam Hours	02
Examination type (SEE)	Practical		
<b>Course objectives:</b>			
<ul style="list-style-type: none"> <li>• Ability to apply knowledge of mathematics and engineering in calculating the mechanical properties of structural materials.</li> <li>• Ability to function on multi-disciplinary teams in the area of material testing.</li> <li>• Ability to use the techniques, skills and modern engineering tools necessary for engineering.</li> <li>• Understanding of professional and ethical responsibility in the area of material testing.</li> <li>• Ability to communicate effectively the mechanical properties of materials.</li> </ul>			
SLNO	Experiments		
1	Tests on Bricks, Tiles, Cement Concrete blocks (Weight & Dimensionality, Water Absorption, Strength)(L1, L2, L3, L4)		
2	Tests on Fine aggregates - Sieve Analysis, Moisture content, Specific gravity, Bulk density, Bulking and Silt Content (L1, L2, L3, L4)		
3	Tests on Coarse aggregates- Sieve Analysis, Water absorption, Moisture content, specific gravity and Bulk density(L1, L2, L3, L4)		
4	Compression test on mild steel, cast iron and wood.(L1, L2, L3, L4)		
5	Tension test on mild steel and HYSD bars (L2, L3, L4)		
6	Torsion test on mild steel circular sections. (L1, L2, L3, L4)		
7	Bending Test on Wood Under two-point loading. (L1, L2, L3, L4)		
8	Shear Test on Mild steel- single and double shear. (L1, L2, L3, L4)		
9	Impact test on Mild Steel (Charpy & Izod). (L1, L2, L3, L4)		
10	Hardness tests on ferrous and non-ferrous metals- Brinell's, Rockwell and Vicker's. (L1, L2, L3, L4)		
11	Demonstration of Strain gauges and Strain indicators. (L1, L2, L3, L4)		
<b>NOTE: All tests to be carried out as per relevant latest BIS Codes</b>			
<b>Course outcomes (Course Skill Set):</b>			
At the end of the course the student will be able to:			
<ul style="list-style-type: none"> <li>• Analyze the physical characteristics, and behavior of common building materials.</li> </ul>			



## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

### V Semester

#### DESIGN OF RC STRUCTURAL ELEMENTS

Course Code	21CV53	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	2+2+0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	3	Exam Hours	3

#### Course objectives:

This course will enable students to

1. Identify, formulate and solve engineering problems of RC elements subjected to different kinds of loading.
2. Follow a procedural knowledge in designing various structural RC elements.
3. Impart the usage of codes for strength, serviceability and durability.
4. Acquire knowledge in analysis and design of RC elements.

#### Teaching-Learning Process (General Instructions)

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

1. Blackboard teaching
2. Power point Presentation
3. Videos , NPTEL materials
4. Quiz/Assignments/Open book test to develop skills
5. Adopt problem based learning (PBL) to develop analytical and thinking skills
6. Encourage collaborative learning, site visits related to subject and impart practical knowledge.

#### Module-1

**Introduction to working stress and limit State Design:** Introduction to working stress method, Difference between Working stress and Limit State Method of design.

**Philosophy and principle of limit state design with assumptions.** Partial Safety factors, Characteristic load and strength. Stress block parameters, concept of balanced section, under reinforced and over reinforced section.

Limiting deflection, short term deflection, long term deflection, Calculation of deflection of singly reinforced beam only.

Teaching-Learning Process	Chalk & Talk, PPT presentation, Youtube videos, Nearby construction site visits.
---------------------------	--

#### Module-2

#### Limit State Analysis of Beams:

Analysis of singly reinforced, doubly reinforced and flanged beams for flexure and shear.

Teaching-Learning Process	Chalk & Talk, PPT presentation, Youtube videos, Nearby construction site visits.
---------------------------	--

#### Module-3

**Limit State Design of Beams:** Design of singly reinforced beams with check for shear, check for development length and other checks. Design of doubly reinforced beams and flanged sections without checks.

Teaching-Learning Process	Chalk & Talk, PPT presentation, Youtube videos, Nearby construction site visits.
---------------------------	--

#### Module-4





## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

B. E. CIVIL ENGINEERING			
Choice Based Credit System (CBCS) and Outcome Based Education (OBE)			
SEMESTER - VIII			
TECHNICAL SEMINAR			
Course Code	<b>18CVS84</b>	CIE Marks	100
Teaching Hours/Week(L:T:P)	--	SEE Marks	--
Credits	01	Exam Hours	03
<b>Course Learning Objectives:</b>			
<p>The objective of the seminar is to inculcate self-learning, face audience confidently, enhance communication skill, involve in group discussion and present and exchange ideas. Each student, under the guidance of a Faculty, is required to choose, preferably, a recent topic of his/her interest relevant to the course of specialization. Carryout literature survey; organize the Course topics in a systematic order.</p> <ul style="list-style-type: none"> <li>• Conduct literature survey in the domain area to find appropriate topic.</li> <li>• Prepare the synopsis report with own sentences in a standard format.</li> <li>• Learn to use MS word, MS power point, MS equation and Drawing tools or any such facilities in the preparation of report and presentation.</li> <li>• Present the seminar topic orally and/or through power point slides.</li> <li>• Communicate effectively to answer the queries and involve in debate/discussion.</li> <li>• The participants shall take part in discussion to foster friendly and stimulating environment in which the students are motivated to reach high standards and become self-confident.</li> </ul>			
<b>Course Outcomes:</b> At the end of the course the student will be able to:			
<ul style="list-style-type: none"> <li>• Develop knowledge in the field of Civil Engineering and other disciplines through independent learning and collaborative study.</li> <li>• Identify and discuss the current, real-time issues and challenges in engineering &amp; technology.</li> <li>• Develop written and oral communication skills.</li> <li>• Explore concepts in larger diverse social and academic contexts.</li> <li>• Apply principles of ethics and respect in interaction with others.</li> <li>• Develop the skills to enable life-long learning.</li> </ul>			
<b>Evaluation Procedure:</b>			
<ul style="list-style-type: none"> <li>• As per University guidelines.</li> <li>• The Internal Assessment marks for the seminar shall be awarded based on the relevance of the seminar topic, quality of the report, presentation skills, participation in the question and answer, and attendance in the seminar classes/sessions.</li> </ul>			



## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

## Department of Electrical & Electronics Engineering

BSCK307 – Social Connect & Responsibility 2022 Scheme & syllabus 3<sup>rd</sup> sem

BSCK307 – Social Connect & Responsibility 2022 Scheme & syllabus for 3 <sup>rd</sup> sem		Semester	3 <sup>rd</sup>
Course Code	BSCK307	CIE Marks	100
Teaching Hours/Week (L:T:P: S)	0:0:3:1	SEE Marks	-----
Total Hours of Pedagogy	40 hour Practical Session +15 hour Planning	Total Marks	100
Examination nature (No SEE – Only CIE)	For CIE Assessment - Activities Report Evaluation by College NSS Officer / HOD / Sports Dept / Any Dept.		
Credits	01 - Credit		
<p><b>Course objectives: The course will enable the students to:</b></p> <ol style="list-style-type: none"> <li>1. Provide a formal platform for students to communicate and connect to the surrounding.</li> <li>2. create a responsible connection with the society.</li> <li>3. Understand the community in general in which they work.</li> <li>4. Identify the needs and problems of the community and involve them in problem –solving.</li> <li>5. Develop among themselves a sense of social &amp; civic responsibility &amp; utilize their knowledge in finding practical solutions to individual and community problems.</li> <li>6. Develop competence required for group-living and sharing of responsibilities &amp; gain skills in mobilizing community participation to acquire leadership qualities and democratic attitudes.</li> </ol>			
<p><b>General Instructions - Pedagogy :</b> These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.</p> <ol style="list-style-type: none"> <li>1. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the activities will develop students' theoretical and applied social and cultural skills.</li> <li>2. State the need for activities and its present relevance in the society and Provide real-life examples.</li> <li>3. Support and guide the students for self-planned activities.</li> <li>4. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress in real activities in the field.</li> <li>5. Encourage the students for group work to improve their creative and analytical skills.</li> </ol>			
<p><b>Contents :</b> The course is mainly activity-based that will offer a set of activities for the student that enables them to connect with fellow human beings, nature, society, and the world at large. The course will engage students for interactive sessions, open mic, reading group, storytelling sessions, and semester-long activities conducted by faculty mentors. In the following a set of activities planned for the course have been listed:</p>			
<p><b>Social Connect &amp; Responsibility - Contents</b></p>			
<p><b>Part I:</b> <b>Plantation and adoption of a tree:</b> Plantation of a tree that will be adopted for four years by a group of BE / B.Tech students. (ONE STUDENT ONE TREE) They will also make an excerpt either as a documentary or a photo blog describing the plant's origin, its usage in daily life, its appearance in folklore and literature -- Objectives, Visit, case study, report, outcomes.</p>			
<p><b>Part II :</b> <b>Heritage walk and crafts corner:</b> Heritage tour, knowing the history and culture of the city, connecting to people around through their history, knowing the city and its craftsman, photo blog and documentary on evolution and practice of various craft forms -- Objectives, Visit, case study, report, outcomes.</p>			
<p><b>Part III :</b> <b>Organic farming and waste management:</b> Usefulness of organic farming, wet waste management in neighboring villages, and implementation in the campus --</p>			



## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

BSCCK307 – Social Connect & Responsibility 2022 Scheme & syllabus 3<sup>rd</sup> sem

Objectives, Visit, case study, report, outcomes.

#### Part IV:

##### Water conservation:

Knowing the present practices in the surrounding villages and implementation in the campus, documentary or photoblog presenting the current practices – Objectives, Visit, case study, report, outcomes.

#### Part V :

##### Food walk:

City's culinary practices, food lore, and indigenous materials of the region used in cooking – Objectives, Visit, case study, report, outcomes.

#### Course outcomes (Course Skill Set):

At the end of the course, the student will be able to:

CO1: Communicate and connect to the surrounding.

CO2: Create a responsible connection with the society.

CO3: Involve in the community in general in which they work.

CO4: Notice the needs and problems of the community and involve them in problem –solving.

CO5: Develop among themselves a sense of social & civic responsibility & utilize their knowledge in finding practical solutions to individual and community problems.

CO6: Develop competence required for group-living and sharing of responsibilities & gain skills in mobilizing community participation to acquire leadership qualities and democratic attitudes.

#### Activities:

Jamming session, open mic, and poetry: Platform to connect to others. Share the stories with others. Share the experience of Social Connect. Exhibit the talent like playing instruments, singing, one-act play, art-painting, and fine art.

#### PEDAGOGY:

The pedagogy will include interactive lectures, inspiring guest talks, field visits, social immersion, and a course project. Applying and synthesizing information from these sources to define the social problem to address and take up the solution as the course project, with your group. Social immersion with NGOs/social sections will be a key part of the course. Will all lead to the course project that will address the needs of the social sector?

#### COURSE TOPICS:

The course will introduce social context and various players in the social space, and present approaches to discovering and understanding social needs. Social immersion and inspiring conversational will culminate in developing an actual, idea for problem-based intervention, based on an in-depth understanding of a key social problem.

#### Duration :

A total of 40 - 50 hrs engagement per semester is required for the 3rd semester of the B.E. /B.Tech. program. The students will be divided into groups. Each group will be handled by faculty mentor. Faculty mentor will design the activities (particularly Jamming sessions open mic ,and poetry) Faculty mentors has to design the evaluation system as per VTU guidelines of scheme & syllabus.

#### Guideline for Assessment Process:

##### Continuous Internal Evaluation (CIE):

After completion of the course, the student shall prepare, with daily diary as reference, a comprehensive report in consultation with the mentor/s to indicate what he has observed and learned in the social connect period. The report should be signed by the mentor. The report shall





## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

### Physical Education (Sports and Athletics) syllabus

Semester: IV			
PHYSICAL EDUCATION (SPORTS & ATHLETICS) – II			
<b>Course Code</b>	: BPEK459	<b>CIE</b>	: 100 Marks
<b>Credits: L:T:P</b>	: 0:0:1		
<b>Total Hours</b>	: 24 P		
<b>Course Outcomes:</b> At the end of the course, the student will be able to			
<ol style="list-style-type: none"> <li>1. Understand the ethics and moral values in sports and athletics</li> <li>2. Perform in the selected sports or athletics of student's choice.</li> <li>3. Understand the roles and responsibilities of organisation and administration of sports and games.</li> </ol>			
<b>Module I : Ethics and Moral Values</b>			<b>4 Hours</b>
<ol style="list-style-type: none"> <li>A. Ethics in Sports</li> <li>B. Moral Values in Sports and Games</li> </ol>			
<b>Module II : Specific Games (Any one to be selected by the student)</b>			<b>16 Hours</b>
<ol style="list-style-type: none"> <li>A. Volleyball – Attack, Block, Service, Upper Hand Pass and Lower hand Pass.</li> <li>B. Athletics (Track Events) – Any event as per availability of Ground.</li> </ol>			
<b>Module III: Role of Organisation and administration</b>			<b>4 Hours</b>

#### Scheme and Assessment for auditing the course and Grades:

Sl. No.	Activity	Marks
1.	Participation of student in all the modules	20
2.	Quizzes – 2, each of 15 marks	30
3.	Final presentation / exhibition / Participation in competitions/ practical on specific tasks assigned to the students	50
<b>Total</b>		<b>100</b>

@#@ 16092024

Course Title:	<b>Indian Constitution</b>		
Course Code:		CIE Marks	50
Course Type (Theory/Practical /Integrated)	<b>BIGOK107-207</b>	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01



## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

### Course objectives :

The course **INDIAN CONSTITUTION (22ICO17 / 27)** will enable the students,

1. To know about the basic structure of Indian Constitution.
2. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
3. To know about our Union Government, political structure & codes, procedures.
4. To know the State Executive & Elections system of India.
5. To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.

### Teaching-Learning Process

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

- (i) Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools),
- (iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion.
- (iii) Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

### Module-1

**(03 hours of pedagogy)**

Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to the Indian constitution, Making of the Constitution, Role of the Constituent Assembly.

### Module-2

**(03 hours of pedagogy)**

Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. Fundamental Rights (FR's) and its Restriction and limitations in different Complex Situations. building.

### Module-3

**(03 hours of pedagogy)**

Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.

### Module-4

**(03 hours of pedagogy)**

Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India, Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.

### Module-5

**(03 hours of pedagogy)**

State Executive and Governor, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.

### Course outcome (Course Skill Set)

At the end of the course 22ICO17/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.



## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

<b>RESEARCH METHODOLOGY &amp; INTELLECTUAL PROPERTY RIGHTS</b>			
Course Code:	<b>21RMI56</b>	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1:2:0:0	SEE Marks	50
Total Hours of Pedagogy	25	Total Marks	100
Credits	02	Exam Hours	03
<b>Course Objectives:</b>			
CO1. To Understand the knowledge on basics of research and its types.			
CO2. To Learn the concept of Literature Review, Technical Reading, Attributions and Citations. CO3. To learn Ethics in Engineering Research.			
CO4. To Discuss the concepts of Intellectual Property Rights in engineering.			
<b>Teaching-Learning Process (General Instructions)</b>			
These are sample Strategies; which teachers can use to accelerate the attainment of the various courseoutcomes.			
<ol style="list-style-type: none"> <li>Lecturer methods (L) need not be only the traditional lecture methods, but alternativeeffective teaching methods could be adopted to attain the outcomes.</li> <li>Use of Video to explain various concepts on IPR.</li> <li>Encourage collaborative (Group Learning) Learning in the class.</li> <li>Ask at least three HOT (Higher Order Thinking) questions in the class, which promotes criticalthinking.</li> <li>Introduce Topics in manifold representations.</li> <li>Show the different ways to analyze the research problem and encourage the students to comeup withtheir own creative ways to solve them.</li> <li>Discuss how every concept can be applied to the real world - and when that's possible, it helpsImprove the students' understanding.</li> </ol>			
<b>Module-1 (5 Hours)</b>			
<b>Introduction:</b> Meaning of Research, Objectives of Engineering Research, and Motivation in EngineeringResearch, Types of Engineering Research, Finding and Solving a Worthwhile Problem.			
Ethics in Engineering Research, Ethics in Engineering Research Practice, Types of Research Misconduct,Ethical Issues Related to Authorship.			
<b>Teaching- Learning Process</b>	Chalk and talk method / PowerPoint Presentation.		
<b>Module-2(5 Hours)</b>			
<b>Literature Review and Technical Reading,</b> New and Existing Knowledge, Analysis and Synthesis of Prior Art Bibliographic Databases, Web of Science, Google and Google Scholar, Effective Search: The Way Forward Introduction to Technical Reading Conceptualizing Research, Critical and Creative Reading, Taking Notes While Reading, Reading Mathematics and Algorithms, Reading a Datasheet.			
<b>Attributions and Citations:</b> Giving Credit Wherever Due, Citations: Functions and Attributes, Impact of Title and Keywords on Citations, Knowledge Flow through Citation, Citing Datasets, Styles for Citations, Acknowledgments and Attributions, What Should Be Acknowledged, Acknowledgments in, Books Dissertations, Dedication or Acknowledgments.			
<b>Teaching-Learning Process</b>	Chalk and talk method / PowerPoint Presentation		
<b>Module-3(5 Hours)</b>			





## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

**Introduction To Intellectual Property:** Role of IP in the Economic and Cultural Development of the Society, IP Governance, IP as a Global Indicator of Innovation, Origin of IP History of IP in India. Major Amendments in IP Laws and Acts in India.

**Patents:** Conditions for Obtaining a Patent Protection, To Patent or Not to Patent an Invention. Rights Associated with Patents. Enforcement of Patent Rights. Inventions Eligible for Patenting. Non-Patentable Matters. Patent Infringements. Avoid Public Disclosure of an Invention before Patenting. Process of Patenting. Prior Art Search. Choice of Application to be Filed. Patent Application Forms. Jurisdiction of Filing Patent Application. Publication. Pre-grant Opposition. Examination. Grant of a Patent. Validity of Patent Protection. Post-grant Opposition. Commercialization of a Patent. Need for a Patent Attorney/Agent. Can a Worldwide Patent be Obtained. Do I Need First to File a Patent in India. Patent Related Forms. Fee Structure. Types of Patent Applications. Commonly Used Terms in Patenting. National Bodies Dealing with Patent Affairs. Utility Models.

**Process of Patenting.** Prior Art Search. Choice of Application to be Filed. Patent Application Forms. Jurisdiction of Filing Patent Application. Publication. Pre-grant Opposition. Examination. Grant of a Patent. Validity of Patent Protection. Post-grant Opposition. Commercialization of a Patent. Need for a Patent Attorney/Agent. Can a Worldwide Patent be Obtained. Do I Need First to File a Patent in India. Patent Related Forms. Fee Structure. Types of Patent Applications. Commonly Used Terms in Patenting. National Bodies Dealing with Patent Affairs. Utility Models.

### Teaching- Learning Process

Chalk and talk method / PowerPoint Presentation.

### Module-4(5 Hours)

**Copyrights and Related Rights:** Classes of Copyrights. Criteria for Copyright. Ownership of Copyright. Copyrights of the Author. Copyright Infringements. Copyright Infringement is a Criminal Offence. Copyright Infringement is a Cognizable Offence. Fair Use Doctrine. Copyrights and Internet. Non-Copyright Work. Copyright Registration. Judicial Powers of the Registrar of Copyrights. Fee Structure. Copyright Symbol. Validity of Copyright. Copyright Profile of India. Copyright and the word 'Publish'. Transfer of Copyrights to a Publisher. Copyrights and the Word 'Adaptation'. Copyrights and the Word 'Indian Work'. Joint Authorship. Copyright Society. Copyright Board. Copyright Enforcement Advisory Council (CEAC). International Copyright Agreements, Conventions and Treaties. Interesting Copyrights Cases.

**Trademarks:** Eligibility Criteria. Who Can Apply for a Trademark. Acts and Laws. Designation of Trademark Symbols. Classification of Trademarks. Registration of a Trademark is Not Compulsory. Validity of Trademark. Types of Trademark Registered in India. Trademark Registry. Process for Trademarks Registration. Prior Art Search. Famous Case Law: Coca-Cola Company vs. Bisleri International Pvt. Ltd.

### Module-5(5 Hours)

**Industrial Designs:** Eligibility Criteria. Acts and Laws to Govern Industrial Designs. Design Rights. Enforcement of Design Rights. Non-Protectable Industrial Designs India. Protection Term. Procedure for Registration of Industrial Designs. Prior Art Search. Application for Registration. Duration of the Registration of a Design. Importance of Design Registration. Cancellation of the Registered Design. Application Forms. Classification of Industrial Designs. Designs Registration Trend in India. International Treaties. Famous Case Law: Apple Inc. vs. Samsung Electronics Co.

**Geographical Indications:** Acts, Laws and Rules Pertaining to GI. Ownership of GI. Rights Granted to the Holders. Registered GI in India. Identification of Registered GI. Classes of GI. Non-Registerable GI. Protection of GI. Collective or Certification Marks. Enforcement of GI Rights. Procedure for GI Registration Documents Required for GI Registration. GI Ecosystem in India.

**Case Studies on Patents.** Case study of Curcuma (Turmeric) Patent, Case study of Neem Patent, Case study of Basmati patent. **IP Organizations In India. Schemes and Programmes**



## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

B.E. ELECTRICAL & ELECTRONICS ENGINEERING Outcome Based Education (OBE) and Choice Based Credit System (CBCS) SEMESTER -VIII TECHNICAL SEMINAR			
Course Code	18EES84	CIE Marks	100
Contact Hours/Week	02	SEE Marks	--
Credits	01	Exam Hours	--
<b>Course objectives:</b> The objective of the seminar is to inculcate self-learning, face audience confidently, enhance communication skill, involve in group discussion and present and exchange ideas. Each student, under the guidance of a Faculty, shall choose, preferably, a recent topic of his/her interest relevant to the Course of Specialization.			
<ul style="list-style-type: none"> <li>• Carryout literature survey, organize the seminar content in a systematic manner.</li> <li>• Prepare the report with own sentences, avoiding cut and paste act.</li> <li>• Type the matter to acquaint with the use of Micro-soft equation and drawing tools or any such facilities.</li> <li>• Present the seminar topic orally and/or through power point slides.</li> <li>• Answer the queries and involve in debate/discussion.</li> <li>• Submit typed report with a list of references.</li> </ul> <p>The participants shall take part in discussion to foster friendly and stimulating environment in which the students are motivated to reach high standards and become self-confident. ■</p>			
Revised Bloom's Taxonomy Level	L <sub>3</sub> – Applying, L <sub>4</sub> – Analysing, L <sub>5</sub> – Evaluating, L <sub>6</sub> – Creating		
<b>Course outcomes:</b> At the end of the course the student will be able to:			
<ul style="list-style-type: none"> <li>• Attain, use and develop knowledge in the field of engineering and other disciplines through independent learning and collaborative study.</li> <li>• Identify, understand and discuss current, real-time issues.</li> <li>• Improve oral and written communication skills.</li> <li>• Explore an appreciation of the self in relation to its larger diverse social and academic contexts.</li> <li>• Apply principles of ethics and respect in interaction with others. ■</li> </ul>			
<b>Evaluation Procedure:</b> The CIE marks for the seminar shall be awarded (based on the relevance of the topic, presentation skill, participation in the question and answer session and quality of report) by the committee constituted for the purpose by the Head of the Department. The committee shall consist of three teachers from the department with the senior most acting as the Chairman.			
<b>Marks distribution for CIE of the course:</b> Seminar Report:50 marks Presentation skill:25 marks			



## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

## Department of Business Administration

<b>ENTREPRENEURSHIP DEVELOPMENT</b>			
<b>Course Code</b>	<b>22MBA12</b>	<b>CIE Marks</b>	<b>50</b>
<b>Teaching Hours/Week (L:P:SDA)</b>	<b>4:0:0</b>	<b>SEE Marks</b>	<b>50</b>
<b>Total Hours of Pedagogy</b>	<b>50</b>	<b>Total Marks</b>	<b>100</b>
<b>Credits</b>	<b>04</b>	<b>Exam Hours</b>	<b>03</b>
<b>Course Learning objectives:</b>			
<ul style="list-style-type: none"> <li>To develop and strengthen entrepreneurial qualities and motivation among students.</li> <li>To impart basic entrepreneurial skills and understandings to run a business efficiently and effectively.</li> <li>To provide insights to students on entrepreneurship opportunities, sources of funding and institutions supporting entrepreneurs.</li> <li>To make students understand the ways of starting a company of their own.</li> </ul>			
<b>Module-1 (7 Hours)</b>			
<b>Introduction to Entrepreneur &amp; Entrepreneurship:</b> Meaning of entrepreneur - Evolution of the concept - Functions of an Entrepreneur - Types of Entrepreneurs - Intrapreneur- an emerging class - Concept of Entrepreneurship -Entrepreneurial Culture - Stages in entrepreneurial process. Creativity and Innovation: The role of creativity , The innovation Process , Sources of New Ideas , Methods of Generating Ideas , Creative Problem Solving , Entrepreneurial Process.			
<b>Module-2 (9 Hours)</b>			
<b>Developing Business Model:</b> Importance of Business Model , Starting a small-scale industry - Components of an Effective Business Model, Osterwalder Business Model Canvas. Business Planning Process: Meaning of business plan - Business plan process - Advantages of business planning - Final Project Report with Feasibility Study - preparing a model project report for starting a new venture. <b>Lab Component and assignment: Designing a Business Model Canvas</b>			
<b>Module-3 (9 Hours)</b>			
<b>Managing and Growing New Venture:</b> Preparing for the new venture launch - early management decisions, Managing early growth of the new venture- new venture expansion strategies and issues. Getting Financing or Funding for the New Venture: Estimating the financial needs of a new venture and preparation of a financial plan, Sources of Personal Financing, Preparing to Raise Debt or Equity Financing, Business Angels, Venture Capital, Initial Public Offering, Commercial Banks, Other Sources of Debt Financing, Leasing. Forms of business organization: Sole Proprietorship , Partnership , Limited liability partnership - Joint Stock Companies and Cooperatives.			
<b>Module-4 (9 Hours)</b>			
<b>Entrepreneurship Development and Government:</b> Role of Central Government and State Government in promoting Entrepreneurship - Introduction to various incentives, subsidies and grants - Export Oriented Units - Fiscal and Tax concessions available- Start Up India scheme. Women Entrepreneurs, Reasons for low women Entrepreneurs, Prospects for Women Entrepreneurs, Strategies to motivate entrepreneurship amongst women. Institutions supporting Entrepreneurs: A brief overview of financial institutions in India - SIDBI - NABARD - IDBI - SIDCO - Indian Institute of Entrepreneurship - DIC - Single Window - Latest Industrial Policy of Government of India.			
<b>Module-5 (7 Hours)</b>			
<b>Process of Company Incorporation;</b> process of registration of a private limited company, a public limited company, a partnership; Characteristics of a limited liability partnership; Four stages of Start Up, Intellectual property protection and Ethics: Patents , Copyright - Trademark- Geographical indications , Ethical and social responsibility and challenges.			
<b>Module-6 (9 Hours)</b>			





**CHILDREN'S EDUCATION SOCIETY (Regd.)**

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

## **THE OXFORD COLLEGE OF ENGINEERING**

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

Emerging Trends in Entrepreneurship Development; Digital Entrepreneurship , meaning, scope and opportunities. Social Entrepreneur , Meaning of Social Entrepreneur, Motivation for a Social Entrepreneur; Supporting and Evaluating Social Entrepreneurship in India. Rural Entrepreneur , Meaning of Rural Entrepreneur, Potential opportunities for Rural entrepreneurship in India

### **Assessment Details (both CIE and SEE)**

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing marks for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements (passed) and earned the credits allotted to each course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### **Continuous Internal Evaluation:**

There shall be a maximum of 50 CIE Marks. A candidate shall obtain not less than 50% of the maximum marks prescribed for the CIE.

#### **CIE Marks shall be based on:**

- Tests (for 25Marks) and
- Assignments, presentations, Quiz, Simulation, Experimentation, Mini project, oral examination, field work and class participation etc., (for 25 Marks) conducted in the respective course. Course instructors are given autonomy in choosing a few of the above based on the subject relevance and should maintain necessary supporting documents for same.

#### **Semester End Examination:**

The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50.

- The question paper will have 8 full questions carrying equal marks.
- Each full question is for 20 marks with 3 sub questions.
- Each full question will have sub question covering all the topics.
- The students will have to answer five full questions; selecting four full question from question number one to seven in the pattern of 3, 7 & 10 Marks and question number eight is compulsory.

#### **Suggested Learning Resources: Books**

1. The Dynamics of Entrepreneurial Development and Management, Vasant Desai, Himalaya Publishing House, 2010.
2. Entrepreneurship, Donald F. Kuratko and Richard M. Hodgetts, South-Western, 2012.
3. Entrepreneurship Development, Gupta S.L., Arun Mittal, International Book House, 2012.
4. Management and Entrepreneurship Development, Sudha G. S, Indus Valley Publication, 2009

#### **Web links and Video Lectures (e-Resources):**

- <https://youtu.be/rbmz5VEW90A>
- <https://www.youtube.com/watch?v=CnStAWc7iOw>
- <https://www.youtube.com/watch?v=RLQivEQUgUc>

**Note:** The aforesaid links and study material are suggestive in nature, they may be used with due regards to copy rights, patenting and other IPR rules.



**CHILDREN'S EDUCATION SOCIETY (Regd.)**

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

## **THE OXFORD COLLEGE OF ENGINEERING**

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

<b>Research Methodology and IPR</b>			
<b>Course Code</b>	<b>22MBA23</b>	<b>CIE Marks</b>	<b>50</b>
<b>Teaching Hours/Week (L:P:SDA)</b>	<b>4:0:0</b>	<b>SEE Marks</b>	<b>50</b>
<b>Total Hours of Pedagogy</b>	<b>50</b>	<b>Total Marks</b>	<b>100</b>
<b>Credits</b>	<b>04</b>	<b>Exam Hours</b>	<b>03</b>
<b>Course Learning objectives:</b>			
<ul style="list-style-type: none"> <li>To understand the basic components of research design</li> <li>To Gain an insight into the applications of research methods</li> <li>To equip students with various research analytical tools used in business research</li> <li>To provide the insights of IPR and IPR system in India</li> </ul>			
<b>Module-1 (7 Hours)</b>			
<b>Introduction to Business Research:</b> Meaning, types, process of research- management problem, defining the research problem, formulating the research Hypothesis, developing the research proposals, research design formulation, sampling design, planning and collecting the data for research, data analysis and interpretation. Research Application in business decisions, Ethical issues in business research. Features of a good research study.			
<b>Module-2 (9 Hours)</b>			
<b>Business Research Design:</b> Meaning, types and significance of research design, errors affecting research design.			
<b>Exploratory Research:</b> Meaning, purpose, methods, Literature search, experience survey, focus groups and comprehensive case methods.			
<b>Conclusive Research Design:</b> Descriptive Research, Meaning, Types, Cross sectional studies and longitudinal studies.			
<b>Experimental Research Design:</b> Meaning and classification of experimental designs, formal and informal, Pre experimental design, True experimental design, Quasi-experimental design, Statistical experimental design.			
<b>Module-3 (7 Hours)</b>			
<b>Sampling:</b> Concepts, Types of Sampling, <b>Probability Sampling:</b> simple random sampling, systematic sampling, stratified random sampling, cluster sampling,			
<b>Non Probability Sampling:</b> convenience sampling- judgmental sampling, snowball sampling, quota sampling, Errors in sampling.			
<b>Module-4 (9 Hours)</b>			
<b>Data Collection:</b> Meaning, types, <b>Data collection methods:</b> Observations, survey and interview techniques, <b>Questionnaire design:</b> Meaning, process of designing questionnaire. Qualitative Techniques of data collection Secondary data Sources: advantages and disadvantages.			
<b>Measurement and Scaling Techniques:</b> Basic measurement scales-Nominal scale, Ordinal scale, Interval scale, Ratio scale. Attitude measurement scale - Likert Scale, Semantic Differential Scale, Thurston scale,			
<b>Multi-Dimensional Scaling:</b> Non comparative scaling techniques			
<b>Module-5 (9 Hours)</b>			
<b>Data Analysis and Report Writing:</b> Editing, Coding, Classification, Tabulation, Validation. Analysis and Interpretation, Report writing and presentation of results, Importance of report writing, types of research reports, Report structure, Guidelines for effective documentation.			
<b>Module-6 (9 Hours)</b>			





**CHILDREN'S EDUCATION SOCIETY (Regd.)**

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

## **THE OXFORD COLLEGE OF ENGINEERING**

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

**Intellectual Property Rights:** Meaning and Concepts of Intellectual Property, Nature and Characteristics of Intellectual Property, Origin and Development of Intellectual Property, Kinds of Intellectual Property, Intellectual Property System in India, IPRs- Invention and Creativity- Intellectual Property-Importance and Protection of Intellectual Property Rights (IPRs)- A brief summary of: Patents, Copyrights, Trademarks, TRIPS and TRIMS , Industrial Designs- Integrated Circuits-Geographical Indications-Establishment of WIPO- Application and Procedures.

### **Assessment Details (both CIE and SEE)**

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing marks for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements (passed) and earned the credits allotted to each course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

### **Continuous Internal Evaluation:**

There shall be a maximum of 50 CIE Marks. A candidate shall obtain not less than 50% of the maximum marks prescribed for the CIE.

### **CIE Marks shall be based on:**

- Tests (for 25 Marks) and
- Assignments, presentations, Quiz, Simulation, Experimentation, Mini project, oral examination, field work and class participation etc., (for 25 Marks) conducted in the respective course. Course instructors are given autonomy in choosing a few of the above based on the subject relevance and should maintain necessary supporting documents for same.

### **Semester End Examination:**

The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50.

- The question paper will have 8 full questions carrying equal marks.
- Each full question is for 20 marks with 3 sub questions.
- Each full question will have sub question covering all the topics.
- The students will have to answer five full questions; selecting four full question from question number one to seven in the pattern of 3, 7 & 10 Marks and question number eight is compulsory.
- 100 Percent theory.





## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

MANAGERIAL ECONOMICS			
Course Code	22MBA26	CIE Marks	50
Teaching Hours/Week (L:P:SDA)	4:0:0	SEE Marks	50
Total Hours of Pedagogy	50	Total Marks	100
Credits	4	Exam Hours	3
<b>Course Learning objectives:</b>			
<ul style="list-style-type: none"> <li>To introduce the fundamentals, tools and theories of managerial economics.</li> <li>To provide an understanding of the application of Economics in Business</li> <li>To learn the basic Micro and Macro-economic concepts.</li> <li>To understand Demand, Production, Cost, Profit and Market competitions with reference to firm and industry.</li> </ul>			
<b>Module-1 (7 Hours)</b>			
<b>Introduction:</b> Managerial Economics: Meaning, Nature, Scope & Significance, Uses of Managerial Economics, Role and Responsibilities of Managerial Economist. <b>Theory of the Firm:</b> Firm and Industry, Objectives of the firm, alternate objectives of firm. <b>Managerial theories:</b> Baumol's Model, Marris's model of growth maximization, Williamson's model of managerial discretion.			
<b>Module-2 (9 Hours)</b>			
<b>Demand Analysis</b> Law of Demand, Exceptions to the Law of Demand, Elasticity of Demand, Classification of Price, Income & Cross elasticity, Promotional elasticity of demand. Uses of elasticity of demand for Managerial decision making, Measurement of elasticity of demand. Law of supply, Elasticity of supply. <b>Demand forecasting:</b> Meaning & Significance, Methods of demand forecasting. (Problems on Price elasticity of demand, and demand forecasting using Time-series method).			
<b>Module-3 (9 Hours)</b>			

<b>Cost Analysis &amp; Production Analysis</b> Concepts of Production, production function with one variable input - Law of Variable Proportion, Laws of returns to scale, Indifference Curves, ISO-Quants & ISO-Cost line, Economies of scale, Diseconomies of scale. Types of cost, Cost curves, Cost – Output Relationship in the short run and in the long run, Long- Run Average Cost (LAC) curve <b>Break Even Analysis</b> –Meaning, Assumptions, Determination of BEA, Limitations, Margin of safety, Uses of BEA In Managerial decisions (Theory and simple Problems).	
<b>Module -4 (9 Hours)</b>	
<b>Market structure and Pricing Practices</b> <b>Perfect Competition:</b> Features, Determination of price under perfect competition, <b>Monopolistic Competition:</b> Features, Pricing Under monopolistic competition, <b>Product differentiation,</b> <b>Oligopoly:</b> Features, Kinked demand Curve, Cartels, Price leadership, <b>Monopoly:</b> Features, Pricing under monopoly, Price Discrimination. <b>Descriptive Pricing Approaches:</b> Loss leader pricing, Peak Load pricing, Transfer pricing.	
<b>Module-5 (9 Hours)</b>	
<b>Indian Business Environment</b> Nature, Scope, Structure of Indian Business Environment, Internal and External Environment. Political and Legal Environment, Economic Environment, Socio- Cultural Environment, Global Environment. Private Sector, Growth, Problems and Prospects, SMEs, Significance in Indian economy, challenges and prospects. <b>Fiscal policy and Monetary Policy:</b> Meaning of Fiscal policy, three main types of fiscal policy – neutral policy, expansionary, and contractionary. Monetary policy: Meaning, <b>Objectives of monetary policies:</b> Controlling inflation, Managing employment levels, and Maintaining long-term interest rates. (Theory only)	
<b>Module-6 (7 Hours)</b>	
<b>Indian Industrial Policy :</b> New industrial policy 1991, <b>Production Linked Incentive (PLI)</b> scheme for Promoting manufacturing of Telecom & Networking Products in India, New economic initiatives proposed by Indian government for economic growth Private Sector-Growth- like Atma Nirbhar Bharath Abhiyan.	





## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

### RECRUITMENT AND SELECTION

Course Code	22MBAHR303	CIE Marks	50
Teaching Hours/Week (L:P:SDA)	4:0:0	SEE Marks	50
Total Hours of Pedagogy	50	Total Marks	100
Credits	04	Exam Hours	03

#### Course Learning Objectives:

This course will enable the students

- To recite the theories and various steps involved in Recruitment and Selection
- To describe and explain in her/his own words, the relevance and importance of Recruitment and Selection in the Organization
- To apply and solve the workplace problems through Recruitment and Selection intervention
- To classify and categorize in differentiating between the best method to be adopted by organization related to Recruitment and Selection
- To compare and contrast different approaches of Recruitment and Selection framework for solving the complex issues and problems
- To design and develop an original framework and framework in dealing with the problems in the organization.

#### Module-1 (8 Hours)

##### Workforce Planning and Recruitment Analytics:

Concept of Work, Organisation's Work and Jobs; Millennials at the work place; Key Characteristics of Millennials; Types of Millennial; The Evolution of Work Structure; Organising the Work; Strategic Job Redesign and Its Benefits; Strategic Issues in Recruitment; What make Bad Recruitment; Overview of the Hiring Process; Recruitment Metrics; Factors Affecting Recruitment; Recruitment Strategy: An Internal Approach; Recruitment Strategy: An External Approach; Legal and Ethical Considerations; Organisational Best Practices.

#### Module-2 (9 Hours)

##### Job Analysis, Job Description and Job Design:

Identify the Job to Examine; Determine Appropriate Information Sources and Collect Job-Related Data; Job Description; Competency and Competency Ice Berg Model; Why Competency Based Recruitment; Sources of Recruitment; Different steps of job search; Motivational Job Specification; Creation of Functional Specification; Creation of Behavioural Specification; Employer branding; Social Media; Job Design.

#### Module-3 (9 Hours)

##### Job Evaluation:

The Job Evaluation Process; Obtain Job KSAOs, Qualifications, Working Conditions, and Essential Duties; Examine Compensable Factors Using the Rating/Weighting Evaluation Method; Determine Overall Job Value; Hay Group—Pioneer in Job Evaluation; Determining Compensation using Job Evaluation Data; Legal and Ethical Considerations for Job Evaluation; Online Salary Survey.

#### Module-4 (9 Hours)





## CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1<sup>st</sup> Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

# THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bengaluru –560 068. ☎: 080 -61754601/602

E-mail: [engprincipal@theoxford.edu](mailto:engprincipal@theoxford.edu) Web: [www.theoxfordengg.org](http://www.theoxfordengg.org)

### Selection and Interview Strategy:

Interview Strategy and Process; Millennials shaping the Recruitment landscape in the organizations; Strategies for recruiting and selecting Generation Y into the workforce Developing Effective. Interviewers; Interviewing Techniques; **Legal and Ethical Considerations in the Interview Process;** **The overall BEI Process; Assessment Centre's; Simulations.**

### Module-5 (9 Hours)

#### Testing and Assessment:

Testing in Occupational Selection; Test related to Assessment of Knowledge, Skills, and Abilities; Personality Assessment; The Birkman method and MBTI® comparison; FIRO-B; Honesty and Integrity Assessment; Various Non-Interviewing Methods; Graphology; Skills Assessment; Games and Group Activity for Leadership Assessment; Administration of Tests and Assessments; Key Interviewer Skills.

### Module-6 (7 Hours)

#### Making the Hire; Assessment of Candidate and Job Fit:

Unique Recruitment strategies; Biodata and Application Forms; Implications of Using Social Media Content in Hiring Decisions; Background Checks; Reference Checks; Pre-employment Testing; Making a Job Offer; Transitioning from Job Candidate to Employee; Induction; Placement.

### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing marks for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements (passed) and earned the credits allotted to each course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### Continuous Internal Evaluation:

There shall be a maximum of 50 CIE Marks. A candidate shall obtain not less than 50% of the maximum marks prescribed for the CIE.

#### CIE Marks shall be based on:

- Tests (for 25Marks) and
- Assignments, presentations, Quiz, Simulation, Experimentation, Mini project, oral examination, field work and class participation etc., (for 25 Marks) conducted in the respective course. Course instructors are given autonomy in choosing a few of the above based on the subject relevance and should maintain necessary supporting documents for same.

#### Semester End Examination:

The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50.

- The question paper will have 8 full questions carrying equal marks.
- Each full question is for 20 marks with 3 sub questions.
- Each full question will have sub question covering all the topics.
- The students will have to answer five full questions; selecting four full questions from question number one to seven in the pattern of 3, 7 & 10 Marks and question number eight is compulsory.





<b>International Business</b>			
Course Code	<b>22MBA401</b>	CIE Marks	<b>50</b>
Teaching Hours/Week (L:P:SDA)	<b>2:2:0</b>	SEE Marks	<b>50</b>
Total Hours of Pedagogy	<b>40</b>	Total Marks	<b>100</b>
Credits	<b>03</b>	Exam Hours	<b>03</b>
<b>Course Learning objectives:</b> <ul style="list-style-type: none"> <li>• To explore and offer knowledge on Global Business Environment.</li> <li>• To explore knowledge on International Institutions involved in global business.</li> <li>• To assist the students to develop a truly Global Perspective.</li> <li>• To understand the contemporary issues in global business that illustrates the unique challenges faced by managers in the IBE.</li> </ul>			
<b>Module-1 (6 Hours)</b>			
<b>Introduction to International Business:</b> Evolution, Meaning, Importance, Nature and Scope of International Business, Characteristics of International Business, Factors affecting International Business, Changing scenario of International Business, Advantages of International Business, challenges in International business, Modes of entry into International Business, Internationalization Process.			
<b>Module-2 (7 Hours)</b>			
<b>International Business Environment:</b> Introduction, Meaning and Components of International Business Environment, Political Environment, Legal Environment, Economic Environment, Technological Environment, Socio and Cultural Environment, <b>Ethics in International Business and CSR in International Business.</b>			
<b>Module-3 (7 Hours)</b>			
<b>Theories of International Business:</b> Introduction, Mercantilism, Theory of absolute cost advantage, Comparative cost advantage theory, Comparative cost advantage with money, Relative factor endowment theory, Product life cycle theory, Global strategic rivalry theory, Porter's National Competitive Advantage Theory.			
<b>Module-4 (7 Hours)</b>			
<b>International Institutions:</b> UNCTAD- Introduction, Principles and achievements, IMF-Role and objectives, WTO-Role and advantages, TRIMS, TRIPS Features, Economic Integration-Introduction, Levels of Economic Integration, Regional Economic Integration in Europe, USA, ASEAN, SAARC, SAPTA.			
<b>Module-5 (6 Hours)</b>			
<b>Multi-National Corporations:</b> Definition and Meaning, factors that contributed to positive growth of MNCs, Importance of MNCs, Advantages and disadvantages of MNCs, MNCs in India, Organizational structure of MNCs, Transfer of Technology, Global Competitiveness, Indicators of competitiveness, Technology of Global competitiveness.			
<b>Module-6 (7 Hours)</b>			
<b>Basics of International Marketing-</b> Environment and cultural dynamics of global markets, functions of International Marketing, determining International Marketing strategies, Major actors in International Marketing, Competitive Global Marketing Strategies.			
<b>Global HRM-</b> Characteristics, Nature and factors of IHRM, Functions of IHRM,			
<b>Global Finance-</b> Features of Global Capital Market, Growth of Global Capital Market, Global equity market.			
<b>International Production Management-</b> Coordinating Global Manufacturing System.			



INTEGRATED MARKETING COMMUNICATIONS			
Course Code	22MBAMM404	CIE Marks	50
Teaching Hours/Week (L:P:SDA)	2:2:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	03
<b>Course Learning objectives:</b> <ul style="list-style-type: none"> <li>To build a comprehensive framework for integrated marketing communications.</li> <li>To the study the advertising, publicity, personal selling, direct marketing and sales promotion.</li> <li>To enhance knowledge of emerging trends in integrated marketing communications.</li> <li>To acquaint the students with the latest internet and e-marketing techniques, ethically way of handling business.</li> </ul>			
<b>Module-1 (6 Hours)</b>			
<b>Integrated Marketing Communication:</b> Role of IMC in marketing process, IMC planning model, Marketing and promotion Process model. <b>Communication Process,</b> steps involved in developing IMC programme, Effectiveness of marketing communications <b>Advertising:</b> Purpose, Role, Functions, Types, Advertising Vs Marketing mix, Advertising appeal in various stages of PLC <b>Relevant Case Study</b>			
<b>Module-2 (6 Hours)</b>			
<b>Advertising Agency:</b> Type of agencies, Services offered by various agencies, Criteria For selecting the agencies and evaluation. <b>Advertising objectives and Budgeting:</b> Goal setting – DAGMAR approach, various budgeting methods used. <b>Relevant Case Study</b>			
<b>Module-3 (7 Hours)</b>			
<b>Media planning:</b> Factors considered in Media Planning, Developing Media plan, Importance, Problems encountered, Advertising Media, Media Evaluation-Print, Broadcast media, Support media in advertising. <b>Media strategy:</b> Creativity, Elements of creative strategies and its implementation, Importance of Headline and body copy. <b>Relevant Case Study</b>			
<b>Module-4 (7 Hours)</b>			
<b>Direct Marketing:</b> Features, Functions, Growth, Advantages/Disadvantages, And Direct Marketing Strategies. <b>Promotion:</b> Meaning, Importance, tools used, Conventional/unconventional, drawbacks, push pull strategies, Co-operative advertising, Integration with advertising and publicity <b>Public relation/ Publicity:-</b> Meaning, Objectives, tools of public relations, Public Relation strategies, Goals of publicity <b>Corporate Advertising –</b> Role, Types, Limitations, PR Vs Publicity <b>Relevant Case Study</b>			





<b>Module-5 (7 Hours)</b>
<b>Monitoring, Evaluation and control:</b> Measurement in advertising, various methods used for evaluation, Pre-testing, Post testing. <b>Relevant Case Study</b>
<b>Module-6 (7 Hours)</b>
<b>International Advertising:</b> Global environment in advertising, Decision areas in international advertising. <b>Industrial advertising:</b> B 2 B Communication, Special issues in Industrial selling. <b>Internet advertising:</b> Meaning, Components, Advantages and Limitations, Types of Internet advertising <b>Advertising Laws &amp; Ethics:</b> Advertising & Law, Advertising & Ethics, Pester Power, Intellectual Property Rights, ASCI <b>Relevant Case Study</b>
<b>Assessment Details (both CIE and SEE)</b>  The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing marks for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements (passed) and earned the credits allotted to each course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.  <b>Continuous Internal Evaluation:</b>  There shall be a maximum of 50 CIE Marks. A candidate shall obtain not less than 50% of the maximum marks prescribed for the CIE.  <b>CIE Marks shall be based on:</b>  a) Tests (for 25Marks) and  b) Assignments, presentations, Quiz, Simulation, Experimentation, Mini project, oral examination, field work and class participation etc., (for 25 Marks) conducted in the respective course. Course instructors are given autonomy in choosing a few of the above based on the subject relevance and should maintain necessary supporting documents for same.  <b>Semester End Examination:</b>  The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50. <ul style="list-style-type: none"><li>• The question paper will have 8 full questions carrying equal marks.</li><li>• Each full question is for 20 marks with 3 sub questions.</li><li>• Each full question will have sub question covering all the topics.</li><li>• The students will have to answer five full questions; selecting four full question from question number one to seven in the pattern of 3, 7 &amp; 10 Marks and question number eight is compulsory.</li></ul>





**Master of Computer Applications**

<b>Research Methodology and IPR</b>			
Course Code	<b>22RMI18</b>	CIE Marks	50
Teaching Hours/Week (L:P:SDA)	2:0:0	SEE Marks	50
Total Hours of Pedagogy	20	Total Marks	100
Credits	02	Exam Hours	03
<b>Course Learning objectives:</b>			
<ul style="list-style-type: none"> <li>• To give an overview of the research methodology and explain the technique of defining a research problem</li> <li>• To explain the functions of the literature review in research.</li> <li>• To explain carrying out a literature search, its review, developing theoretical and conceptual frameworks and writing a review.</li> <li>• To explain various research designs and their characteristics.</li> <li>• To explain the details of sampling designs, measurement and scaling techniques and also different methods of data collections.</li> <li>• To explain several parametric tests of hypotheses and Chi-square test.</li> <li>• To explain the art of interpretation and the art of writing research reports.</li> <li>• To explain various forms of the intellectual property, its relevance and business impact in the changing global business environment.</li> <li>• To discuss leading International Instruments concerning Intellectual Property Rights.</li> </ul>			
<b>Module-1</b>			
Research Methodology: Introduction, Meaning of Research, Objectives of Research, Motivation in Research, Types of Research, Research Approaches, Significance of Research, Research Methods versus Methodology, Research and Scientific Method, Importance of Knowing How Research is Done, Research Process, Criteria of Good Research, and Problems Encountered by Researchers in India.			
<b>Teaching-Learning Process</b>	Chalk and talk method / PowerPoint Presentation		
<b>Module-2</b>			
Defining the Research Problem: Research Problem, Selecting the Problem, Necessity of Defining the Problem, Technique Involved in Defining a Problem, An Illustration. Reviewing the literature: Place of the literature review in research, Bringing clarity and focus to your research problem, Improving research methodology, Broadening knowledge base in research area, Enabling contextual findings, How to review the literature, searching the existing literature, reviewing the selected literature, Developing a theoretical framework, Developing a conceptual framework, Writing about the literature reviewed.			
<b>Teaching-Learning Process</b>	Chalk and talk method / PowerPoint Presentation		
<b>Module-3</b>			
Research Design: Meaning of Research Design, Need for Research Design, Features of a Good Design, Important Concepts Relating to Research Design, Different Research Designs, Basic Principles of Experimental Designs, Important Experimental Designs. Design of Sample Surveys: Introduction, Sample Design, Sampling and Non-sampling Errors, Sample Survey versus Census Survey, Types of Sampling Designs.			



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi.  
Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602,Fax:080-25730551  
E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

<b>Intellectual Property (IP) Acts: Introduction to IP: Introduction to Intellectual Property (IP), different types of IPs and its importance in the present scenario, Patent Acts: Indian patent acts 1970.Design Act: Industrial Design act 2000. Copy right acts: Copyright Act 1957. Trade Mark Act, 1999.</b>	
<b>Teaching-Learning Process</b>	Chalk and talk method / PowerPoint Presentation
<b>Assessment Details (both CIE and SEE)</b> The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together. <b>Continuous Internal Evaluation:</b> <ol style="list-style-type: none"><li>1. Three Unit Tests each of <b>20 Marks</b></li><li>2. Two assignments each of <b>20 Marks</b> or <b>one Skill Development Activity of 40 marks</b> to attain the COs and POs</li></ol> The sum of three tests, two assignments/skill Development Activities, will be <b>scaled down to 50 marks</b> <b>CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.</b> <b>Semester End Examination:</b> <ol style="list-style-type: none"><li>1. The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50.</li><li>2. The question paper will have ten full questions carrying equal marks.</li><li>3. Each full question is for 20 marks. There will be two full questions (with a maximum of four sub-questions) from each module.</li><li>4. Each full question will have a sub-question covering all the topics under a module.</li><li>5. The students will have to answer five full questions, selecting one full question from each module.</li></ol>	
<b>Suggested Learning Resources:</b> <b>Text Books</b> <ol style="list-style-type: none"><li>1. Research Methodology: Methods and Techniques, C.R. Kothari, Gaurav Garg New Age International 4th Edition, 2018.</li><li>2. Research Methodology a step-by- step guide for beginners. (For the topic Reviewing the literature under module 2) Ranjit Kumar SAGE Publications Ltd 3rd Edition, 2011 Study Material.</li><li>3. Intellectual property, Debirag E. Bouchoux, Cengage learning, 2013.</li></ol> <b>References Books</b> <ol style="list-style-type: none"><li>1. Research Methods: the concise knowledge base Trochim, Atomic Dog Publishing, 2005.</li><li>2. Conducting Research Literature Reviews: From the Internet to Paper Fink A Sage Publications, 2009.</li></ol>	



<b>Software Engineering</b>			
Course Code	22MCA23	CIE Marks	50
Teaching Hours/Week (L:P:SDA)	4:0:0	SEE Marks	50
Total Hours of Pedagogy	50	Total Marks	100
Credits	04	Exam Hours	03
<b>Course Learning objectives:</b>			
<ul style="list-style-type: none"> <li>Outline software engineering principles and activities involved in building large software programs.</li> <li>Identify ethical and professional issues and explain why they are of concern to software engineers.</li> <li>Explain the fundamentals of object oriented concepts.</li> <li>Describe the process of requirements gathering, requirements classification, requirements specification and requirements validation.</li> <li>Differentiate system models, use UML diagrams and apply design patterns.</li> <li>Discuss the distinctions between validation testing and defect testing.</li> </ul>			
<b>Module-1</b>			
Introduction: Professional Software Development Attributes of good software, software engineering diversity, IEEE/ACM code of software engineering ethics, case studies. Software Process and Agile Software Development Software Process models: waterfall, incremental development, reuses oriented, Process activities; coping with change, The Rational Unified Process.			
<b>Teaching-Learning Process</b>	Chalk and board, Active Learning, Problem based learning		
<b>Module-2</b>			
Agile Methods, Plan-Driven and Agile Development, Extreme Programming, Agile Project Management, scaling agile methods. Requirement Engineering: Functional and non-functional requirements, The Software requirements document, Requirements specification, Requirements engineering processes, Requirement elicitation and analysis, Requirement validation, Requirement management			
<b>Teaching-Learning Process</b>	Chalk and board, Active Learning, Problem based learning		
<b>Module-3</b>			
What is object orientation? What is OO development? OO themes; Evidence for usefulness of OO development; OO modelling history, modelling as design Technique: Modelling; abstraction; the three models. Object and class concepts; Link and associations concepts; Generalization and inheritance; A sample class model; Navigation of class models; Practical tips. Advanced objects and class concepts; Associations ends; N-array association; Aggregation, Abstract class; Multiple inheritance; Metadata; Reification; Constraints; Derived data; packages; practical tips			
<b>Teaching-Learning Process</b>	Chalk and board, Active Learning, Problem based learning		
<b>Module-4</b>			
System Models: Context models, Interaction models. Structural models. Behavioural models. Model-driven engineering Design and Implementation: Introduction to RUP, Design Principles. Object-oriented design using the UML. Design patterns. Implementation issues. Open source development.			



<b>User Interface Design</b>			
Course Code	<b>22MCA254</b>	CIE Marks	50
Teaching Hours/Week (L:P:SDA)	2:0:2	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	03
<b>Course Learning objectives:</b>			
<ul style="list-style-type: none"> <li>Identify and define key terms related to user interfaces and user interface design and implementation.</li> <li>Identify and describe various types of computer users and computer use contexts.</li> <li>Describe and explain the user interface design process.</li> </ul>			
<b>Module-1</b>			
Introduction: Usability of Interactive Systems: Introduction, Usability Goals and Measures, Usability Motivation, Universal Usability, Goals for our profession. Guideline, principles, and theories: Introduction, Guidelines, principles, Theories.			
<b>Teaching-Learning Process</b>	Chalk and talk method / PowerPoint Presentation		
<b>Module-2</b>			
Development Processes: Managing Design Processes: Introduction, Organizational Design to support Usability, The Four Pillars of Design, Development methodologies: Ethnographic Observation, Participatory Design, Scenario Development, Social Impact statement for Early Design Review, Legal Issues.			
<b>Teaching-Learning Process</b>	Chalk and talk method / PowerPoint Presentation		
<b>Module-3</b>			
Evaluating Interface: Design Introduction, Expert Reviews, Usability Testing and Laboratories, Survey Instruments, Acceptance tests, Evaluation during Active Use, Controlled Psychologically Oriented Experiments			
<b>Teaching-Learning Process</b>	Chalk and talk method / PowerPoint Presentation		
<b>Module-4</b>			
Direct Manipulation and Virtual Environments: Introduction, Examples of Direct Manipulation, Discussion of direct manipulation, 3D Interfaces, Tele-operation, Virtual and Augmented Reality Menu Selection, Form Filling and Dialog Boxes: Introduction, Task-Related Menu Organization, Single Menus, Combination of Multiple Menus, Content Organization, Fast Movement Through Menus, Data Entry With Menus, Form Filling, Dialog Boxes and Alternatives, Audio Menus and Menus for Small Displays			
<b>Teaching-Learning Process</b>	Chalk and talk method / PowerPoint Presentation		





Module-5	
Command and Natural Languages Introduction, Command-organization functionality strategies and structure, Naming and Abbreviations, Natural Language in computing, Interaction Devices: Introduction, Keyboards and Keypads, Pointing Devices, Speech and Auditory interfaces, Displays-Small and Large	
Teaching-Learning Process	Chalk and talk method / PowerPoint Presentation

10.08.2023

1

023

EES-24.06.2023

Credits corre

**Assessment Details (both CIE and SEE)**

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

**Continuous Internal Evaluation:**

1. Three Unit Tests each of **20 Marks**
2. Two assignments each of **20 Marks** or **one Skill Development Activity of 40 marks** to attain the COs and POs

The sum of three tests, two assignments/skill Development Activities, will be **scaled down to 50 marks**

**CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.**

**Semester End Examination:**

1. The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50.
2. The question paper will have ten full questions carrying equal marks.
3. Each full question is for 20 marks. There will be two full questions (with a maximum of four sub-questions) from each module.
4. Each full question will have a sub-question covering all the topics under a module.
5. The students will have to answer five full questions, selecting one full question from each module





## Gender

### Department of Biotechnology

<b>GENETIC ENGINEERING &amp; APPLICATIONS</b>			
Course Code	<b>18BT56</b>	CIE Marks	40
Teaching Hours/Week (L:T:P)	(3:0:0)	SEE Marks	60
Credits	03	Exam Hours	03
<b>Course Learning Objectives:</b>			
<ul style="list-style-type: none"> <li>To learn about rDNA technology, vectors and enzymes used in genetic engineering.</li> <li>To learn acquire the knowledge of specific techniques like PCR, NA hybridization &amp; libraries.</li> <li>To learn about various gene transfer techniques, applications of transgenic plants &amp; animals and importance of gene therapy</li> </ul>			
<b>Module-1</b>			
<b>VECTORS &amp; ENZYMES IN GENETIC ENGINEERING:</b>			
Vectors in rDNA technology, salient features of vectors, types of vectors-plasmids, cosmids, phagemids and viruses. Construction of rDNA& vectors (BAC, Blue script and YAC). Exonucleases and Restriction Endonucleases: classification, mode of action. Enzymes in modification - Polynucleotide phosphorylase, DNase, Methylases, phosphatases, polynucleotide Kinase, Ligases, RNase and their mechanism of action			
<b>Module-2</b>			
<b>NUCLEIC ACID HYBRIDIZATION, AMPLIFICATION &amp; CONSTRUCTION OF LIBRARIES:</b>			
Methods of nucleic acid detection, polymerase chain reaction (PCR), variants of PCR and applications, methods of nucleic acid hybridization, Southern, Northern & Western hybridization techniques & applications. Isolation of nucleic acids (DNA & RNA). Isolation of plasmids, construction of genomic and cDNA libraries, purification, screening and preservation			
<b>Module-3</b>			
<b>METHODS OF GENE/DNA TRANSFER:</b>			
Overview & classification of gene transfer techniques in plants, animals and microbes – Transformation, stable & transient transformation, transfection, electroporation, microinjection, liposome mediated gene transfer, transfection of DNA by calcium phosphate coprecipitation, gene gun method. <i>Agrobacterium</i> -mediated gene transfer in plants – Ti & Ri plasmids: structure and functions, Ti plasmid based vectors – advantages, disease control of <i>Agrobacterium tumefaciens</i> . Chloroplast transformation & its applications.			
<b>Module-4</b>			
<b>TRANSGENIC SCIENCE IN GENETIC IMPROVEMENT</b>			
Transgenic science in plant improvement, biopharming – plants as bioreactors, transgenic crops for increased yield, resistance to biotic and abiotic stresses. Techniques of gene mapping in plants. Marker-assisted selection and breeding for improvement. Transgenic science for animal improvement, biopharming - animals as bioreactors for recombinant proteins, Gene mapping in farm animals. Marker-assisted selection and genetic improvement of livestock.			
<b>Module-5</b>			
<b>OTHER APPLICATIONS &amp; GENE THERAPY</b>			
Microbial biotechnology - Genetic manipulation, engineering microbes for the production of antibiotics, enzymes, Insulin, growth hormones, monoclonal antibodies, clearing oil spills. Introduction to gene therapy. Methods of Gene therapy. Gene targeting and silencing. Gene therapy in the treatment of cancer, SCID, muscular dystrophy, respiratory disease (emphysema), cystic fibrosis. Challenges & future of gene therapy.			



## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi.  
Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602,Fax:080-25730551  
E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

**Course Outcomes:** At the end of the course the student will be able to:

- Explain & compare the different vectors & enzymes used in the construction of recombinant DNA in Genetic engineering
- Choose& explain specific techniques like PCR, Blotting & construction of libraries
- Differentiate between & learn the different gene/DNA transfer techniques
- Outline the various methods of producing transgenic organisms and sub-divide/summarize the applications of genetic engineering for the welfare of mankind & society

**Question paper pattern:**

- The question paper will have ten full questions carrying equal marks.
- Each full question will be for 20 marks.
- There will be two full questions (with a maximum of four sub- questions) from each module.
- Each full question will have sub- question covering all the topics under a module.
- The students will have to answer five full questions, selecting one full question from each module.

Sl No	Title of the Book	Name of the Author/s	Name of the Publisher	Edition and Year
<b>Textbook/s</b>				
1	Principles of Gene Manipulation and Genomics	S.B. Primrose and R. M. Twyman	Blackwell Science Publications	7th edition 2006
2	Gene Cloning and DNA Analysis: An Introduction	T A Brown	Wiley – Blackwell Publications.	(6th edition)
<b>Reference Books</b>				
3	Recombinant DNA	Watson.J.D. et al	Scientific American Books, New York	1993
4	Plant Genetic Engineering	J. H. Dodds	Cambridge University Press	1983
5	Gene Cloning and Manipulation	Howe C. J	Cambridge University Press	2007

Course Title:	<b>Indian Constitution</b>		
Course Code:		CIE Marks	50
Course Type (Theory/Practical /Integrated)	<b>22COC107-207</b>	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01

**Course objectives :**

The course **INDIAN CONSTITUTION (22COC17 / 27)** will enable the students,

1. To know about the basic structure of Indian Constitution.
2. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
3. To know about our Union Government, political structure & codes, procedures.
4. To know the State Executive & Elections system of India.
5. To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.



**Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching -Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

- (i) Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools),
- (iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion.
- (iii) Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

**Module-1 (03 hours of pedagogy)**

Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to the Indian constitution, Making of the Constitution, Role of the Constituent Assembly.

**Module-2 (03 hours of pedagogy)**

Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. Fundamental Rights (FR's) and its Restriction and limitations in different Complex Situations. building.

**Module-3 (03 hours of pedagogy)**

Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.

**Module-4 (03 hours of pedagogy)**

Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India, Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.

**Module-5 (03 hours of pedagogy)**

State Executive and Governor, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.

**Course outcome (Course Skill Set)**

At the end of the course 22IC017/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.
CO4	Understand our State Executive & Elections system of India.
CO5	Remember the Amendments and Emergency Provisions, other important provisions given by the constitution.



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi.  
Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551  
E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

### Department of Information Science & Engineering

Course Title:	<b>Indian Constitution</b>		
Course Code:		CIE Marks	50
Course Type (Theory/Practical /Integrated)	<b>BIGOK107-207</b>	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01
<b>Course objectives :</b>			
The course <b>INDIAN CONSTITUTION (22IC017 / 27)</b> will enable the students,			
<ol style="list-style-type: none"> <li>To know about the basic structure of Indian Constitution.</li> <li>To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.</li> <li>To know about our Union Government, political structure &amp; codes, procedures.</li> <li>To know the State Executive &amp; Elections system of India.</li> <li>To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.</li> </ol>			
<b>Teaching-Learning Process</b>			
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching -Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.			
<ol style="list-style-type: none"> <li>Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools),</li> <li>Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion.</li> <li>Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.</li> </ol>			
<b>Module-1</b>		<b>(03 hours of pedagogy)</b>	
Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to the Indian constitution, Making of the Constitution, Role of the Constituent Assembly.			
<b>Module-2</b>		<b>(03 hours of pedagogy)</b>	
Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. Fundamental Rights (FR's) and its Restriction and limitations in different Complex Situations. building.			
<b>Module-3</b>		<b>(03 hours of pedagogy)</b>	
Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive - President, Prime Minister, Union Cabinet.			
<b>Module-4</b>		<b>(03 hours of pedagogy)</b>	
Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India, Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.			
<b>Module-5</b>		<b>(03 hours of pedagogy)</b>	
State Executive and Governor, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.			
<b>Course outcome (Course Skill Set)</b>			
At the end of the course 22IC017/27 the student will be able to:			
CO1	Analyse the basic structure of Indian Constitution.		





CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi. Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602,Fax:080-25730551

E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

C02	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
C03	know about our Union Government, political structure & codes, procedures.
C04	Understand our State Executive & Elections system of India.
C05	Remember the Amendments and Emergency Provisions, other important provisions given by the constitution.

### Department of Mechanical Engineering

Course Title:	<b>Indian Constitution</b>		
Course Code:		CIE Marks	50
Course Type (Theory/Practical /Integrated)	<b>BIGOK107-207</b>	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01

#### Course objectives :

The course **INDIAN CONSTITUTION (22IC017 / 27)** will enable the students,

- To know about the basic structure of Indian Constitution.
- To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
- To know about our Union Government, political structure & codes, procedures.
- To know the State Executive & Elections system of India.
- To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.

#### Teaching-Learning Process

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching -Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

- Direct instructional method ( Low/Old Technology),
  - Flipped classrooms (High/advanced Technological tools),
  - Blended learning (Combination of both),
  - Enquiry and evaluation based learning,
  - Personalized learning,
  - Problems based learning through discussion.
- Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

#### Module-1 (03 hours of pedagogy)

Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to the Indian constitution, Making of the Constitution, Role of the Constituent Assembly.

#### Module-2 (03 hours of pedagogy)

Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. Fundamental Rights (FR's) and its Restriction and limitations in different Complex Situations. building.

#### Module-3 (03 hours of pedagogy)

Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive - President, Prime Minister, Union Cabinet.

#### Module-4 (03 hours of pedagogy)

Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India, Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.

#### Module-5 (03 hours of pedagogy)





CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi. Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
 Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602,Fax:080-25730551

E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

State Executive and Governor, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.

### Course outcome (Course Skill Set)

At the end of the course 22IC017/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.
CO4	Understand our State Executive & Elections system of India.
CO5	Remember the Amendments and Emergency Provisions, other important provisions given by the constitution.

## Department of Computer Science & Engineering

Course Title:	<b>Indian Constitution</b>		
Course Code:		CIE Marks	50
Course Type (Theory/Practical /Integrated)	<b>22IC017-207</b>	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01

### Course objectives :

The course **INDIAN CONSTITUTION (22IC017 / 27)** will enable the students,

- To know about the basic structure of Indian Constitution.
- To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
- To know about our Union Government, political structure & codes, procedures.
- To know the State Executive & Elections system of India.
- To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.

### Teaching-Learning Process

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching -Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

- Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools),
- Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion.
- Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

### Module-1

(03 hours of pedagogy)

Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to the Indian constitution, Making of the Constitution, Role of the Constituent Assembly.

### Module-2

(03 hours of pedagogy)

Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. Fundamental Rights (FR's) and its Restriction and limitations in different Complex Situations. building.

### Module-3

(03 hours of pedagogy)



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi. Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
 Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551  
 E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.	
<b>Module-4</b>	<b>(03 hours of pedagogy)</b>
Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India, Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.	
<b>Module-5</b>	<b>(03 hours of pedagogy)</b>
State Executive and Governor, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.	
<b>Course outcome (Course Skill Set)</b>	
At the end of the course 22IC017/27 the student will be able to:	
CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.
CO4	Understand our State Executive & Elections system of India.
CO5	Remember the Amendments and Emergency Provisions, other important provisions given by the constitution.

## Department of Electrical and Communication Engineering

Course Title:	<b>Indian Constitution</b>		
Course Code:		CIE Marks	50
Course Type (Theory/Practical /Integrated)	<b>22IC017-207</b>	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01
<b>Course objectives :</b>			
The course <b>INDIAN CONSTITUTION (22IC017 / 27)</b> will enable the students,			
<ol style="list-style-type: none"> <li>1. To know about the basic structure of Indian Constitution.</li> <li>2. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.</li> <li>3. To know about our Union Government, political structure &amp; codes, procedures.</li> <li>4. To know the State Executive &amp; Elections system of India.</li> <li>5. To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.</li> </ol>			
<b>Teaching-Learning Process</b>			
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.			
<ol style="list-style-type: none"> <li>(i) Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools),</li> <li>(iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion.</li> <li>(vii) Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.</li> </ol>			
<b>Module-1</b>	<b>(03 hours of pedagogy)</b>		



Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to the Indian constitution, Making of the Constitution, Role of the Constituent Assembly.

**Module-2 (03 hours of pedagogy)**

Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. Fundamental Rights (FR's) and its Restriction and limitations in different Complex Situations. building.

**Module-3 (03 hours of pedagogy)**

Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive - President, Prime Minister, Union Cabinet.

**Module-4 (03 hours of pedagogy)**

Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India, Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.

**Module-5 (03 hours of pedagogy)**

State Executive and Governor, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.

**Course outcome (Course Skill Set)**

At the end of the course 22IC017/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.
CO4	Understand our State Executive & Elections system of India.
CO5	Remember the Amendments and Emergency Provisions, other important provisions given by the constitution.

**Department of Artificial Intelligence and Machine Learning**

Course Title:	<b>Indian Constitution</b>		
Course Code:		CIE Marks	50
Course Type (Theory/Practical /Integrated)	<b>22IC017-207</b>	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01

**Course objectives :**

The course **INDIAN CONSTITUTION (22IC017 / 27)** will enable the students,

- To know about the basic structure of Indian Constitution.
- To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
- To know about our Union Government, political structure & codes, procedures.
- To know the State Executive & Elections system of India.
- To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.

**Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching -Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

- Direct instructional method ( Low/Old Technology),
- Flipped classrooms (High/advanced Technological tools),
- Blended learning (Combination of both),
- Enquiry and evaluation based learning,
- Personalized



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi. Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551

E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

learning, (vi) Problems based learning through discussion.	
(iii) Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.	
<b>Module-1 (03 hours of pedagogy)</b>	
Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to the Indian constitution, Making of the Constitution, Role of the Constituent Assembly.	
<b>Module-2 (03 hours of pedagogy)</b>	
Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. Fundamental Rights (FR's) and its Restriction and limitations in different Complex Situations. building.	
<b>Module-3 (03 hours of pedagogy)</b>	
Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.	
<b>Module-4 (03 hours of pedagogy)</b>	
Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India, Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.	
<b>Module-5 (03 hours of pedagogy)</b>	
State Executive and Governor, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.	
<b>Course outcome (Course Skill Set)</b>	
At the end of the course 22IC017/27 the student will be able to:	
C01	Analyse the basic structure of Indian Constitution.
C02	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
C03	know about our Union Government, political structure & codes, procedures.
C04	Understand our State Executive & Elections system of India.
C05	Remember the Amendments and Emergency Provisions, other important provisions given by the constitution.

### Department of Mechatronics

Course Title:	<b>Indian Constitution</b>		
Course Code:		CIE Marks	50
Course Type (Theory/Practical /Integrated)	<b>22IC017-207</b>	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01

#### Course objectives :

The course **INDIAN CONSTITUTION (22IC017 / 27)** will enable the students,

- To know about the basic structure of Indian Constitution.
- To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
- To know about our Union Government, political structure & codes, procedures.
- To know the State Executive & Elections system of India.
- To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.





**Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching -Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

- (i) Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools),
- (iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion.
- (iii) Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

**Module-1 (03 hours of pedagogy)**

Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to the Indian constitution, Making of the Constitution, Role of the Constituent Assembly.

**Module-2 (03 hours of pedagogy)**

Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. Fundamental Rights (FR's) and its Restriction and limitations in different Complex Situations. building.

**Module-3 (03 hours of pedagogy)**

Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.

**Module-4 (03 hours of pedagogy)**

Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India, Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.

**Module-5 (03 hours of pedagogy)**

State Executive and Govenor, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.

**Course outcome (Course Skill Set)**

At the end of the course 22IC017/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.
CO4	Understand our State Executive & Elections system of India.
CO5	Remember the Amendments and Emergency Provisions, other important provisions given by the constitution.



## Department of Civil Engineering

Course Title:	<b>Indian Constitution</b>		
Course Code:		CIE Marks	50
Course Type (Theory/Practical /Integrated)	<b>22IC017-207</b>	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01
<b>Course objectives :</b>			
The course <b>INDIAN CONSTITUTION (22IC017 / 27)</b> will enable the students,			
<ol style="list-style-type: none"> <li>To know about the basic structure of Indian Constitution.</li> <li>To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.</li> <li>To know about our Union Government, political structure &amp; codes, procedures.</li> <li>To know the State Executive &amp; Elections system of India.</li> <li>To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.</li> </ol>			
<b>Teaching-Learning Process</b>			
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching -Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.			
<ol style="list-style-type: none"> <li>Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools),</li> <li>Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion.</li> <li>Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.</li> </ol>			
<b>Module-1</b>		<b>(03 hours of pedagogy)</b>	
Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to the Indian constitution, Making of the Constitution, Role of the Constituent Assembly.			
<b>Module-2</b>		<b>(03 hours of pedagogy)</b>	
Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. Fundamental Rights (FR's) and its Restriction and limitations in different Complex Situations. building.			
<b>Module-3</b>		<b>(03 hours of pedagogy)</b>	
Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive - President, Prime Minister, Union Cabinet.			
<b>Module-4</b>		<b>(03 hours of pedagogy)</b>	
Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India, Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.			
<b>Module-5</b>		<b>(03 hours of pedagogy)</b>	
State Executive and Governor, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral			



Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.

**Course outcome (Course Skill Set)**

At the end of the course 22IC017/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.
CO4	Understand our State Executive & Elections system of India.
CO5	Remember the Amendments and Emergency Provisions, other important provisions given by the constitution.

**Department of Electrical & Electronics Engineering**

Course Title:	<b>Indian Constitution</b>		
Course Code:		CIE Marks	50
Course Type (Theory/Practical /Integrated)	<b>22IC017-207</b>	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01

**Course objectives :**

The course **INDIAN CONSTITUTION (22IC017 / 27)** will enable the students,

1. To know about the basic structure of Indian Constitution.
2. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
3. To know about our Union Government, political structure & codes, procedures.
4. To know the State Executive & Elections system of India.
5. To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.

**Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching -Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

- (i) Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools),
- (iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion.
- (iii) Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

**Module-1 (03 hours of pedagogy)**

Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to the Indian constitution, Making of the Constitution, Role of the Constituent Assembly.

**Module-2 (03 hours of pedagogy)**

Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. Fundamental Rights (FR's) and its Restriction and limitations in different Complex Situations. building.

**Module-3 (03 hours of pedagogy)**



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi.  
Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551  
E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

Directive Principles of State Policy (DPSP's) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.

### Module-4 (03 hours of pedagogy)

Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India, Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.

### Module-5 (03 hours of pedagogy)

State Executive and Governor, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.

#### Course outcome (Course Skill Set)

At the end of the course 22IC017/27 the student will be able to:

CO1	Analyse the basic structure of Indian Constitution.
CO2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
CO3	know about our Union Government, political structure & codes, procedures.
CO4	Understand our State Executive & Elections system of India.
CO5	Remember the Amendments and Emergency Provisions, other important provisions given by the constitution.





<b>Management and Entrepreneurship</b>			
Course Code	<b>21EE61</b>	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	3:0:0:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	03
<p><b>Course objectives:</b>            (1)To introduce the field of management, task of the manager, importance of planning and types of planning, staff recruitment and selection process.            (2)To discuss the ways in which work is allocation, structure of organizations, modes of communication and importance of managerial control in business.            (3)To explain need of coordination between the manager and staff, the social responsibility of business and leadership.            (4)To explain the role and importance of the entrepreneur in economic development and the concepts of entrepreneurship.            (5)To explain various types of entrepreneurs and their functions, the myths of entrepreneurship and the factors required for capacity building for entrepreneurs.            (6)To discuss the importance of Small Scale Industries and the related terms and problems involved.            (7)To discuss methods for generating new business ideas and business opportunities in India and the importance of business plan.            (8)To introduce the concepts of project management and discuss capital building process.            (9)To explain project feasibility study and project appraisal and discuss project financing.            (10)To discuss about different institutions at state and central levels supporting business enterprises.</p>			
<p><b>Teaching-Learning Process (General Instructions)</b>            These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.            1. Lecturer method (L) needs not to be only traditional lecture method, but alternative effective teaching methods could be adopted to attain the outcomes.            2. Use of Video/Animation to explain functioning of various concepts.            3. Encourage collaborative (Group Learning) Learning in the class.            4. Ask at least three HQT (Higher order Thinking) questions in the class, which promotes critical thinking.            5. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop design thinking skills such as the ability to design, evaluate, generalize, and analyse information rather than simply recall it.            6. Introduce Topics in manifold representations.            7. Show the different ways to solve the same problem with different circuits/logic and encourage the students to come up with their own creative ways to solve them.            8. Discuss how every concept can be applied to the real world - and when that's possible, it helps improve the students' understanding.</p>			
<b>Module-1</b>			
<p><b>Management:</b> Definition, Importance – Nature and Characteristics of Management, Management Functions, Roles of Manager, Levels of Management, Managerial Skills, Management &amp; Administration, Management as a Science, Art &amp; Profession.  <b>Planning:</b> Nature, Importance and Purpose Of Planning, Types of Plans, Steps in Planning, Limitations of Planning, Decision Making – Meaning, Types of Decisions-Steps in Decision Making.</p>			
<b>Teaching-Learning Process</b>	Chalk and Board, Power Point Presentation.		
<b>Module-2</b>			
<p><b>Organizing and Staffing:</b> Meaning, Nature and Characteristics of Organization – Process of Organization, Principles of Organization, Departmentalization, Committees – meaning, Types of Committees, Centralization Versus Decentralization of Authority and Responsibility, Span of Control (Definition only), Nature and Importance of Staffing, Process of Selection and Recruitment.  <b>Directing and Controlling:</b> Meaning and Nature of Directing-Leadership Styles, Motivation Theories Communication – Meaning and Importance, Coordination- Meaning and Importance, Techniques of Coordination. Controlling – Meaning, Steps in Controlling.</p>			
<b>Teaching-Learning Process</b>	Chalk and Board, Power Point Presentation.		
<b>Module-3</b>			



Department of Business Administration

RECRUITMENT AND SELECTION			
Course Code	22MBAHR303	CIE Marks	50
Teaching Hours/Week (L:P:SDA)	4:0:0	SEE Marks	50
Total Hours of Pedagogy	50	Total Marks	100
Credits	04	Exam Hours	03
<b>Course Learning Objectives:</b> This course will enable the students <ul style="list-style-type: none"> <li>To recite the theories and various steps involved in Recruitment and Selection</li> <li>To describe and explain in her/his own words, the relevance and importance of Recruitment and Selection in the Organization</li> <li>To apply and solve the workplace problems through Recruitment and Selection intervention</li> <li>To classify and categorize in differentiating between the best method to be adopted by organization related to Recruitment and Selection</li> <li>To compare and contrast different approaches of Recruitment and Selection framework for solving the complex issues and problems</li> <li>To design and develop an original framework and framework in dealing with the problems in the organization.</li> </ul>			
<b>Module-1 (8 Hours)</b>			
<b>Workforce Planning and Recruitment Analytics:</b> Concept of Work, Organisation's Work and Jobs; Millennials at the work place; Key Characteristics of Millennials; Types of Millennial; The Evolution of Work Structure; Organising the Work; Strategic Job Redesign and Its Benefits; Strategic Issues in Recruitment; What make Bad Recruitment; Overview of the Hiring Process; Recruitment Metrics; Factors Affecting Recruitment; Recruitment Strategy: An Internal Approach; Recruitment Strategy: An External Approach; Legal and Ethical Considerations; Organisational Best Practices.			
<b>Module-2 (9 Hours)</b>			
<b>Job Analysis, Job Description and Job Design:</b> Identify the Job to Examine; Determine Appropriate Information Sources and Collect Job-Related Data; Job Description; Competency and Competency Ice Berg Model; Why Competency Based Recruitment; Sources of Recruitment; Different steps of job search; Motivational Job Specification; Creation of Functional Specification; Creation of Behavioural Specification; Employer branding; Social Media; Job Design.			
<b>Module-3 (9 Hours)</b>			
<b>Job Evaluation:</b> The Job Evaluation Process; Obtain Job KSAOs, Qualifications, Working Conditions, and Essential Duties; Examine Compensable Factors Using the Rating/Weighting Evaluation Method; Determine Overall Job Value; Hay Group—Pioneer in Job Evaluation; Determining Compensation using Job Evaluation Data; Legal and Ethical Considerations for Job Evaluation; Online Salary Survey.			
<b>Module-4 (9 Hours)</b>			





<b>Selection and Interview Strategy:</b> Interview Strategy and Process; Millennials shaping the Recruitment landscape in the organizations; Strategies for recruiting and selecting Generation Y into the workforce Developing Effective. Interviewers; Interviewing Techniques; Legal and Ethical Considerations in the Interview Process; The overall BEI Process; Assessment Centre's; Simulations.
<b>Module-5 (9 Hours)</b>
<b>Testing and Assessment:</b> Testing in Occupational Selection; Test related to Assessment of Knowledge, Skills, and Abilities; Personality Assessment; The Birkman method and MBTI@ comparison; FIRO-B; Honesty and Integrity Assessment; Various Non-Interviewing Methods; Graphology; Skills Assessment; Games and Group Activity for Leadership Assessment; Administration of Tests and Assessments; Key Interviewer Skills.
<b>Module-6 (7 Hours)</b>
<b>Making the Hire; Assessment of Candidate and Job Fit:</b> Unique Recruitment strategies; Biodata and Application Forms; Implications of Using Social Media Content in Hiring Decisions; Background Checks; Reference Checks; Pre-employment Testing; Making a Job Offer; Transitioning from Job Candidate to Employee; Induction; Placement.
<b>Assessment Details (both CIE and SEE)</b> The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing marks for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements (passed) and earned the credits allotted to each course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together. <b>Continuous Internal Evaluation:</b> There shall be a maximum of 50 CIE Marks. A candidate shall obtain not less than 50% of the maximum marks prescribed for the CIE. <b>CIE Marks shall be based on:</b> a) Tests (for 25Marks) and b) Assignments, presentations, Quiz, Simulation, Experimentation, Mini project, oral examination, field work and class participation etc., (for 25 Marks) conducted in the respective course. Course instructors are given autonomy in choosing a few of the above based on the subject relevance and should maintain necessary supporting documents for same. <b>Semester End Examination:</b> The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50. <ul style="list-style-type: none"><li>• The question paper will have 8 full questions carrying equal marks.</li><li>• Each full question is for 20 marks with 3 sub questions.</li><li>• Each full question will have sub question covering all the topics.</li><li>• The students will have to answer five full questions; selecting four full questions from question number one to seven in the pattern of 3, 7 &amp; 10 Marks and question number eight is compulsory.</li></ul>





<b>CONFLICT &amp; NEGOTIATION MANAGEMENT</b>			
<b>Course Code</b>	<b>22MBAHR403</b>	<b>CIE Marks</b>	<b>50</b>
<b>Teaching Hours/Week (L:P:SDA)</b>	<b>2:2:0</b>	<b>SEE Marks</b>	<b>50</b>
<b>Total Hours of Pedagogy</b>	<b>40</b>	<b>Total Marks</b>	<b>100</b>
<b>Credits</b>	<b>03</b>	<b>Exam Hours</b>	<b>03</b>
<b>Course Learning objectives:</b>			
1. To understand the nature of various dimensions of conflict. 2. To learn various strategies and techniques to manage conflicts. 3. To understand the importance and role of negotiation in conflict resolution. 4. To understand the importance of cross-cultural and gender dimensions of negotiation.			
<b>Module-1</b>		<b>6 Hours</b>	
<b>Introduction:</b> Conflict: Definition, Meaning, Theories, Types of Conflicts - Productive (functional) and Destructive (dysfunctional), Levels of conflict - intrapersonal, interpersonal, group & organizational conflicts, Process and Structural Models, Myths about conflicts - of conflicts: cognitive (Pseudo conflict), process (simple conflict) and Inter-personal conflict (ego conflict), causes of conflict: common causes, organizational and interpersonal of conflict: traditional, Contemporary and Integrationist, Causes for work place conflicts - Harassment and discrimination.			
<b>Module-2</b>		<b>7 Hours</b>	
<b>Analogy of Conflict:</b> Stages of conflicts: grievances- personal needs, lack of monetary benefits and Incentives, promotion and recognition, harassment, discrimination, prejudice and Bias, identity unconcern attitudes of administration, frustration, escalation of Conflicts, and violence, Cost and effect of conflicts. Perspectives of conflict - organizational and individuals. Spectrum of conflicts- Personal conflicts, group conflicts, labour conflicts, social and political conflicts, Contingency conflict management process, Cost of Workplace Conflict, conflict mapping and tracking			
<b>Module-3</b>		<b>7 Hours</b>	
<b>Conflict Management:</b> Nature of conflict Management, Managing conflict: Thomas conflict resolution approach (Avoiding, Accommodating, Compromising, Competing, Collaboration) behavioural style and conflict handling, Cosier Schank model of conflict resolution. Strategies for resolving Individual, Team and organizational level conflict, Conflict Resolution Process - Persuasion, Counselling and Reconciliation Skills, Negotiation and Arbitration, Skills for conflict management - Listening, Mentoring, Mediating, Negotiating, Counselling, Diplomacy, EI (Emotional Intelligence). Conflict Regulation Reduction, Resolution, Transformation			
<b>Module-4</b>		<b>6 Hours</b>	
<b>Negotiation:</b> Negotiations/ Negotiation strategies -Meaning , Six Foundations of Negotiation, Negotiations, negotiation process, Principles for successful negotiations, Factors and essential skills for negotiation, tricks used in negotiation process, psychological advantage of negotiations, Techniques of negotiation, issues in negotiations. Negotiation strategies: Strategy and tactics for			





CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi. Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
 Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551  
 E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

# Human Values

## Department of Biotechnology

### Scientific Foundations of Health

Course Title:	<b>Scientific Foundations of Health</b>		
Course Code:	<b>BSFHK158/258</b>	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01
<b>Course objectives</b>			
The course Scientific Foundations of Health (22SFH18/28) will enable the students,			
<ol style="list-style-type: none"> <li>To know about Health and wellness (and its Beliefs) &amp; It's balance for positive mindset.</li> <li>To Build the healthy lifestyles for good health for their better future.</li> <li>To Create a Healthy and caring relationships to meet the requirements of good/social/positive life.</li> <li>To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future</li> <li>To Prevent and fight against harmful diseases for good health through positive mindset</li> </ol>			
<b>Teaching-Learning Process</b>			
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching -Learning more effective:			
Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.			
(i) Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools), (iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion, (vii) Following the method of expeditionary learning Tools and techniques, (viii) Use of audio visual methods.			
Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.			
<b>Module-1</b>		<b>(03 hours of pedagogy)</b>	
Good Health & It's balance for positive mindset: Health -Importance of Health, Influencing factors of Health, Health beliefs, Advantages of good health, Health & Behavior, Health & Society, Health & family, Health & Personality, Psychological disorders-Methods to improve good psychological health, Changing health habits for good health.			
<b>Module-2</b>		<b>(03 hours of pedagogy)</b>	
Building of healthy lifestyles for better future: Developing healthy diet for good health, Food & health, Nutritional guidelines for good health, Obesity & overweight disorders and its management, Eating disorders, Fitness components for health. Wellness and physical function. How to avoid exercise injuries.			
<b>Module-3</b>		<b>(03 hours of pedagogy)</b>	
Creation of Healthy and caring relationships : Building communication skills, Friends and friendship - Education, the value of relationship and communication skills, Relationships for Better or worsening of life, understanding of basic instincts of life (more than a biology), Changing health behaviours through social engineering.			
<b>Module-4</b>		<b>(03 hours of pedagogy)</b>	
Avoiding risks and harmful habits : Characteristics of health compromising behaviors, Recognizing and avoiding of addictions, How addiction develops, Types of addictions, influencing factors of addictions, Differences between addictive people and non addictive people & their behaviors. Effects of addictions Such as..., how to recovery from addictions.			
<b>Module-5</b>		<b>(03 hours of pedagogy)</b>	
Preventing & fighting against diseases for good health: How to protect from different types of infections, How to reduce risks for good health, Reducing risks & coping with chronic conditions, Management of chronic illness for Quality of life, Health & Wellness of youth :a challenge for upcoming future, Measuring of health & wealth status.			



BUHK408 – UHV for 2022 Scheme

Universal Human Values (UHV)		Semester	3 <sup>rd</sup>
Course Code	<b>BUHK408</b>	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	1:0:0:1	SEE Marks	50
Total Hours of Pedagogy	15 hour Theory Session +15 hour Self study	Total Marks	100
Credits	01	Exam Hours	01 Hour
Examination type (SEE)	SEE paper shall be set for 50 questions, each of the 01 mark. The pattern of the question paper is <b>MCQ (multiple choice questions)</b> .		

**Course objectives:**

This course is intended to:

- To help the students appreciate the essential complementarity between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity which are the core aspirations of all human beings.
- To facilitate the development of a Holistic perspective among students towards life and profession as well as towards happiness and prosperity based on a correct understanding of the Human reality and the rest of existence. Such a holistic perspective forms the basis of Universal Human Values and movement towards value-based living in a natural way.
- To highlight plausible implications of such a Holistic understanding in terms of ethical human conduct, trustful and mutually fulfilling human behaviour and mutually enriching interaction with Nature.
- This course is intended to provide a much-needed orientation input in value education to the young enquiring minds.

**Teaching-Learning Process (General Instructions)**

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

1. The methodology of this course is explorational and thus universally adaptable. It involves a systematic and rational study of the human being vis-à-vis the rest of existence.
2. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the activities will develop students' theoretical and applied skills.
3. State the need for UHV activities and its present relevance in the society and Provide real-life examples.
4. Support and guide the students for self-study activities.
5. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress in real activities in the field.
6. This process of self-exploration takes the form of a dialogue between the teacher and the students to begin with, and then to continue within the student in every activity, leading to continuous selfevolution.
7. Encourage the students for group work to improve their creative and analytical skills.

**Module-1**

**Introduction to Value Education**

**(3 hours)**

Right Understanding, Relationship and Physical Facility (Holistic Development and the Role of Education) Understanding Value Education, Self-exploration as the Process for Value Education, Continuous Happiness and Prosperity – the Basic Human Aspirations, Happiness and Prosperity – Current Scenario, Method to Fulfil the Basic Human Aspirations

**Module-2**



BUHK408 – UHV for 2022 Scheme

<b>Harmony in the Human Being :</b> (3 hours) Understanding Human being as the Co-existence of the Self and the Body, Distinguishing between the Needs of the Self and the Body, The Body as an Instrument of the Self, Understanding Harmony in the Self, Harmony of the Self with the Body, Programme to ensure self-regulation and Health
<b>Module-3</b>
<b>Harmony in the Family and Society :</b> (3 hours) Harmony in the Family – the Basic Unit of Human Interaction, 'Trust' – the Foundational Value in Relationship, 'Respect' – as the Right Evaluation, Other Feelings, Justice in Human-to-Human Relationship, Understanding Harmony in the Society, Vision for the Universal Human Order
<b>Module-4</b>
<b>Harmony in the Nature/Existence :</b> (3 hours) Understanding Harmony in the Nature, Interconnectedness, self-regulation and Mutual Fulfilment among the Four Orders of Nature, Realizing Existence as Co-existence at All Levels, The Holistic Perception of Harmony in Existence
<b>Module-5</b>
<b>Implications of the Holistic Understanding – a Look at Professional Ethics :</b> (3 hours) Natural Acceptance of Human Values, Definitiveness of (Ethical) Human Conduct, A Basis for Humanistic Education, Humanistic Constitution and Universal Human Order, Competence in Professional Ethics Holistic Technologies, Production Systems and Management Models-Typical Case Studies, Strategies for Transition towards Value-based Life and Profession
<b>Course outcome (Course Skill Set)</b> At the end of the course, students are expected to become more aware of themselves, and their surroundings (family, society, nature); <ul style="list-style-type: none"><li>• They would become more responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind.</li><li>• They would have better critical ability.</li><li>• They would also become sensitive to their commitment towards what they have understood (human values, human relationship and human society).</li><li>• It is hoped that they would be able to apply what they have learnt to their own self in different day-to-day settings in real life, at least a beginning would be made in this direction.</li></ul> Expected to positively impact common graduate attributes like: <ol style="list-style-type: none"><li>1. Ethical human conduct</li><li>2. Socially responsible behaviour</li><li>3. Holistic vision of life</li><li>4. Environmentally responsible work</li><li>5. Having Competence and Capabilities for Maintaining Health and Hygiene</li><li>6. Appreciation and aspiration for excellence (merit) and gratitude for all</li></ol>





Department of Information Science & Engineering

**Scientific Foundations of Health**

Course Title:	<b>Scientific Foundations of Health</b>		
Course Code:	<b>BSFHK158/258</b>	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01
<b>Course objectives</b>			
The course Scientific Foundations of Health (22SFH18/28) will enable the students,			
<ol style="list-style-type: none"> <li>1. To know about Health and wellness (and its Beliefs) &amp; It's balance for positive mindset.</li> <li>2. To Build the healthy lifestyles for good health for their better future.</li> <li>3. To Create a Healthy and caring relationships to meet the requirements of good/social/positive life.</li> <li>4. To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future</li> <li>5. To Prevent and fight against harmful diseases for good health through positive mindset</li> </ol>			
<b>Teaching-Learning Process</b>			
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching -Learning more effective:			
Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.			
(i) Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools), (iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion, (vii) Following the method of expeditionary learning Tools and techniques, (viii) Use of audio visual methods.			
Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.			
<b>Module-1</b>		<b>(03 hours of pedagogy)</b>	
Good Health & It's balance for positive mindset: Health -Importance of Health, Influencing factors of Health, Health beliefs, Advantages of good health, Health & Behavior, Health & Society, Health & family, Health & Personality, Psychological disorders-Methods to improve good psychological health, Changing health habits for good health.			
<b>Module-2</b>		<b>(03 hours of pedagogy)</b>	
Building of healthy lifestyles for better future: Developing healthy diet for good health, Food & health, Nutritional guidelines for good health, Obesity & overweight disorders and its management, Eating disorders, Fitness components for health. Wellness and physical function. How to avoid exercise injuries.			
<b>Module-3</b>		<b>(03 hours of pedagogy)</b>	
Creation of Healthy and caring relationships : Building communication skills, Friends and friendship - Education, the value of relationship and communication skills, Relationships for Better or worsening of life, understanding of basic instincts of life (more than a biology), Changing health behaviours through social engineering.			
<b>Module-4</b>		<b>(03 hours of pedagogy)</b>	
Avoiding risks and harmful habits : Characteristics of health compromising behaviors, Recognizing and avoiding of addictions, How addiction develops, Types of addictions, influencing factors of addictions, Differences between addictive people and non addictive people & their behaviors. Effects of addictions Such as..., how to recovery from addictions.			
<b>Module-5</b>		<b>(03 hours of pedagogy)</b>	
Preventing & fighting against diseases for good health: How to protect from different types of infections, How to reduce risks for good health, Reducing risks & coping with chronic conditions, Management of chronic illness for Quality of life, Health & Wellness of youth :a challenge for upcoming future, Measuring of health & wealth status.			





CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi.  
Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551

E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

<b>BSCCK307 – Social Connect &amp; Responsibility</b>		Semester	<b>3<sup>rd</sup></b>
<b>2022 Scheme &amp; syllabus for 3<sup>rd</sup> sem</b>			
Course Code	<b>BSCCK307</b>	CIE Marks	<b>100</b>
Teaching Hours/Week (L:T:P: S)	0:0:3:1	SEE Marks	-----
Total Hours of Pedagogy	40 hour Practical Session +15 hour Planning	Total Marks	<b>100</b>
Examination nature (No SEE – Only CIE)	For CIE Assessment - Activities Report Evaluation by College NSS Officer / HOD / Sports Dept / Any Dept.		
Credits	01 - Credit		

**Course objectives: The course will enable the students to:**

1. Provide a formal platform for students to communicate and connect to the surrounding.
2. create a responsible connection with the society.
3. Understand the community in general in which they work.
4. Identify the needs and problems of the community and involve them in problem –solving.
5. Develop among themselves a sense of social & civic responsibility & utilize their knowledge in finding practical solutions to individual and community problems.
6. Develop competence required for group-living and sharing of responsibilities & gain skills in mobilizing community participation to acquire leadership qualities and democratic attitudes.

**General Instructions - Pedagogy :**

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

1. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the activities will develop students' theoretical and applied social and cultural skills.
2. State the need for activities and its present relevance in the society and Provide real-life examples.
3. Support and guide the students for self-planned activities.
4. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress in real activities in the field.
5. Encourage the students for group work to improve their creative and analytical skills.

**Contents :**

The course is mainly activity-based that will offer a set of activities for the student that enables them to connect with fellow human beings, nature, society, and the world at large.

The course will engage students for interactive sessions, open mic, reading group, storytelling sessions, and semester-long activities conducted by faculty mentors.

In the following a set of activities planned for the course have been listed:

### Social Connect & Responsibility - Contents



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi.  
Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551  
E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

### Part I:

#### Plantation and adoption of a tree:

Plantation of a tree that will be adopted for four years by a group of BE / B.Tech students. (ONE STUDENT ONE TREE) They will also make an excerpt either as a documentary or a photo blog describing the plant's origin, its usage in daily life, its appearance in folklore and literature - - Objectives, Visit, case study, report, outcomes.

### Part II :

#### Heritage walk and crafts corner:

Heritage tour, knowing the history and culture of the city, connecting to people around through their history, knowing the city and its craftsman, photo blog and documentary on evolution and practice of various craft forms - - Objectives, Visit, case study, report, outcomes.

### Part III :

#### Organic farming and waste management:

Usefulness of organic farming, wet waste management in neighboring villages, and implementation in the campus -

Objectives, Visit, case study, report, outcomes.

### Part IV:

#### Water conservation:

Knowing the present practices in the surrounding villages and implementation in the campus, documentary or photoblog presenting the current practices - Objectives, Visit, case study, report, outcomes.

### Part V :

#### Food walk:

City's culinary practices, food lore, and indigenous materials of the region used in cooking - Objectives, Visit, case study, report, outcomes.



<b>Universal Human Values (UHV)</b>		Semester	<b>3<sup>rd</sup></b>
Course Code	<b>BUHK408</b>	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	1:0:0:1	SEE Marks	50
Total Hours of Pedagogy	15 hour Theory Session +15 hour Self study	Total Marks	100
Credits	01	Exam Hours	01 Hour
Examination type (SEE)	SEE paper shall be set for 50 questions, each of the 01 mark. The pattern of the question paper is <b>MCQ (multiple choice questions)</b> .		

**Course objectives:**

This course is intended to:

- To help the students appreciate the essential complementarity between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity which are the core aspirations of all human beings.
- To facilitate the development of a Holistic perspective among students towards life and profession as well as towards happiness and prosperity based on a correct understanding of the Human reality and the rest of existence. Such a holistic perspective forms the basis of Universal Human Values and movement towards value-based living in a natural way.
- To highlight plausible implications of such a Holistic understanding in terms of ethical human conduct, trustful and mutually fulfilling human behaviour and mutually enriching interaction with Nature.
- This course is intended to provide a much-needed orientation input in value education to the young enquiring minds.

**Teaching-Learning Process (General Instructions)**

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

1. The methodology of this course is explorational and thus universally adaptable. It involves a systematic and rational study of the human being vis-à-vis the rest of existence.
2. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the activities will develop students' theoretical and applied skills.
3. State the need for UHV activities and its present relevance in the society and Provide real-life examples.
4. Support and guide the students for self-study activities.
5. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress in real activities in the field.
6. This process of self-exploration takes the form of a dialogue between the teacher and the students to begin with, and then to continue within the student in every activity, leading to continuous self-evolution.
7. Encourage the students for group work to improve their creative and analytical skills.

**Module-1**

**Introduction to Value Education**

**(3 hours)**

Right Understanding, Relationship and Physical Facility (Holistic Development and the Role of Education) Understanding Value Education, Self-exploration as the Process for Value Education, Continuous Happiness and Prosperity – the Basic Human Aspirations, Happiness and Prosperity – Current Scenario, Method to Fulfil the Basic Human



Aspirations
<b>Module-2</b>
<b>Harmony in the Human Being :</b> <span style="float: right;"><b>(3 hours)</b></span> Understanding Human being as the Co-existence of the Self and the Body, Distinguishing between the Needs of the Self and the Body, The Body as an Instrument of the Self, Understanding Harmony in the Self, Harmony of the Self with the Body, Programme to ensure self-regulation and Health
<b>Module-3</b>
<b>Harmony in the Family and Society :</b> <span style="float: right;"><b>(3 hours)</b></span> Harmony in the Family – the Basic Unit of Human Interaction, 'Trust' – the Foundational Value in Relationship, 'Respect' – as the Right Evaluation, Other Feelings, Justice in Human-to- Human Relationship, Understanding Harmony in the Society, Vision for the Universal Human Order
<b>Module-4</b>
<b>Harmony in the Nature/Existence :</b> <span style="float: right;"><b>(3 hours)</b></span> Understanding Harmony in the Nature, Interconnectedness, self-regulation and Mutual Fulfilment among the Four Orders of Nature, Realizing Existence as Co-existence at All Levels, The Holistic Perception of Harmony in Existence
<b>Module-5</b>
<b>Implications of the Holistic Understanding – a Look at Professional Ethics : (3 hours)</b> Natural Acceptance of Human Values, Definitiveness of (Ethical) Human Conduct, A Basis for Humanistic Education, Humanistic Constitution and Universal Human Order, Competence in Professional Ethics Holistic Technologies, Production Systems and Management Models-Typical Case Studies, Strategies for Transition towards Value-based Life and Profession





**Scientific Foundations of Health**

Course Title:	<b>Scientific Foundations of Health</b>		
Course Code:	<b>BSFHK158/258</b>	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01

**Course objectives**

The course Scientific Foundations of Health (22SFH18/28) will enable the students,

1. To know about Health and wellness (and its Beliefs) & It's balance for positive mindset.
2. To Build the healthy lifestyles for good health for their better future.
3. To Create a Healthy and caring relationships to meet the requirements of good/social/positive life.
4. To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future
5. To Prevent and fight against harmful diseases for good health through positive mindset

**Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching -Learning more effective:

Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

- (i) Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools), (iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion, (vii) Following the method of expeditionary learning Tools and techniques, (viii) Use of audio visual methods.

Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

**Module-1**

**(03 hours of pedagogy)**

**Good Health & It's balance for positive mindset:** Health -Importance of Health, Influencing factors of Health, Health beliefs, Advantages of good health, Health & Behavior, Health & Society, Health & family, Health & Personality, Psychological disorders-Methods to improve good psychological health, Changing health habits for good health.

**Module-2**

**(03 hours of pedagogy)**

**Building of healthy lifestyles for better future:** Developing healthy diet for good health, Food & health, Nutritional guidelines for good health, Obesity & overweight disorders and its management, Eating disorders, Fitness components for health. Wellness and physical function. How to avoid exercise injuries.

**Module-3**

**(03 hours of pedagogy)**

**Creation of Healthy and caring relationships :** Building communication skills, Friends and friendship - Education, the value of relationship and communication skills, Relationships for Better or worsening of life, understanding of basic instincts of life (more than a biology), Changing health behaviours through social engineering.

**Module-4**

**(03 hours of pedagogy)**

**Avoiding risks and harmful habits :** Characteristics of health compromising behaviors, Recognizing and avoiding of addictions, How addiction develops, Types of addictions, influencing factors of addictions, Differences between addictive people and non addictive people & their behaviors. Effects of addictions Such as..., how to recovery from addictions.

**Module-5**

**(03 hours of pedagogy)**

**Preventing & fighting against diseases for good health:** How to protect from different types of infections, How to reduce risks for good health, Reducing risks & coping with chronic conditions, Management of chronic illness for Quality of life, Health & Wellness of youth :a challenge for upcoming future, Measuring of health & wealth status.



<b>Universal Human Values (UHV)</b>		Semester	<b>3<sup>rd</sup></b>
Course Code	<b>BUHK408</b>	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	1:0:0:1	SEE Marks	50
Total Hours of Pedagogy	15 hour Theory Session +15 hour Self study	Total Marks	100
Credits	01	Exam Hours	01 Hour
Examination type (SEE)	SEE paper shall be set for 50 questions, each of the 01 mark. The pattern of the question paper is <b>MCQ (multiple choice questions)</b> .		

**Course objectives:**

This course is intended to:

- To help the students appreciate the essential complementarity between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity which are the core aspirations of all human beings.
- To facilitate the development of a Holistic perspective among students towards life and profession as well as towards happiness and prosperity based on a correct understanding of the Human reality and the rest of existence. Such a holistic perspective forms the basis of Universal Human Values and movement towards value-based living in a natural way.
- To highlight plausible implications of such a Holistic understanding in terms of ethical human conduct, trustful and mutually fulfilling human behaviour and mutually enriching interaction with Nature.
- This course is intended to provide a much-needed orientation input in value education to the young enquiring minds.

**Teaching-Learning Process (General Instructions)**

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

8. The methodology of this course is explorational and thus universally adaptable. It involves a systematic and rational study of the human being vis-à-vis the rest of existence.
9. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the activities will develop students' theoretical and applied skills.
10. State the need for UHV activities and its present relevance in the society and Provide real-life examples.
11. Support and guide the students for self-study activities.
12. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress in real activities in the field.
13. This process of self-exploration takes the form of a dialogue between the teacher and the students to begin with, and then to continue within the student in every activity, leading to continuous self-evolution.
14. Encourage the students for group work to improve their creative and analytical skills.

**Module-1**



<b>Introduction to Value Education</b> <span style="float: right;"><b>(3 hours)</b></span>
Right Understanding, Relationship and Physical Facility (Holistic Development and the Role of Education) Understanding Value Education, Self-exploration as the Process for Value Education, Continuous Happiness and Prosperity – the Basic Human Aspirations, Happiness and Prosperity – Current Scenario, Method to Fulfil the Basic Human Aspirations
<b>Module-2</b>
<b>Harmony in the Human Being :</b> <span style="float: right;"><b>(3 hours)</b></span>
Understanding Human being as the Co-existence of the Self and the Body, Distinguishing between the Needs of the Self and the Body, The Body as an Instrument of the Self, Understanding Harmony in the Self, Harmony of the Self with the Body, Programme to ensure self-regulation and Health
<b>Module-3</b>
<b>Harmony in the Family and Society :</b> <span style="float: right;"><b>(3 hours)</b></span>
Harmony in the Family – the Basic Unit of Human Interaction, 'Trust' – the Foundational Value in Relationship, 'Respect' – as the Right Evaluation, Other Feelings, Justice in Human-to- Human Relationship, Understanding Harmony in the Society, Vision for the Universal Human Order
<b>Module-4</b>
<b>Harmony in the Nature/Existence :</b> <span style="float: right;"><b>(3 hours)</b></span>
Understanding Harmony in the Nature, Interconnectedness, self-regulation and Mutual Fulfilment among the Four Orders of Nature, Realizing Existence as Co-existence at All Levels, The Holistic Perception of Harmony in Existence
<b>Module-5</b>
<b>Implications of the Holistic Understanding – a Look at Professional Ethics : (3 hours)</b>
Natural Acceptance of Human Values, Definitiveness of (Ethical) Human Conduct, A Basis for Humanistic Education, Humanistic Constitution and Universal Human Order, Competence in Professional Ethics Holistic Technologies, Production Systems and Management Models-Typical Case Studies, Strategies for Transition towards Value-based Life and Profession



Department of Computer Science & Engineering

**Scientific Foundations of Health**

Course Title:	Scientific Foundations of Health		
Course Code:	<b>BSFHK158/258</b>	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Total Marks	100
Total Hours of Pedagogy	15 hours	Exam Hours	01 Theory
		Credits	01
<b>Course objectives</b>			
The course Scientific Foundations of Health (22SFH18/28) will enable the students,			
<ol style="list-style-type: none"> <li>1. To know about Health and wellness (and its Beliefs) &amp; It's balance for positive mindset.</li> <li>2. To Build the healthy lifestyles for good health for their better future.</li> <li>3. To Create a Healthy and caring relationships to meet the requirements of good/social/positive life.</li> <li>4. To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future</li> <li>5. To Prevent and fight against harmful diseases for good health through positive mindset</li> </ol>			
<b>Teaching-Learning Process</b>			
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching -Learning more effective:			
Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.			
(i) Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools), (iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion, (vii) Following the method of expeditionary learning Tools and techniques, (viii) Use of audio visual methods.			
Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.			
<b>Module-1</b>		<b>(03 hours of pedagogy)</b>	
Good Health & It's balance for positive mindset: Health -Importance of Health, Influencing factors of Health, Health beliefs, Advantages of good health, Health & Behavior, Health & Society, Health & family, Health & Personality, Psychological disorders-Methods to improve good psychological health, Changing health habits for good health.			
<b>Module-2</b>		<b>(03 hours of pedagogy)</b>	
Building of healthy lifestyles for better future: Developing healthy diet for good health, Food & health, Nutritional guidelines for good health, Obesity & overweight disorders and its management, Eating disorders, Fitness components for health. Wellness and physical function. How to avoid exercise injuries.			
<b>Module-3</b>		<b>(03 hours of pedagogy)</b>	
Creation of Healthy and caring relationships : Building communication skills, Friends and friendship - Education, the value of relationship and communication skills, Relationships for Better or worsening of life, understanding of basic instincts of life (more than a biology), Changing health behaviours through social engineering.			
<b>Module-4</b>		<b>(03 hours of pedagogy)</b>	
Avoiding risks and harmful habits : Characteristics of health compromising behaviors, Recognizing and avoiding of addictions, How addiction develops, Types of addictions, influencing factors of addictions, Differences between addictive people and non addictive people & their behaviors. Effects of addictions Such as..., how to recovery from addictions.			
<b>Module-5</b>		<b>(03 hours of pedagogy)</b>	
Preventing & fighting against diseases for good health: How to protect from different types of infections, How to reduce risks for good health, Reducing risks & coping with chronic conditions, Management of chronic illness for Quality of life, Health & Wellness of youth :a challenge for upcoming future, Measuring of health & wealth status.			

<b>Universal Human Values (UHV)</b>		Semester	<b>3<sup>rd</sup></b>
Course Code	<b>BUHK408</b>	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	1:0:0:1	SEE Marks	50
Total Hours of Pedagogy	15 hour Theory Session +15 hour Self study	Total Marks	100
Credits	01	Exam Hours	01 Hour
Examination type (SEE)	SEE paper shall be set for 50 questions, each of the 01 mark. The pattern of the question paper is <b>MCQ (multiple choice questions)</b> .		





**Course objectives:**

This course is intended to:

- To help the students appreciate the essential complementarity between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity which are the core aspirations of all human beings.
- To facilitate the development of a Holistic perspective among students towards life and profession as well as towards happiness and prosperity based on a correct understanding of the Human reality and the rest of existence. Such a holistic perspective forms the basis of Universal Human Values and movement towards value-based living in a natural way.
- To highlight plausible implications of such a Holistic understanding in terms of ethical human conduct, trustful and mutually fulfilling human behaviour and mutually enriching interaction with Nature.
- This course is intended to provide a much-needed orientation input in value education to the young enquiring minds.

**Teaching-Learning Process (General Instructions)**

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

15. The methodology of this course is explorational and thus universally adaptable. It involves a systematic and rational study of the human being vis-à-vis the rest of existence.
16. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the activities will develop students' theoretical and applied skills.
17. State the need for UHV activities and its present relevance in the society and Provide real-life examples.
18. Support and guide the students for self-study activities.
19. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress in real activities in the field.
20. This process of self-exploration takes the form of a dialogue between the teacher and the students to begin with, and then to continue within the student in every activity, leading to continuous self-evolution.
21. Encourage the students for group work to improve their creative and analytical skills.

**Module-1**

**Introduction to Value Education**

**(3 hours)**

Right Understanding, Relationship and Physical Facility (Holistic Development and the Role of Education) Understanding Value Education, Self-exploration as the Process for Value Education, Continuous Happiness and Prosperity – the Basic Human Aspirations, Happiness and Prosperity – Current Scenario, Method to Fulfil the Basic Human Aspirations

**Module-2**

**Harmony in the Human Being :**

**(3 hours)**

Understanding Human being as the Co-existence of the Self and the Body, Distinguishing between the Needs of the Self and the Body, The Body as an Instrument of the Self, Understanding Harmony in the Self, Harmony of the Self with the Body, Programme to ensure self-regulation and Health



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi.  
Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551  
E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

### Module-3

#### **Harmony in the Family and Society : (3 hours)**

Harmony in the Family – the Basic Unit of Human Interaction, 'Trust' – the Foundational Value in Relationship, 'Respect' – as the Right Evaluation, Other Feelings, Justice in Human-to- Human Relationship, Understanding Harmony in the Society, Vision for the Universal Human Order

### Module-4

#### **Harmony in the Nature/Existence : (3 hours)**

Understanding Harmony in the Nature, Interconnectedness, self-regulation and Mutual Fulfilment among the Four Orders of Nature, Realizing Existence as Co-existence at All Levels, The Holistic Perception of Harmony in Existence

### Module-5

#### **Implications of the Holistic Understanding – a Look at Professional Ethics : (3 hours)**

Natural Acceptance of Human Values, Definitiveness of (Ethical) Human Conduct, A Basis for Humanistic Education, Humanistic Constitution and Universal Human Order, Competence in Professional Ethics Holistic Technologies, Production Systems and Management Models-Typical Case Studies, Strategies for Transition towards Value-based Life and Profession



<b>BSCCK307 – Social Connect &amp; Responsibility</b>		Semester	<b>3<sup>rd</sup></b>
<b>2022 Scheme &amp; syllabus for 3<sup>rd</sup> sem</b>			
Course Code	<b>BSCCK307</b>	CIE Marks	<b>100</b>
Teaching Hours/Week (L:T:P: S)	0:0:3:1	SEE Marks	-----
Total Hours of Pedagogy	40 hour Practical Session +15 hour Planning	Total Marks	<b>100</b>
Examination nature (No SEE – Only CIE)	For CIE Assessment - Activities Report Evaluation by College NSS Officer / HOD / Sports Dept / Any Dept.		
Credits	01 - Credit		

**Course objectives: The course will enable the students to:**

7. Provide a formal platform for students to communicate and connect to the surrounding.
8. create a responsible connection with the society.
9. Understand the community in general in which they work.
10. Identify the needs and problems of the community and involve them in problem –solving.
11. Develop among themselves a sense of social & civic responsibility & utilize their knowledge in finding practical solutions to individual and community problems.
12. Develop competence required for group-living and sharing of responsibilities & gain skills in mobilizing community participation to acquire leadership qualities and democratic attitudes.

**General Instructions - Pedagogy :**

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

6. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the activities will develop students' theoretical and applied social and cultural skills.
7. State the need for activities and its present relevance in the society and Provide real-life examples.
8. Support and guide the students for self-planned activities.
9. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress in real activities in the field.
10. Encourage the students for group work to improve their creative and analytical skills.

**Contents :**

The course is mainly activity-based that will offer a set of activities for the student that enables them to connect with fellow human beings, nature, society, and the world at large.

The course will engage students for interactive sessions, open mic, reading group, storytelling sessions, and semester-long activities conducted by faculty mentors.

In the following a set of activities planned for the course have been listed:

**Social Connect & Responsibility -  
Contents**



**Part I:**

**Plantation and adoption of a tree:**

Plantation of a tree that will be adopted for four years by a group of BE / B.Tech students. (ONE STUDENT ONE TREE) They will also make an excerpt either as a documentary or a photo blog describing the plant's origin, its usage in daily life, its appearance in folklore and literature - - Objectives, Visit, case study, report, outcomes.

**Part II :**

**Heritage walk and crafts corner:**

Heritage tour, knowing the history and culture of the city, connecting to people around through their history, knowing the city and its craftsman, photo blog and documentary on evolution and practice of various craft forms - - Objectives, Visit, case study, report, outcomes.

**Part III :**

**Organic farming and waste management:**

Usefulness of organic farming, wet waste management in neighboring villages, and implementation in the campus -

Objectives, Visit, case study, report, outcomes.

**Part IV:**

**Water conservation:**

Knowing the present practices in the surrounding villages and implementation in the campus, documentary or photoblog presenting the current practices - Objectives, Visit, case study, report, outcomes.

**Part V :**

**Food walk:**

City's culinary practices, food lore, and indigenous materials of the region used in cooking - Objectives, Visit, case study, report, outcomes.





Department of Electrical and Communication Engineering

**Scientific Foundations of Health**

Course Title:	Scientific Foundations of Health		
Course Code:	BSFHK158/258	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01

**Course objectives**

The course Scientific Foundations of Health (22SFH18/28) will enable the students,

1. To know about Health and wellness (and its Beliefs) & It's balance for positive mindset.
2. To Build the healthy lifestyles for good health for their better future.
3. To Create a Healthy and caring relationships to meet the requirements of good/social/positive life.
4. To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future
5. To Prevent and fight against harmful diseases for good health through positive mindset

**Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching -Learning more effective:

Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

- (i) Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools), (iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion, (vii) Following the method of expeditionary learning Tools and techniques, (viii) Use of audio visual methods.

Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

**Module-1 (03 hours of pedagogy)**

**Good Health & It's balance for positive mindset:** Health -Importance of Health, Influencing factors of Health, Health beliefs, Advantages of good health, Health & Behavior, Health & Society, Health & family, Health & Personality, Psychological disorders-Methods to improve good psychological health, Changing health habits for good health.

**Module-2 (03 hours of pedagogy)**

**Building of healthy lifestyles for better future:** Developing healthy diet for good health, Food & health, Nutritional guidelines for good health, Obesity & overweight disorders and its management, Eating disorders, Fitness components for health. Wellness and physical function. How to avoid exercise injuries.

**Module-3 (03 hours of pedagogy)**

**Creation of Healthy and caring relationships :** Building communication skills, Friends and friendship - Education, the value of relationship and communication skills, Relationships for Better or worsening of life, understanding of basic instincts of life (more than a biology), Changing health behaviours through social engineering.

**Module-4 (03 hours of pedagogy)**

**Avoiding risks and harmful habits :** Characteristics of health compromising behaviors, Recognizing and avoiding of addictions, How addiction develops, Types of addictions, influencing factors of addictions, Differences between addictive people and non addictive people & their behaviors. Effects of addictions Such as..., how to recovery from addictions.

**Module-5 (03 hours of pedagogy)**

**Preventing & fighting against diseases for good health:** How to protect from different types of infections, How to reduce risks for good health, Reducing risks & coping with chronic conditions, Management of chronic illness for Quality of life, Health & Wellness of youth :a challenge for upcoming future, Measuring of health & wealth status.



<b>Universal Human Values (UHV)</b>		Semester	3 <sup>rd</sup>
Course Code	<b>BUHK408</b>	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	1:0:0:1	SEE Marks	50
Total Hours of Pedagogy	15 hour Theory Session +15 hour Self study	Total Marks	100
Credits	01	Exam Hours	01 Hour
Examination type (SEE)	SEE paper shall be set for 50 questions, each of the 01 mark. The pattern of the question paper is <b>MCQ (multiple choice questions)</b> .		

**Course objectives:**

This course is intended to:

- To help the students appreciate the essential complementarity between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity which are the core aspirations of all human beings.
- To facilitate the development of a Holistic perspective among students towards life and profession as well as towards happiness and prosperity based on a correct understanding of the Human reality and the rest of existence. Such a holistic perspective forms the basis of Universal Human Values and movement towards value-based living in a natural way.
- To highlight plausible implications of such a Holistic understanding in terms of ethical human conduct, trustful and mutually fulfilling human behaviour and mutually enriching interaction with Nature.
- This course is intended to provide a much-needed orientation input in value education to the young enquiring minds.

**Teaching-Learning Process (General Instructions)**

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

22. The methodology of this course is explorational and thus universally adaptable. It involves a systematic and rational study of the human being vis-à-vis the rest of existence.
23. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the activities will develop students' theoretical and applied skills.
24. State the need for UHV activities and its present relevance in the society and Provide real-life examples.
25. Support and guide the students for self-study activities.
26. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress in real activities in the field.
27. This process of self-exploration takes the form of a dialogue between the teacher and the students to begin with, and then to continue within the student in every activity, leading to continuous self-evolution.
28. Encourage the students for group work to improve their creative and analytical skills.

**Module-1**

**Introduction to Value Education**

**(3 hours)**

Right Understanding, Relationship and Physical Facility (Holistic Development and the Role of Education) Understanding Value Education, Self-exploration as the Process for Value Education, Continuous Happiness and Prosperity – the Basic Human Aspirations, Happiness and Prosperity – Current Scenario, Method to Fulfil the Basic Human Aspirations



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi.  
Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602,Fax:080-25730551  
E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

<b>Module-2</b>	
<b>Harmony in the Human Being :</b>	<b>(3 hours)</b>
Understanding Human being as the Co-existence of the Self and the Body, Distinguishing between the Needs of the Self and the Body, The Body as an Instrument of the Self, Understanding Harmony in the Self, Harmony of the Self with the Body, Programme to ensure self-regulation and Health	
<b>Module-3</b>	
<b>Harmony in the Family and Society :</b>	<b>(3 hours)</b>
Harmony in the Family – the Basic Unit of Human Interaction, 'Trust' – the Foundational Value in Relationship, 'Respect' – as the Right Evaluation, Other Feelings, Justice in Human-to- Human Relationship, Understanding Harmony in the Society, Vision for the Universal Human Order	
<b>Module-4</b>	
<b>Harmony in the Nature/Existence :</b>	<b>(3 hours)</b>
Understanding Harmony in the Nature, Interconnectedness, self-regulation and Mutual Fulfilment among the Four Orders of Nature, Realizing Existence as Co-existence at All Levels, The Holistic Perception of Harmony in Existence	
<b>Module-5</b>	
<b>Implications of the Holistic Understanding – a Look at Professional Ethics : (3 hours)</b>	
Natural Acceptance of Human Values, Definitiveness of (Ethical) Human Conduct, A Basis for Humanistic Education, Humanistic Constitution and Universal Human Order, Competence in Professional Ethics Holistic Technologies, Production Systems and Management Models-Typical Case Studies, Strategies for Transition towards Value-based Life and Profession	



<b>BSCK307 – Social Connect &amp; Responsibility</b>		Semester	<b>3<sup>rd</sup></b>
<b>2022 Scheme &amp; syllabus for 3<sup>rd</sup> sem</b>			
Course Code	<b>BSCK307</b>	CIE Marks	<b>100</b>
Teaching Hours/Week (L:T:P: S)	0:0:3:1	SEE Marks	-----
Total Hours of Pedagogy	40 hour Practical Session +15 hour Planning	Total Marks	<b>100</b>
Examination nature (No SEE – Only CIE)	For CIE Assessment - Activities Report Evaluation by College NSS Officer / HOD / Sports Dept / Any Dept.		
Credits	01 - Credit		

**Course objectives: The course will enable the students to:**

13. Provide a formal platform for students to communicate and connect to the surrounding.
14. create a responsible connection with the society.
15. Understand the community in general in which they work.
16. Identify the needs and problems of the community and involve them in problem –solving.
17. Develop among themselves a sense of social & civic responsibility & utilize their knowledge in finding practical solutions to individual and community problems.
18. Develop competence required for group-living and sharing of responsibilities & gain skills in mobilizing community participation to acquire leadership qualities and democratic attitudes.

**General Instructions - Pedagogy :**

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

11. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the activities will develop students' theoretical and applied social and cultural skills.
12. State the need for activities and its present relevance in the society and Provide real-life examples.
13. Support and guide the students for self-planned activities.
14. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress in real activities in the field.
15. Encourage the students for group work to improve their creative and analytical skills.

**Contents :**

The course is mainly activity-based that will offer a set of activities for the student that enables them to connect with fellow human beings, nature, society, and the world at large.

The course will engage students for interactive sessions, open mic, reading group, storytelling sessions, and semester-long activities conducted by faculty mentors.

In the following a set of activities planned for the course have been listed:

**Social Connect & Responsibility -  
Contents**





**Part I:**

**Plantation and adoption of a tree:**

Plantation of a tree that will be adopted for four years by a group of BE / B.Tech students. (ONE STUDENT ONE TREE) They will also make an excerpt either as a documentary or a photo blog describing the plant's origin, its usage in daily life, its appearance in folklore and literature - - Objectives, Visit, case study, report, outcomes.

**Part II :**

**Heritage walk and crafts corner:**

Heritage tour, knowing the history and culture of the city, connecting to people around through their history, knowing the city and its craftsman, photo blog and documentary on evolution and practice of various craft forms - - Objectives, Visit, case study, report, outcomes.

**Part III :**

**Organic farming and waste management:**

Usefulness of organic farming, wet waste management in neighboring villages, and implementation in the campus -

Objectives, Visit, case study, report, outcomes.

**Part IV:**

**Water conservation:**

Knowing the present practices in the surrounding villages and implementation in the campus, documentary or photoblog presenting the current practices - Objectives, Visit, case study, report, outcomes.

**Part V :**

**Food walk:**

City's culinary practices, food lore, and indigenous materials of the region used in cooking - Objectives, Visit, case study, report, outcomes.



Department of Artificial Intelligence and Machine Learning

**Scientific Foundations of Health**

Course Title:	Scientific Foundations of Health		
Course Code:	BSFHK158/258	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01

**Course objectives**

The course Scientific Foundations of Health (22SFH18/28) will enable the students,

1. To know about Health and wellness (and its Beliefs) & It's balance for positive mindset.
2. To Build the healthy lifestyles for good health for their better future.
3. To Create a Healthy and caring relationships to meet the requirements of good/social/positive life.
4. To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future
5. To Prevent and fight against harmful diseases for good health through positive mindset

**Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching -Learning more effective:

Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

- (i) Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools), (iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion, (vii) Following the method of expeditionary learning Tools and techniques, (viii) Use of audio visual methods.

Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

**Module-1**

**(03 hours of pedagogy)**

**Good Health & It's balance for positive mindset:** Health -Importance of Health, Influencing factors of Health, Health beliefs, Advantages of good health, Health & Behavior, Health & Society, Health & family, Health & Personality, Psychological disorders-Methods to improve good psychological health, Changing health habits for good health.

**Module-2**

**(03 hours of pedagogy)**

**Building of healthy lifestyles for better future:** Developing healthy diet for good health, Food & health, Nutritional guidelines for good health, Obesity & overweight disorders and its management, Eating disorders, Fitness components for health. Wellness and physical function. How to avoid exercise injuries.

**Module-3**

**(03 hours of pedagogy)**

**Creation of Healthy and caring relationships :** Building communication skills, Friends and friendship - Education, the value of relationship and communication skills, Relationships for Better or worsening of life, understanding of basic instincts of life (more than a biology), Changing health behaviours through social engineering.

**Module-4**

**(03 hours of pedagogy)**

**Avoiding risks and harmful habits :** Characteristics of health compromising behaviors, Recognizing and avoiding of addictions, How addiction develops, Types of addictions, influencing factors of addictions, Differences between addictive people and non addictive people & their behaviors. Effects of addictions Such as..., how to recovery from addictions.

**Module-5**

**(03 hours of pedagogy)**

**Preventing & fighting against diseases for good health:** How to protect from different types of infections, How to reduce risks for good health, Reducing risks & coping with chronic conditions, Management of chronic illness for Quality of life, Health & Wellness of youth :a challenge for upcoming future, Measuring of health & wealth status.



<b>Universal Human Values (UHV)</b>		Semester	<b>3<sup>rd</sup></b>
Course Code	<b>BUHK408</b>	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	1:0:0:1	SEE Marks	50
Total Hours of Pedagogy	15 hour Theory Session +15 hour Self study	Total Marks	100
Credits	01	Exam Hours	01 Hour
Examination type (SEE)	SEE paper shall be set for 50 questions, each of the 01 mark. The pattern of the question paper is <b>MCQ (multiple choice questions)</b> .		

**Course objectives:**

This course is intended to:

- To help the students appreciate the essential complementarity between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity which are the core aspirations of all human beings.
- To facilitate the development of a Holistic perspective among students towards life and profession as well as towards happiness and prosperity based on a correct understanding of the Human reality and the rest of existence. Such a holistic perspective forms the basis of Universal Human Values and movement towards value-based living in a natural way.
- To highlight plausible implications of such a Holistic understanding in terms of ethical human conduct, trustful and mutually fulfilling human behaviour and mutually enriching interaction with Nature.
- This course is intended to provide a much-needed orientation input in value education to the young enquiring minds.

**Teaching-Learning Process (General Instructions)**

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

29. The methodology of this course is explorational and thus universally adaptable. It involves a systematic and rational study of the human being vis-à-vis the rest of existence.
30. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the activities will develop students' theoretical and applied skills.
31. State the need for UHV activities and its present relevance in the society and Provide real-life examples.
32. Support and guide the students for self-study activities.
33. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress in real activities in the field.
34. This process of self-exploration takes the form of a dialogue between the teacher and the students to begin with, and then to continue within the student in every activity, leading to continuous self-evolution.
35. Encourage the students for group work to improve their creative and analytical skills.

**Module-1**

**Introduction to Value Education**

**(3 hours)**

Right Understanding, Relationship and Physical Facility (Holistic Development and the Role of Education) Understanding Value Education, Self-exploration as the Process for Value Education, Continuous Happiness and Prosperity – the Basic Human Aspirations, Happiness and Prosperity – Current Scenario, Method to Fulfil the Basic Human Aspirations



<b>Module-2</b>			
<b>Harmony in the Human Being :</b>		<b>(3 hours)</b>	
Understanding Human being as the Co-existence of the Self and the Body, Distinguishing between the Needs of the Self and the Body, The Body as an Instrument of the Self, Understanding Harmony in the Self, Harmony of the Self with the Body, Programme to ensure self-regulation and Health			
<b>Module-3</b>			
<b>Harmony in the Family and Society :</b>		<b>(3 hours)</b>	
Harmony in the Family – the Basic Unit of Human Interaction, 'Trust' – the Foundational Value in Relationship, 'Respect' – as the Right Evaluation, Other Feelings, Justice in Human-to- Human Relationship, Understanding Harmony in the Society, Vision for the Universal Human Order			
<b>Module-4</b>			
<b>Harmony in the Nature/Existence :</b>		<b>(3 hours)</b>	
Understanding Harmony in the Nature, Interconnectedness, self-regulation and Mutual Fulfilment among the Four Orders of Nature, Realizing Existence as Co-existence at All Levels, The Holistic Perception of Harmony in Existence			
<b>Module-5</b>			
<b>Implications of the Holistic Understanding – a Look at Professional Ethics :</b>		<b>(3 hours)</b>	
Natural Acceptance of Human Values, Definitiveness of (Ethical) Human Conduct, A Basis for Humanistic Education, Humanistic Constitution and Universal Human Order, Competence in Professional Ethics Holistic Technologies, Production Systems and Management Models-Typical Case Studies, Strategies for Transition towards Value-based Life and Profession			
<b>BSCCK307 – Social Connect &amp; Responsibility</b>			Semester
<b>2022 Scheme &amp; syllabus for 3<sup>rd</sup> sem</b>			<b>3<sup>rd</sup></b>
Course Code	<b>BSCCK307</b>	CIE Marks	<b>100</b>
Teaching Hours/Week (L:T:P: S)	0:0:3:1	SEE Marks	-----
Total Hours of Pedagogy	40 hour Practical Session + 15 hour Planning	Total Marks	<b>100</b>
Examination nature (No SEE – Only CIE)	For CIE Assessment - Activities Report Evaluation by College NSS Officer / HOD / Sports Dept / Any Dept.		
Credits	01 - Credit		
<b>Course objectives: The course will enable the students to:</b>			
<ol style="list-style-type: none"> <li>19. Provide a formal platform for students to communicate and connect to the surrounding.</li> <li>20. create a responsible connection with the society.</li> <li>21. Understand the community in general in which they work.</li> <li>22. Identify the needs and problems of the community and involve them in problem –solving.</li> <li>23. Develop among themselves a sense of social &amp; civic responsibility &amp; utilize their knowledge in finding practical solutions to individual and community problems.</li> <li>24. Develop competence required for group-living and sharing of responsibilities &amp; gain skills in mobilizing community participation to acquire leadership qualities and democratic attitudes.</li> </ol>			





### **General Instructions - Pedagogy :**

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

16. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the activities will develop students' theoretical and applied social and cultural skills.
17. State the need for activities and its present relevance in the society and Provide real-life examples.
18. Support and guide the students for self-planned activities.
19. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress in real activities in the field.
20. Encourage the students for group work to improve their creative and analytical skills.

### **Contents :**

The course is mainly activity-based that will offer a set of activities for the student that enables them to connect with fellow human beings, nature, society, and the world at large.

The course will engage students for interactive sessions, open mic, reading group, storytelling sessions, and semester-long activities conducted by faculty mentors.

In the following a set of activities planned for the course have been listed:

## **Social Connect & Responsibility - Contents**

### **Part I:**

#### **Plantation and adoption of a tree:**

Plantation of a tree that will be adopted for four years by a group of BE / B.Tech students. (ONE STUDENT ONE TREE) They will also make an excerpt either as a documentary or a photo blog describing the plant's origin, its usage in daily life, its appearance in folklore and literature - - Objectives, Visit, case study, report, outcomes.

### **Part II :**

#### **Heritage walk and crafts corner:**

Heritage tour, knowing the history and culture of the city, connecting to people around through their history, knowing the city and its craftsman, photo blog and documentary on evolution and practice of various craft forms - - Objectives, Visit, case study, report, outcomes.

### **Part III :**

#### **Organic farming and waste management:**

Usefulness of organic farming, wet waste management in neighboring villages, and implementation in the campus -



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi.  
Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))

Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602,Fax:080-25730551

E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

Objectives, Visit, case study, report, outcomes.

### Part IV:

#### Water conservation:

Knowing the present practices in the surrounding villages and implementation in the campus, documentary or photoblog presenting the current practices – Objectives, Visit, case study, report, outcomes.

### Part V :

#### Food walk:

City's culinary practices, food lore, and indigenous materials of the region used in cooking – Objectives, Visit, case study, report, outcomes.



**Scientific Foundations of Health**

Course Title:	Scientific Foundations of Health		
Course Code:	BSFHK158/258	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01
<b>Course objectives</b>			
The course Scientific Foundations of Health (22SFH18/28) will enable the students,			
<ol style="list-style-type: none"> <li>To know about Health and wellness (and its Beliefs) &amp; It's balance for positive mindset.</li> <li>To Build the healthy lifestyles for good health for their better future.</li> <li>To Create a Healthy and caring relationships to meet the requirements of good/social/positive life.</li> <li>To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future</li> <li>To Prevent and fight against harmful diseases for good health through positive mindset</li> </ol>			
<b>Teaching-Learning Process</b>			
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching -Learning more effective:			
Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.			
(i) Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools), (iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion, (vii) Following the method of expeditionary learning Tools and techniques, (viii) Use of audio visual methods.			
Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.			
<b>Module-1</b>		<b>(03 hours of pedagogy)</b>	
Good Health & It's balance for positive mindset: Health -Importance of Health, Influencing factors of Health, Health beliefs, Advantages of good health, Health & Behavior, Health & Society, Health & family, Health & Personality, Psychological disorders-Methods to improve good psychological health, Changing health habits for good health.			
<b>Module-2</b>		<b>(03 hours of pedagogy)</b>	
Building of healthy lifestyles for better future: Developing healthy diet for good health, Food & health, Nutritional guidelines for good health, Obesity & overweight disorders and its management, Eating disorders, Fitness components for health. Wellness and physical function. How to avoid exercise injuries.			
<b>Module-3</b>		<b>(03 hours of pedagogy)</b>	
Creation of Healthy and caring relationships : Building communication skills, Friends and friendship - Education, the value of relationship and communication skills, Relationships for Better or worsening of life, understanding of basic instincts of life (more than a biology), Changing health behaviours through social engineering.			
<b>Module-4</b>		<b>(03 hours of pedagogy)</b>	
Avoiding risks and harmful habits : Characteristics of health compromising behaviors, Recognizing and avoiding of addictions, How addiction develops, Types of addictions, influencing factors of addictions, Differences between addictive people and non addictive people & their behaviors. Effects of addictions Such as..., how to recovery from addictions.			
<b>Module-5</b>		<b>(03 hours of pedagogy)</b>	
Preventing & fighting against diseases for good health: How to protect from different types of infections, How to reduce risks for good health, Reducing risks & coping with chronic conditions, Management of chronic illness for Quality of life, Health & Wellness of youth :a challenge for upcoming future, Measuring of health & wealth status.			

<b>Universal Human Values (UHV)</b>		Semester	3 <sup>rd</sup>
Course Code	<b>BUHK408</b>	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	1:0:0:1	SEE Marks	50
Total Hours of Pedagogy	15 hour Theory Session +15 hour Self study	Total Marks	100
Credits	01	Exam Hours	01 Hour
Examination type (SEE)	SEE paper shall be set for 50 questions, each of the 01 mark. The pattern of the question paper is <b>MCQ (multiple choice questions)</b> .		



**Course objectives:**

This course is intended to:

- To help the students appreciate the essential complementarity between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity which are the core aspirations of all human beings.
- To facilitate the development of a Holistic perspective among students towards life and profession as well as towards happiness and prosperity based on a correct understanding of the Human reality and the rest of existence. Such a holistic perspective forms the basis of Universal Human Values and movement towards value-based living in a natural way.
- To highlight plausible implications of such a Holistic understanding in terms of ethical human conduct, trustful and mutually fulfilling human behaviour and mutually enriching interaction with Nature.
- This course is intended to provide a much-needed orientation input in value education to the young enquiring minds.

**Teaching-Learning Process (General Instructions)**

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

36. The methodology of this course is explorational and thus universally adaptable. It involves a systematic and rational study of the human being vis-à-vis the rest of existence.
37. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the activities will develop students' theoretical and applied skills.
38. State the need for UHV activities and its present relevance in the society and Provide real-life examples.
39. Support and guide the students for self-study activities.
40. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress in real activities in the field.
41. This process of self-exploration takes the form of a dialogue between the teacher and the students to begin with, and then to continue within the student in every activity, leading to continuous self-evolution.
42. Encourage the students for group work to improve their creative and analytical skills.

**Module-1**

**Introduction to Value Education**

**(3 hours)**

Right Understanding, Relationship and Physical Facility (Holistic Development and the Role of Education) Understanding Value Education, Self-exploration as the Process for Value Education, Continuous Happiness and Prosperity – the Basic Human Aspirations, Happiness and Prosperity – Current Scenario, Method to Fulfil the Basic Human Aspirations

**Module-2**

**Harmony in the Human Being :**

**(3 hours)**

Understanding Human being as the Co-existence of the Self and the Body, Distinguishing between the Needs of the Self and the Body, The Body as an Instrument of the Self, Understanding Harmony in the Self, Harmony of the Self with the Body, Programme to ensure self-regulation and Health





<b>Module-3</b>			
<b>Harmony in the Family and Society :</b>		<b>(3 hours)</b>	
Harmony in the Family – the Basic Unit of Human Interaction, 'Trust' – the Foundational Value in Relationship, 'Respect' – as the Right Evaluation, Other Feelings, Justice in Human-to- Human Relationship, Understanding Harmony in the Society, Vision for the Universal Human Order			
<b>Module-4</b>			
<b>Harmony in the Nature/Existence :</b>		<b>(3 hours)</b>	
Understanding Harmony in the Nature, Interconnectedness, self-regulation and Mutual Fulfilment among the Four Orders of Nature, Realizing Existence as Co-existence at All Levels, The Holistic Perception of Harmony in Existence			
<b>Module-5</b>			
<b>Implications of the Holistic Understanding – a Look at Professional Ethics :</b>		<b>(3 hours)</b>	
Natural Acceptance of Human Values, Definitiveness of (Ethical) Human Conduct, A Basis for Humanistic Education, Humanistic Constitution and Universal Human Order, Competence in Professional Ethics Holistic Technologies, Production Systems and Management Models-Typical Case Studies, Strategies for Transition towards Value-based Life and Profession			
<b>BSCK307 – Social Connect &amp; Responsibility</b>		Semester	<b>3<sup>rd</sup></b>
<b>2022 Scheme &amp; syllabus for 3<sup>rd</sup> sem</b>			
Course Code	<b>BSCK307</b>	CIE Marks	<b>100</b>
Teaching Hours/Week (L:T:P: S)	0:0:3:1	SEE Marks	-----
Total Hours of Pedagogy	40 hour Practical Session +15 hour Planning	Total Marks	<b>100</b>
Examination nature (No SEE – Only CIE)	For CIE Assessment - Activities Report Evaluation by College NSS Officer / HOD / Sports Dept / Any Dept.		
Credits	01 - Credit		
<b>Course objectives: The course will enable the students to:</b>			
<ul style="list-style-type: none"> <li>25. Provide a formal platform for students to communicate and connect to the surrounding.</li> <li>26. create a responsible connection with the society.</li> <li>27. Understand the community in general in which they work.</li> <li>28. Identify the needs and problems of the community and involve them in problem –solving.</li> <li>29. Develop among themselves a sense of social &amp; civic responsibility &amp; utilize their knowledge in finding practical solutions to individual and community problems.</li> <li>30. Develop competence required for group-living and sharing of responsibilities &amp; gain skills in mobilizing community participation to acquire leadership qualities and democratic attitudes.</li> </ul>			



### **General Instructions - Pedagogy :**

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

21. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the activities will develop students' theoretical and applied social and cultural skills.
22. State the need for activities and its present relevance in the society and Provide real-life examples.
23. Support and guide the students for self-planned activities.
24. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress in real activities in the field.
25. Encourage the students for group work to improve their creative and analytical skills.

### **Contents :**

The course is mainly activity-based that will offer a set of activities for the student that enables them to connect with fellow human beings, nature, society, and the world at large.

The course will engage students for interactive sessions, open mic, reading group, storytelling sessions, and semester-long activities conducted by faculty mentors.

In the following a set of activities planned for the course have been listed:

## **Social Connect & Responsibility - Contents**

### **Part I:**

#### **Plantation and adoption of a tree:**

Plantation of a tree that will be adopted for four years by a group of BE / B.Tech students. (ONE STUDENT ONE TREE) They will also make an excerpt either as a documentary or a photo blog describing the plant's origin, its usage in daily life, its appearance in folklore and literature - - Objectives, Visit, case study, report, outcomes.

### **Part II :**

#### **Heritage walk and crafts corner:**

Heritage tour, knowing the history and culture of the city, connecting to people around through their history, knowing the city and its craftsman, photo blog and documentary on evolution and practice of various craft forms - - Objectives, Visit, case study, report, outcomes.

### **Part III :**

#### **Organic farming and waste management:**

Usefulness of organic farming, wet waste management in neighboring villages, and implementation in the campus -



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi.  
Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))

Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602,Fax:080-25730551

E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

Objectives, Visit, case study, report, outcomes.

### Part IV:

#### Water conservation:

Knowing the present practices in the surrounding villages and implementation in the campus, documentary or photoblog presenting the current practices – Objectives, Visit, case study, report, outcomes.

### Part V :

#### Food walk:

City's culinary practices, food lore, and indigenous materials of the region used in cooking – Objectives, Visit, case study, report, outcomes.



Department of Civil Engineering

**Scientific Foundations of Health**

Course Title:	Scientific Foundations of Health		
Course Code:	BSFHK158/258	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Exam Hours	01 Theory
Total Hours of Pedagogy	15 hours	Credits	01

**Course objectives**

The course Scientific Foundations of Health (22SFH18/28) will enable the students,

1. To know about Health and wellness (and its Beliefs) & It's balance for positive mindset.
2. To Build the healthy lifestyles for good health for their better future.
3. To Create a Healthy and caring relationships to meet the requirements of good/social/positive life.
4. To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future
5. To Prevent and fight against harmful diseases for good health through positive mindset

**Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching -Learning more effective:

Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.

- (i) Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools), (iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion, (vii) Following the method of expeditionary learning Tools and techniques, (viii) Use of audio visual methods.

Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.

**Module-1 (03 hours of pedagogy)**

**Good Health & It's balance for positive mindset:** Health -Importance of Health, Influencing factors of Health, Health beliefs, Advantages of good health, Health & Behavior, Health & Society, Health & family, Health & Personality, Psychological disorders-Methods to improve good psychological health, Changing health habits for good health.

**Module-2 (03 hours of pedagogy)**

**Building of healthy lifestyles for better future:** Developing healthy diet for good health, Food & health, Nutritional guidelines for good health, Obesity & overweight disorders and its management, Eating disorders, Fitness components for health. Wellness and physical function. How to avoid exercise injuries.

**Module-3 (03 hours of pedagogy)**

**Creation of Healthy and caring relationships :** Building communication skills, Friends and friendship - Education, the value of relationship and communication skills, Relationships for Better or worsening of life, understanding of basic instincts of life (more than a biology), Changing health behaviours through social engineering.

**Module-4 (03 hours of pedagogy)**

**Avoiding risks and harmful habits :** Characteristics of health compromising behaviors, Recognizing and avoiding of addictions, How addiction develops, Types of addictions, influencing factors of addictions, Differences between addictive people and non addictive people & their behaviors. Effects of addictions Such as..., how to recovery from addictions.

**Module-5 (03 hours of pedagogy)**

**Preventing & fighting against diseases for good health:** How to protect from different types of infections, How to reduce risks for good health, Reducing risks & coping with chronic conditions, Management of chronic illness for Quality of life, Health & Wellness of youth :a challenge for upcoming future, Measuring of health & wealth status.





<b>BSCK307 – Social Connect &amp; Responsibility</b>		Semester	<b>3<sup>rd</sup></b>
<b>2022 Scheme &amp; syllabus for 3<sup>rd</sup> sem</b>			
Course Code	<b>BSCK307</b>	CIE Marks	<b>100</b>
Teaching Hours/Week (L:T:P: S)	0:0:3:1	SEE Marks	-----
Total Hours of Pedagogy	40 hour Practical Session +15 hour Planning	Total Marks	<b>100</b>
Examination nature (No SEE – Only CIE)	For CIE Assessment - Activities Report Evaluation by College NSS Officer / HOD / Sports Dept / Any Dept.		
Credits	01 - Credit		

**Course objectives: The course will enable the students to:**

31. Provide a formal platform for students to communicate and connect to the surrounding.
32. create a responsible connection with the society.
33. Understand the community in general in which they work.
34. Identify the needs and problems of the community and involve them in problem –solving.
35. Develop among themselves a sense of social & civic responsibility & utilize their knowledge in finding practical solutions to individual and community problems.
36. Develop competence required for group-living and sharing of responsibilities & gain skills in mobilizing community participation to acquire leadership qualities and democratic attitudes.

**General Instructions - Pedagogy :**

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

26. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the activities will develop students' theoretical and applied social and cultural skills.
27. State the need for activities and its present relevance in the society and Provide real-life examples.
28. Support and guide the students for self-planned activities.
29. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress in real activities in the field.
30. Encourage the students for group work to improve their creative and analytical skills.

**Contents :**

The course is mainly activity-based that will offer a set of activities for the student that enables them to connect with fellow human beings, nature, society, and the world at large.

The course will engage students for interactive sessions, open mic, reading group, storytelling sessions, and semester-long activities conducted by faculty mentors.

In the following a set of activities planned for the course have been listed:

**Social Connect & Responsibility -  
Contents**



**Part I:**

**Plantation and adoption of a tree:**

Plantation of a tree that will be adopted for four years by a group of BE / B.Tech students. (ONE STUDENT ONE TREE) They will also make an excerpt either as a documentary or a photo blog describing the plant's origin, its usage in daily life, its appearance in folklore and literature - - Objectives, Visit, case study, report, outcomes.

**Part II :**

**Heritage walk and crafts corner:**

Heritage tour, knowing the history and culture of the city, connecting to people around through their history, knowing the city and its craftsman, photo blog and documentary on evolution and practice of various craft forms - - Objectives, Visit, case study, report, outcomes.

**Part III :**

**Organic farming and waste management:**

Usefulness of organic farming, wet waste management in neighboring villages, and implementation in the campus -

Objectives, Visit, case study, report, outcomes.

**Part IV:**

**Water conservation:**

Knowing the present practices in the surrounding villages and implementation in the campus, documentary or photoblog presenting the current practices - Objectives, Visit, case study, report, outcomes.

**Part V :**

**Food walk:**

City's culinary practices, food lore, and indigenous materials of the region used in cooking - Objectives, Visit, case study, report, outcomes.



Department of Electrical & Electronics Engineering

**Scientific Foundations of Health**

Course Title:	Scientific Foundations of Health		
Course Code:	BSFHK158/258	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
Teaching Hours/Week (L:T:P: S)	1:0:0:0	Total Marks	100
Total Hours of Pedagogy	15 hours	Exam Hours	01 Theory
		Credits	01
<b>Course objectives</b>			
The course Scientific Foundations of Health (22SFH18/28) will enable the students,			
<ol style="list-style-type: none"> <li>1. To know about Health and wellness (and its Beliefs) &amp; It's balance for positive mindset.</li> <li>2. To Build the healthy lifestyles for good health for their better future.</li> <li>3. To Create a Healthy and caring relationships to meet the requirements of good/social/positive life.</li> <li>4. To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future</li> <li>5. To Prevent and fight against harmful diseases for good health through positive mindset</li> </ol>			
<b>Teaching-Learning Process</b>			
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching -Learning more effective:			
Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.			
<ol style="list-style-type: none"> <li>(i) Direct instructional method ( Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools),</li> <li>(iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning,</li> <li>(v) Personalized learning, (vi) Problems based learning through discussion, (vii) Following the method of expeditionary learning Tools and techniques, (viii) Use of audio visual methods.</li> </ol>			
Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.			
<b>Module-1</b>		<b>(03 hours of pedagogy)</b>	
Good Health & It's balance for positive mindset: Health -Importance of Health, Influencing factors of Health, Health beliefs, Advantages of good health, Health & Behavior, Health & Society, Health & family, Health & Personality, Psychological disorders-Methods to improve good psychological health, Changing health habits for good health.			
<b>Module-2</b>		<b>(03 hours of pedagogy)</b>	
Building of healthy lifestyles for better future: Developing healthy diet for good health, Food & health, Nutritional guidelines for good health, Obesity & overweight disorders and its management, Eating disorders, Fitness components for health. Wellness and physical function. How to avoid exercise injuries.			
<b>Module-3</b>		<b>(03 hours of pedagogy)</b>	
Creation of Healthy and caring relationships : Building communication skills, Friends and friendship - Education, the value of relationship and communication skills, Relationships for Better or worsening of life, understanding of basic instincts of life (more than a biology), Changing health behaviours through social engineering.			
<b>Module-4</b>		<b>(03 hours of pedagogy)</b>	
Avoiding risks and harmful habits : Characteristics of health compromising behaviors, Recognizing and avoiding of addictions, How addiction develops, Types of addictions, influencing factors of addictions, Differences between addictive people and non addictive people & their behaviors. Effects of addictions Such as..., how to recovery from addictions.			
<b>Module-5</b>		<b>(03 hours of pedagogy)</b>	
Preventing & fighting against diseases for good health: How to protect from different types of infections, How to reduce risks for good health, Reducing risks & coping with chronic conditions, Management of chronic illness for Quality of life, Health & Wellness of youth :a challenge for upcoming future, Measuring of health & wealth status.			



<b>BSCK307 – Social Connect &amp; Responsibility</b>		Semester	<b>3<sup>rd</sup></b>
<b>2022 Scheme &amp; syllabus for 3<sup>rd</sup> sem</b>			
Course Code	<b>BSCK307</b>	CIE Marks	<b>100</b>
Teaching Hours/Week (L:T:P: S)	0:0:3:1	SEE Marks	-----
Total Hours of Pedagogy	40 hour Practical Session +15 hour Planning	Total Marks	<b>100</b>
Examination nature (No SEE – Only CIE)	For CIE Assessment - Activities Report Evaluation by College NSS Officer / HOD / Sports Dept / Any Dept.		
Credits	01 - Credit		

**Course objectives: The course will enable the students to:**

37. Provide a formal platform for students to communicate and connect to the surrounding.
38. create a responsible connection with the society.
39. Understand the community in general in which they work.
40. Identify the needs and problems of the community and involve them in problem –solving.
41. Develop among themselves a sense of social & civic responsibility & utilize their knowledge in finding practical solutions to individual and community problems.
42. Develop competence required for group-living and sharing of responsibilities & gain skills in mobilizing community participation to acquire leadership qualities and democratic attitudes.

**General Instructions - Pedagogy :**

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

31. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the activities will develop students' theoretical and applied social and cultural skills.
32. State the need for activities and its present relevance in the society and Provide real-life examples.
33. Support and guide the students for self-planned activities.
34. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress in real activities in the field.
35. Encourage the students for group work to improve their creative and analytical skills.

**Contents :**

The course is mainly activity-based that will offer a set of activities for the student that enables them to connect with fellow human beings, nature, society, and the world at large.

The course will engage students for interactive sessions, open mic, reading group, storytelling sessions, and semester-long activities conducted by faculty mentors.

In the following a set of activities planned for the course have been listed:

**Social Connect & Responsibility -  
Contents**





**Part I:**

**Plantation and adoption of a tree:**

Plantation of a tree that will be adopted for four years by a group of BE / B.Tech students. (ONE STUDENT ONE TREE) They will also make an excerpt either as a documentary or a photo blog describing the plant's origin, its usage in daily life, its appearance in folklore and literature - - Objectives, Visit, case study, report, outcomes.

**Part II :**

**Heritage walk and crafts corner:**

Heritage tour, knowing the history and culture of the city, connecting to people around through their history, knowing the city and its craftsman, photo blog and documentary on evolution and practice of various craft forms - - Objectives, Visit, case study, report, outcomes.

**Part III :**

**Organic farming and waste management:**

Usefulness of organic farming, wet waste management in neighboring villages, and implementation in the campus -

Objectives, Visit, case study, report, outcomes.

**Part IV:**

**Water conservation:**

Knowing the present practices in the surrounding villages and implementation in the campus, documentary or photoblog presenting the current practices - Objectives, Visit, case study, report, outcomes.

**Part V :**

**Food walk:**

City's culinary practices, food lore, and indigenous materials of the region used in cooking - Objectives, Visit, case study, report, outcomes.



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi. Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))

Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551

E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

### Department of Business Administration

<b>Principles of Management and Organisational Behaviour</b>			
<b>Course Code</b>	<b>22MBA11</b>	<b>CIE Marks</b>	<b>50</b>
<b>Teaching Hours/Week (L:P:SDA)</b>	<b>4:0:0</b>	<b>SEE Marks</b>	<b>50</b>
<b>Total Hours of Pedagogy</b>	<b>50</b>	<b>Total Marks</b>	<b>100</b>
<b>Credits</b>	<b>04</b>	<b>Exam Hours</b>	<b>03</b>
<p><b>Course Objectives:</b> This course will enable the students</p> <ul style="list-style-type: none"> <li>To understand theories and models of Management and OB.</li> <li>To classify and differentiate between various methods of problem solving.</li> <li>To compile an adept framework for solving the problems at the workplace.</li> <li>To acquaint the students with industry relevant skill sets.</li> </ul>			
<b>Module-1 (8 Hours)</b>			
<b>Introduction:</b> Meaning, Objectives, Differences between Administration and Management, Levels of Management, Kinds of Managers, Managerial roles, History of Management, Recent trends in Management.			
<b>Module-2 (9 Hours)</b>			
<p><b>Planning:</b> Importance, Process, Benefits of Planning, Types of Plans, Planning tools and techniques.  <b>Organising:</b> Meaning, Types of Organisation structures, Traditional structures, Directions in organisation structures.  <b>Leading:</b> Meaning, Nature, Traits and Behaviour, Contingency approaches to Leadership, Transformational leadership.  <b>Controlling:</b> Meaning, Importance, Steps in the control process, Types of Control.</p>			
<b>Module-3 (9 Hours)</b>			
<b>Organisational Behaviour:</b> Introduction, Meaning, History of Organisational Behaviour, Organisational effectiveness, Organisational learning process, Stakeholders, Contemporary challenges for Organisations.			
<b>Module-4 (9 Hours)</b>			
<p><b>Behavioural Dynamics:</b> MARS Model of individual behaviour and performance, Types of Individual behaviour, Personality in Organisation, <b>Values in the work place, Types of values, Perception,</b> Meaning, Model of Perceptual process. Emotions in work place, Types of emotions, Circumplex Model of Emotion, Attitudes and Behaviour, Work-related stress and its management.  <b>Motivation,</b> Meaning, Maslow's Hierarchy of Needs, Four Drive Theory of Motivation.</p>			
<b>Module-5 (9 Hours)</b>			
<b>Teams:</b> Advantages of Teams, Model of Team Effectiveness, Stages of Team Development. Power , Meaning, Sources, and Contingencies of Power, Consequences of Power.			
<b>Module-6 (7 Hours)</b>			



<b>BUSINESS COMMUNICATION</b>			
<b>Course Code</b>	<b>22MBA16</b>	<b>CIE Marks</b>	<b>50</b>
<b>Teaching Hours/Week (L:P:SDA)</b>	<b>4:0:0</b>	<b>SEE Marks</b>	<b>50</b>
<b>Total Hours of Pedagogy</b>	<b>50</b>	<b>Total Marks</b>	<b>100</b>
<b>Credits</b>	<b>04</b>	<b>Exam Hours</b>	<b>03</b>
<b>Course Learning objectives:</b>			
<ul style="list-style-type: none"> <li>To enable the students to become aware of their communication skills and sensitize them to their potential to become successful managers.</li> <li>To enable learners with the mechanics of writing and also help them to draft business letters in English precisely and effectively.</li> <li>To introduce the students to some of the practices in managerial communication those are in vogue.</li> <li>To prepare students to develop the art of business communication with emphasis on analysing business situations.</li> <li>To train Students towards drafting business proposals.</li> </ul>			
<b>Module-1 (7 Hours)</b>			
<b>Introduction:</b> Meaning & Definition, Role, Classification, Purpose of communication, Communication Process, Characteristics of successful communication, Importance of communication in management, Communication structure in organization, Communication in conflict resolution, Communication in crisis. Communication and negotiation, Communication in a cross-cultural setting, Barriers to communication.			
<b>Module-2 (9 Hours)</b>			
<b>Oral Communication:</b> Meaning, Principles of successful oral communication, Barriers to oral communication, Conversation control, <b>Reflection and Empathy:</b> two sides of effective oral communication. Modes of Oral Communication, Effectiveness of oral communication. Listening as a Communication Skill: Approaches to listening, how to be a better listener, Process of listening, Nonverbal communication: Meaning, classification.			
<b>Module-3 (9 Hours)</b>			
<b>Written Communication:</b> Purpose of writing, Clarity in writing, Principles of effective writing, Approaching the writing process systematically: The 3X3 writing process for business communication Pre writing, Writing, Revising. Audience analysis, Writing Positive, Neutral, Persuasive and Bad-news Messages. Types of Written Communication In Business: Business Letters: Introduction To Business Letters, Types of Business Letters, Writing Routine And Persuasive Letters, Positive And Negative Messages Writing, Employee Reviews, Recommendation Letters, Thank You Letters.			
<b>Module-4 (9 Hours)</b>			
<b>Business Reports:</b> Purpose, Kinds and Objectives of reports , Organization & Preparing reports, short and long reports Writing Proposals: Structure & preparation , Writing memos, Media Management: The press release, Press conference, Media interviews. <b>Group Communication:</b> Meetings, Planning meetings, objectives , participants , timing , venue of meetings. <b>Meeting Documentation:</b> Notice, Agenda and Resolution & Minutes.			
<b>Module-5 (9 Hours)</b>			
<b>Case method of learning:</b> Understanding the case method of learning , different types of cases , overcoming the difficulties of the case method , reading a case properly , case analysis approaches , analyzing the case , dos and don'ts for case preparation. <b>Employment Communication:</b> Introduction, Writing CVs, Group discussion, Interview skills.			





<b>HUMAN RESOURCE MANAGEMENT</b>			
<b>Course Code</b>	<b>22MBA21</b>	<b>CIE Marks</b>	<b>50</b>
<b>Teaching Hours/Week (L:P:SDA)</b>	<b>4:0:0</b>	<b>SEE Marks</b>	<b>50</b>
<b>Total Hours of Pedagogy</b>	<b>50</b>	<b>Total Marks</b>	<b>100</b>
<b>Credits</b>	<b>04</b>	<b>Exam Hours</b>	<b>03</b>
<p><b>Course Learning objectives:</b> The student will be able to</p> <ul style="list-style-type: none"> <li>• Recite the theories and various functions of Human Resources Management</li> <li>• Describe and explain in her/his own words, the relevance and importance of Human Resources Management at workplace</li> <li>• Apply and solve the workplace problems through Human Resources Management intervention</li> <li>• Compare and contrast different approaches of HRM for solving the complex issues and problems at the workplace</li> <li>• Design and develop an original framework and model in dealing with the problems in the organization.</li> </ul>			
<b>Module-1 (7 Hours)</b>			
<p><b>Introduction HRM:</b> Introduction, meaning, nature, scope of HRM, Importance and Evolution of the concept of HRM, Major functions of HRM, Principles of HRM. Human Resource Management and Personnel Management, Models of Human Resource Management, HRM in India, The Factors Influencing Human Resource Management, The HR Competencies, Human Resource Management and Firm Performance.</p>			
<b>Module-2 (9 Hours)</b>			
<p><b>HR Planning:</b> Importance of HR Planning, Manpower Planning to HR Planning, Factors Affecting HR Planning, Benefits of HR Planning, HRP Process, Tools for Demand Forecasting, Attributes of an Effective HR Planning, Barriers to HR Planning, The Challenges for HR, Process of Job Analysis, Job Description and Job Evaluation.</p> <p><b>Recruitment and Selection:</b> Importance of Recruitment, Recruitment Policies, Factors Influencing Recruitment, Recruitment Process, Sources, Evaluation of Recruitment Process, Recruitment Strategy, Future Trends in Recruitment; Selection Process; Selection Tests; Factors Influencing Selections.</p>			
<b>Module-3 (9 Hours)</b>			
<p><b>Performance Management and Appraisal:</b> Objectives of Performance Management, Performance Management and Performance Appraisal, Common Problems with Performance Appraisals, Performance Management Process, Types of Performance Rating Systems, Future of Performance Management.</p> <p><b>Compensation and Benefits:</b> Introduction, Definitions, Total Compensation, Total Rewards System, Forms of Pay, External and Internal Factors, Establishing Pay Rates, Employee Benefits.</p> <p><b>Industrial Relations:</b> Decent Workplace, International Labour Organisation, Industrial Relations, The Objectives of Industrial Relations, Approaches of Industrial Relations Systems, The Actors in Industrial Relations, Indian Context, Industrial Relations and Human Resource Management.</p>			
<b>Module-4 (9 Hours)</b>			





<p><b>Human Resource Management in Small and Medium Enterprises:</b> Introduction to SMEs, The Difference in Adoption of Human Resource Management, SMEs and Large Firms, Indian Experience, Impact of Weak Adoption of Human Resource Management in SMEs,</p> <p><b>Human Resource Management in the Service Sector:</b> Introduction, The Emergence of the Services Sector, Implications for Human Resource, Management Function, Differences Between Services Sector and the Manufacturing Sector, Difference in Human Resource Management in Services and Manufacturing Sectors, Human Resource Management and Service Quality Correlation, Trade Unions in Services Sector, Models of Union Strategies.</p>
<p><b>Module-5 (9 Hours)</b></p>
<p><b>Human Resource Management and Innovations:</b> Factors Affecting the Innovation Process in organisations, Current Trends in Human Resource Management, Innovative Human Resource Management Practices in India, Sustainable and innovative Human Resource Management.</p>
<p><b>Module-6 (7 Hours)</b></p>
<p><b>Future trends in Human Resource Management:</b> Hybrid work model, Employee skill development, Internal mobility, Diversity and inclusion in workforce, People analytics, Employee well-being, Multi-generational workforces and All-in-One HR tools.</p>
<p><b>Assessment Details (both CIE and SEE)</b></p> <p>The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing marks for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements (passed) and earned the credits allotted to each course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.</p> <p><b>Continuous Internal Evaluation:</b></p> <p>There shall be a maximum of 50 CIE Marks. A candidate shall obtain not less than 50% of the maximum marks prescribed for the CIE.</p> <p><b>CIE Marks shall be based on:</b></p> <p>a) Tests (for 25Marks) and</p> <p>b) Assignments, presentations, Quiz, Simulation, Experimentation, Mini project, oral examination, field work and class participation etc., (for 25 Marks) conducted in the respective course. Course instructors are given autonomy in choosing a few of the above based on the subject relevance and should maintain necessary supporting documents for same.</p> <p><b>Semester End Examination:</b></p> <p>The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50.</p> <ul style="list-style-type: none"><li>• The question paper will have 8 full questions carrying equal marks.</li><li>• Each full question is for 20 marks with 3 sub questions.</li><li>• Each full question will have sub question covering all the topics.</li><li>• The students will have to answer five full questions; selecting four full questions from question number one to seven in the pattern of 3, 7 &amp; 10 Marks and question number eight is compulsory.</li></ul>





<b>INNOVATION AND DESIGN THINKING</b>			
<b>Course Code</b>	<b>22MBA402</b>	<b>CIE Marks</b>	<b>50</b>
<b>Teaching Hours/Week (L:P:SDA)</b>	<b>2:2:0</b>	<b>SEE Marks</b>	<b>50</b>
<b>Total Hours of Pedagogy</b>	<b>40</b>	<b>Total Marks</b>	<b>100</b>
<b>Credits</b>	<b>03</b>	<b>Exam Hours</b>	<b>03</b>
<b>Course Learning objectives:</b>			
<ul style="list-style-type: none"> <li>To familiarise Design Thinking (DT) and its phases</li> <li>To enable the students to become aware of the evolution, concepts &amp; models of Design Thinking.</li> <li>To enable learners with the context, methods and mindsets pertaining to Design Thinking.</li> <li>To equip students to the opportunities to ideate and find solutions by applying DT.</li> </ul>			
<b>Module-1 (6 Hours)</b>			
Introduction, Design Thinking as a Solution, The Value of Design Thinking, A Look at the History of Design Thinking, A Look at the History of Design Thinking, Four Core Principles of Successful Innovation, A Model of the Design Innovation Process, Seven Modes of the Design Innovation Process, Understanding Methods.			
<b>Module-2 (9 Hours)</b>			
Sense Intent: Mindsets, Sensing Changing Conditions, Seeing Overviews, Foreseeing Trends, Reframing Problems, Forming an Intent, Sense Intent: Methods, Buzz Reports, Popular Media Scan, Key Facts, Innovation Sourcebook, Trends Expert Interview, Keyword Bibliometrics, Ten Types of Innovation Framework, Innovation Landscape, Trends Matrix, Convergence Map, From To Exploration, Initial Opportunity Map, Offering-Activity-Culture Map, Intent Statement. Know Context: Mindsets, Knowing Context History, Understanding Frontiers, Seeing System Overviews, Understanding Stakeholders, Using Mental Models, Know Context: Methods, Contextual Research Plan, Popular Media Search, Publications Research, Eras Map, Innovation Evolution Map, Financial Profile, Analogous Models, Competitors- Complementors Map, Ten Types of Innovation Diagnostics, Industry Diagnostics, SWOT Analysis, Subject Matter Experts Interview, Interest Groups Discussion.			
<b>Module-3 (6 Hours)</b>			
Know People: Mindsets, Observing Everything, Building Empathy, Immersing in Daily Life, Listening Openly, Looking for Problems and Needs. Know People: Methods, Research Participant Map, Research Planning Survey, User Research Plan, Five Human Factors, POEMS, Field Visit, Video Ethnography, Ethnographic Interview, User Pictures Interview, Cultural Artifacts, Image Sorting, Experience Simulation, Field Activity, Remote Research, User Observations Database.			
<b>Module-4 (7 Hours)</b>			
Frame Insights: Mindsets, Exploring Systems, Looking for Patterns, Constructing Overviews, Identifying Opportunities, Developing Guiding Principles. Frame Insights: Methods, Observations to Insights, Insights Sorting, User Observation Database			



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi. Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))

Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602,Fax:080-25730551

E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

### Master of Computer Applications

<b>Software Engineering</b>			
Course Code	22MCA23	CIE Marks	50
Teaching Hours/Week (L:P:SDA)	4:0:0	SEE Marks	50
Total Hours of Pedagogy	50	Total Marks	100
Credits	04	Exam Hours	03
<b>Course Learning objectives:</b>			
<ul style="list-style-type: none"> <li>Outline software engineering principles and activities involved in building large software programs.</li> <li>Identify ethical and professional issues and explain why they are of concern to software engineers.</li> <li>Explain the fundamentals of object oriented concepts.</li> <li>Describe the process of requirements gathering, requirements classification, requirements specification and requirements validation.</li> <li>Differentiate system models, use UML diagrams and apply design patterns.</li> <li>Discuss the distinctions between validation testing and defect testing.</li> </ul>			
<b>Module-1</b>			
Introduction: Professional Software Development Attributes of good software, software engineering diversity, IEEE/ACM code of software engineering ethics, case studies. Software Process and Agile Software Development Software Process models: waterfall, incremental development, reuses oriented, Process activities; coping with change, The Rational Unified Process.			
<b>Teaching-Learning Process</b>	Chalk and board, Active Learning, Problem based learning		
<b>Module-2</b>			
Agile Methods, Plan-Driven and Agile Development, Extreme Programming, Agile Project Management, scaling agile methods. Requirement Engineering: Functional and non-functional requirements, The Software requirements document, Requirements specification, Requirements engineering processes, Requirement elicitation and analysis, Requirement validation, Requirement management			
<b>Teaching-Learning Process</b>	Chalk and board, Active Learning, Problem based learning		
<b>Module-3</b>			
What is object orientation? What is OO development? OO themes; Evidence for usefulness of OO development; OO modelling history, modelling as design Technique: Modelling; abstraction; the three models. Object and class concepts; Link and associations concepts; Generalization and inheritance; A sample class model; Navigation of class models; Practical tips. Advanced objects and class concepts; Associations ends; N-array association; Aggregation, Abstract class; Multiple inheritance; Metadata; Relification; Constraints; Derived data; packages; practical tips			
<b>Teaching-Learning Process</b>	Chalk and board, Active Learning, Problem based learning		



<b>Module-4</b>	
System Models: Context models, Interaction models. Structural models. Behavioural models. Model-driven engineering Design and Implementation: Introduction to RUP, Design Principles. Object-oriented design using the UML. Design patterns. Implementation issues. Open source development.	
<b>Teaching-Learning Process</b>	Chalk and board, Active Learning, Problem based learning
<b>Module-5</b>	
Software Testing: Development testing, Test-driven development, Release testing ,User testing . Test Automation. Software Evolution: Evolution processes. Program evolution dynamics. Software maintenance. Legacy system management .	
<b>Teaching-Learning Process</b>	Chalk and board, Active Learning, Problem based learning

10.08.2023

1

EES-24.06.2023

Credits corn

**Assessment Details (both CIE and SEE)**

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

**Continuous Internal Evaluation:**

1. Three Unit Tests each of **20 Marks**
2. Two assignments each of **20 Marks** or **one Skill Development Activity of 40 marks** to attain the COs and POs

The sum of three tests, two assignments/skill Development Activities, will be **scaled down to 50 marks**

**CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.**





<b>Software Project Management</b>			
Course Code	<b>22MCA414</b>	CIE Marks	<b>50</b>
Teaching Hours/Week (L:P:SDA)	<b>2:0:0:2</b>	SEE Marks	<b>50</b>
Total Hours of Pedagogy	<b>40</b>	Total Marks	<b>100</b>
Credits	<b>03</b>	Exam Hours	<b>03</b>
<b>Course Learning objectives:</b> <ul style="list-style-type: none"> <li>• Apply the practices and methods for successful software project management</li> <li>• Identify techniques for requirements, policies and decision making for effective resource management</li> <li>• Illustrate the evaluation techniques for estimating cost, benefits, schedule and risk</li> <li>• Devise a framework for software project management plan for activities, risk, monitoring and control</li> <li>• 5. Design a framework to manage people</li> </ul>			
<b>Module-1</b>			
<b>INTRODUCTION TO SOFTWARE PROJECT MANAGEMENT</b> Introduction, Why is Software Project Management important? What is a Project?, Contract Management, Activities Covered by Software Project Management, Plans, Methods and Methodologies, Some ways of categorizing software projects, Stakeholders, Setting Objectives, Business Case, Project Success and Failure, What is Management? Management Control, Traditional versus Modern Project Management Practices			
Teaching-Learning Process	Chalk and Talk/PPT/Web Content		
<b>Module-2</b>			
<b>PROJECT EVALUATION &amp; FINANCE</b> Evaluation of Individual Projects, Cost Benefit Evaluation Techniques, Risk Evaluation, Programme Management, Managing allocation of Resources within Programmes, Financial Accounting-An overview- Accounting concepts, Principles & Standards, Ledger posting, Trial balance, Profit and Loss account Balance sheet			
Teaching-Learning Process	Chalk and Talk/PPT/Web Content		
<b>Module-3</b>			
<b>ACTIVITY PLANNING</b> Objectives of Activity Planning, When to Plan, Project Schedules, Sequencing and Scheduling Activities, Network Planning Models, Forward Pass- Backward Pass, Identifying critical path, Activity Float, Shortening Project Duration, Activity on Arrow Networks Risk Management, Nature of Risk, Categories of Risk, A framework for dealing with Risk, Risk Identification, Risk analysis and prioritization, risk planning and risk monitoring.			
Teaching-Learning Process	Chalk and Talk/PPT/Web Content		



<b>Module-4</b>	
<b>MONITORING AND CONTROL</b> Creating the Framework, Collecting the Data, Review, Project Termination Review, Visualizing Progress, Cost Monitoring, Earned Value Analysis, Prioritizing Monitoring, Getting Project Back To Target, Change Control, Software Configuration Management	
<b>Teaching-Learning Process</b>	Chalk and Talk/PPT/Web Content
<b>Module-5</b>	
<b>MANAGING PEOPLE AND WORKING IN TEAMS</b> Introduction, Understanding Behavior, Organizational Behavior:A Background, Selecting the Right Person for the Job, Instruction in the Best Methods, Motivation, The Oldham-Hackman Job Characteristics Model, Stress-Health and Safety Working In Teams, Becoming a Team, Decision Making,	

##29092023

56

Leadership.	
<b>Teaching-Learning Process</b>	Chalk and Talk/PPT/Web Content
<b>Assessment Details (both CIE and SEE)</b> The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together. <b>Continuous Internal Evaluation:</b> <ul style="list-style-type: none"> <li>• Three Unit Tests each of 20 Marks</li> <li>• Two assignments each of 20 Marks or one Skill Development Activity of 40 marks to attain the COs and POs</li> </ul> The sum of three tests, two assignments/skill Development Activities, will be scaled down to 50 marks CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.	



## Environment and Sustainability

### Department of Biotechnology

I/II Semester

ENGINEERING CHEMISTRY			
Course Code	21CHE12/22	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	2:2:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	3Hour

Course Objectives: The course will enable the students to

**CLO1:** Impart the basic knowledge of chemistry and its principles involved in electrochemistry, energy storage devices and its commercial applications.

**CLO2:** Understand the basic principles of corrosion and its prevention, metal finishing and its technological importance

**CLO3:** Master the knowledge of synthesis, properties and utilization of engineering materials like polymers & Nano materials.

**CLO4:** Apply the knowledge of Green Chemistry principles for production of chemical compounds. understanding the concepts of alternative energy sources.

**CLO5:** Understand the basic concepts of water chemistry & theory, basic principle and applications of volumetric analysis and analytical instruments.

#### Pedagogy (General Instructions):

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

1. Lecturer method (L) does not mean only traditional lecture method, but different type of teaching methods may be adopted to develop the outcomes.
2. Show Video/animation films to explain methods of synthesis of nanomaterials.
4. Encourage collaborative (Group Learning) Learning in the class
5. Ask at least three HOTS (Higher order Thinking) questions in the class, which promotes critical thinking
6. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop thinking skills such as the ability to evaluate, generalize, and analyse information rather than simply recall it.
7. Topics will be introduced in a multiple representation.
8. Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
9. Discuss how every concept can be applied to the real world - and when that's possible, it helps improve the students' understanding.

#### Module-1

##### Electrochemistry and energy storage systems:

**Electrochemistry:** Introduction, EMF of cell, Free Energy, Single electrode potential-Derivation of Nernst equation, Numerical problems based on Nernst Equation ( $E$ ,  $E^\circ$  &  $E_{cell}$ ).

**Reference Electrodes:** Introduction, construction, working and applications of calomel electrode, ion selective electrodes: Introduction, construction, working and applications of Glass electrode, determination of pH using Glass electrode.

**Energy storage Systems:** Introduction, Classification of batteries (primary, secondary and reserved batteries). Construction, working and applications of Li-ion batteries. Advantages of Li-ion battery as





<b>Module-4</b>	
<p><b>Green Chemistry and Alternative energy resources</b></p> <p><b>Green Chemistry:</b> Introduction, definition, Major environmental pollutants - Oxides Nitrogen, Sulphur and Carbon (Mention the impact of these pollutants on environment), Basic principles of green chemistry -brief discussion on 12 principles of green chemistry.</p> <p>Various green chemical approaches – Microwave synthesis, Bio catalysed reaction (only explanation with examples),            Solvent-free reactions- advantages and conditions            Synthesis of typical organic compounds by conventional and green route;</p> <ol style="list-style-type: none"> <li>i) Adipic acid – Conventional synthesis from Benzene, Green synthesis from glucose.</li> <li>ii) Paracetamol- Conventional and Green synthesis from Phenol</li> </ol> <p>Industrial applications of Green Chemistry</p> <p><b>Green fuel:</b> Hydrogen-production (Photo electrocatalytic and photo catalytic water splitting) and applications in hydrogen fuel cells. Construction, working and applications of Methanol-Oxygen fuel cell (H<sub>2</sub>SO<sub>4</sub> as electrolyte).</p> <p><b>Solar Energy:</b>            Introduction, construction, working and applications of photovoltaic cell.</p>	
<b>Teaching Learning process</b>	<p>Chalk and talk/power point presentation - Basic principles of green chemistry</p> <p>Videos: Various green chemical approaches,</p> <p>Self-study material: Atom economy-synthesis of ethylene oxide and methyl methacrylate. Advantages &amp; disadvantages of photovoltaic cell.</p>
<b>Module-5</b>	
<p><b>Water Chemistry, chemical analysis and Instrumental methods of analysis</b></p> <p><b>Water chemistry:</b>            Introduction, sources and impurities in water, Potable water; meaning and specifications (as per WHO standards), Hardness of water, types, determination of hardness using EDTA titration, numerical problems on hardness of water. Definition of Biological oxygen demand (BOD) and Chemical Oxygen Demand (COD), determination of COD of waste water sample and Numerical problems on COD.</p> <p><b>Methods of Chemical Analysis:</b>  <b>Volumetric Analysis:</b> Introduction, principles of titrimetric analysis, requirement of titrimetric analysis, primary and secondary standards. Requirement of a primary standard solution, units of standard solutions- Definition of normality, molarity, molality, mole fraction, ppm.</p> <p><b>Instrumental methods of analysis:</b>            Introduction, Theory, Instrumentation and applications of Colorimetry, Flame Photometry, Potentiometry, Conductometry (Strong acid with strong base, weak acid with a strong base, mixture of strong acid and a weak acid with a strong base)</p>	
<b>Teaching</b>	<p>Chalk and talk/power point presentation – principles of titrimetric analysis, requirement of titrimetric analysis, Classification of titrimetric analysis, Ostwald's theory of acid-base</p>





<b>MICROBIOLOGY</b>		Semester	III
Course Code	<b>BBT304</b>	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	3:0:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	03
Examination type (SEE)	Theory		
<p><b>Course objectives:</b></p> <ul style="list-style-type: none"> <li>• To understand the details of classification, structural features and functional aspects of prokaryotic and eukaryotic microorganisms.</li> <li>• To learn different techniques of microscopy and be able to describe microbial techniques for growth, cultivation and characterization of microorganisms.</li> <li>• To explain microbial metabolism, growth and control of microorganisms.</li> <li>• To describe and relate the occurrence of microbes caused diseases.</li> <li>• To be able to study occurrence and role of general microflora of air, water and soil.</li> </ul>			
<p><b>Teaching-Learning Process (General Instructions)</b></p> <p>These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.</p> <ul style="list-style-type: none"> <li>• Explanation via real life problem, situation modelling, and deliberation of solutions, hands-on sessions, reflective and questioning /inquiry-based teaching.</li> <li>• Instructions with interactions in classroom lectures (physical/hybrid).</li> <li>• Use of ICT tools, including YouTube videos, related MOOCs, AR/VR/MR tools.</li> <li>• Flipped classroom sessions (~10% of the classes).</li> <li>• Industrial visits, Guests talks and competitions for learning beyond the syllabus.</li> <li>• Students' participation through audio-video based content creation for the syllabus (as assignments).</li> <li>• Use of gamification tools (in both physical/hybrid classes) for creative learning outcomes.</li> <li>• Students' seminars (in solo or group) /oral presentations.</li> </ul>			
<b>Module-1 (8 hours)</b>			
<b>OVERVIEW OF MICROBIOLOGY AND MICROORGANISMS:</b>			
Scope and History of Microbiology (Major milestones). Prokaryotes, Archaea and Eukaryotes. Microbial diversity and Taxonomy. Classification, characteristics and reproduction of Bacteria, Viruses, Fungi, Protozoa, Algae. General features of true bacteria (Rickettsia, Mycoplasma and Chlamydia), Prions, Spirochetes, Actinomycetes.			
<b>Module-2 (8 hours)</b>			
<b>METHODS AND TECHNIQUES IN MICROBIOLOGY:</b>			
Microscopy: Bright-Field, Dark-Field, Phase-Contrast, Acoustic, Fluorescence, Electron Microscopy (SEM, TEM). Micrometry. Media: types and preparation. Pure culture Techniques (streak-plate, spread plate, pour plate). Staining techniques (Simple and differential).			
<b>Module-3 (8 hours)</b>			
<b>MICROBIAL GROWTH, METABOLISM AND CONTROL:</b>			
Microbial growth Phases, Factors affecting the growth, growth measurement and enumeration. Metabolism; Primary and Secondary metabolites with examples, metabolic pathways important in microorganisms- Respiration and Fermentation (EMP, HMP, ED, Phospho ketolase, Mixed acid, TCA). Control of growth (Sterilization and disinfection techniques).			



**Module-4 (8 hours)**

**MICROBIOLOGY AND DISEASES:**

Common diseases caused by microbes: viruses (Polio, H1N1, SARS, Covid-19, HIV, Hepatis), bacteria (TB, Cholera, Typhoid, Pneumonia, Plague, Diphtheria, *E. coli* infections), Protozoans (Malaria, Leishmaniasis and Amebiasis). Common types of fungal infections (ringworm, yeast infection). Microbiome and gut health.

<b>PLANT PHYSIOLOGY AND PHYTOHORMONES</b>		Semester	III
Course Code	<b>BBT306D</b>	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	3:0:0:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	3
Examination type (SEE)	Theory		

**Course objectives:**

- To learn the fundamental so plant physiology
- To explore the roles of various phytohormones and their action mechanisms
- To study the plant environment interactions

**Teaching-Learning Process (General Instructions)**

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

- Explanation via real life problem, situation modelling, and deliberation of solutions, hands-on sessions, reflective and questioning /inquiry-based teaching.
- Instructions with interactions in classroom lectures (physical/hybrid).
- Use of ICT tools, including YouTube videos, related MOOCs, AR/VR/MR tools.
- Flipped classroom sessions (~10% of the classes).
- Industrial visits, Guests talks and competitions for learning beyond the syllabus.
- Students' participation through audio-video based content creation for the syllabus (as assignments).
- Use of gamification tools (in both physical/hybrid classes) for creative learning outcomes.
- Students' seminars (in solo or group) /oral presentations.

**Module-1 (8 Hours)**

**Introduction to Plant Physiology:** Definition and scope of plant physiology, Plant anatomy and morphology, Plant growth and development, Water Relations and Mineral Nutrition, Water potential and its measurement, Water uptake and transport in plants, Mineral nutrients and their roles in plant growth, Nutrient uptake and transport mechanisms.

**Module-2 (8 Hours)**

**Photosynthesis, Respiration and Energy Metabolism:** Light absorption and chlorophyll pigments, Photosynthetic pigments and their functions, Calvin cycle and carbon fixation, Factors affecting photosynthesis, Respiration and Energy Metabolism - Cellular respiration and ATP production, Glycolysis, Krebs cycle, and electron transport chain, Aerobic and anaerobic respiration.

**Module-3 (8 Hours)**

**Plant Hormones:** Introduction to phytohormones, Auxins: functions and physiological effects, Gibberellins: functions and physiological effects, cytokinins: functions and physiological effects, Abscisic acid: functions and physiological effects, Ethylene: functions and physiological effects.

**Module-4 (8 Hours)**



**Plant Growth, Development & plant movements:** Seed germination and dormancy, Photomorphogenesis and photoperiodism, Flowering and reproduction, Senescence and aging, Tropisms: phototropism, gravitropism, thigmotropism, Nastic movements: nyctinasty, eismonasty, Movements in response to environmental cues.

**Module-5 (8 Hours)**

**Plant-Environment Interactions and Stress Physiology:** Plant responses to abiotic stress (e.g., temperature, light, drought), Plant responses to biotic stress (e.g., pathogens, herbivores), Plant defence mechanisms, Signal transduction pathways in stress responses, Plant responses to light and photomorphogenesis, Plant responses to temperature, Water, and nutrients

**Course outcome (Course Skill Set)**

At the end of the course, the student will be able to:

1. comprehend the fundamental principles of plant physiology.
2. Examining the mechanisms of plant hormone action.
3. **Analysing the interaction between phytohormones and the environment**

<b>BIOPESTICIDES AND BIOFERTILIZERS</b>		Semester	IV
Course Code	<b>BBT456D</b>	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	1:0:0:0	SEE Marks	50
Total Hours of Pedagogy	15	Total Marks	100
Credits	01	Exam Hours	1
Examination type (SEE)	Theory		
<b>Course objectives:</b>			
<ul style="list-style-type: none"> <li>To familiarize the students on biopesticides and biofertilizers that are free from harmful chemicals and are more environment friendly for the purposes of achieving better crop production</li> </ul>			
<b>Teaching-Learning Process (General Instructions)</b>			
These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.			
<ul style="list-style-type: none"> <li>Explanation via real life problem, situation modelling, and deliberation of solutions, hands-on sessions, reflective and questioning /inquiry based teaching.</li> <li>Instructions with interactions in classroom lectures (physical/hybrid).</li> <li>Use of ICT tools, including YouTube videos, related MOOCs, AR/VR/MR tools.</li> <li>Flipped classroom sessions (~10% of the classes).</li> <li>Industrial visits, Guests talks and competitions for learning beyond the syllabus.</li> <li>Students' participation through audio-video based content creation for the syllabus (as assignments).</li> <li>Use of gamification tools (in both physical/hybrid classes) for creative learning outcomes.</li> <li>Students' seminars (in solo or group) /oral presentations.</li> </ul>			
<b>Module-1 (3 Hours)</b>			
<b>PATHOGENS AND PESTS MANAGEMENT:</b>			
Pathogens and Pests Management, Natural Enemies, Reduviids and Their Merits in Biological Control, Weaver Ants and Biocontrol of the Nuisance Pest <i>Luprops tristis</i> (Coleoptera: Tenebrionidae), Ground Beetles (Coleoptera: Carabidae): Their Potential as Bio-agents in Agroecosystems, Eco-friendly Control of Three Common Mosquito Larvae Species by Odonata Nymphs, Spiders as Potential Eco-friendly Predators Against Pests.			
<b>Module-2 (3 Hours)</b>			
<b>BIOFERTILIZERS:</b>			
Types and importance of biofertilizers, Biopesticides and bioagents in agriculture and organic farming system, History of biofertilizers production Classification of biofertilizers microorganisms used in biofertilizers production			



**Module-3 (3 Hours)**

**NITROGEN FIXATION:**

Concept of Nitrogen fixation. Structure and characteristic features of bacterial biofertilizers - *Azotobacter*, *Bacillus*, *Rhizobium*; *Cynobacterial* biofertilizers - *Anabaena*, and fungal biofertilizers - VAM.

**Module-4 (3 Hours)**

**BIOPESTICIDES :**

General account of microbes used as bioinsecticides and their advantages over synthetic pesticides, *Bacillus thuringiensis*, Mechanism of phosphate solubilization and phosphate mobilization, K solubilization. Botanicals: botanical pesticides, and biorationales. Botanicals and their uses. Plant Essential Oils and Pest Management

**Module-5 (3 Hours)**

**PRODUCTION AND QUALITY CONTROL :**

Strain selection, sterilization, growth and fermentation, mass production of biofertilizers. Storage, shelf life, quality control and marketing. Factors influencing the efficacy of biofertilizers/Biopesticides, FCO specifications and quality control of biofertilizers. Application technology for seeds, seedlings, tubers, etc.

<b>BIOLOGY FOR ENGINEERS</b>		Semester	IV
Course Code	<b>BBOK407</b>	CIE Marks	50
Teaching Hours/Week (L: T:P: S)	3:0:0:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	3
Examination type (SEE)	Theory		
<b>Course objectives:</b>			
<ul style="list-style-type: none"> <li>To familiarize the students with the basic biological concepts and their engineering applications.</li> <li>To enable the students with an understanding of biodesign principles to create novel devices and structures.</li> <li>To provide the students an appreciation of how biological systems can be re-designed as substitute products for natural systems.</li> <li>To motivate the students to develop interdisciplinary vision of biological engineering.</li> </ul>			
<b>Teaching-Learning Process (General Instructions)</b>			
These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.			
<ul style="list-style-type: none"> <li>Explanation via real life problem, situation modelling, and deliberation of solutions, hands-on sessions, reflective and questioning /inquiry-based teaching.</li> <li>Instructions with interactions in classroom lectures (physical/hybrid).</li> <li>Use of ICT tools, including YouTube videos, related MOOCs, AR/VR/MR tools.</li> <li>Flipped classroom sessions (~10% of the classes).</li> <li>Industrial visits, Guests talks and competitions for learning beyond the syllabus.</li> <li>Students' participation through audio-video based content creation for the syllabus (as assignments).</li> <li>Use of gamification tools (in both physical/hybrid classes) for creative learning outcomes.</li> <li>Students' seminars (in solo or group) /oral presentations.</li> </ul>			
<b>Module-1 (8 Hours)</b>			



**INTRODUCTION TO BIOLOGY:**

The cell: the basic unit of life, Structure and functions of a cell. The Plant Cell and animal cell, Prokaryotic and Eukaryotic cell, Stem cells and their application. Biomolecules: Properties and functions of Carbohydrates, Nucleic acids, proteins, lipids. Importance of special biomolecules; Enzymes (Classification (with one example each), Properties and functions), vitamins and hormones.

**Module-2 (8 Hours)****BIOMOLECULES AND THEIR APPLICATIONS (QUALITATIVE):**

Carbohydrates (cellulose-based water filters, PHA and PLA as bioplastics), Nucleic acids (DNA Vaccine for Rabies and RNA vaccines for Covid19, Forensics – DNA fingerprinting), Proteins (Proteins as food – whey protein and meat analogs, Plant based proteins), lipids (biodiesel, cleaning agents/detergents), Enzymes (glucose-oxidase in biosensors, lignolytic enzyme in bio-bleaching).

**Module-3 (8 Hours)****HUMAN ORGAN SYSTEMS AND BIO DESIGNS (QUALITATIVE):**

Brain as a CPU system (architecture, CNS and Peripheral Nervous System, signal transmission, EEG, Robotic arms for prosthetics. Engineering solutions for Parkinson's disease). Eye as a Camera system (architecture of rod and cone cells, optical corrections, cataract, lens materials, bionic eye). Heart as a pump system (architecture, electrical signalling - ECG monitoring and heart related issues, reasons for blockages of blood vessels, design of stents, pace makers, defibrillators). Lungs as purification system (architecture, gas exchange mechanisms, spirometry, abnormal lung physiology - COPD, Ventilators, Heart-lung machine). Kidney as a filtration system (architecture, mechanism of filtration, CKD, dialysis systems).

**Module-4 (8 Hours)****NATURE-BIOINSPIRED MATERIALS AND MECHANISMS (QUALITATIVE):**

Echolocation (ultrasonography, sonars), Photosynthesis (photovoltaic cells, bionic leaf). Bird flying (GPS and aircrafts), Lotus leaf effect (Super hydrophobic and self-cleaning surfaces), Plant burrs (Velcro), Shark skin (Friction reducing swim suits), Kingfisher beak (Bullet train). Human Blood substitutes - hemoglobin-based oxygen carriers (HBOCs) and perfluorocarbons (PFCs).

**Module-5 (8 Hours)****TRENDS IN BIOENGINEERING (QUALITATIVE):**

Muscular and Skeletal Systems as scaffolds (architecture, mechanisms, bioengineering solutions for muscular dystrophy and osteoporosis), scaffolds and tissue engineering, Bioprinting techniques and materials, 3D printing of ear, bone and skin. 3D printed foods. Electrical tongue and electrical nose in food science, DNA origami and Biocomputing, Bioimaging and Artificial Intelligence for disease diagnosis. Self-healing Bioconcrete (based on bacillus spores, calcium lactate nutrients and biomineralization processes) and Bioremediation and Biomining via microbial surface adsorption (removal of heavy metals like Lead, Cadmium, Mercury, Arsenic).



**Module-5 (8 hours)**

**MICROBIOLOGY OF AIR, WATER & SOIL**

Aerobiology, Air sampling techniques. and commonly found atmospheric microbe profile. Water sampling techniques, Microbiology of potable water and wastewater treatment. Microbiology of soil: Soil fertility, Biofertilizers: VAM, Rhizobium and Azotobacter. Biogeochemical cycles. Case studies.

**Course outcome (Course Skill Set)**

1. Be able to classify microorganism along with their structural and functional roles
2. Apply learning of microscopy and microbial techniques in identification and enumeration
3. Identify microbes through use of appropriate culture, characterize them under given conditions and study the microbial growth along with its control
4. Describe and relate the occurrence of microbes caused diseases.
5. Explain the occurrence and role of general microflora of air, water and soil.

**B. E. BIOTECHNOLOGY  
Outcome Based Education (OBE) and Choice Based Credit System (CBCS)  
SEMESTER - VII**

**BIOETHICS , BIOSAFETY & IPR**

Course Code	<b>18BT741</b>	CIE Marks	40
Teaching Hours/Week (L:T:P)	(3:0:0)	SEE Marks	60
Credits	03	Exam Hours	03

**Course Learning Objectives:** : This course will enable students

- To introduce the biosafety regulations
- To understand the ethical concepts in biotechnology
- To emphasize on IPR issues and need for knowledge in patents in biotechnology

**Module-1**

**BIOTECHNOLOGY AND SOCIETY**

Introduction to science, technology and society, issues of access-Case studies/experiences from developing and developed countries. Ownership, monopoly, traditional knowledge, biodiversity, benefit sharing, environmental sustainability, public vs. private funding, biotechnology in international relations, globalization and development divide. Public acceptance issues for biotechnology. Biotechnology and hunger: Challenges for the Indian Biotechnological research and industries.

**Module-2**

**BIOETHICS & LEGAL ISSUES:**

Principles of bioethics: Legality, morality and ethics, autonomy, human rights, beneficence, privacy, justice, equity etc. The expanding scope of ethics from biomedical practice to biotechnology, bioethics vs. business ethics, ethical dimensions of IPR, technology transfer and other global biotech issues. The legal, institutional and socioeconomic impacts of biotechnology; biotechnology and social responsibility, Public education to increase the awareness of bioethics with regard to generating new forms of life for informed decision making – with case studies.

**Module-3**



**BIOSAFETY CONCEPTS AND ISSUES:**

Ethical conflicts in biotechnology - interference with nature, fear of unknown, unequal distribution of risks and benefits of biotechnology, Rational vs. subjective perceptions of risks and benefits, relationship between risk, hazard, exposure and safeguards, Biotechnology and biosafety concerns at the level of individuals, institutions, society, region, country and the world. The Cartagena protocol on biosafety. Biosafety management. Ethical implications of biotechnological products and techniques.

**Module-4**

**REGULATIONS:**

Biosafety assessment procedures in India and abroad. International dimensions in biosafety, bioterrorism and convention on biological weapons. Social and ethical implications of biological weapons. Biosafety regulations and national and international guidelines with regard to recombinant DNA technology. Guidelines for research in transgenic plants. Good manufacturing practice and Good lab practices (GMP and GLP). National and international regulations for food and pharma products.

**Module-5**

**IPR, PATENTS AND PATENT LAWS:**

Intellectual property rights-TRIP- GATT International conventions patents Methods of application of patents Legal implications Biodiversity and farmer rights  
Objectives of the patent system Basic principles and general requirements of patent law  
Biotechnological inventions and patent law .Legal development-Patentable subjects and protection in biotechnology .The patenting of living organisms.

**Course Outcomes:** At the end of the course the student will be able to

- Describe the rules governing manufacture, use/import/export and storage of hazardous microorganisms/genetically engineered organisms or cells.
- Describe the ethical issues related to biotechnology research
- Explain the various forms of IPR, methods of application of Patents, Protection of Plant varieties and farmer rights
- Overview of the Indian Patent Law, knowledge on patentability requirements, patenting biotechnological inventions and innovations

Final Copy 02062022

**V Semester**

<b>Environmental Studies</b>			
Course Code	<b>21CIV57</b>	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1+2+0+0	SEE Marks	50
Total Hours of Pedagogy	15	Total Marks	100
Credits	01	Exam Hours	01
<b>Course objectives:</b>			
<ul style="list-style-type: none"> <li>• To create environmental awareness among the students.</li> <li>• To gain knowledge on different types of pollution in the environment.</li> </ul>			
<b>Teaching-Learning Process (General Instructions)</b>			
These are sample Strategies; which teacher can use to accelerate the attainment of the various course outcomes.			
<ol style="list-style-type: none"> <li>1. Apart from conventional lecture methods various types of innovative teaching techniques through videos, and animation films may be adopted so that the delivered lesson can progress the students in theoretical, applied and practical skills.</li> <li>2. Environmental awareness program for the in house campus</li> <li>3. Encourage collaborative (Group Learning) Learning in the class.</li> <li>4. Seminars, surprise tests and Quizzes may be arranged for students in respective subjects to develop skills.</li> </ol>			
<b>Module-1</b>			
Ecosystems (Structure and Function): Forest, Desert, Wetlands, River, Oceanic and Lake. Biodiversity: Types, Value; Hot-spots; Threats and Conservation of biodiversity, Forest Wealth, and Deforestation.			
<b>Teaching-Learning Process</b>	Chalk and talk, PowerPoint presentation and animation tools		
<b>Module-2</b>			
Advances in Energy Systems (Merits, Demerits, Global Status and Applications): Hydrogen, Solar, OTEC, Tidal and Wind.			
Natural Resource Management (Concept and case-studies): Disaster Management, Sustainable Mining, case studies, and Carbon Trading.			
<b>Teaching-Learning Process</b>	Chalk and talk, powerpoint presentation and animation tools		
<b>Module-3</b>			
Environmental Pollution (Sources, Impacts, Corrective and Preventive measures, Relevant Environmental Acts, Case-studies): Surface and Ground Water Pollution; Noise pollution; Soil Pollution and Air Pollution.			
Waste Management & Public Health Aspects: Bio-medical Wastes; Solid waste; Hazardous wastes; E-wastes; Industrial and Municipal Sludge.			
<b>Teaching-Learning Process</b>	Chalk and talk, powerpoint presentation and animation tools		
<b>Module-4</b>			
Global Environmental Concerns (Concept, policies and case-studies): Ground water depletion/recharging, Climate Change; Acid Rain; Ozone Depletion; Radon and Fluoride problem in drinking water; Resettlement and rehabilitation of people, Environmental Toxicology.			
<b>Teaching-Learning Process</b>	Chalk and talk, powerpoint presentation and animation tools		





CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi. Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
 Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602,Fax:080-25730551  
 E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

Final Copy 02062022

<b>Module-5</b>	
<p><b>Latest Developments in Environmental Pollution Mitigation Tools (Concept and Applications):</b> G.I.S. &amp; Remote Sensing, Environment Impact Assessment, <b>Environmental Management Systems, ISO14001; Environmental Stewardship- NGOs.</b> Field work: <b>Visit to an Environmental Engineering Laboratory or Green Building or Water Treatment Plant or</b> Waste water treatment Plant; ought to be Followed by understanding of process and its brief documentation.</p>	
<b>Teaching-Learning Process</b>	Chalk and talk, power point presentation and animation tools
<p><b>Course outcome (Course Skill Set)</b></p> <p>At the end of the course the student will be able to :</p> <ul style="list-style-type: none"> <li>• CO1: Understand the principles of ecology and environmental issues that apply to air, land, and water issues on a global scale,</li> <li>• CO2: Develop critical thinking and/or observation skills, and apply them to the analysis of a problem or question related to the environment.</li> <li>• CO3: Demonstrate ecology knowledge of a complex relationship between biotic and a biotic components.</li> <li>• •CO4: Apply their ecological knowledge to illustrate and graph a problem and describe the realities that managers face when dealing with complex issues.</li> </ul>	
<p><b>Assessment Details (both CIE and SEE)</b></p> <p>The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50)in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together</p> <p><b>Continuous Internal Evaluation:</b></p> <p>Three Unit Tests each of <b>20 Marks (duration 01 hour)</b></p> <ol style="list-style-type: none"> <li>1. First test at the end of 5<sup>th</sup> week of the semester</li> <li>2. Second test at the end of the 10<sup>th</sup> week of the semester</li> <li>3. Third test at the end of the 15<sup>th</sup> week of the semester</li> </ol> <p>Two assignments each of <b>10 Marks</b></p> <ol style="list-style-type: none"> <li>4. First assignment at the end of 4<sup>th</sup> week of the semester</li> <li>5. Second assignment at the end of 9<sup>th</sup> week of the semester</li> </ol> <p>Group discussion/Seminar/quiz any one of three suitably planned to attain the COs and POs for <b>20 Marks (duration 01 hours)</b></p> <ol style="list-style-type: none"> <li>6. At the end of the 13<sup>th</sup> week of the semester</li> </ol> <p>The sum of three tests, two assignments, and quiz/seminar/group discussion will be out of 100 marks and will be <b>scaled down to 50 marks</b>          (to have less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course).</p> <p><b>CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.</b></p> <p><b>Semester End Examination:</b></p> <p>Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (<b>duration 01 hours</b>)</p> <p>Question paper pattern:</p> <ol style="list-style-type: none"> <li>1. The Question paper will have 50 objective questions.</li> </ol>	



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi. Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
 Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602,Fax:080-25730551  
 E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

### Department of Information Science & Engineering

Final Copy 02062022

#### V Semester

Environmental Studies			
Course Code	21CIV57	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1+2+0+0	SEE Marks	50
Total Hours of Pedagogy	15	Total Marks	100
Credits	01	Exam Hours	01
<b>Course objectives:</b> <ul style="list-style-type: none"> <li>To create environmental awareness among the students.</li> <li>To gain knowledge on different types of pollution in the environment.</li> </ul>			
<b>Teaching-Learning Process (General Instructions)</b> These are sample Strategies; which teacher can use to accelerate the attainment of the various course outcomes. <ol style="list-style-type: none"> <li>Apart from conventional lecture methods various types of innovative teaching techniques through videos, and animation films may be adopted so that the delivered lesson can progress the students in theoretical, applied and practical skills.</li> <li>Environmental awareness program for the in house campus</li> <li>Encourage collaborative (Group Learning) Learning in the class.</li> <li>Seminars, surprise tests and Quizzes may be arranged for students in respective subjects to develop skills.</li> </ol>			
<b>Module-1</b>			
Ecosystems (Structure and Function): Forest, Desert, Wetlands, River, Oceanic and Lake. Biodiversity: Types, Value; Hot-spots; Threats and Conservation of biodiversity, Forest Wealth, and Deforestation.			
<b>Teaching-Learning Process</b>	Chalk and talk, PowerPoint presentation and animation tools		
<b>Module-2</b>			
<b>Advances in Energy Systems (Merits, Demerits, Global Status and Applications): Hydrogen, Solar, OTEC, Tidal and Wind.</b> Natural Resource Management (Concept and case-studies): Disaster Management, Sustainable Mining, case studies, and Carbon Trading.			
<b>Teaching-Learning Process</b>	Chalk and talk, powerpoint presentation and animation tools		
<b>Module-3</b>			
<b>Environmental Pollution (Sources, Impacts, Corrective and Preventive measures, Relevant Environmental Acts, Case-studies): Surface and Ground Water Pollution; Noise pollution; Soil Pollution and Air Pollution.</b> <b>Waste Management &amp; Public Health Aspects: Bio-medical Wastes; Solid waste; Hazardous wastes; E-wastes; Industrial and Municipal Sludge.</b>			
<b>Teaching-Learning Process</b>	Chalk and talk, powerpoint presentation and animation tools		
<b>Module-4</b>			
<b>Global Environmental Concerns (Concept, policies and case-studies):</b> Ground water depletion/recharging, Climate Change; Acid Rain; Ozone Depletion; Radon and Fluoride problem in drinking water; Resettlement and rehabilitation of people, Environmental Toxicology.			
<b>Teaching-Learning Process</b>	Chalk and talk, powerpoint presentation and animation tools		



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi. Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
 Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551  
 E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

Final Copy 02062022

<b>Module-5</b>	
<p><b>Latest Developments in Environmental Pollution Mitigation Tools (Concept and Applications):</b> G.I.S. &amp; Remote Sensing, Environment Impact Assessment, <b>Environmental Management Systems, ISO14001; Environmental Stewardship- NGOs. Field work: Visit to an Environmental Engineering Laboratory or Green Building or Water Treatment Plant or Waste water treatment Plant;</b> ought to be Followed by understanding of process and its brief documentation.</p>	
<b>Teaching-Learning Process</b>	Chalk and talk, power point presentation and animation tools
<p><b>Course outcome (Course Skill Set)</b></p> <p>At the end of the course the student will be able to :</p> <ul style="list-style-type: none"> <li>• CO1: Understand the principles of ecology and environmental issues that apply to air, land, and water issues on a global scale,</li> <li>• CO2: Develop critical thinking and/or observation skills, and apply them to the analysis of a problem or question related to the environment.</li> <li>• CO3: Demonstrate ecology knowledge of a complex relationship between biotic and a biotic components.</li> <li>• CO4: Apply their ecological knowledge to illustrate and graph a problem and describe the realities that managers face when dealing with complex issues.</li> </ul>	
<p><b>Assessment Details (both CIE and SEE)</b></p> <p>The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together</p> <p><b>Continuous Internal Evaluation:</b></p> <p>Three Unit Tests each of <b>20 Marks (duration 01 hour)</b></p> <ol style="list-style-type: none"> <li>1. First test at the end of 5<sup>th</sup> week of the semester</li> <li>2. Second test at the end of the 10<sup>th</sup> week of the semester</li> <li>3. Third test at the end of the 15<sup>th</sup> week of the semester</li> </ol> <p>Two assignments each of <b>10 Marks</b></p> <ol style="list-style-type: none"> <li>4. First assignment at the end of 4<sup>th</sup> week of the semester</li> <li>5. Second assignment at the end of 9<sup>th</sup> week of the semester</li> </ol> <p>Group discussion/Seminar/quiz any one of three suitably planned to attain the COs and POs for <b>20 Marks (duration 01 hours)</b></p> <ol style="list-style-type: none"> <li>6. At the end of the 13<sup>th</sup> week of the semester</li> </ol> <p>The sum of three tests, two assignments, and quiz/seminar/group discussion will be out of 100 marks and will be <b>scaled down to 50 marks</b> (to have less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course).</p> <p><b>CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.</b></p>	
<p><b>Semester End Examination:</b></p> <p>Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (<b>duration 01 hours</b>)</p> <p>Question paper pattern:</p> <ol style="list-style-type: none"> <li>1. The Question paper will have 50 objective questions.</li> </ol>	





CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi.  
Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551  
E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

### CONSERVATION OF NATURAL RESOURCES

Course Code	21CV654	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	2+2+0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	3	Exam Hours	3

#### Course objectives: Make the students to learn

1. Learn types of land forms, soil conservation and sustainable land use planning.
2. Apprehend water resources, types, distribution, planning and conservation. Water pollution and types of uses.
3. Know the types of minerals and rocks.
4. Know the atmospheric composition of air, pollution and effects on human beings, animals and plants. Air pollution control.
5. Apprehend basics of biodiversity and ecosystems.

#### Teaching-Learning Process (General Instructions)

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

1. Power point Presentation
2. Video tube, NPTEL materials
3. Quiz/Assignments/Open book test to develop skills
4. Adopt problem based learning (PBL)to develop analytical and thinking skills
5. Encourage collaborative learning, site visits related to subject and impart practical knowledge
6. Mini projects

#### Module-1

**Land:** Land as a resource, types of lands, conservation of land forms, deforestation, effect of land use changes. Soil health, ecological and economic importance of soil, impact of soil degradation on agriculture and food security, need for soil conservation, sustainable land use planning.

**Teaching-Learning Process** | Chalk and talk, PowerPoint Presentation & PBL

#### Module-2

**Water:** Global water resources, Indian water resources, Resources system planning. Water use sectors- domestic, industrial, agriculture. Water deficit and water surplus basins in India, equitable distribution, Inter-basin water transfers, Interlinking of rivers – Himalayan component, peninsular component, issues involved. Ground water, its potential in India, conjunctive use, recharge of ground water. Contamination of ground water, sea water ingress, problems and solutions.

**Teaching-Learning Process** | Chalk and talk, PowerPoint Presentation & PBL

#### Module-3

**Air:** Introduction, composition, sources and classification of air pollutants, National Ambient Air quality standards (NAAQS), Air quality index, effects of air pollution on human health. Economic effects of air pollution. Control of air pollution by equipment, smoke and its control. Ozone depletion –impacts, photochemical changes.

**Teaching-Learning Process** | Chalk and talk, PowerPoint Presentation and Model preparation

#### Module-4





CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi.  
Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602,Fax:080-25730551  
E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

Biodiversity: Introduction, Flora and Fauna, Importance of biodiversity, Economic values-medicinal plants, drugs, fisheries biogeochemical cycling. Threat to biodiversity, natural & anthropogenic disturbance, habitat loss. Conservation of biodiversity, National parks, wild life sanctuaries, zoological gardens, gene banks, pollen culture, ecological restoration, social forestry. Ecosystem: Definition, Types: forest, grass land, marine, desert, wetlands, estuarine, lotic, lentic. Abiotic & biotic components of ecosystem.	
Teaching-Learning Process	Chalk and talk, PowerPoint Presentation and Field visits
<b>Module-5</b>	
Global warming: concept, indicators, factor and effects. Global climate change-indicators, health impacts, effect on biodiversity. Introduction to global efforts in conservation of biodiversity. .EIA regulations in India, status of EIA in India, list of projects needing environmental clearance under EIA notifications. Case study of hydro power/ thermal power projects	
Teaching-Learning Process	Chalk and talk, PowerPoint Presentation and Mini-projects

<b>B. E. ELECTRICAL AND ELECTRONICS ENGINEERING</b>			
<b>CHOICE BASED CREDIT SYSTEM (CBCS) AND OUTCOME BASED EDUCATION (OBE)</b>			
<b>SEMESTER – VII</b>			
<b>DISASTERS MANAGEMENT (OPEN ELECTIVE)</b>			
Course Code	18EE753	CIE Marks	40
Teaching Hours/Week (L:T:P)	(3:0:0)	SEE Marks	60
Credits	03	Exam Hours	03
<p><b>Disaster Management Plan (DMP): - General.</b>  <b>Cyclones and their Hazard Potential:</b> Classification of Low-Pressure Systems, Statistics of Cyclonic Storms Over Indian Seas, Movement of Cyclones in Indian Seas, Storm Surges.</p>			
<b>Module-2</b>			
<p><b>India Meteorological Department and Cyclone Warnings in India:</b> Hazard Potential of Cyclonic Storms, Cyclone Prediction and Dissemination of Warnings, Dissemination of Cyclone Warnings, Cyclone Warnings through INSAT, Port Warnings with Day and Night hoisting Signals.  <b>Cyclones Disaster Management – Plan:</b> Hazard Potentials Associated with Cyclones, Vulnerability Reduction, Early Warning.</p>			
<b>Module-3</b>			



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi.  
Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602,Fax:080-25730551  
E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

### Action Plan for Cyclone Disaster Management.

**Role of Different Institutions in Natural Disaster Management:** Role of Zilla Parishad, Role of PRA Groups in Disaster Management, Role of NGOs, Self Help Groups in Disaster Management, Role of Red Cross in Disaster Management.

**The Role of Defence and other Services in Disaster Management:** Role of Air Force in Disaster Management, Role of Medical and Health Department in Cyclone disaster management, National Disaster Response Force (NDRF), Role of Remote Sensing in Disaster Management, Role of Broadcast, Educational Media in disaster management.

### Module-4

**4Floods:** Water Wealth of India, Definition of Flood, Role of Central Water Commission, Monsoons, Flood Warning Signals and Precautionary Actions, Water Purification Technologies in Flood Affected Areas.

**Drought:** Meteorological Drought, Breaks in the Monsoon, Drought Management Plan, Drought Years for Different Met Subdivision of India, Drought Assesment, Drought Parameters, Role of Banking, Insurance, Microfinance in drought mitigation, Drought Monitoring, Drought Research Unit (IMD), Rainwater harvesting.

### Module-5

**Earth quakes:** Interior Structure of the Earth, Plate Techtonics, Seismicity of India, Earthquake Forecast and disaster management, Tsunamis, Landslides and Avalanches, Volcanoes.

**Hazards associated with Convective Clouds:** Climatology of World Thunderstorms, Lightning, Some Effects of Electric Shock, Favours and Frownings of Thunderstorms, Hailstorms, Tornadoes, Waterspouts, Dust-Devils, Nowcasting, Summer Thunderstorms over India, Cold Waves and Heat Waves - Cold Waves in India, Heat Waves in India.

**Course Outcomes:** At the end of the course the student will be able to:





CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi.  
Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602,Fax:080-25730551  
E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

I/II Semester

ENGINEERING CHEMISTRY			
Course Code	21CHE12/22	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	2:2:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	3Hour
<p>Course Objectives: The course will enable the students to</p> <p><b>CLO1:</b> Impart the basic knowledge of chemistry and its principles involved in electrochemistry, energy storage devices and its commercial applications.</p> <p><b>CLO2:</b> Understand the basic principles of corrosion and its prevention, metal finishing and its technological importance</p> <p><b>CLO3:</b> Master the knowledge of synthesis, properties and utilization of engineering materials like polymers &amp; Nano materials.</p> <p><b>CLO4:</b> Apply the knowledge of Green Chemistry principles for production of chemical compounds. understanding the concepts of alternative energy sources.</p> <p><b>CLO5:</b> Understand the basic concepts of water chemistry &amp; theory, basic principle and applications of volumetric analysis and analytical instruments.</p>			
<p><b>Pedagogy (General Instructions):</b></p> <p>These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.</p> <ol style="list-style-type: none"> <li>1. Lecturer method (L) does not mean only traditional lecture method, but different type of teaching methods may be adopted to develop the outcomes.</li> <li>2. Show Video/animation films to explain methods of synthesis of nanomaterials.</li> <li>4. Encourage collaborative (Group Learning) Learning in the class</li> <li>5. Ask at least three HOTS (Higher order Thinking) questions in the class, which promotes critical thinking</li> <li>6. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop thinking skills such as the ability to evaluate, generalize, and analyse information rather than simply recall it.</li> <li>7. Topics will be introduced in a multiple representation.</li> <li>8. Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.</li> <li>9. Discuss how every concept can be applied to the real world - and when that's possible, it helps improve the students' understanding.</li> </ol>			
<b>Module-1</b>			
<p><b>Electrochemistry and energy storage systems:</b></p> <p><b>Electrochemistry:</b> Introduction, EMF of cell, Free Energy, Single electrode potential-Derivation of Nemst equation, Numerical problems based on Nemst Equation (E, E° &amp; Ecell).</p> <p><b>Reference Electrodes:</b> Introduction, construction, working and applications of calomel electrode, ion selective electrodes: Introduction, construction, working and applications of Glass electrode, determination of pH using Glass electrode.</p> <p><b>Energy storage Systems:</b> Introduction, Classification of batteries (primary, secondary and reserved batteries). Construction, working and applications of Li-ion batteries. Advantages of Li-ion battery as</p>			



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi.  
Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602,Fax:080-25730551  
E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

<b>Module-4</b>	
<p><b>Green Chemistry and Alternative energy resources</b>  <b>Green Chemistry:</b> Introduction, definition, Major environmental pollutants - Oxides Nitrogen, Sulphur and Carbon (Mention the impact of these pollutants on environment), Basic principles of green chemistry -brief discussion on 12 principles of green chemistry.            Various green chemical approaches – Microwave synthesis, Bio catalysed reaction (only explanation with examples),            Solvent-free reactions- advantages and conditions            Synthesis of typical organic compounds by conventional and green route;            i) Adipic acid – Conventional synthesis from Benzene, Green synthesis from glucose.            ii) Paracetamol- Conventional and Green synthesis from Phenol            Industrial applications of Green Chemistry  <b>Green fuel:</b> Hydrogen-production (Photo electrocatalytic and photo catalytic water splitting) and applications in hydrogen fuel cells. Construction, working and applications of Methanol-Oxygen fuel cell (H<sub>2</sub>SO<sub>4</sub> as electrolyte).  <b>Solar Energy:</b>            Introduction, construction, working and applications of photovoltaic cell.</p>	
<b>Teaching Learning process</b>	Chalk and talk/power point presentation - Basic principles of green chemistry Videos: Various green chemical approaches, Self-study material: Atom economy-synthesis of ethylene oxide and methyl methacrylate. Advantages & disadvantages of photovoltaic cell.
<b>Module-5</b>	
<p><b>Water Chemistry, chemical analysis and Instrumental methods of analysis</b>  <b>Water chemistry:</b>            Introduction, sources and impurities in water, Potable water, meaning and specifications (as per WHO standards), Hardness of water, types, determination of hardness using EDTA titration, numerical problems on hardness of water. Definition of Biological oxygen demand (BOD) and Chemical Oxygen Demand (COD), determination of COD of waste water sample and Numerical problems on COD.   <b>Methods of Chemical Analysis:</b>  <b>Volumetric Analysis:</b> Introduction, principles of titrimetric analysis, requirement of titrimetric analysis, primary and secondary standards. Requirement of a primary standard solution, units of standard solutions- Definition of normality, molarity, molality, mole fraction, ppm.  <b>Instrumental methods of analysis:</b>            Introduction, Theory, Instrumentation and applications of Colorimetry, Flame Photometry, Potentiometry, Conductometry (Strong acid with strong base, weak acid with a strong base, mixture of strong acid and a weak acid with a strong base)</p>	
<b>Teaching</b>	Chalk and talk/power point presentation – principles of titrimetric analysis, requirement of titrimetric analysis, Classification of titrimetric analysis, Ostwald's theory of acid-base





CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi. Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
 Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551  
 E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

### Department of Mechanical Engineering

Annexure-II 1

<b>Electric and Hybrid Vehicle Technology</b>		Semester	3
Course Code	<b>BME306A</b>	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	<b>3:0:0:0</b>	SEE Marks	50
Total Hours of Pedagogy	<b>40</b>	Total Marks	100
Credits	<b>03</b>	Exam Hours	3
Examination type (SEE)	<b>Theory</b>		
<b>Course objectives:</b>			
<ul style="list-style-type: none"> <li>To understand the models, describe hybrid vehicles and their performance.</li> <li>To understand the different possible ways of energy storage.</li> <li>To understand the different strategies related to hybrid vehicle operation &amp; energy management.</li> </ul>			
<b>Teaching-Learning Process (General Instructions)</b>			
These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.			
<ul style="list-style-type: none"> <li>Adopt different types of teaching methods to develop the outcomes through PowerPoint presentations and Videodemonstrations or Simulations.</li> <li>Chalk and Talk method for Problem Solving.</li> <li>Adopt flipped classroom teaching method.</li> <li>Adopt collaborative (Group Learning) learning in the class.</li> <li>Adopt Problem Based Learning (PBL), which fosters students' analytical skills and develops thinking skills such as evaluating, generalizing, and analyzing information.</li> </ul>			
<b>Module-1</b>			
<b>Introduction to Electric Vehicle (EV) &amp; Hybrid Vehicle(HV):</b>			
A brief history of Electric and Hybrid vehicles, basic architecture of hybrid drive train, vehicle motion and the dynamic equations for the vehicle, types of HV and EV, advantages over conventional vehicles, limitations of EV and HV, impact on environment of EV and HV technology, disposal of battery, cell and hazardous material and their impact on environment.			
<b>Module-2</b>			
<b>Power Management and Energy Sources of EV and HV:</b>			
Power and Energy management strategies and its general architecture of EV and HV, various battery sources, energy storage, battery based energy storage, Battery Management Systems (BMS), fuel cells, their characteristics, Super capacitor based energy storage, flywheel, hybridization of various energy storage devices, Selection of the energy storage technology.			
<b>Module-3</b>			
<b>DC and AC Machines &amp; Drives in EV &amp; HV:</b>			
Various types of motors, selection and size of motors, Induction motor drives and control characteristics, Permanent magnet motor drives and characteristics, Brushed & Brushless DC motor drive and characteristics, switched reluctance motors and characteristics, IPM motor drives and characteristics, mechanical and electrical connections of motors.			



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi. Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
 Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551  
 E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

Final Copy 02062022

### V Semester

<b>Environmental Studies</b>			
Course Code	<b>21CIV57</b>	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1+2+0+0	SEE Marks	50
Total Hours of Pedagogy	15	Total Marks	100
Credits	01	Exam Hours	01
<b>Course objectives:</b> <ul style="list-style-type: none"> <li>To create environmental awareness among the students.</li> <li>To gain knowledge on different types of pollution in the environment.</li> </ul>			
<b>Teaching-Learning Process (General Instructions)</b> These are sample Strategies; which teacher can use to accelerate the attainment of the various course outcomes. <ol style="list-style-type: none"> <li>Apart from conventional lecture methods various types of innovative teaching techniques through videos, and animation films may be adopted so that the delivered lesson can progress the students in theoretical, applied and practical skills.</li> <li>Environmental awareness program for the in house campus</li> <li>Encourage collaborative (Group Learning) Learning in the class.</li> <li>Seminars, surprise tests and Quizzes may be arranged for students in respective subjects to develop skills.</li> </ol>			
<b>Module-1</b>			
Ecosystems (Structure and Function): Forest, Desert, Wetlands, River, Oceanic and Lake. Biodiversity: Types, Value; Hot-spots; Threats and Conservation of biodiversity, Forest Wealth, and Deforestation.			
<b>Teaching-Learning Process</b>	Chalk and talk, PowerPoint presentation and animation tools		
<b>Module-2</b>			
<b>Advances in Energy Systems (Merits, Demerits, Global Status and Applications): Hydrogen, Solar, OTEC, Tidal and Wind.</b> Natural Resource Management (Concept and case-studies): Disaster Management, Sustainable Mining, case studies, and Carbon Trading.			
<b>Teaching-Learning Process</b>	Chalk and talk, powerpoint presentation and animation tools		
<b>Module-3</b>			
<b>Environmental Pollution (Sources, Impacts, Corrective and Preventive measures, Relevant Environmental Acts, Case-studies): Surface and Ground Water Pollution; Noise pollution; Soil Pollution and Air Pollution.</b> <b>Waste Management &amp; Public Health Aspects: Bio-medical Wastes; Solid waste; Hazardous wastes; E-wastes; Industrial and Municipal Sludge.</b>			
<b>Teaching-Learning Process</b>	Chalk and talk, powerpoint presentation and animation tools		
<b>Module-4</b>			
<b>Global Environmental Concerns (Concept, policies and case-studies):</b> Ground water depletion/recharging, Climate Change; Acid Rain; Ozone Depletion; Radon and Fluoride problem in drinking water; Resettlement and rehabilitation of people, Environmental Toxicology.			
<b>Teaching-Learning Process</b>	Chalk and talk, powerpoint presentation and animation tools		



<b>Activity Based Learning (Suggested Activities in Class)/ Practical Based learning</b> <ul style="list-style-type: none"> <li>•</li> </ul>
---

Semester VI			
RENEWABLE ENERGY POWER PLANTS (OPEN ELECTIVE)			
<b>Course Code</b>	21ME652	<b>CIE Marks</b>	50
<b>Teaching Hours/Week (L:T:P: S)</b>	3-0-0-0	<b>SEE Marks</b>	50
<b>Total Hours of Pedagogy</b>	40	<b>Total Marks</b>	100
<b>Credits</b>	03	<b>Exam Hours</b>	03
<b>Course objectives:</b>			
<ul style="list-style-type: none"> <li>• To introduce the concepts and principles of solar energy, its radiation, collection, storage and application.</li> <li>• To understand application aspects of Wind, Biomass, Geothermal, hydroelectric and Ocean energy.</li> <li>• To examine energy sources and systems, including fossil fuels and nuclear energy, and then focus on other forms of alternate energy sources.</li> </ul>			
<b>Teaching-Learning Process (General Instructions)</b>			
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.			
<ol style="list-style-type: none"> <li>1. Adopt different types of teaching methods to develop the outcomes through PowerPoint presentations and Video demonstrations or Simulations.</li> <li>2. Chalk and Talk method for Problem Solving.</li> <li>3. Adopt flipped classroom teaching method.</li> <li>4. Adopt collaborative (Group Learning) learning in the class.</li> <li>5. Adopt Problem Based Learning (PBL), which fosters students' analytical skills and develops thinking skills such as evaluating, generalizing, and analyzing information.</li> </ol>			
<b>Module-1</b>			
<b>Introduction:</b> Energy sources (including fossil fuels and nuclear energy), India's production and reserves of commercial energy sources, need for nonconventional energy sources, energy alternatives, Indian and global energy scenario.			
<b>Solar Radiation &amp; Measurement:</b> Extra-Terrestrial radiation, spectral distribution of extra-terrestrial radiation, solar constant, solar radiation at the earth's surface, beam, diffuse and global radiation, solar radiation data. Pyrometer, shading ring Pyrheliometer, sunshine recorder, schematic diagrams, and principle of working, actinometer and bolometer.			
<b>Teaching-Learning Process</b>	<ol style="list-style-type: none"> <li>1. Power-point Presentation,</li> <li>2. Video demonstration or Simulations,</li> <li>3. Chalk and Talk are used for Problem Solving. /White board</li> </ol>		
<b>Module-2</b>			
<b>Solar Radiation Geometry:</b> Flux on a plane surface, latitude, declination angle, surface azimuth angle, hour angle, zenith angle, solar altitude angle, expressions for the angle between the incident beam and the normal to a plane surface (No derivation) local apparent time, apparent motion of sun, day length, numerical problems.			
<b>Solar Thermal Systems:</b> Flat plate collector, Evacuated Tubular Collector, Solar air collector, Solar concentrator, Solar distillation, Solar cooker, Thermal energy storage systems, Solar Pond, Solar Chimney (Tower).			
<b>Solar Photovoltaic Systems:</b> Introduction, Solar cell Fundamentals, Characteristics and classification, Solar cell: Module, panel and array construction.			
<b>Teaching-Learning</b>	<ol style="list-style-type: none"> <li>1. Power-point Presentation,</li> <li>2. Video demonstration or Simulations,</li> </ol>		





<b>Process</b>	3. Chalk and Talk are used for Problem Solving. /White board
<b>Module-3</b>	
<p><b>Wind Energy:</b> Properties of wind, availability of wind energy in India, wind velocity and power from wind; major problems associated with wind power, wind machines; Types of wind machines and their characteristics, horizontal and vertical axis windmills, elementary design principles; coefficient of performance of a windmill rotor, design aspects, numerical examples.</p> <p><b>Energy from Biomass:</b> Energy plantation, biogas production from organic wastes by anaerobic fermentation, description of bio-gas plants, transportation of biogas, problems associated with bio-gas production, application of biogas, application of biogas in engines, cogeneration plant, advantages &amp; disadvantages.</p>	
<b>Teaching-Learning Process</b>	<ol style="list-style-type: none"> <li>1. Power-point Presentation,</li> <li>2. Video demonstration or Simulations,</li> <li>3. Chalk and Talk are used for Problem Solving. /White board</li> </ol>
<b>Module-4</b>	
<p><b>Hydroelectric plants:</b> Advantages &amp; disadvantages of waterpower, Hydrographs and flow duration curves- numericals, Storage and pondage, General layout of hydel power plants- components such as Penstock, surge tanks, spill way and draft tube and their applications, pumped storage plants, Detailed classification of hydroelectric plants.</p> <p><b>Tidal Power:</b> Tides and waves as energy suppliers and their mechanics, fundamental characteristics of tidal power, harnessing tidal energy, limitations of tidal energy.</p> <p><b>Energy from ocean waves:</b> Wave energy conversion, Wave energy technologies, advantages, and disadvantages.</p>	
<b>Teaching-Learning Process</b>	<ol style="list-style-type: none"> <li>1. Power-point Presentation,</li> <li>2. Video demonstration or Simulations,</li> <li>3. Chalk and Talk are used for Problem Solving. /White board</li> </ol>
<b>Module-5</b>	
<p><b>Ocean Thermal Energy Conversion:</b> Principle of working, Rankine cycle, OTEC power stations in the world, problems associated with OTEC, case studies.</p> <p><b>Geothermal energy:</b> Introduction, Principle of working, types of geothermal stations with schematic diagram Estimates of Geothermal Power, Nature of geothermal fields, Geothermal resources, Hydrothermal, Resources Geo pressured resources, Hot dry rock resources of petro-thermal systems, Magma Resources-Interconnection of geothermal fossil systems, Advantages, and disadvantages of geothermal energy over other energy forms, Geothermal stations in the world</p>	
<b>Teaching-Learning Process</b>	<ol style="list-style-type: none"> <li>1. Power-point Presentation,</li> <li>2. Video demonstration or Simulations,</li> <li>3. Chalk and Talk are used for Problem Solving. /White board</li> </ol>
<p><b>Course outcome (Course Skill Set)</b></p> <p>At the end of the course the student will be able to :</p> <ul style="list-style-type: none"> <li>• Describe the various forms of non-conventional energy resources.</li> <li>• Apply the fundamental knowledge of mechanical engineering to design various renewable energy systems</li> <li>• Analyze the implications of renewable energy forms for selecting an appropriate system for a specific application</li> <li>• Discuss on the environmental aspects and impact of non-conventional energy resources, in comparison with various conventional energy systems, their prospects and limitations.</li> </ul>	





CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi.  
Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602,Fax:080-25730551  
E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

B. E. MECHANICAL ENGINEERING			
Choice Based Credit System (CBCS) and Outcome Based Education (OBE)			
SEMESTER - VIII			
ENERGY ENGINEERING			
Course Code	18ME81	CIE Marks	40
Teaching Hours /Week (L:T:P)	3:0:0	SEE Marks	60
Credits	03	Exam Hours	03
<b>Course Learning Objectives:</b>			
<ul style="list-style-type: none"> <li>Understand energy scenario, energy sources and their utilization</li> <li>Learn about energy conversion methods</li> <li>Study the principles of renewable energy conversion systems.</li> </ul>			
<b>Module-1</b>			
<b>STEAM GENERATORS</b> Coal and ash handling, Generation of steam using forced circulation, high and supercritical pressures, LaMount, Benson, Velox, Loeffler, Schmidt steam generators, Cooling towers and Ponds, Accessories such as Superheaters, De-superheater, Economizers, Air preheaters.			
<b>Module-2</b>			
<b>Solar Energy:</b> Introduction, Solar radiation at the earth's surface, Solar radiation measurements, Flat plate collectors, Focussing collectors, Solar pond, Solar electric power generation-Solar photovoltaics.			
<b>Biomass Energy:</b> Photosynthesis, photosynthetic oxygen production, energy plantation. Bio Chemical Route: Biogas production from organic wastes by anaerobic fermentation, Bio gas plants-KVIC, Janta, Deenbandu models, factors affecting bio gas generation. Thermal gasification of biomass, updraft and downdraft			
<b>Module-3</b>			
<b>Geothermal Energy:</b> Forms of geothermal energy, Dry steam, wet steam, hot dry rock and magmatic chamber systems.			
<b>Tidal Energy:</b> Tidal power, Site selection, Single basin and double basin systems, Advantages and disadvantages of tidal energy.			
<b>Wind Energy:</b> Wind energy-Advantages and limitations, wind velocity and wind power, Basic components of wind energy conversion systems, horizontal and vertical axis wind mills, coefficient of performance of a wind mill rotor, Applications of wind energy.			
<b>Module-4</b>			
<b>Hydroelectric plants:</b> Advantages & disadvantages of water power, Hydrographs and flow duration curves-numericals, Storage and pondage, General layout of hydel power plants- components such as Penstock, surge tanks, spill way and draft tube and their applications, pumped storage plants, Detailed classification of hydroelectric plants, water hammer.			
<b>Ocean Thermal Energy:</b> Ocean thermal energy conversion, Principle and working of Rankine cycle, Problems associated with OTEC.			
<b>Module-5</b>			
<b>NUCLEAR ENERGY</b> Principles of release of nuclear energy-Fusion and fission reactions. Nuclear fuels used in the reactors, Chain reaction, Moderation, breeding, Multiplication and thermal utilization factors. General components of a nuclear reactor and materials, Brief description-Pressurized water reactor, Boiling water reactor, Sodium graphite reactor, Fast Breeder reactor, Homogeneous graphite reactor and gas cooled reactor, Radiation hazards, Shielding, Nuclear waste, Radioactive waste disposal.			
<b>Course Outcomes:</b> At the end of the course the student will be able to:			
CO1: Understand the construction and working of steam generators and their accessories.			



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi. Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
 Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551  
 E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

### I/II Semester

ENGINEERING CHEMISTRY			
Course Code	21CHE12/22	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	2:2:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	3Hour

Course Objectives: The course will enable the students to

**CLO1:** Impart the basic knowledge of chemistry and its principles involved in electrochemistry, energy storage devices and its commercial applications.

**CLO2:** Understand the basic principles of corrosion and its prevention, metal finishing and its technological importance

**CLO3:** Master the knowledge of synthesis, properties and utilization of engineering materials like polymers & Nano materials.

**CLO4:** Apply the knowledge of Green Chemistry principles for production of chemical compounds. understanding the concepts of alternative energy sources.

**CLO5:** Understand the basic concepts of water chemistry & theory, basic principle and applications of volumetric analysis and analytical instruments.

#### Pedagogy (General Instructions):

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

1. Lecturer method (L) does not mean only traditional lecture method, but different type of teaching methods may be adopted to develop the outcomes.
2. Show Video/animation films to explain methods of synthesis of nanomaterials.
4. Encourage collaborative (Group Learning) Learning in the class
5. Ask at least three HOTS (Higher order Thinking) questions in the class, which promotes critical thinking
6. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop thinking skills such as the ability to evaluate, generalize, and analyse information rather than simply recall it.
7. Topics will be introduced in a multiple representation.
8. Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
9. Discuss how every concept can be applied to the real world - and when that's possible, it helps improve the students' understanding.

#### Module-1

##### Electrochemistry and energy storage systems:

**Electrochemistry:** Introduction, EMF of cell, Free Energy, Single electrode potential-Derivation of Nemst equation, Numerical problems based on Nemst Equation (E, E° & Ecell).

**Reference Electrodes:** Introduction, construction, working and applications of calomel electrode, ion selective electrodes: Introduction, construction, working and applications of Glass electrode, determination of pH using Glass electrode.

**Energy storage Systems:** Introduction, Classification of batteries (primary, secondary and reserved batteries). Construction, working and applications of Li-ion batteries. Advantages of Li-ion battery as





CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi.  
Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602,Fax:080-25730551  
E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

<b>Module-4</b>	
<b>Green Chemistry and Alternative energy resources</b>	
Green Chemistry: Introduction, definition, Major environmental pollutants - Oxides Nitrogen, Sulphur and Carbon (Mention the impact of these pollutants on environment), Basic principles of green chemistry -brief discussion on 12 principles of green chemistry.	
Various green chemical approaches – Microwave synthesis, Bio catalysed reaction (only explanation with examples), Solvent-free reactions- advantages and conditions Synthesis of typical organic compounds by conventional and green route;	
i) Adipic acid – Conventional synthesis from Benzene, Green synthesis from glucose.	
ii) Paracetamol- Conventional and Green synthesis from Phenol Industrial applications of Green Chemistry	
<b>Green fuel:</b> Hydrogen-production (Photo electrocatalytic and photo catalytic water splitting) and applications in hydrogen fuel cells. Construction, working and applications of Methanol-Oxygen fuel cell (H <sub>2</sub> SO <sub>4</sub> as electrolyte).	
<b>Solar Energy:</b> Introduction, construction, working and applications of photovoltaic cell.	
<b>Teaching Learning process</b>	Chalk and talk/power point presentation - Basic principles of green chemistry Videos: Various green chemical approaches, Self-study material: Atom economy-synthesis of ethylene oxide and methyl methacrylate. Advantages & disadvantages of photovoltaic cell.
<b>Module-5</b>	
<b>Water Chemistry, chemical analysis and Instrumental methods of analysis</b>	
<b>Water chemistry:</b> Introduction, sources and impurities in water, Potable water, meaning and specifications (as per WHO standards), Hardness of water, types, determination of hardness using EDTA titration, numerical problems on hardness of water. Definition of Biological oxygen demand (BOD) and Chemical Oxygen Demand (COD), determination of COD of waste water sample and Numerical problems on COD.	
<b>Methods of Chemical Analysis:</b>	
<b>Volumetric Analysis:</b> Introduction, principles of titrimetric analysis, requirement of titrimetric analysis, primary and secondary standards. Requirement of a primary standard solution, units of standard solutions- Definition of normality, molarity, molality, mole fraction, ppm.	
<b>Instrumental methods of analysis:</b> Introduction, Theory, Instrumentation and applications of Colorimetry, Flame Photometry, Potentiometry, Conductometry (Strong acid with strong base, weak acid with a strong base, mixture of strong acid and a weak acid with a strong base)	
<b>Teaching</b>	Chalk and talk/power point presentation – principles of titrimetric analysis, requirement of titrimetric analysis, Classification of titrimetric analysis, Ostwald's theory of acid-base



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi. Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
 Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551  
 E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

### Department of Computer Science & Engineering

Final Copy 02062022

#### V Semester

Environmental Studies			
Course Code	21CIV57	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1+2+0+0	SEE Marks	50
Total Hours of Pedagogy	15	Total Marks	100
Credits	01	Exam Hours	01
<b>Course objectives:</b> <ul style="list-style-type: none"> <li>To create environmental awareness among the students.</li> <li>To gain knowledge on different types of pollution in the environment.</li> </ul>			
<b>Teaching-Learning Process (General Instructions)</b> These are sample Strategies; which teacher can use to accelerate the attainment of the various course outcomes. <ol style="list-style-type: none"> <li>Apart from conventional lecture methods various types of innovative teaching techniques through videos, and animation films may be adopted so that the delivered lesson can progress the students in theoretical, applied and practical skills.</li> <li>Environmental awareness program for the in house campus</li> <li>Encourage collaborative (Group Learning) Learning in the class.</li> <li>Seminars, surprise tests and Quizzes may be arranged for students in respective subjects to develop skills.</li> </ol>			
<b>Module-1</b>			
Ecosystems (Structure and Function): Forest, Desert, Wetlands, River, Oceanic and Lake. Biodiversity: Types, Value; Hot-spots; Threats and Conservation of biodiversity, Forest Wealth, and Deforestation.			
Teaching-Learning Process	Chalk and talk, PowerPoint presentation and animation tools		
<b>Module-2</b>			
<b>Advances in Energy Systems (Merits, Demerits, Global Status and Applications): Hydrogen, Solar, OTEC, Tidal and Wind.</b> Natural Resource Management (Concept and case-studies): Disaster Management, Sustainable Mining, case studies, and Carbon Trading.			
Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools		
<b>Module-3</b>			
<b>Environmental Pollution (Sources, Impacts, Corrective and Preventive measures, Relevant Environmental Acts, Case-studies): Surface and Ground Water Pollution; Noise pollution; Soil Pollution and Air Pollution.</b> <b>Waste Management &amp; Public Health Aspects: Bio-medical Wastes; Solid waste; Hazardous wastes; E-wastes; Industrial and Municipal Sludge.</b>			
Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools		
<b>Module-4</b>			
<b>Global Environmental Concerns (Concept, policies and case-studies):</b> Ground water depletion/recharging, Climate Change; Acid Rain; Ozone Depletion; Radon and Fluoride problem in drinking water; Resettlement and rehabilitation of people, Environmental Toxicology.			
Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools		





CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi.  
Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551  
E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

B. E. ELECTRICAL AND ELECTRONICS ENGINEERING CHOICE BASED CREDIT SYSTEM (CBCS) AND OUTCOME BASED EDUCATION (OBE) SEMESTER – VII			
DISASTERS MANAGEMENT (OPEN ELECTIVE)			
Course Code	18EE753	CIE Marks	40
Teaching Hours/Week (L:T:P)	(3:0:0)	SEE Marks	60
Credits	03	Exam Hours	03
<b>Disaster Management Plan (DMP): - General.</b>			
<b>Cyclones and their Hazard Potential:</b> Classification of Low-Pressure Systems, Statistics of Cyclonic Storms Over Indian Seas, Movement of Cyclones in Indian Seas, Storm Surges.			
<b>Module-2</b>			
<b>India Meteorological Department and Cyclone Warnings in India:</b> Hazard Potential of Cyclonic Storms, Cyclone Prediction and Dissemination of Warnings, Dissemination of Cyclone Warnings, Cyclone Warnings through INSAT, Port Warnings with Day and Night hoisting Signals.			
<b>Cyclones Disaster Management – Plan:</b> Hazard Potentials Associated with Cyclones, Vulnerability Reduction, Early Warning.			
<b>Module-3</b>			
<b>Action Plan for Cyclone Disaster Management.</b>			
<b>Role of Different Institutions in Natural Disaster Management:</b> Role of Zilla Parishad, Role of PRA Groups in Disaster Management, Role of NGOs, Self Help Groups in Disaster Management, Role of Red Cross in Disaster Management.			
<b>The Role of Defence and other Services in Disaster Management:</b> Role of Air Force in Disaster Management, Role of Medical and Health Department in Cyclone disaster management, National Disaster Response Force (NDRF), Role of Remote Sensing in Disaster Management, Role of Broadcast, Educational Media in disaster management.			
<b>Module-4</b>			
<b>Floods:</b> Water Wealth of India, Definition of Flood, Role of Central Water Commission, Monsoons, Flood Warning Signals and Precautionary Actions, Water Purification Technologies in Flood Affected Areas.			
<b>Drought:</b> Meteorological Drought, Breaks in the Monsoon, Drought Management Plan, Drought Years for Different Met Subdivision of India, Drought Assessment, Drought Parameters, Role of Banking, Insurance, Microfinance in drought mitigation, Drought Monitoring, Drought Research Unit (IMD), Rainwater harvesting.			
<b>Module-5</b>			
<b>Earth quakes:</b> Interior Structure of the Earth, Plate Tectonics, Seismicity of India, Earthquake Forecast and disaster management, Tsunamis, Landslides and Avalanches, Volcanoes.			
<b>Hazards associated with Convective Clouds:</b> Climatology of World Thunderstorms, Lightning, Some Effects of Electric Shock, Favours and Drawings of Thunderstorms, Hailstorms, Tornadoes, Waterspouts, Dust-Devils, Nowcasting, Summer Thunderstorms over India, Cold Waves and Heat Waves - Cold Waves in India, Heat Waves in India.			
<b>Course Outcomes:</b> At the end of the course the student will be able to:			



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi. Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
 Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551  
 E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

### I/II Semester

ENGINEERING CHEMISTRY			
Course Code	21CHE12/22	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	2:2:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	3Hour

Course Objectives: The course will enable the students to

**CLO1:** Impart the basic knowledge of chemistry and its principles involved in electrochemistry, energy storage devices and its commercial applications.

**CLO2:** Understand the basic principles of corrosion and its prevention, metal finishing and its technological importance

**CLO3:** Master the knowledge of synthesis, properties and utilization of engineering materials like polymers & Nano materials.

**CLO4:** Apply the knowledge of Green Chemistry principles for production of chemical compounds. understanding the concepts of alternative energy sources.

**CLO5:** Understand the basic concepts of water chemistry & theory, basic principle and applications of volumetric analysis and analytical instruments.

#### Pedagogy (General Instructions):

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

1. Lecturer method (L) does not mean only traditional lecture method, but different type of teaching methods may be adopted to develop the outcomes.
2. Show Video/animation films to explain methods of synthesis of nanomaterials.
4. Encourage collaborative (Group Learning) Learning in the class
5. Ask at least three HOTS (Higher order Thinking) questions in the class, which promotes critical thinking
6. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop thinking skills such as the ability to evaluate, generalize, and analyse information rather than simply recall it.
7. Topics will be introduced in a multiple representation.
8. Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
9. Discuss how every concept can be applied to the real world - and when that's possible, it helps improve the students' understanding.

#### Module-1

##### Electrochemistry and energy storage systems:

**Electrochemistry:** Introduction, EMF of cell, Free Energy, Single electrode potential-Derivation of Nemst equation, Numerical problems based on Nemst Equation (E, E° & Ecell).

**Reference Electrodes:** Introduction, construction, working and applications of calomel electrode, ion selective electrodes: Introduction, construction, working and applications of Glass electrode, determination of pH using Glass electrode.

**Energy storage Systems:** Introduction, Classification of batteries (primary, secondary and reserved batteries). Construction, working and applications of Li-ion batteries. Advantages of Li-ion battery as





CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi.  
Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551  
E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

<b>Module-4</b>	
<p><b>Green Chemistry and Alternative energy resources</b>  <b>Green Chemistry:</b> Introduction, definition, Major environmental pollutants - Oxides Nitrogen, Sulphur and Carbon (Mention the impact of these pollutants on environment), Basic principles of green chemistry -brief discussion on 12 principles of green chemistry.            Various green chemical approaches – Microwave synthesis, Bio catalysed reaction (only explanation with examples),            Solvent-free reactions- advantages and conditions            Synthesis of typical organic compounds by conventional and green route;            i) Adipic acid – Conventional synthesis from Benzene, Green synthesis from glucose.            ii) Paracetamol- Conventional and Green synthesis from Phenol            Industrial applications of Green Chemistry  <b>Green fuel:</b> Hydrogen-production (Photo electrocatalytic and photo catalytic water splitting) and applications in hydrogen fuel cells. Construction, working and applications of Methanol-Oxygen fuel cell (H<sub>2</sub>SO<sub>4</sub> as electrolyte).  <b>Solar Energy:</b>            Introduction, construction, working and applications of photovoltaic cell.</p>	
<b>Teaching Learning process</b>	Chalk and talk/power point presentation - Basic principles of green chemistry Videos: Various green chemical approaches, Self-study material: Atom economy-synthesis of ethylene oxide and methyl methacrylate. Advantages & disadvantages of photovoltaic cell.
<b>Module-5</b>	
<p><b>Water Chemistry, chemical analysis and Instrumental methods of analysis</b>  <b>Water chemistry:</b>            Introduction, sources and impurities in water, Potable water, meaning and specifications (as per WHO standards), Hardness of water, types, determination of hardness using EDTA titration, numerical problems on hardness of water. Definition of Biological oxygen demand (BOD) and Chemical Oxygen Demand (COD), determination of COD of waste water sample and Numerical problems on COD.   <b>Methods of Chemical Analysis:</b>  <b>Volumetric Analysis:</b> Introduction, principles of titrimetric analysis, requirement of titrimetric analysis, primary and secondary standards. Requirement of a primary standard solution, units of standard solutions- Definition of normality, molarity, molality, mole fraction, ppm.  <b>Instrumental methods of analysis:</b>            Introduction, Theory, Instrumentation and applications of Colorimetry, Flame Photometry, Potentiometry, Conductometry (Strong acid with strong base, weak acid with a strong base, mixture of strong acid and a weak acid with a strong base)</p>	
<b>Teaching</b>	Chalk and talk/power point presentation – principles of titrimetric analysis, requirement of titrimetric analysis, Classification of titrimetric analysis, Ostwald's theory of acid-base



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi. Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
 Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551  
 E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

### Department of Electrical and Communication Engineering

Final Copy 02062022

#### V Semester

Environmental Studies			
Course Code	21CIV57	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1+2+0+0	SEE Marks	50
Total Hours of Pedagogy	15	Total Marks	100
Credits	01	Exam Hours	01
<b>Course objectives:</b> <ul style="list-style-type: none"> <li>To create environmental awareness among the students.</li> <li>To gain knowledge on different types of pollution in the environment.</li> </ul>			
<b>Teaching-Learning Process (General Instructions)</b> These are sample Strategies; which teacher can use to accelerate the attainment of the various course outcomes. <ol style="list-style-type: none"> <li>Apart from conventional lecture methods various types of innovative teaching techniques through videos, and animation films may be adopted so that the delivered lesson can progress the students in theoretical, applied and practical skills.</li> <li>Environmental awareness program for the in house campus</li> <li>Encourage collaborative (Group Learning) Learning in the class.</li> <li>Seminars, surprise tests and Quizzes may be arranged for students in respective subjects to develop skills.</li> </ol>			
<b>Module-1</b>			
Ecosystems (Structure and Function): Forest, Desert, Wetlands, River, Oceanic and Lake. Biodiversity: Types, Value; Hot-spots; Threats and Conservation of biodiversity, Forest Wealth, and Deforestation.			
<b>Teaching-Learning Process</b>	Chalk and talk, PowerPoint presentation and animation tools		
<b>Module-2</b>			
<b>Advances in Energy Systems (Merits, Demerits, Global Status and Applications): Hydrogen, Solar, OTEC, Tidal and Wind.</b> Natural Resource Management (Concept and case-studies): Disaster Management, Sustainable Mining, case studies, and Carbon Trading.			
<b>Teaching-Learning Process</b>	Chalk and talk, powerpoint presentation and animation tools		
<b>Module-3</b>			
<b>Environmental Pollution (Sources, Impacts, Corrective and Preventive measures, Relevant Environmental Acts, Case-studies): Surface and Ground Water Pollution; Noise pollution; Soil Pollution and Air Pollution.</b> <b>Waste Management &amp; Public Health Aspects: Bio-medical Wastes; Solid waste; Hazardous wastes; E-wastes; Industrial and Municipal Sludge.</b>			
<b>Teaching-Learning Process</b>	Chalk and talk, powerpoint presentation and animation tools		
<b>Module-4</b>			
<b>Global Environmental Concerns (Concept, policies and case-studies):</b> Ground water depletion/recharging, Climate Change; Acid Rain; Ozone Depletion; Radon and Fluoride problem in drinking water; Resettlement and rehabilitation of people, Environmental Toxicology.			
<b>Teaching-Learning Process</b>	Chalk and talk, powerpoint presentation and animation tools		





## Department of Mechatronics

Final Copy 02062022

### V Semester

<b>Environmental Studies</b>			
Course Code	<b>21CIV57</b>	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1+2+0+0	SEE Marks	50
Total Hours of Pedagogy	15	Total Marks	100
Credits	01	Exam Hours	01
<b>Course objectives:</b> <ul style="list-style-type: none"> <li>• To create environmental awareness among the students.</li> <li>• To gain knowledge on different types of pollution in the environment.</li> </ul>			
<b>Teaching-Learning Process (General Instructions)</b> These are sample Strategies; which teacher can use to accelerate the attainment of the various course outcomes. <ol style="list-style-type: none"> <li>1. Apart from conventional lecture methods various types of innovative teaching techniques through videos, and animation films may be adopted so that the delivered lesson can progress the students in theoretical, applied and practical skills.</li> <li>2. Environmental awareness program for the in house campus</li> <li>3. Encourage collaborative (Group Learning) Learning in the class.</li> <li>4. Seminars, surprise tests and Quizzes may be arranged for students in respective subjects to develop skills.</li> </ol>			
<b>Module-1</b>			
Ecosystems (Structure and Function): Forest, Desert, Wetlands, River, Oceanic and Lake. Biodiversity: Types, Value; Hot-spots; Threats and Conservation of biodiversity, Forest Wealth, and Deforestation.			
<b>Teaching-Learning Process</b>	Chalk and talk, PowerPoint presentation and animation tools		
<b>Module-2</b>			
<b>Advances in Energy Systems (Merits, Demerits, Global Status and Applications): Hydrogen, Solar, OTEC, Tidal and Wind.</b> Natural Resource Management (Concept and case-studies): Disaster Management, Sustainable Mining, case studies, and Carbon Trading.			
<b>Teaching-Learning Process</b>	Chalk and talk, powerpoint presentation and animation tools		
<b>Module-3</b>			
<b>Environmental Pollution (Sources, Impacts, Corrective and Preventive measures, Relevant Environmental Acts, Case-studies): Surface and Ground Water Pollution; Noise pollution; Soil Pollution and Air Pollution.</b> <b>Waste Management &amp; Public Health Aspects: Bio-medical Wastes; Solid waste; Hazardous wastes; E-wastes; Industrial and Municipal Sludge.</b>			
<b>Teaching-Learning Process</b>	Chalk and talk, powerpoint presentation and animation tools		
<b>Module-4</b>			
<b>Global Environmental Concerns (Concept, policies and case-studies):</b> Ground water depletion/recharging, Climate Change; Acid Rain; Ozone Depletion; Radon and Fluoride problem in drinking water; Resettlement and rehabilitation of people, Environmental Toxicology.			
<b>Teaching-Learning Process</b>	Chalk and talk, powerpoint presentation and animation tools		



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi. Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
 Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551  
 E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

### I/II Semester

ENGINEERING CHEMISTRY			
Course Code	21CHE12/22	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	2:2:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	3Hour

Course Objectives: The course will enable the students to

**CLO1:** Impart the basic knowledge of chemistry and its principles involved in electrochemistry, energy storage devices and its commercial applications.

**CLO2:** Understand the basic principles of corrosion and its prevention, metal finishing and its technological importance

**CLO3:** Master the knowledge of synthesis, properties and utilization of engineering materials like polymers & Nano materials.

**CLO4:** Apply the knowledge of Green Chemistry principles for production of chemical compounds. understanding the concepts of alternative energy sources.

**CLO5:** Understand the basic concepts of water chemistry & theory, basic principle and applications of volumetric analysis and analytical instruments.

#### Pedagogy (General Instructions):

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

1. Lecturer method (L) does not mean only traditional lecture method, but different type of teaching methods may be adopted to develop the outcomes.
2. Show Video/animation films to explain methods of synthesis of nanomaterials.
4. Encourage collaborative (Group Learning) Learning in the class
5. Ask at least three HOTS (Higher order Thinking) questions in the class, which promotes critical thinking
6. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop thinking skills such as the ability to evaluate, generalize, and analyse information rather than simply recall it.
7. Topics will be introduced in a multiple representation.
8. Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
9. Discuss how every concept can be applied to the real world - and when that's possible, it helps improve the students' understanding.

#### Module-1

##### Electrochemistry and energy storage systems:

**Electrochemistry:** Introduction, EMF of cell, Free Energy, Single electrode potential-Derivation of Nemst equation, Numerical problems based on Nemst Equation (E, E° & Ecell).

**Reference Electrodes:** Introduction, construction, working and applications of calomel electrode, ion selective electrodes: Introduction, construction, working and applications of Glass electrode, determination of pH using Glass electrode.

**Energy storage Systems:** Introduction, Classification of batteries (primary, secondary and reserved batteries). Construction, working and applications of Li-ion batteries. Advantages of Li-ion battery as





CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi.  
Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551  
E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

<b>Module-4</b>	
<b>Green Chemistry and Alternative energy resources</b>	
Green Chemistry: Introduction, definition, Major environmental pollutants - Oxides Nitrogen, Sulphur and Carbon (Mention the impact of these pollutants on environment), Basic principles of green chemistry -brief discussion on 12 principles of green chemistry.	
Various green chemical approaches – Microwave synthesis, Bio catalysed reaction (only explanation with examples), Solvent-free reactions- advantages and conditions Synthesis of typical organic compounds by conventional and green route;	
i) Adipic acid – Conventional synthesis from Benzene, Green synthesis from glucose.	
ii) Paracetamol- Conventional and Green synthesis from Phenol Industrial applications of Green Chemistry	
<b>Green fuel:</b> Hydrogen-production (Photo electrocatalytic and photo catalytic water splitting) and applications in hydrogen fuel cells. Construction, working and applications of Methanol-Oxygen fuel cell (H <sub>2</sub> SO <sub>4</sub> as electrolyte).	
<b>Solar Energy:</b> Introduction, construction, working and applications of photovoltaic cell.	
<b>Teaching Learning process</b>	Chalk and talk/power point presentation - Basic principles of green chemistry Videos: Various green chemical approaches, Self-study material: Atom economy-synthesis of ethylene oxide and methyl methacrylate. Advantages & disadvantages of photovoltaic cell.
<b>Module-5</b>	
<b>Water Chemistry, chemical analysis and Instrumental methods of analysis</b>	
<b>Water chemistry:</b> Introduction, sources and impurities in water, Potable water, meaning and specifications (as per WHO standards), Hardness of water, types, determination of hardness using EDTA titration, numerical problems on hardness of water. Definition of Biological oxygen demand (BOD) and Chemical Oxygen Demand (COD), determination of COD of waste water sample and Numerical problems on COD.	
<b>Methods of Chemical Analysis:</b>	
<b>Volumetric Analysis:</b> Introduction, principles of titrimetric analysis, requirement of titrimetric analysis, primary and secondary standards. Requirement of a primary standard solution, units of standard solutions- Definition of normality, molarity, molality, mole fraction, ppm.	
<b>Instrumental methods of analysis:</b> Introduction, Theory, Instrumentation and applications of Colorimetry, Flame Photometry, Potentiometry, Conductometry (Strong acid with strong base, weak acid with a strong base, mixture of strong acid and a weak acid with a strong base)	
<b>Teaching</b>	Chalk and talk/power point presentation – principles of titrimetric analysis, requirement of titrimetric analysis, Classification of titrimetric analysis, Ostwald's theory of acid-base



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi. Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
 Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551  
 E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

### Department of Civil Engineering

Final Copy 02062022

#### V Semester

Environmental Studies			
Course Code	21CIV57	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1+2+0+0	SEE Marks	50
Total Hours of Pedagogy	15	Total Marks	100
Credits	01	Exam Hours	01
<b>Course objectives:</b> <ul style="list-style-type: none"> <li>To create environmental awareness among the students.</li> <li>To gain knowledge on different types of pollution in the environment.</li> </ul>			
<b>Teaching-Learning Process (General Instructions)</b> These are sample Strategies; which teacher can use to accelerate the attainment of the various course outcomes. <ol style="list-style-type: none"> <li>Apart from conventional lecture methods various types of innovative teaching techniques through videos, and animation films may be adopted so that the delivered lesson can progress the students in theoretical, applied and practical skills.</li> <li>Environmental awareness program for the in house campus</li> <li>Encourage collaborative (Group Learning) Learning in the class.</li> <li>Seminars, surprise tests and Quizzes may be arranged for students in respective subjects to develop skills.</li> </ol>			
<b>Module-1</b>			
Ecosystems (Structure and Function): Forest, Desert, Wetlands, River, Oceanic and Lake. Biodiversity: Types, Value; Hot-spots; Threats and Conservation of biodiversity, Forest Wealth, and Deforestation.			
Teaching-Learning Process	Chalk and talk, PowerPoint presentation and animation tools		
<b>Module-2</b>			
<b>Advances in Energy Systems (Merits, Demerits, Global Status and Applications): Hydrogen, Solar, OTEC, Tidal and Wind.</b> Natural Resource Management (Concept and case-studies): Disaster Management, Sustainable Mining, case studies, and Carbon Trading.			
Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools		
<b>Module-3</b>			
<b>Environmental Pollution (Sources, Impacts, Corrective and Preventive measures, Relevant Environmental Acts, Case-studies): Surface and Ground Water Pollution; Noise pollution; Soil Pollution and Air Pollution.</b> <b>Waste Management &amp; Public Health Aspects: Bio-medical Wastes; Solid waste; Hazardous wastes; E-wastes; Industrial and Municipal Sludge.</b>			
Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools		
<b>Module-4</b>			
<b>Global Environmental Concerns (Concept, policies and case-studies):</b> Ground water depletion/recharging, Climate Change; Acid Rain; Ozone Depletion; Radon and Fluoride problem in drinking water; Resettlement and rehabilitation of people, Environmental Toxicology.			
Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools		





CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi. Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f) Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602,Fax:080-25730551 E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

### VI Semester

ALTERNATE BUILDING MATERIALS			
Course Code	21CV646	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	2+2+0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	3	Exam Hours	03
<p><b>Course objectives:</b> This course will enable students to:</p> <ol style="list-style-type: none"> <li>1. understand environmental issues due to building materials and the energy consumption in manufacturing building materials</li> <li>2. study the various masonry blocks, masonry mortar and structural behavior of masonry under compression.</li> <li>3. Study the alternative building materials in the present context.</li> <li>4. understand the alternative building technologies which are followed in present construction field.</li> </ol>			
<p><b>Teaching-Learning Process (General Instructions)</b> These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.</p> <ol style="list-style-type: none"> <li>1. Blackboard teaching/PowerPoint presentations (if needed)</li> <li>2. Regular review of students by asking questions based on topics covered in the class,</li> </ol>			
<b>Module-1</b>			
<p><b>Environmental Implications of Buildings</b> Energy use, carbon emissions, water use, waste disposal; Building materials: sources, methods of production and environmental Implications. Embodied Energy in Building Materials: Transportation Energy for Building Materials; Maintenance Energy for Buildings. BUILDINGS 9 Framed Construction, Masonry Construction. Resources for Building Materials, Alternative concepts. Recycling of Industrial and Buildings Wastes. Biomass Resources for buildings.</p>			
<b>Teaching-Learning Process</b>	<ol style="list-style-type: none"> <li>1.Blackboard teaching/PowerPoint presentations (if needed)</li> <li>2.Regular review of students by asking questions based on topics covered in the class,</li> </ol>		
<b>Module-2</b>			
<p><b>Elements of Structural Masonry :</b> Elements of Structural Masonry, Masonry materials, requirements of masonry units' characteristics of bricks, stones, clay blocks, concrete blocks, stone boulders, lateriteBlocks, Fal- G blocks and Stabilized mud block. Manufacture of stabilized blocks. <b>Structural Masonry Mortars:</b> Mortars, cementations materials, sand, natural &amp; manufactured, types of mortars, classification of mortars as per BIS, characteristics and requirements of mortar, selection of mortar. Uses of masonry, masonry bonding, Compressive strength of masonry elements, Factors affecting compressive strength, Strength of Prisms/wallets and walls, Effect of brick bond on strength, Bond strength of masonry: Flexure and shear, Elastic properties of masonry materials and masonry, Design of masonry compression elements subjected to axial load.</p>			
<b>Teaching-Learning Process</b>	<ol style="list-style-type: none"> <li>1.Blackboard teaching/PowerPoint presentations (if needed)</li> <li>2.Regular review of students by asking questions based on topics covered in the class,</li> </ol>		
<b>Module-3</b>			
<p><b>Alternate Building Materials:</b> Lime, Pozzolana cements, Raw materials, Manufacturing process, Properties and uses. Fibers- metal and synthetic, Properties and applications. Fiber reinforced plastics, Matrix materials, Fibers organic and synthetic, Properties and applications. Building materials from agro and industrial wastes .Types of agro wastes, Types of industrial and mine wastes, Properties and applications. Masonry blocks using industrial wastes: Construction and demolition wastes.</p>			



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi. Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
 Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551  
 E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

### I/II Semester

ENGINEERING CHEMISTRY			
Course Code	21CHE12/22	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	2:2:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	3Hour

Course Objectives: The course will enable the students to

**CLO1:** Impart the basic knowledge of chemistry and its principles involved in electrochemistry, energy storage devices and its commercial applications.

**CLO2:** Understand the basic principles of corrosion and its prevention, metal finishing and its technological importance

**CLO3:** Master the knowledge of synthesis, properties and utilization of engineering materials like polymers & Nano materials.

**CLO4:** Apply the knowledge of Green Chemistry principles for production of chemical compounds. understanding the concepts of alternative energy sources.

**CLO5:** Understand the basic concepts of water chemistry & theory, basic principle and applications of volumetric analysis and analytical instruments.

#### Pedagogy (General Instructions):

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

1. Lecturer method (L) does not mean only traditional lecture method, but different type of teaching methods may be adopted to develop the outcomes.
2. Show Video/animation films to explain methods of synthesis of nanomaterials.
4. Encourage collaborative (Group Learning) Learning in the class
5. Ask at least three HOTS (Higher order Thinking) questions in the class, which promotes critical thinking
6. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop thinking skills such as the ability to evaluate, generalize, and analyse information rather than simply recall it.
7. Topics will be introduced in a multiple representation.
8. Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
9. Discuss how every concept can be applied to the real world - and when that's possible, it helps improve the students' understanding.

#### Module-1

##### Electrochemistry and energy storage systems:

**Electrochemistry:** Introduction, EMF of cell, Free Energy, Single electrode potential-Derivation of Nemst equation, Numerical problems based on Nemst Equation (E, E° & Ecell).

**Reference Electrodes:** Introduction, construction, working and applications of calomel electrode, ion selective electrodes: Introduction, construction, working and applications of Glass electrode, determination of pH using Glass electrode.

**Energy storage Systems:** Introduction, Classification of batteries (primary, secondary and reserved batteries). Construction, working and applications of Li-ion batteries. Advantages of Li-ion battery as





CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi.  
Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602,Fax:080-25730551  
E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

<b>Module-4</b>	
<b>Green Chemistry and Alternative energy resources</b>	
Green Chemistry: Introduction, definition, Major environmental pollutants - Oxides Nitrogen, Sulphur and Carbon (Mention the impact of these pollutants on environment), Basic principles of green chemistry -brief discussion on 12 principles of green chemistry.	
Various green chemical approaches – Microwave synthesis, Bio catalysed reaction (only explanation with examples), Solvent-free reactions- advantages and conditions Synthesis of typical organic compounds by conventional and green route;	
i) Adipic acid – Conventional synthesis from Benzene, Green synthesis from glucose.	
ii) Paracetamol- Conventional and Green synthesis from Phenol Industrial applications of Green Chemistry	
<b>Green fuel:</b> Hydrogen-production (Photo electrocatalytic and photo catalytic water splitting) and applications in hydrogen fuel cells. Construction, working and applications of Methanol-Oxygen fuel cell (H <sub>2</sub> SO <sub>4</sub> as electrolyte).	
<b>Solar Energy:</b> Introduction, construction, working and applications of photovoltaic cell.	
<b>Teaching Learning process</b>	Chalk and talk/power point presentation - Basic principles of green chemistry Videos: Various green chemical approaches, Self-study material: Atom economy-synthesis of ethylene oxide and methyl methacrylate. Advantages & disadvantages of photovoltaic cell.
<b>Module-5</b>	
<b>Water Chemistry, chemical analysis and Instrumental methods of analysis</b>	
<b>Water chemistry:</b> Introduction, sources and impurities in water, Potable water, meaning and specifications (as per WHO standards), Hardness of water, types, determination of hardness using EDTA titration, numerical problems on hardness of water. Definition of Biological oxygen demand (BOD) and Chemical Oxygen Demand (COD), determination of COD of waste water sample and Numerical problems on COD.	
<b>Methods of Chemical Analysis:</b>	
<b>Volumetric Analysis:</b> Introduction, principles of titrimetric analysis, requirement of titrimetric analysis, primary and secondary standards. Requirement of a primary standard solution, units of standard solutions- Definition of normality, molarity, molality, mole fraction, ppm.	
<b>Instrumental methods of analysis:</b> Introduction, Theory, Instrumentation and applications of Colorimetry, Flame Photometry, Potentiometry, Conductometry (Strong acid with strong base, weak acid with a strong base, mixture of strong acid and a weak acid with a strong base)	
<b>Teaching</b>	Chalk and talk/power point presentation – principles of titrimetric analysis, requirement of titrimetric analysis, Classification of titrimetric analysis, Ostwald's theory of acid-base



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi. Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
 Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551  
 E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

### Department of Electrical & Electronics Engineering

Final Copy 02062022

#### V Semester

Environmental Studies			
Course Code	21CIV57	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1+2+0+0	SEE Marks	50
Total Hours of Pedagogy	15	Total Marks	100
Credits	01	Exam Hours	01
<b>Course objectives:</b> <ul style="list-style-type: none"> <li>To create environmental awareness among the students.</li> <li>To gain knowledge on different types of pollution in the environment.</li> </ul>			
<b>Teaching-Learning Process (General Instructions)</b> These are sample Strategies; which teacher can use to accelerate the attainment of the various course outcomes. <ol style="list-style-type: none"> <li>Apart from conventional lecture methods various types of innovative teaching techniques through videos, and animation films may be adopted so that the delivered lesson can progress the students in theoretical, applied and practical skills.</li> <li>Environmental awareness program for the in house campus</li> <li>Encourage collaborative (Group Learning) Learning in the class.</li> <li>Seminars, surprise tests and Quizzes may be arranged for students in respective subjects to develop skills.</li> </ol>			
<b>Module-1</b>			
Ecosystems (Structure and Function): Forest, Desert, Wetlands, River, Oceanic and Lake. Biodiversity: Types, Value; Hot-spots; Threats and Conservation of biodiversity, Forest Wealth, and Deforestation.			
Teaching-Learning Process	Chalk and talk, PowerPoint presentation and animation tools		
<b>Module-2</b>			
<b>Advances in Energy Systems (Merits, Demerits, Global Status and Applications): Hydrogen, Solar, OTEC, Tidal and Wind.</b> Natural Resource Management (Concept and case-studies): Disaster Management, Sustainable Mining, case studies, and Carbon Trading.			
Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools		
<b>Module-3</b>			
<b>Environmental Pollution (Sources, Impacts, Corrective and Preventive measures, Relevant Environmental Acts, Case-studies): Surface and Ground Water Pollution; Noise pollution; Soil Pollution and Air Pollution.</b> <b>Waste Management &amp; Public Health Aspects: Bio-medical Wastes; Solid waste; Hazardous wastes; E-wastes; Industrial and Municipal Sludge.</b>			
Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools		
<b>Module-4</b>			
<b>Global Environmental Concerns (Concept, policies and case-studies):</b> Ground water depletion/recharging, Climate Change; Acid Rain; Ozone Depletion; Radon and Fluoride problem in drinking water; Resettlement and rehabilitation of people, Environmental Toxicology.			
Teaching-Learning Process	Chalk and talk, powerpoint presentation and animation tools		





CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi. Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
 Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551  
 E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

Final Copy 02062022

<b>Module-5</b>	
<p><b>Latest Developments in Environmental Pollution Mitigation Tools (Concept and Applications):</b> G.I.S. &amp; Remote Sensing, Environment Impact Assessment, <b>Environmental Management Systems, ISO14001; Environmental Stewardship- NGOs. Field work: Visit to an Environmental Engineering Laboratory or Green Building or Water Treatment Plant or Waste water treatment Plant;</b> ought to be Followed by understanding of process and its brief documentation.</p>	
<b>Teaching-Learning Process</b>	Chalk and talk, power point presentation and animation tools
<p><b>Course outcome (Course Skill Set)</b></p> <p>At the end of the course the student will be able to :</p> <ul style="list-style-type: none"> <li>• CO1: Understand the principles of ecology and environmental issues that apply to air, land, and water issues on a global scale,</li> <li>• CO2: Develop critical thinking and/or observation skills, and apply them to the analysis of a problem or question related to the environment.</li> <li>• CO3: Demonstrate ecology knowledge of a complex relationship between biotic and a biotic components.</li> <li>• CO4: Apply their ecological knowledge to illustrate and graph a problem and describe the realities that managers face when dealing with complex issues.</li> </ul>	
<p><b>Assessment Details (both CIE and SEE)</b></p> <p>The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together</p> <p><b>Continuous Internal Evaluation:</b></p> <p>Three Unit Tests each of <b>20 Marks (duration 01 hour)</b></p> <ol style="list-style-type: none"> <li>1. First test at the end of 5<sup>th</sup> week of the semester</li> <li>2. Second test at the end of the 10<sup>th</sup> week of the semester</li> <li>3. Third test at the end of the 15<sup>th</sup> week of the semester</li> </ol> <p>Two assignments each of <b>10 Marks</b></p> <ol style="list-style-type: none"> <li>4. First assignment at the end of 4<sup>th</sup> week of the semester</li> <li>5. Second assignment at the end of 9<sup>th</sup> week of the semester</li> </ol> <p>Group discussion/Seminar/quiz any one of three suitably planned to attain the COs and POs for <b>20 Marks (duration 01 hours)</b></p> <ol style="list-style-type: none"> <li>6. At the end of the 13<sup>th</sup> week of the semester</li> </ol> <p>The sum of three tests, two assignments, and quiz/seminar/group discussion will be out of 100 marks and will be <b>scaled down to 50 marks</b>          (to have less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course).  <b>CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.</b></p> <p><b>Semester End Examination:</b></p> <p>Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject <b>(duration 01 hours)</b></p> <p>Question paper pattern:</p> <ol style="list-style-type: none"> <li>1. The Question paper will have 50 objective questions.</li> </ol>	



**CHILDREN'S EDUCATION SOCIETY(Regd.)**  
**THE OXFORD COLLEGE OF ENGINEERING**  
 (Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi.  
 Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
 Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551  
 E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

129

<b>Activity Based Learning (Suggested Activities in Class)/ Practical Based learning</b> <ul style="list-style-type: none"> <li>•</li> </ul>
--

**Semester VI**

RENEWABLE ENERGY POWER PLANTS (OPEN ELECTIVE)			
<b>Course Code</b>	21ME652	<b>CIE Marks</b>	50
<b>Teaching Hours/Week (L:T:P: S)</b>	3-0-0-0	<b>SEE Marks</b>	50
<b>Total Hours of Pedagogy</b>	40	<b>Total Marks</b>	100
<b>Credits</b>	03	<b>Exam Hours</b>	03
<b>Course objectives:</b> <ul style="list-style-type: none"> <li>• To introduce the concepts and principles of solar energy, its radiation, collection, storage and application.</li> <li>• To understand application aspects of Wind, Biomass, Geothermal, hydroelectric and Ocean energy.</li> <li>• To examine energy sources and systems, including fossil fuels and nuclear energy, and then focus on other forms of alternate energy sources.</li> </ul>			
<b>Teaching-Learning Process (General Instructions)</b> These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes. <ol style="list-style-type: none"> <li>1. Adopt different types of teaching methods to develop the outcomes through PowerPoint presentations and Video demonstrations or Simulations.</li> <li>2. Chalk and Talk method for Problem Solving.</li> <li>3. Adopt flipped classroom teaching method.</li> <li>4. Adopt collaborative (Group Learning) learning in the class.</li> <li>5. Adopt Problem Based Learning (PBL), which fosters students' analytical skills and develops thinking skills such as evaluating, generalizing, and analyzing information.</li> </ol>			
<b>Module-1</b>			
<b>Introduction:</b> Energy sources (including fossil fuels and nuclear energy), India's production and reserves of commercial energy sources, need for nonconventional energy sources, energy alternatives, Indian and global energy scenario.			
<b>Solar Radiation &amp; Measurement:</b> Extra-Terrestrial radiation, spectral distribution of extra-terrestrial radiation, solar constant, solar radiation at the earth's surface, beam, diffuse and global radiation, solar radiation data. Pyrometer, shading ring Pyrheliometer, sunshine recorder, schematic diagrams, and principle of working, actinometer and bolometer.			
<b>Teaching-Learning Process</b>	1. Power-point Presentation, 2. Video demonstration or Simulations, 3. Chalk and Talk are used for Problem Solving. /White board		
<b>Module-2</b>			
<b>Solar Radiation Geometry:</b> Flux on a plane surface, latitude, declination angle, surface azimuth angle, hour angle, zenith angle, solar altitude angle, expressions for the angle between the incident beam and the normal to a plane surface (No derivation) local apparent time, apparent motion of sun, day length, numerical problems.			
<b>Solar Thermal Systems:</b> Flat plate collector, Evacuated Tubular Collector, Solar air collector, Solar concentrator, Solar distillation, Solar cooker, Thermal energy storage systems, Solar Pond, Solar Chimney (Tower).			
<b>Solar Photovoltaic Systems:</b> Introduction, Solar cell Fundamentals, Characteristics and classification, Solar cell: Module, panel and array construction.			
<b>Teaching-Learning</b>	1. Power-point Presentation, 2. Video demonstration or Simulations,		

129



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi. Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
 Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551  
 E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

130

<b>Process</b>	3. Chalk and Talk are used for Problem Solving. /White board
<b>Module-3</b>	
<p><b>Wind Energy:</b> Properties of wind, availability of wind energy in India, wind velocity and power from wind; major problems associated with wind power, wind machines; Types of wind machines and their characteristics, horizontal and vertical axis windmills, elementary design principles; coefficient of performance of a windmill rotor, design aspects, numerical examples.</p> <p><b>Energy from Biomass:</b> Energy plantation, biogas production from organic wastes by anaerobic fermentation, description of bio-gas plants, transportation of biogas, problems associated with bio-gas production, application of biogas, application of biogas in engines, cogeneration plant, advantages &amp; disadvantages.</p>	
<b>Teaching-Learning Process</b>	<ol style="list-style-type: none"> <li>1. Power-point Presentation,</li> <li>2. Video demonstration or Simulations,</li> <li>3. Chalk and Talk are used for Problem Solving. /White board</li> </ol>
<b>Module-4</b>	
<p><b>Hydroelectric plants:</b> Advantages &amp; disadvantages of waterpower, Hydrographs and flow duration curves- numericals, Storage and pondage, General layout of hydel power plants- components such as Penstock, surge tanks, spill way and draft tube and their applications, pumped storage plants, Detailed classification of hydroelectric plants.</p> <p><b>Tidal Power:</b> Tides and waves as energy suppliers and their mechanics, fundamental characteristics of tidal power, harnessing tidal energy, limitations of tidal energy.</p> <p><b>Energy from ocean waves:</b> Wave energy conversion, Wave energy technologies, advantages, and disadvantages.</p>	
<b>Teaching-Learning Process</b>	<ol style="list-style-type: none"> <li>1. Power-point Presentation,</li> <li>2. Video demonstration or Simulations,</li> <li>3. Chalk and Talk are used for Problem Solving. /White board</li> </ol>
<b>Module-5</b>	
<p><b>Ocean Thermal Energy Conversion:</b> Principle of working, Rankine cycle, OTEC power stations in the world, problems associated with OTEC, case studies.</p> <p><b>Geothermal energy:</b> Introduction, Principle of working, types of geothermal stations with schematic diagram Estimates of Geothermal Power, Nature of geothermal fields, Geothermal resources, Hydrothermal, Resources Geo pressured resources, Hot dry rock resources of petro-thermal systems, Magma Resources-Interconnection of geothermal fossil systems, Advantages, and disadvantages of geothermal energy over other energy forms, Geothermal stations in the world</p>	
<b>Teaching-Learning Process</b>	<ol style="list-style-type: none"> <li>1. Power-point Presentation,</li> <li>2. Video demonstration or Simulations,</li> <li>3. Chalk and Talk are used for Problem Solving. /White board</li> </ol>
<p><b>Course outcome (Course Skill Set)</b></p> <p>At the end of the course the student will be able to :</p> <ul style="list-style-type: none"> <li>• Describe the various forms of non-conventional energy resources.</li> <li>• Apply the fundamental knowledge of mechanical engineering to design various renewable energy systems</li> <li>• Analyze the implications of renewable energy forms for selecting an appropriate system for a specific application</li> <li>• Discuss on the environmental aspects and impact of non-conventional energy resources, in comparison with various conventional energy systems, their prospects and limitations.</li> </ul>	

130





CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi. Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
 Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602, Fax:080-25730551  
 E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

### I/II Semester

ENGINEERING CHEMISTRY			
Course Code	21CHE12/22	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	2:2:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	3Hour

Course Objectives: The course will enable the students to

**CLO1:** Impart the basic knowledge of chemistry and its principles involved in electrochemistry, energy storage devices and its commercial applications.

**CLO2:** Understand the basic principles of corrosion and its prevention, metal finishing and its technological importance

**CLO3:** Master the knowledge of synthesis, properties and utilization of engineering materials like polymers & Nano materials.

**CLO4:** Apply the knowledge of Green Chemistry principles for production of chemical compounds. understanding the concepts of alternative energy sources.

**CLO5:** Understand the basic concepts of water chemistry & theory, basic principle and applications of volumetric analysis and analytical instruments.

#### Pedagogy (General Instructions):

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

1. Lecturer method (L) does not mean only traditional lecture method, but different type of teaching methods may be adopted to develop the outcomes.
2. Show Video/animation films to explain methods of synthesis of nanomaterials.
4. Encourage collaborative (Group Learning) Learning in the class
5. Ask at least three HOTS (Higher order Thinking) questions in the class, which promotes critical thinking
6. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop thinking skills such as the ability to evaluate, generalize, and analyse information rather than simply recall it.
7. Topics will be introduced in a multiple representation.
8. Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
9. Discuss how every concept can be applied to the real world - and when that's possible, it helps improve the students' understanding.

#### Module-1

##### Electrochemistry and energy storage systems:

**Electrochemistry:** Introduction, EMF of cell, Free Energy, Single electrode potential-Derivation of Nemst equation, Numerical problems based on Nemst Equation (E, E° & Ecell).

**Reference Electrodes:** Introduction, construction, working and applications of calomel electrode, ion selective electrodes: Introduction, construction, working and applications of Glass electrode, determination of pH using Glass electrode.

**Energy storage Systems:** Introduction, Classification of batteries (primary, secondary and reserved batteries). Construction, working and applications of Li-ion batteries. Advantages of Li-ion battery as



CHILDREN'S EDUCATION SOCIETY(Regd.)

## THE OXFORD COLLEGE OF ENGINEERING

(Recognised by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi.  
Accredited NAAC 'A' Grade, Approved by A.I.C.T.E. New Delhi. Recognised by UGC Under Section 2(f))  
Bommanahalli, Hosur Road, Bangalore-560068. Ph:080-61754601/602,Fax:080-25730551  
E-mail:engprincipal@theoxford.edu. Web:www.theoxfordengg.org

<b>Module-4</b>	
<b>Green Chemistry and Alternative energy resources</b>	
Green Chemistry: Introduction, definition, Major environmental pollutants - Oxides Nitrogen, Sulphur and Carbon (Mention the impact of these pollutants on environment), Basic principles of green chemistry -brief discussion on 12 principles of green chemistry.	
Various green chemical approaches – Microwave synthesis, Bio catalysed reaction (only explanation with examples), Solvent-free reactions- advantages and conditions Synthesis of typical organic compounds by conventional and green route;	
i) Adipic acid – Conventional synthesis from Benzene, Green synthesis from glucose.	
ii) Paracetamol- Conventional and Green synthesis from Phenol Industrial applications of Green Chemistry	
<b>Green fuel:</b> Hydrogen-production (Photo electrocatalytic and photo catalytic water splitting) and applications in hydrogen fuel cells. Construction, working and applications of Methanol-Oxygen fuel cell (H <sub>2</sub> SO <sub>4</sub> as electrolyte).	
<b>Solar Energy:</b> Introduction, construction, working and applications of photovoltaic cell.	
<b>Teaching Learning process</b>	Chalk and talk/power point presentation - Basic principles of green chemistry Videos: Various green chemical approaches, Self-study material: Atom economy-synthesis of ethylene oxide and methyl methacrylate. Advantages & disadvantages of photovoltaic cell.
<b>Module-5</b>	
<b>Water Chemistry, chemical analysis and Instrumental methods of analysis</b>	
<b>Water chemistry:</b> Introduction, sources and impurities in water, Potable water, meaning and specifications (as per WHO standards), Hardness of water, types, determination of hardness using EDTA titration, numerical problems on hardness of water. Definition of Biological oxygen demand (BOD) and Chemical Oxygen Demand (COD), determination of COD of waste water sample and Numerical problems on COD.	
<b>Methods of Chemical Analysis:</b>	
<b>Volumetric Analysis:</b> Introduction, principles of titrimetric analysis, requirement of titrimetric analysis, primary and secondary standards. Requirement of a primary standard solution, units of standard solutions- Definition of normality, molarity, molality, mole fraction, ppm.	
<b>Instrumental methods of analysis:</b> Introduction, Theory, Instrumentation and applications of Colorimetry, Flame Photometry, Potentiometry, Conductometry (Strong acid with strong base, weak acid with a strong base, mixture of strong acid and a weak acid with a strong base)	
<b>Teaching</b>	Chalk and talk/power point presentation – principles of titrimetric analysis, requirement of titrimetric analysis, Classification of titrimetric analysis, Ostwald's theory of acid-base