1.3: Curriculum Enrichment

1.3.1 Institution integrates cross- cutting issues relevant to Gender, Environment and Sustainability, Human Values and Professional Ethics into the Curriculum

Sr. No.	Evidences/ Sample Documents
1	List of courses addressing cross cutting issues
2	Activities conducted relevant to Gender, Environment and Sustainability, HumanValues and Professional Ethics into the Curriculum

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

1. List of courses addressing cross cutting issues

Sr. No.	Courses addressing cross cutting issues	Program	Course Code	Name of the course
2018-2019				
1	Environment and Sustainability	First Year Engineering	BSH103	Engineering Chemistry and Environmental Science
2		First Year Engineering	BSH122	Lab-1/Lab-2/Engineering Chemistry and Environmental Science
3		Civil Engineering	CED304	Engineering Geology
4		Civil Engineering	CED309	Water Resources Engineering
5		EEE	EED/204	Electrical Power Generation and its Economics
6		Electrical Electronics and Engineering	EEE355	Energy Conservation and Audit (Elective III)
7		MBA	MANB406	Environment Management
2019-2020				
	Environment and Sustainability	Civil Engineering	CED401	Environmental Engineering
9		Civil Engineering	CED402	Water Resources Engineering
10		Civil Engineering	CED 422	Lab 2: Water Recourses Engineering
11		Civil Engineering	CED 422 (E)	ENVIRONMENTAL IMPACT ASSESSMENT (EIA)
12		Civil Engineering	CED 494(E)	Industrial Waste Treatment
13		Civil Engineering	CED494(E)	ELE III Industrial Waste Treatment
14		Civil Engineering	CED 495(E)	ELE III Surface and Ground Water Hydrology
15		Civil Engineering	CED 422 (E)	ELE III Ground Water Engineering
16		EEE	EEP/453	Non-Conventional Energy Sources And Applications
17		EEE	EEP/473	LAB III Non-Conventional Energy Sources And Applications
18		Mechanical Engineering	MED404	Energy Conservation and Management
19		Mechanical Engineering	MED424	LAB IV: Energy Conservation and Management

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.

20		First Year Engineering	CHE106	Energy and Environment Engineering
21		Mechanical Engineering	MED497	Mechanical Vibration & Noise Control (Open Elective) (Elective II)
22	Human Values and Professional Ethics	Civil Engineering /CSE/EEE	BSH 275	Communication Skill-I
23		Civil Engineering/Mech Eng/ CSE	BSH305	Communication Skills II
24		Civil Engineering	CED307	Professional Practices
25		Mechanical Engineering	MED452	Project Management and Operation Research
26		MBA	MANB408	Yoga
27			MANB451	Community Service
28			MANB415	Indian Ethos & Values
29			MANB414	Business Law
30			MANB403	Managerial Economics
31			MANB404	Research Methodology
32			MANB501H	Law's Governing HR
33			MANB502H	Human Resource Planning and Development
34			MANB504H	Cross Culture and Global HRM
35			MANB503H	Training and Development
36			MANB504H	Performance and Compensation Management Systems
37			MANB505H	HRD – Strategies and Systems
38			MANB501A	Management Process in Hospital
39			MANB503A	HRM in Health Organization
40			MANB506A	Legal Aspects Governing Hospital
41			MANB509	Entrepreneurship Development
42			MANB510	Quality Management
43				

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

20		First Year Engineering	CHE106	Energy and Environment Engineering
21		Mechanical Engineering	MED497	Mechanical Vibration & Noise Control (Open Elective) (Elective II)
22	Human Values and Professional Ethics	Civil Engineering /CSE/EEE	BSH 275	Communication Skill-I
23		Civil Engineering/Mech Eng/ CSE	BSH305	Communication Skills II
24		Civil Engineering	CED307	Professional Practices
25		Mechanical Engineering	MED452	Project Management and Operation Research
26		MBA	MANB408	Yoga
27			MANB451	Community Service
28			MANB415	Indian Ethos & Values
29			MANB414	Business Law
30			MANB403	Managerial Economics
31			MANB404	Research Methodology
32			MANB501 H	Law's Governing HR
33			MANB502 H	Human Resource Planning and Development
34			MANB504 H	Cross Culture and Global HRM
35			MANB503 H	Training and Development
36			MANB504 H	Performance and Compensation Management Systems
37			MANB505 H	HRD – Strategies and Systems
38			MANB501 A	Management Process in Hospital
39			MANB503A	HRM in Health Organization
40			MANB506A	Legal Aspects Governing Hospital
41			MANB509	Entrepreneurship Development
42			MANB510	Quality Management
43				

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

2. Activity Conducted addressing Issues relevant Gender Environment andSustainability, Human Values and Professional Ethics

Sr.No	Name of the activity	Issue Addressed	Year
1	Blood donation on the occasion of ICEEM foundation day.	Human Values	2023-24
2	Expert Talk on "Self Defence program" for women by vishwa Joshi	Gender	2023-24
3	Tree Plantation at ICEEM on occasion of MBA Induction Program	Environment and Sustainability	2023-24
4	Celebration of University Foundation Day	Human Values	2023-24
6	Meri Mati Mera Desh Oath Taking Ceremony and Plantation	Environment and Sustainability	2023-24
7	Celebration of Engineers Day	Human Values and Professional Ethics	2023-24
8	Expert Lecture on " swasthya hi jivan ka adhar" by Pooja Jaiswal, ICEEM College, Aurangabad	Human Value	2023-24
9	Expert Talk on " Chandrayan " by Ms. Ms. Umadevi Kannayan, at Seminar Hall, ICEEM College	Human Value	2023-24
10	Expert Session on "Human Value" by shalini Tarwade at Seminar Hall, ICEEM College	Human Value	2023-24
11	Entrepreneurship Award to Mr. Tangde and Entrepreneurship Guidence - Speaker Mr. Tukaram Tandge	Human Values and Professional Ethics	2023-24
12	Celebration of Independence Day & Tree Plantation	Human Values and Professional Ethics	2023-24
13	Celebration of Marathawada Mukti Sangram Din	Human Values and Professional Ethics	2023-24
14	Celebration of Teacher's Day	Human Values and Professional Ethics	2023-24

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Sr.No	Name of the activity	Issue Addressed	Year
15	Celebration of Women's Day	Gender	2022-23
16	Engineer's Day Celebration and tree plantation	Environment and Sustainability	2022-23
17	Celebration of Marathwada Mukti Sangram Day	Human Values and Professional Ethics	2022-23
18	Tree Plantation Program under Vasantrao Naik Harit Maharashtra Abhiyan	Environment and Sustainability	2022-23
19	FDP on Universal Human Values	Human Value	2022-23
20	Yoga Session on Inner Engineering at seminar Hall	Human Values and Professional Ethics	2022-23
21	FDP on Intellectual Property Rights	Human Value	2022-23
22	Marathi Bhasha Phandarwada Event	Human Value	2021-22
23	One day workshop on innovations patent in Trademark and copyright	Human Values and Professional Ethics	2021-22
24	Yoga event by Mr. P. Chaudhary	Human Value	2021-22
25	Celebration of National Science Day by Rashtramata Jijau English School.	Human Values and Professional Ethics	2021-22
26	celebrated international Women's Day	Gender	2021-22
27	Celebration of Earth Day	Human Values and Professional Ethics	2021-22
28	Words menstrual health and hygiene day by Dr. Deepmala Biradar	Gender	2021-22
29	World Environmental Day was celebrated in ICEEM Campus	Environment and Sustainability	2021-22
30	Expert talk on Engineer to Entrepreneur by Dushant Aathavle	Human Values and Professional Ethics	2020-21

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Sr.No	Name of the activity	Issue Addressed	Year
31	Significance & Importance of Yoga in Pandemic Situation	Human Values and Professional Ethics	2020-21
32	Government Scheme and Policies for Women Empowerment	Gender	2020-21
33	Celebration of Engineerday and Expert lecture by Dr. Sudhir Deshmukh	Human Values and Professional Ethics	2019-20
34	Guest Talk in Solar Energy and future scope with respect to mobility by Satish Kumar	Environment and Sustainability	2019-20
35	Expert talk on Career guidance by Dr. Shirsat	Human Values and Professional Ethics	2019-20
36	Yoga session conducted by Ms. Jahnobi kalyanion	Human Values and Professional Ethics	2019-20
37	Celebration of Teacher's Day	Human Values and Professional Ethics	2018-19
38	Celebration of Engineer day, Guest Mr. Kishan Vatni	Human Values and Professional Ethics	2018-19
39	Seminar on Entrepreneurship by Mr. Victor Chidri	Human Values and Professional Ethics	2018-19
40	FDP on Stress Management, by Vinay Chidari	Human Values and Professional Ethics	2018-19
41	Emotional Quotient by Mr. Kishan Watni	Human Values and Professional Ethics	2018-19

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Revised Proposal for approval of scheme for the students taking admission for the first year in engineering from year 2016-17 following choice based credit system (CBCS).

CHOICE BASED CREDIT SYSTEM
CURRICULUM

UNDER GRADUATE PROGRAMME

Bachelor of Engineering

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD.

International Centre of Excellence In Engg. & MGMT. Aurangabad

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Dr.Babasaheb Amberdkar Marathwada University, Aurangabad
Faculty of Engineering and Technology
Proposed Structure 2016-17
FE(All)

Sub.Code	Semester-I	Contact Hrs/Week				Examination Scheme						Duration of Theory Exam
	Subject	L	T	P	Total	CT	TH	TW	P	Total	Credits	
BSH101	Engineering Mathematics-I	4	-	-	4	20	80	-	-	100	4	3
BSH102 / BSH 103	Engineering Physics / Engineering Chemistry and Environmental Science	4	-	-	4	20	80	-	-	100	4	3
MED 104	Engineering Graphics	4	-	-	4	20	80	-	-	100	4	4
EED 105	Basic Electrical Engineering	4	-	-	4	20	80	-	-	100	4	3
CED 106	Basic Civil Engineering	2	-	-	2	10	40	-	-	50	2	2
CSE 107	Computer Fundamentals -1	2	-	-	2	10	40	-	-	50	2	2
BSH121 / BSH 122	Lab-I/Lab-II Engineering Physics / Engineering Chemistry and Enviornmental Science	-	-	2	2	-	-	50	-	50	1	
MED123	Lab-III Engineering Graphics	-	-	2	2	-	-	50	-	50	1	
EED 124	Lab-IV Basic Electrical Engineering	-	-	2	2	-	-	50	-	50	1	
CED 125	Lab-V Basic Civil Engineering	-	-	2	2	-	-	50	-	50	1	
CSE 126	Lab-VI Computer Fundamentals-I	-	-	2	2	-	-	50	-	50	1	
MED 127	Lab-VII Workshop Practice -I	-	-	2	2	-	-	50	-	50	1	
		20	0	12	32	100	400	300	-	800	26	

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Sub.Code	Semester-II	Contact Hrs/Week				Examination Scheme						Duration of
	Subject	L	T	P	Total	CT	TH	TW	P	Total	Credits	Theory Exam
BSH 151	Engineering Mathematics-II	4	-	-	4	20	80	-	-	100	4	3
BSH 102 /BSH 103	Engineering Physics / Engineering Chemistry and Enviornmental Science	4	-	-	4	20	80	-	-	100	4	3
CED 152	Engineering Mechanics	4	-	-	4	20	80	-	-	100	4	3
MED 153	Basic Mechanical Engineering	4	-	-	4	20	80	-	-	100	4	3
ECT 154	Basic Electronics Engineering	2	-	-	2	10	40	-	-	50	2	2
CSE 155	Computer Fundamentals -2	2	-	-	2	10	40	-	-	50	2	2
BSH 121 / BSH 122	Lab-I/Lab-II Engineering Physics / Engineering Chemistry and Enviornmental Science	-	-	2	2	-	-	50	-	50	1	
CED 171	Lab-VIII Engineering Mechanics	-	-	2	2	-	-	50	-	50	1	
MED 172	Lab-IX Basic Mechanical Engineering	-	-	2	2	-	-	50	-	50	1	
ECT 173	Lab-X Basic Electronics Engineering	-	-	2	2	-	-	50	-	50	1	
CSE 174	Lab-XI Computer Fundamentals -2	-	-	2	2	-	-	50	-	50	1	
MED 175	Lab-XII Workshop Practice -II	-	-	2	2	-	-	50	-	50	1	
		20	0	12	32	100	400	300		800	26	

International Centre of Excellence In Engg. & MGMT. * Aurangabad *

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad

FACULTY OF SCIENCE AND TECHNOLOGY

Proposed Syllabus Structure (CBCS) For A. Y. 2018-19

Third Year of Bachelor of Engineering (Mechanical Engineering)

Subject Code	Semester : V	Contact Hrs / Week			Examination Scheme					Credit Structure			Duration of Theory Exam
	Subject	L	P	Total	CT	TH	TW	P	Total	T	P	Total	
MED301	Design of Machine Elements-I	4		4	20	80			100	4		4	3 Hours
MED302	Materials and Metallurgy	4		4	20	80			100	4		4	3 Hours
MED303	Fluid Mechanics and Machines	4		4	20	80			100	4		4	3 Hours
MED304	Theory of Machine - II	4		4	20	80			100	4		4	3 Hours
MED305	Modern Management Techniques	4		4	20	80			100	4		4	3 Hours
BSH305	**Communication Skill- II**	**2**		**2**			**50**		**50**	**2**		**2**	2 Hours
MED321	Lab-I: Design of Machine Elements-I		2	2			25	25	50		1	1	
MED322	Lab-II: Materials and Metallurgy		2	2			25	25	50		1	1	
MED323	Lab-III: Fluid Mechanics and Machines		2	2			25	25	50		1	1	
MED324	Lab-IV: Theory of Machine - II		2	2			25	25	50		1	1	
Total		**22**	**8**	**30**	**100**	**450**	**100**	**100**	**750**	**22**	**4**	**26**	

Subject Code	Semester : VI	Contact Hrs / Week			Examination Scheme					Credit Structure			Duration of Theory Exam
	Subject	L	P	Total	CT	TH	TW	P	Total	T	P	Total	
MED351	Design of Machine Elements - II	4		4	20	80			100	4		4	3 Hours
MED352	Heat Transfer	4		4	20	80			100	4		4	3 Hours
MED353	Tool Engineering	4		4	20	80			100	4		4	4 Hours
MED354	CAD/CAM	4		4	20	80			100	4		4	3 Hours
MED355	Elective-I	4		4	20	80			100	4		4	3 Hours
MED371	Lab-V: Design of Machine Elements - II		2	2			25	25	50		1	1	
MED372	Lab-VI: Heat Transfer		2	2			25	25	50		1	1	
MED373	Lab-VII: Tool Engineering		2	2			25	25	50		1	1	
MED374	Lab-VIII: CAD/CAM		2	2				50	50		2	2	
MED375	Mini Project		2	2			25	25	50		1	1	
Total		**20**	**10**	**30**	**100**	**400**	**100**	**150**	**750**	**20**	**6**	**26**	

Elective – I: 1. Industrial Hydraulic & Pneumatics, 2. Machine Tool Design, 3. Industrial Product Design, 4. Robotics & Automation, 5. Advanced Thermodynamics

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Faculty of Engineering and Technology
Board of Studies in Computer Science and Engineering
Curriculum structure of BE (Computer Science and Engineering)
PART-I

Sub Code	Part-I	Contact Hrs/Week				Examination Scheme						Duration of The Theory Examination
		L	T	P	Total	CT	TH	TW	PR	Total	credits	
CSE401	Data Warehousing and Data Mining	4	--	--	4	20	80	--	--	100	4	3 Hrs
CSE402	Principles of Compiler Design	4	--	--	4	20	80	--	--	100	4	3 Hrs
CSE403	Object Oriented Software Modeling & Design	4	--	--	4	20	80	--	--	100	4	3 Hrs
CSE404	Cloud Computing	4	--	--	4	20	80	--	--	100	4	3 Hrs
CSE441 CSE442 CSE443	Elective – IV	4	--	--	4	20	80	--	--	100	4	3 Hrs
CSE421	Lab 1: Data Warehousing and Data Mining	--	--	2	2	--	--	--	50	50	1	
CSE422	Lab 2: Principles of Compiler Design	--	--	2	2	--	--	--	50	50	1	
CSE423	Lab 3: Cloud Computing	--	--	2	2	--	--	--	50	50	1	
CSE424 CSE425 CSE426	Lab 4: Elective – IV	--	--	2	2	--	--	50	--	50	1	
CSE427	Project Part-I	--	--	4	4	--	--	25	--	25	2	
CSE428	Seminar	--	--	4	4	--	--	25	--	25	2	
	Total	**20**	**--**	**16**	**36**	**100**	**400**	**100**	**150**	**750**	**28**	

Elective –IV:

Code	Subject (Elective – IV)
CSE441	Agile Methodology
CSE442	Remote Sensing & Geographical Information Systems
CSE443	Internet of Things

L: Lecture hours per week **T**: Tutorial hours per week **P**: Practical hours per week
CT: Class Test**TH**: University Theory Examination, **TW**: Term Work, **PR**: Practical/Oral Examination

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad

FACULTY OF SCIENCE AND TECHNOLOGY

Syllabus Structure (CBCS) For A. Y. 2019-20

Fourth (Final) Year of Bachelor of Engineering (Mechanical Engineering)

SEMESTER: VII

Subject Code	Semester : V	Contact Hrs / Week			Examination Scheme					Credit Structure			Duration of Theory Exam
	Subject	L	P	Total	CT	TH	TW	P	Total	T	P	Total	
MED401	I. C. Engines And Gas Turbines	4		4	20	80			100	4		4	3 Hours
MED402	Automatic Control System	4		4	20	80			100	4		4	3 Hours
MED403	Metrology and Quality Control	4		4	20	80			100	4		4	3 Hours
MED404	Energy Conservation and Management	4		4	20	80			100	4		4	3 Hours
	Elective-II**	4		4	20	80			100	4		4	3 Hours
MED421	Lab-I I.C. Engines And Gas Turbines		2	2			25	25	50		1	1	
MED422	Lab-II Automatic Control System		2	2			25		25		1	1	
MED423	Lab-III Metrology and Quality Control		2	2			25	25	50		1	1	
MED424	Lab-IV : Energy conservation and Management		2	2				25	25		1	1	
	Seminar		2				50		50		2	2	
	Project-I		2					50	50		2	2	
Total		20	12	32	100	450	125	125	750	20	8	28	

Elective – II:

Course code	Subject Name
MED405	Mechatronics
MED406	Power Plant Engineering
MED407	Production Planning and Control
MED408	Advanced Materials and Manufacturing
MED409	Advanced CAD/CAM
	Open Elective

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Part-II

Sub Code	Semester-II	Contact Hrs/Week				Examination Scheme						Duration of Theory Examination
	Subject	L	T	P	Total	CT	TH	TW	PR	Total	credits	
BSH251	Engineering Mathematics-IV	4	--	--	4	20	80	--	--	100	4	3 Hrs
CED253	Building Construction And Drawing	4	--	--	4	20	80	--	--	100	4	3 Hrs
CED254	Fluid Mechanics-II	4	--	--	4	20	80	--	--	100	4	3 Hrs
CED255	Surveying-II	4	--	--	4	20	80	--	--	100	4	3 Hrs
CED256	Theory of Structure- I	4	--	--	4	20	80	--	--	100	4	3 Hrs
CED271	Lab VI: Building Construction and Drawing	--	--	4	4	--	--	50	25	75	2	
CED272	Lab VII:Fluid Mechanics-II	--	--	2	2	--	--	25	25	50	1	
CED273	Lab VIII: Surveying-II	--	--	2	2	--	--	25	25	50	1	
CED274	Lab XI: Computer Lab II	--	--	2	2	--	--	25	--	25	1	
BSH275	Lab 10:Communication Skills-I	--	--	4	4	--	--	50	--	50	2	
	Total	**20**	--	**14**	**34**	**100**	**400**	**175**	**75**	**750**	**27**	

L: Lecture hours per week

T: Tutorial hours per week

CT: Class Test **TW**: Term Work

TH: University Theory Examination

International Centre of Excellence In Engg. & MGMT. Aurangabad

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Faculty of Engineering and Technology

Board of Studies in Computer Science and Engineering

Curriculum Structure of SE (Computer Science and Engineering/Information Technology)

Effective from 2017-18

PART-I

Sub Code	Semester-I	Contact Hrs/Week				Examination Scheme						Duration of The Theory Examination
	Subject	L	T	P	Total	CT	TH	TW	PR	Total	credits	
BSH201	Engineering Mathematics -III	4	--	--	4	20	80	--	--	100	4	3 Hrs
CSE202	Data Structures	4	--	--	4	20	80	--	--	100	4	3 Hrs
CSE203	Computer Networks	4	--	--	4	20	80	--	--	100	4	3 Hrs
CSE204	Digital Electronics	4	--	--	4	20	80	--	--	100	4	3 Hrs
CSE205	Linux Operating System	4	--	--	4	20	80	--	--	100	4	3 Hrs
CSE221	Lab 1: Data Structures	--	--	2	2	--	--	--	50	50	1	
CSE222	Lab 2: Computer Networks	--	--	2	2	--	--	50	--	50	1	
CSE223	Lab 3: Digital Electronics	--	--	2	2	--	--	50	--	50	1	
CSE224	Lab 4: Linux Operating System	--	--	2	2	--	--	--	50	50	1	
CSE225	Lab 5: Introduction to Web Programming	--	--	4	4	--	--	--	50	50	2	
	Total	**20**	**--**	**12**	**32**	**100**	**400**	**100**	**150**	**750**	**26**	

PART - II

Sub Code	Semester-II	Contact Hrs/Week				Examination Scheme						
	Subject	L	T	P	Total	CT	TH	TW	PR	Total	Credits	Duration of The Theory Examination
BSH251	Engineering Mathematics-IV	4	--	--	4	20	80	--	--	100	4	3 Hrs
CSE252	Discrete Mathematics	4	--	--	4	20	80	--	--	100	4	3 Hrs
CSE253	Object Oriented Programming	4	--	--	4	20	80	--	--	100	4	3 Hrs
CSE254	Microprocessor & Computer Organization	4	--	--	4	20	80	--	--	100	4	3 Hrs
CSE255	Computer Graphics	4	--	--	4	20	80	--	--	100	4	3 Hrs
CSE271	Lab 6: Object Oriented Programming	--	--	2	2	--	--	--	50	50	1	
CSE272	Lab 7: Microprocessor & Computer Organization	--	--	2	2	--	--	--	50	50	1	
CSE273	Lab 8: Computer Graphics	--	--	2	2	--	--	50	--	50	1	
CSE274	Lab 9: Open Source Lab	--	--	2	2	--	--	--	50	50	1	
BSH275	Lab 10: Communication Skills- I	--	--	4	4	--	--	50	--	50	2	
	Total	**20**	**--**	**12**	**32**	**100**	**400**	**100**	**150**	**750**	**26**	
	Total of Semester I & II	**40**		**24**	**64**	**200**	**800**	**200**	**300**	**1500**	**52**	

L: Lecture hours per week **T:** Tutorial hours per week **P:** Practical hours per week

CT: Class Test, **TH:** University Theory Examination, **TW:** Term Work, **PR:** Practical/Oral Examination

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Faculty of Science and Technology

Board of Studies in Electrical Engineering
Curriculum structure of SE (EE/EEE/EEP)

PART-I

Sub Code	Semester-I	Contact Hrs./Week				Examination Scheme						Duration of The Theory Examination
	Subject	L	T	P	Total	CT	TH	TW	PR	Total	credits	
BSH/201	Engineering Mathematics -III	4	--	--	4	20	80	--	--	100	4	3 Hrs.
EED/202	Transformer and DC Machines	4	--	--	4	20	80	--	--	100	4	3 Hrs.
EED/203	Electrical Measuring Techniques	4	--	--	4	20	80	--	--	100	4	3 Hrs.
EED/204	Electrical Power Generation and Its Economics	4	--	--	4	20	80	--	--	100	4	3 Hrs.
	Elective - I	4	--	--	4	20	80	--	--	100	4	3 Hrs.
EED/221	Lab 1: Transformer and DC Machines	--	--	2	2	--	--	--	50	50	1	
EED/222	Lab 2: Electrical Measuring Techniques	--	--	2	2	--	--	--	50	50	1	
EED/223	Lab 3: Electrical Power Generation and Its Economics	--	--	2	2	--	--	50	--	50	1	
EED/224	Lab 4: Elective	--	--	2	2	--	--	--	50	50	1	
EED/225	Lab 6: Fundamentals of PLC	--	--	2	2	--	--	50	--	50	2	
	Total	**20**	**--**	**10**	**30**	**100**	**400**	**100**	**150**	**750**	**26**	

Elective –I:

Code	Subject
EED/205	Electrical Engineering Materials
EED/206	Electronics Device and Circuits
EED/207	Numerical Method Using MATLAB
EED/208	Signal and System

L:Lecture hours per week **T:**Tutorial hours per week **P:**Practical hours per week

CT: Class Test, **TH**:University Theory Examination, **TW**: Term Work, **PR**: Practical/Oral Examination

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

PART – II

Sub Code	Semester-II	Contact Hrs./Week				Examination Scheme						
	Subject	L	T	P	Total	CT	TH	TW	PR	Total	Credits	Duration of The Theory Examination
BSH/252	Engineering Mathematics-IV	4	--	--	4	20	80	--	--	100	4	3 Hrs.
EED/253	AC Machines	4	--	--	4	20	80	--	--	100	4	3 Hrs.
EED/254	Network Analysis	4	--	--	4	20	80	--	--	100	4	3 Hrs.
EED/255	Electrical Power Transmission and Distribution	4	--	--	4	20	80	--	--	100	4	3 Hrs.
EED/256	Analog and Integrated Circuits	4	--	--	4	20	80	--	--	100	4	3 Hrs.
EED/271	Lab 6: AC Machines	--	--	2	2	--	--	--	50	50	1	
EED/272	Lab 7: Network Analysis	--	--	2	2	--	--	50	--	50	1	
EED/273	Lab 8: Electrical Power Transmission and Distribution	--	--	2	2	--	--	--	50	50	1	
EED/274	Lab 9: Analog and Integrated circuit	--	--	2	2	--	--	--	50	50	2	
BSH/275	Communication Skills- I	--	2	---	2	--	--	50		50	1	
	Total	**20**	**2**	**8**	**30**	**100**	**400**	**100**	**150**	**750**	**26**	
	Total of Semester I & II	**40**	**2**	**18**	**60**	**200**	**800**	**200**	**300**	**1500**	**52**	

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

SE Mechanical Engineering

Semester-II

Sub Code	Semester-II	Contact Hrs/Week				Examination Scheme						Duration of Theory Examination
	Subject	L	T	P	Total	CT	TH	TW	PR	Total	credits	
BSH251	Engineering Mathematics-IV	4	--	--	4	20	80	--	--	100	4	3 Hrs
MED252	Thermodynamics-II	4	--	--	4	20	80	--	--	100	4	3 Hrs
MED253	Theory of Machines-I	4	--	--	4	20	80	--	--	100	4	4 Hrs
MED254	Electrical Machines	4	--	--	4	20	80	--	--	100	4	3 Hrs
MED255	Machine Tools	4	--	--	4	20	80	--	--	100	4	3 Hrs
MED271	Lab 6: Thermodynamics-II	--	--	2	2	--	--	25	25	50	1	
MED272	Lab 7: Theory of Machines-I	--	--	2	2	--	--	25	25	50	1	
MED273	Lab 8: Electrical Machines	--	--	2	2	--	--	50	--	50	1	
MED274	Lab 9: Workshop Practice-IV	--	--	2	2	--	--	25	25	50	1	
MED275	Lab 10:Communication Skills- I	--	--	4	4	--	--	50	--	50	2	
	Total	**20**	**0**	**12**	**32**	**100**	**400**	**175**	**75**	**750**	**26**	

L: Lecture hours per week

T: Tutorial hours per week

CT: Class Test

TW: Term Work

TH: University Theory Examination

P: Practical hours per week

PR: Practical/Oral Examination

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Dr.Babasaheb Ambedkar Marathwada University, Aurangabad
FACULTY OF [illegible] AND TECHNOLOGY

TE (Civil) Syllabus Structure -(w.e.f. June -2018)

Part -I

Subject Code	Subject	Th	Pr/TW	Marks					Credit
		Hrs	Hrs	TH	CT	PR	TW	TOTAL	
CED301	Theory of Structures II	4	-	80	20	-	-	100	4
CED302	Design of Structures-I (Steel)	4	-	80	20	-	-	100	4
CED303	Building Planning and Design	4	4	80	20	50	50	200	6
CED304	Engineering Geology	4	2	80	20	25	25	150	5
CED305	Highway Engineering	4	2	80	20	25	25	150	5
BSH305	Lab III: Communication Skills II	2		-	-		50	50	2
Total		22	8	400	100	100	150	750	26
Total		**30**							

Part -II

Subject Code	Subject	Th	PR/TW	Marks					Credit
		Hrs	Hrs	TH	CT	PR	TW	TOTAL	
CED306	Design of Structures-II (RCC)	4	-	80	20	-	-	100	4
CED307	Professional Practices	4	4	80	20	25	50	175	6
CED308	Geotechnical Engineering	4	2	80	20	25	25	150	5
CED309	Water Resources Engineering-I	4	-	80	20	-	-	100	4
CED310	Elective I	4	-	80	20	-	-	100	4
CED332	Lab IV: Structural Design & Drawing (Steel)	-	4	-	-	25	50	75	2
CED333	Lab V : Computer Lab III	-	2	-	-	-	50	50	1
Total		20	12	400	100	75	175	750	26
Total		**32**							

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Faculty of Science & Technology
Structure of Final Year (Civil Engineering) w. e. f. Academic Year 2019-20

Semester I

Subject Code	Subject	Contact Hrs/ Week			Credit	Examination				
		Th	Pr	Total		Th	CT	TW	Pr/ Oral	Total
CED 401	Environmental Engineering	4	-	4	4	80	20	-		100
CED 402	Water Resources Engineering	4	-	4	4	80	20	-		100
CED 403	Design of Structures III	4	-	4	4	80	20	-		100
CED 404	Foundation Engineering	4	-	4	4	80	20	-		100
CED 441 to 444	Elective II	4	-	4	4	80	20	-		100
CED 421	Lab 1: Environmental Engineering	-	2	2	1	-	-	25	25	50
CED 422	Lab 2: Water Recourses Engineering	-	2	2	1	-	-	25	25	50
CED 422	Lab 3: Elective II	-	2	2	1	-	-	25	--	25
CED 423	Lab 4: SDD II	-	4	4	2	-	-	50	50	100
CED 424	Lab 5: Seminar	-	2	2	1	-	-	50	-	50
CED 425	Lab 6: Project I	-	2	2	1	-	-	25	-	25
		20	12	32	27	400	100	200	100	800

Semester II

Subject Code	Subject	Contact Hrs/ Week			Credit	Examination				
		Th	Pr	Total		Th	CT	TW	Pr/ Oral	Total
CED 451	Structural Mechanics	4	-	4	4	80	20	-		100
CED 452	Construction Management	4	-	4	4	80	20	-		100
CED 453	Transportation Engineering	4	-	4	4	80	20	-		100
CED 491 to 495	Elective III	4	-	4	4	80	20	-		100
CED 421	Lab 7: Construction Management	-	2	2	1	-	-	25	25	50
CED 422	Lab 8: Elective III	-	2	2	1	-	-	25	-	25
CED 423	Lab 9: Environment Impact Assessment	-	2	2	1	-	-	25	-	25
CED 424	Lab 10: Project II	-	6	6	6	-	-	100	100	200
		16	12	28	25	320	80	175	125	700

Elective II:

1. Prestressed Concrete
2. Plumbing Engineering
3. Ground Water Engineering
4. Open Elective

Elective III:

1. Advanced Structure
2. Pavement Design
3. Structural Dynamics & Earthquake Engineering
4. Industrial Waste Treatment
5. Surface and Ground Water Hydrology

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Dr. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD

FACULTY OF SCIENCE AND TECHNOLOGY

Board of Studies in Computer Science and Engineering

Curriculum structure of TE CSE/IT

PART-I

Sub Code	Semester-I	Contact Hrs/Week				Examination Scheme						Duration of The Theory Examination
	Subject	L	T	P	Total	CT	TH	TW	PR	Total	credits	
CSE301	Operating Systems	4	--	--	4	20	80	--	--	100	4	3 Hrs
CSE302	Theory of Computation	4	--	--	4	20	80	--	--	100	4	3 Hrs
CSE303	Database Management Systems	4	--	--	4	20	80	--	--	100	4	3 Hrs
CSE304	Programming in JAVA	4	--	--	4	20	80	--	--	100	4	3 Hrs
CSE341 CSE342 CSE343	Elective –I	4	--	--	4	20	80	--	--	100	4	3 Hrs
CSE321	Lab 1: Database Management Systems	--	--	2	2	--	--	--	50	50	1	
CSE322	Lab 2: Programming in JAVA	--	--	2	2	--	--	--	50	50	1	
CSE323 CSE324 CSE325	Lab 3: Elective –I	--	--	2	2	--	--	50	--	50	1	
CSE326	Lab 4: Software Development Lab-I (ASP.NET using C#)		--	2	2	--	--	--	50	50	1	
BSH305	Communication Skills-II	2	--	--	2	--	--	50	--	50	2	
	Total	**22**	**--**	**8**	**30**	**100**	**400**	**100**	**150**	**750**	**26**	

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Dr. Babasaheb Ambedkar Marathwada University Aurangabad.

Tentative Teaching and Examination scheme of TE (EEP / EE / EEE) wef. 2018-19

	Semester -I	Contact hr/week				Examination Scheme					
CODE	**Subject**	**L**	**T**	**P**	**Total**	**CT**	**TH**	**TW**	**P**	**Total**	**Duration of Theory Exam**
EEP/301	Power System Analysis	4	-		4	20	80			100	3 Hr
EEP/302	Microprocessor and Interfacing	4	-		4	20	80			100	3 Hr
EEP/303	Electromagnetic Fields	4	-		4	20	80			100	3 Hr
EEP/304	Control System Engineering	4	-		4	20	80			100	3 Hr
EEP/305	**Elective II**	4	-		4	20	80			100	3 Hr
EEP/321	LAB 1 Power System Analysis	-	-	2	2				50	50	
EEP/322	LAB II Microprocessor and Interfacing	-	-	2	2				50	50	
EEP/323	LAB III Control System Engineering	-	-	2	2			50		50	
EEP/324	LAB IV **Elective II**	-	-	2	2			50		50	
BSH305	Communication Skill –II (*Term work based on internal online Exam)	2	-	-	2			50*		50	2Hrs
	TOTAL	20	-	10	30	100	400	150	100	750	

Elective II

1. Special Purpose Electrical Machines
2. Digital Electronics
3. Communication Engineering

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

15. Structure of MBA Program under CBC&GS

Sem	Course	Ref. No	Subject Title	Credit	No. of Hrs. per Sem/Minm Assessment/ Tutorial	Exam Hrs.	Marks		Total
							Internal	End Sem Exam	
I	Generic Foundation Course	IC 001	Constitution of India	2	30 -02	1.5	10	40	50
		MANB401	Management Practices and Organizational Behavior	4	60 -02	3	20	80	100
		MANB402	Statistical Methods	4	60 -02	3	20	80	100
		MANB403	Managerial Economics	4	60 -02	3	20	80	100
		MANB404	Research Methodology	4	60 -02	3	20	80	100
		MANB405	Accounting for Managers	4	60 -02	3	20	80	100
		MANB406	Environment Management	2	30 -02	1.5	10	40	50
	Skill Based Foundation Course	MANB407	IT for Managers	2	30 -02	1.5	10	40	50
		MANB408	Yoga	2	30 -02	--	50	--	50
		MANB451	Community Service	2	30 - 02	--	50	--	50
	Core Course	MANB452	Mini Project	2	30 - 02	--	50	--	50
			Total	32	480		280	520	800

Sem	Course	Ref. No	Subject Title	Credit	No. of Hrs. per Sem/Minm Assessment/ Tutorial	Exam Hrs.	Marks		Total
							Internal	End Sem Exam	
II	Generic Foundation Course	MANB409	Optimization Techniques	4	60 -02	3	20	80	100
		MANB410	Human Resource Management	4	60 -02	3	20	80	100
		MANB411	Financial Management	4	60 -02	3	20	80	100
		MANB412	Marketing Management	4	60 -02	3	20	80	100
		MANB413	Production and Operation Management	4	60 -02	3	20	80	100
		MANB414	Business Laws	4	60 -02	3	20	80	100
		MANB415	Indian Ethos & Values	2	30-02	1.5	10	40	50
		MANB416	International Business Environment	2	30 -02	1.5	10	40	50
	Skill Based Foundation Course	MANB417	Creativity and Innovation	2	30 -02	1.5	10	40	50
			Total	30	450		150	600	750

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Sem	Course	Ref. No	Subject Title	Credit	No. of Hrs. per Sem/Minm Assessment/ Tutorial	Exam Hrs.	Marks		Total
							Internal	End Sem Exam	
	Specialization- Finance/Marketing/Human Resource Mgmt/Production and Operations/IT/Media Mgt/Hosp.Admin.								
III	Core Course as per specialization	*Given in following table	Subject I	4	60 -02	3	20	80	100
			Subject II	4	60 -02	3	20	80	100
			Subject III	4	60 -02	3	20	80	100
			Subject IV	4	60 -02	3	20	80	100
			Subject V	4	60 -02	3	20	80	100
			Subject VI	4	60 -02	3	20	80	100
		MANB551	In plant Training Report	4	60	--	--	100	100
			Total	28	420		120	580	700

*Table showing Electives as per specialization.

Specialization- **Finance**

Sem	Course	Ref. No	Subject Title	Credit	No. of Hrs. per Sem/Minm Assessment/ Tutorial	Exam Hrs.	Marks		Total
							Internal	End Sem Exam	
III	Core Course (Finance)	MANB501F	Money & Banking	4	60 -02	3	20	80	100
		MANB502F	Working Capital Management	4	60 -02	3	20	80	100
		MANB503F	Corporate Taxation	4	60 -02	3	20	80	100
		MANB504F	Investment Management	4	60 -02	3	20	80	100
		MANB505F	Financial Decision Analysis	4	60 -02	3	20	80	100
		MANB506F	Financial Services	4	60 -02	3	20	80	100

Specialization- **Marketing**

Sem	Course	Ref. No	Subject Title	Credit	No. of Hrs. per Sem/Minm Assessment/ Tutorial	Exam Hrs.	Marks		Total
							Internal	End Sem Exam	
III	Core Course (Marketing)	MANB501M	Consumer Behavior	4	60 -02	3	20	80	100
		MANB502M	Advertising Management	4	60 -02	3	20	80	100
		MANB503M	Retail Management	4	60 -02	3	20	80	100
		MANB504M	Brand Management	4	60 -02	3	20	80	100
		MANB505M	Sales & CRM	4	60 -02	3	20	80	100
		MANB506M	Digital Marketing	4	60 -02	3	20	80	100

International Centre of Excellence In Engg. & MGMT. Aurangabad

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Specialization- **Human Resource Management**

Sem	Course	Ref. No	Subject Title	Credit	No. of Hrs. per Sem/Minm Assessment/ Tutorial	Exam Hrs.	Marks		Total
							Internal	End Sem Exam	
III	Core Course (HRM)	MANB501H	Law's Governing HR	4	60 -02	3	20	80	100
		MANB502H	Human Resource Planning and Development	4	60 -02	3	20	80	100
		MANB503H	Training and Development	4	60 -02	3	20	80	100
		MANB504H	Performance & Compensation Management	4	60 -02	3	20	80	100
		MANB505H	HRD – Strategies and Systems	4	60 -02	3	20	80	100
		MANB506H	Cross Culture and Global HRM	4	60 -02	3	20	80	100

Specialization- **Production & Operations**

Sem	Course	Ref. No	Subject Title	Credit	No. of Hrs. per Sem/Minm Assessment/ Tutorial	Exam Hrs.	Marks		Total
							Internal	End Sem Exam	
III	Core Course (P&O)	MANB501P	Production Planning & Control	4	60 -02	3	20	80	100
		MANB502P	Purchasing and Materials Management	4	60 -02	3	20	80	100
		MANB503P	Service Operations Management	4	60 -02	3	20	80	100
		MANB504P	Applied Operation Research	4	60 -02	3	20	80	100
		MANB505P	Logistics Management	4	60 -02	3	20	80	100
		MANB506P	World Class Manufacturing	4	60 -02	3	20	80	100

Specialization- **Information Technology**

Sem	Course	Ref. No	Subject Title	Credit	No. of Hrs. per Sem/Minm Assessment/ Tutorial	Exam Hrs.	Marks		Total
							Internal	End Sem Exam	
III	Core Course (IT)	MANB501I	Strategic Management & IT	4	60 -02	3	20	80	100
		MANB502I	System Analysis and Design	4	60 -02	3	20	80	100
		MANB503I	Database Management System	4	60 -02	3	20	80	100
		MANB504I	Internet Programming for E-Commerce	4	60 -02	3	20	80	100
		MANB505I	RDBMS and SQL Concepts	4	60 -02	3	20	80	100
		MANB506I	Application Development Using Oracle	4	60 -02	3	20	80	100

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Specialization- **Media Management**

Sem	Course	Ref. No	Subject Title	Credit	No. of Hrs. per Sem/Minm Assessment/ Tutorial	Exam Hrs.	Marks		Total
							Internal	End Sem Exam	
III	Core Course (ME)	MANB501E	Media Management & Media Planning	4	60 -02	3	20	80	100
		MANB502E	Media Law, ethics & Governance	4	60 -02	3	20	80	100
		MANB503E	Media Economics	4	60 -02	3	20	80	100
		MANB504E	Entertainment Marketing	4	60 -02	3	20	80	100
		MANB505E	Social Media	4	60 -02	3	20	80	100
		MANB506E	Public Relations & Corporate Communications	4	60 -02	3	20	80	100

Specialization- **Hospital Administration**

Sem	Course	Ref. No	Subject Title	Credit	No. of Hrs. per Sem/Minm Assessment/ Tutorial	Exam Hrs.	Marks		Total
							Internal	End Sem Exam	
III	Core Course (HA)	MANB501A	Management Process In Hospitals	4	60 -02	3	20	80	100
		MANB502A	Financial Management And Accounting	4	60 -02	3	20	80	100
		MANB503A	Human Resource Management In Health Organizations	4	60 -02	3	20	80	100
		MANB504A	Marketing Management In Hospitals	4	60 -02	3	20	80	100
		MANB505A	Operations Management In Hospitals	4	60 -02	3	20	80	100
		MANB506A	Legal Aspects Governing Hospitals	4	60 -02	3	20	80	100

MBA – IV Semester

Sem	Course	Ref. No	Subject Title	Credit	No. of Hrs. per Sem/Minm Assessment/ Tutorial	Exam Hrs.	Marks		Total
							Internal	End Sem Exam	
IV	Core Course	MANB507	Business Policies and Strategic Management	4	60 -02	3	20	80	100
		MANB508	DSS and MIS	2	30 -02	1.5	10	40	50
		MANB509	Entrepreneurship Development	4	60 -02	3	20	80	100
		MANB510	Quality Management	4	60 -02	3	20	80	100
		MANB511	Indian Economy	4	60 -02	3	20	80	100
		MANB552	Major Project	8	120	--	--	200	200
			Total	**26**	**390**		**90**	**560**	**650**

			Course Total	**116**	**1740**		**640**	**2260**	**2900**
			Service Course	**4**	**60**		**20**	**80**	**100**
			GRAND TOTAL	**120**	**1830**		**660**	**2340**	**3000**

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

CED 304: ENGINEERING GEOLOGY

Teaching Scheme	Examination scheme
Theory: 04hrs/week	**Theory:** 80 Marks
	Class Test: 20 Marks

Objectives:

1. To provide the students with the basic and advance knowledge of Engineering Geology.
2. To have knowledge of different rocks and their properties, Suitability for different construction purpose.
3. To Provide Knowledge of Groundwater and hydrology which is useful while dealing with land drainage, Sanitary engineering, water supply, control of landslides.
4. To provide knowledge of surface waters helps to understand the process of erosion, transportation and deposition, useful for Dam construction, harbor works, soil conservation etc.
5. To Provide Systematic Knowledge of natural Construction material.

Unit I: Physical Geology **06**

Normal cycle of regional erosion and weathering, Geological action of Water, river valley development, water fall, meandering, and related features, Transported and deposition by river flood plains such as, Alluvial fans, Levees, Delta and Rejuvenation of river. Interior of Earth. Volcanism and its types. Earthquake, Causes of Earthquake, magnitude and intensity, Location of Epicenter. Mountains and types of Mountains, Minerals, Silicate and non silicate mineral. Physical properties of Minerals.

Unit II: Petrology **07**

Igneous rock and its classification based on mode of occurrence. Hatch's Classification, Textures of Igneous rocks and its types, Extrusive and Intrusive type, Dyke, Sill, Batholiths, laccoliths , phacolith, lopolith, vein.

Secondary Rocks: Rock Weathering, Decomposition and Disintegration of rocks, sediments, Classification of sedimentary rocks, Textures and structures of sedimentary rocks, consolidation and cementation, Characters of Shallow water deposits.

Metamorphic Rocks: Metamorphism, Agents of metamorphism, structures of metamorphic rocks, kinds of metamorphism.

Unit III: Structural Geology **07**

Structural Elements of rock-Dip and Strike, Unconformity and its types, Faults, Folds, Joints and their classification and their effects on outcrops, Inliers and outliers

Stratigraphy: Principles of Stratigraphy, Geological time scale, Physiographic Division of India and their characteristics. Major geological formations of India, Ardchean, Cuddapha, Vindhyan, Gondwana, and Deccan trap.

International Centre of Excellence In Engg. & MGMT. Aurangabad

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Unit IV **07**

Engineering Geology: Significance of Geology in Civil Engineering, Preliminary Geology investigations, use of Geological maps and sections, Geophysical methods of investigations Resistivity survey, Seismic method. Drilling its Advantages and Limitations, Precautions during drilling, Core recovery and Core logging.

Ground Water: Zonal Distributions of subsurface water, Types of Aquifers, Cone of Depression, Artificial recharge of Ground water, Geological Conditions Favorable for natural springs and seepages, porosity and permeability, hot springs and Geysers.

Unit V **06**

Building Stones, requirement of good building stones, and their dependability on geological characters of rocks, common building stones, Building stones of India, Landslides, causes, stability of hill slopes, relation of dip and strike, amount of slope with stability of hill slopes, terminal creep, preventive measures for landslides, Precautions to be taken while making cut in hills.

Unit VI **07**

Geology of Dam Sites: Influence of Geological condition on the choice of types and design of Dam. Preliminary Geological investigation at the Dam site, favorable and unsuitable conditions and location of dam, Treatment of rock, fault zone, dykes, joints, permeable and soluble rocks.

Geology of Reservoir site: Dependence of water tightness of physical properties, structure of rocks. Unsuitable and suitable conditions at reservoir site, causes of leakage through the reservoir rim.

Tunneling: Types of Tunnels, Tunnel lining, Important Geological conditions while choosing alignment of tunnel, Exploration during construction, difficulties during tunneling related with local geological conditions, tunneling in Igneous, sedimentary and Metamorphic rocks.

Engineering Geology of Deccan trap: Significance of deccan trap rocks in construction, the suitability of Basalts for Tunneling and at the Dam sites, general difficulties of Basalt at construction sites, Engineering properties of Basalt as a construction material.

Recommended Books:

1. Gupte R.B. A Text Book of Engineering Geology, Pune Vidyarthi Griha prakashan, Pune.
2. K. M. Bangar. Principles of Engineering Geology, Standard publishers and Distributors, Delhi.
3. Parbin Singh. Engineering and General Geology. S.K. Kataria and Sons, New Delhi
4. Venkat Reddy: Engineering Geology for Civil Engineering, Oxford & IBH publishing co. Ltd.

NOTE: Prerequisite: Knowledge of Surveying, Geography is necessary.

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

International Centre of Excellence In Engg. & MGMT. Aurangabad

Lab – ENGINEERING GEOLOGY

Teaching Scheme
Practical: 2 Hrs / week

Examination Scheme
Term Work: 25 Marks
Pr. / Oral: 25 Marks

Course Objectives:

1. To Provide the students the knowledge of mineralogy of different types of rocks
2. To have a knowledge of the different types of geological maps and uses of it in civil engineering.

Term work shall be based on syllabus and following assignments

1. Identification and classification of important rock forming minerals and rocks.
2. Geological map reading, construction of section of Geological maps consisting of horizontal and inclined beds, unconformity, faults, folds, dykes etc.
3. Study of solutions of engineering geological problems with the help of these maps.
4. Geophysical Exploration by electrical resistivity method.
5. One site visit with report to study geology and its Engineering applications.

Recommended Books:

1. R.B. Gupte "Textbook of engineering Geology"
2. S.K. Garg "Physical and Engineering Geology"
3. Parbin Singh "Engineering Geology"
4. D. Venkat reddy "Engineering Geology for civil engineers"
5. P.K. Mukerjee "Principles of Geology"
6. K.M. Bangar "Enginering Geology"

****

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

CED 309: Water Resources Engineering–I

Teaching Scheme
Theory: 04 hrs/Week

Examination Scheme
Theory: 80 Marks
Class Test: 20 Marks

Objectives:

1. To apply the knowledge of hydrology for analysis of rainfall, runoff, infiltration, evaporation and transpiration processes.
2. To plot and analyse the hydrographs for estimations of peak flow.
3. To apply the knowledge of irrigation requirements on fields along with the watershed management practices.
4. Apply the knowledge of groundwater hydrology in estimating drawdown of groundwater.

Unit I **(08)**

Introduction to Hydrology: Definition, Importance and scope of hydrology.

Precipitation: Types and Forms of precipitation, Methods of measurement, Factors affecting precipitation, Estimating missing rainfall data, Mass curves, Hyetograph, Double mass curves (Correction of precipitation data). Determination of average precipitation over the catchment.Frequency of point rainfall.

Evaporation and Infiltration: Evaporation process, evaporimeters, evaporation reduction, Measurement of Evapotranspiration by Penmans equation.

Infiltration process, factors affecting infiltration, effect of infiltration on runoff, groundwater recharge.Infiltration indices.

Unit II **(06)**

Runoff: Factors affecting Runoff, Rainfall-Runoff relationships, components of a flood hydrograph, Base flow separation methods, Effective rainfall, runoff hydrograph.

Unit hydrograph: Theory, assumptions, derivation and uses of unit hydrograph. S-Curve hydrographs, Synthetic Unit Hydrograph.

Unit III **(06)**

Stream Gauging: Selection of site, various methods and instruments of discharge measurements.

Floods:Definition, factors affecting, estimation of peak flow, frequency analysis: Gumbel's and Log Pearson type-III Distribution and Log Normal Distribution.

Unit IV **(06)**

Groundwater Hydrology: Occurrence and distribution Of Groundwater, Specific yield of an aquifer,Movement of groundwater, Darcy's Law, Permeability, Safe yield of basin.

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Hydraulics of wells under steady flow condition in confined and unconfined aquifers, Interference of wells and boundaries.Recharge of Groundwater.

Unit V

(08)

Introduction to irrigation and Water applications to crops: Definition, functions, advantages and necessity, methods of irrigation, surface irrigation, subsurface irrigation and microirrigation. Irrigation efficiencies

Consumptive use of water, Estimation of Consumptive use, factors affecting crop water requirements,irrigation requirements, irrigation water standards, wilting point, Delta, Duty, factors affecting Delta and Duty. Important crops in India, their seasons and crop rotation.

Unit VI

(06)

Watershed Management: Necessity for Conservation of Soil and Water of a watershed. Watershed Development and steps involved in watershed management, Ridge line Treatment, Upper, middle and lower catchment treatments, Drainage line treatments and erosion control.

Water Logging and Drainage: Causes and Effects of water logging, its remedial measures. Drainage of irrigated areas.

Recommended Books:

1. Engineering Hydrology by Subramanya K, Tata Mc Graw Hill, New Delhi
2. Irrigation Engineering By S.K.Garg- Khanna Publishers, Delhi
3. Irrigation, Water Resources and Water Power Engineering By P.N.Modi
4. Engineering Hydrology by Raghunath H.M, New Age International Publishres
5. Watershed Management in India by J.V.S Murthy- Wiley Eastern Publication.

****

International Centre of Excellence In Engg. & MGMT. Aurangabad

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

CODE EED/204 Electrical Power Generation and its Economics

Teaching Scheme
Theory: 4 hours/week
Theory examination: 80 Marks

Examination Scheme
Class Test: 20 Marks

Unit 01 **[8 HRS.]**
Thermal Power Plants:
Types of boilers, Feed water and its treatment, Steam turbine and alternators. Site selection, Main parts and its working. Fuel Handling: delivery of load, unloading, preparation, transfer, outdoor (dead) storage, indoor (live) storage, in plant Handling, Coal weighing. Ash disposal and dust collation: Draught systems, electrostatic precipitator Prospectus and development of thermal plants in India.

Unit 02 **[8 HRS.]**
Hydro Power Plant:
Site selection, Hydrology, storage and poundage, general arrangements and operation of hydro power plant, Hydraulic turbines, turbine size, pelton wheel turbine, Francis and Kaplan turbines, selection of turbines, Dams, Spillways, gates, intake and out take works, canals and layout of penstocks, water hammer and surge tank, simple numerical on hydrographs and number of turbine required Prospectus and development of hydro plants in India.

Unit 03 **[8 HRS.]**
Nuclear power plant:
Introduction, atomic physics, nuclear reaction, materials, site selection, nuclear reactors and working of each part, classification of nuclear reactor, , nuclear waste disposal, plant layout, Prospectus and development of nuclear plants in India Diesel Power Plants: Introduction, Site selection, Main components and its working, Diesel plant efficiency and heat balance, choice and characteristic of diesel power plant.

Unit 04 **[3 HRS.]**
Gas power plant:
Simple gas turbine power plant, methods to improve thermal efficiency, open loop and closed loop cycle power plants, gas fuels, gas turbine materials, plant layout.

UNIT 05 **[5 HRS.]**
Non-conventional power plant:
Sources, MHD plants, solar energy, fuel cells, tidal power generation, geothermal power generation ,wind power stations, Prospectus and development of non-conventional power plants in India Comparison of all power plants.

Unit 06 **[8 HRS.]**
Economics Aspects of Power Generation:

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Introduction, terms commonly used in system operations, factors affecting cost of generation, reduction of cost by interconnecting generators, choice of size and number of generator units, Input output curves of thermal and hydropower plants, Incrementalfuel rate curves, incremental fuel cost curve, constraints on economic generation, economic loading of generators, load allocation among various generators, base load and peak load plants.

Text Books

1. P. K. Nag: Power Plant Engineering, Tata McGraw Hill
2. Dr. P. C. Sharma: Power Plant Engineering,
3. Chakrabarti, Soni, Gupta, Bhatnagar A text book on power system Engineering" Dhanpat Rai publication
4. R.K.Rajput, "Power Plant Engineering"
5. J B Gupta, "Power Plant Engineering"

Reference Books

1. Arora and Domkundwar: A course in Power Plant Engineering, Dhapat Rai publication
2. S. P. Sukhatme: Solar Energy

PATTERN OF QUESTION PAPER:

Six units in the syllabus shall be divided in two equal parts i.e. 3 units in each part. Question paper shall be set having two sections A and B. Section A questions shall be set on first part and Section B questions on second part. Question paper should cover the entire syllabus.

For 80 marks Paper:

1. Minimum ten questions
2. Five questions in each section
3. Question no 1 from section A and Question no 6 from section B having weightage of 10 marks each be made compulsory and should have at least eight bits of two marks out of which five to be solved.
4. Two questions from remaining questions from each section A and B be asked to solve each having weightage of 15 marks

International Centre of Excellence In Engg. & MGMT. Aurangabad

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

EEP/355-Elective-III- Energy Conservation and Audit

Teaching Scheme
Theory: 4 Hrs/Week
Practical: 2 Hrs/Week

Examination Scheme
Theory Paper: 80 Marks
Internal Assessment: 20 Marks
Practical : 50 Marks

Unit 1:- Global Environmental concerns & Issues (5 Hours)

Ozone layer depletion & its effects; climate change problems & response; Global warming, sources of GHG's; Global warming potentials; climate change implications; Kyoto protocol; UNFCCC (United Nations Framework Convention on Climate Change); CDM; Carbon markets; Emissions-Trading, ISO 50001; Role of Renewable & non-conventional energy sources.

Unit 2:- Energy Audit (5 Hours)

Energy Conservation Act 2001; Designated consumers , Energy Policy, BEE & its role in energy conservation; Energy Audit – need, types, methodology, steps involved in Energy Audit; Energy-Costs, Bench marking & Energy performance, Measurement instruments for Energy Audit; Energy Manager-Duties & responsibilities.

Unit 3:- Energy Efficiency & Optimization- Thermal- Mechanical Systems (10Hours)

Laws of Thermodynamics; Steam boilers- types; fuel atomization; Boiler efficiency by Direct & Indirect methods; Energy efficiency opportunities in boilers, HVAC & refrigeration system, compressed air system, pumps, pumping systems, Affinity Laws, cooling towers, fans & blowers; Co- Generation- need, principal of cogeneration, technical options & primes movers for cogeneration; Waste Heat Recovery System- devices- Recuperators, heat wheels, heat pipe, economizer, waste heat recovery boiler.

Unit 4 :- Energy Efficiency & Optimization in Electrical Systems (10Hours)

Energy efficient technologies in electrical systems; Electricity billing; load management; maximum demand control; PF improvement & its benefits; APFC; energy efficient transformers; T & D losses; Harmonics; Energy efficient Motors; soft starters; lighting system; electronic ballasts; Energy Sector Reforms; Electricity Act 2003.

Unit 5:- Economic Analysis & Financial Evaluation (5Hours)

Economic Analysis & Financial Evaluationof Energy Conservation Proposals; Cash Flow Model; Time Value of Money; Financial Analysis- Simple payback; Return on Investment (ROI); Net-Present Value; Internal Rate of Return (IRR); Profitability Index, Uncertainty & sensitivity analysis.

Unit 6:- Case Studies (5hours)

Thermal & Electrical Energy Audit of Thermal Power Station, Steel Plant, Cement Plant, Textile Plant, Chemical- Petrochemical Complex, Engineering Industry. Buildings & Commercial Establishments.

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Text Books:-

1. "Industrial Energy Conservation"
   - Charles M Gottschalk, John Wiley & Sons, 1996
2. "Energy Management Principals"
   - Craig B Smith, Pergamon Press
3. " 4- Books for National Certification Examination for Energy Managers & Energy Auditors- Published By BEE"

References:-

1. "Optimizing Energy Efficiencies in Industry"
   - G GRajan Tata McGraw Hill, 2001
2. "Energy Management"
   - Paul O'Callaghan, Tata McGraw Hill Co.
3. "Energy Management Handbook"
   - Wayne C Turner, The Fairmount Press, Inc, 1997
4. "Energy Technology"
   - S Rao& S B Parulekar, Khanna Publishers, 1999

Term Work:-

Term work shall consist of

A. Study Experiment on any five
   1. To study the performance assessment of HVAC & Refrigeration system.
   2. To study the performance assessment of Co-generation system.
   3. To study the energy performance assessment of boilers. Indirect method of efficiency of boilers.
   4. Application of Non-conventional & Renewable Energy sources.
   5. Power Factor improvement & benefits.
   6. Energy performance assessment of motor & variable speed drives.
   7. Energy performance assessment of Lighting system
   8. Financial Evaluation of Energy Conservation Project

B. Student should prepare & submit a detailed energy audit report of any one of Industrial organization mention in unit 6. Local industrial visit should be arranged to study energy conservation & optimization methods.

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Subject Title : **Environment Management**

Subject Ref. No. : **MANB406**

No. of Credits	:	2
No. of Periods / Week	:	2
Assignments / Sessional	:	10
Semester Examination	:	40

Course Objective : UNs Resolution for 2010 & the World Millennium Goals have Environment & Sustainable Development as the core objective. The course is designed to make the budding managers sensitized to Environment along with developing an understanding of inclusive & sustainable growth; thereby creating Managers that cater to the societal demands along with the organizational priorities.

Unit – I : Environment Management: Fundamentals-Sustainable Development, Implications of human population growth, Limits to growth, Environment and Business Schools.

Unit – II : Energy Management-Fossil Fuels use, Nuclear – Wind – Hydro Energy, Bio-fuel; Recycling Industry; Ecosystem Concepts; Ecology: Industrial Ecology, Agro-ecology.

Unit – III : Environment Management System; EMS Standards; Audit Scheme; Clearance/Permissions for establishing industry; Carbon Credit.

Unit – IV : Environmental Management and Valuation: Environmental Accounting, Green Funding, Green Banking; Environment Ethics; Environmental Health & Protection; GATT/ WTO Provisions; Environmental Law.

Unit – V : Pollution and Waste Management- Air, Water, Noise & Land Pollution; Waste Management; Biodiversity Management; forest products and Trade; Global-warming; Bharat Stage – II & Euro – II; Role of NGO's.

Text Books :

1. Uberoi, N.K.; *Environmental Management*, Excel Books, A-45, Naraina Pahse-1, New Delhi, 2000.
2. Pandey, G.N.; *Environmental Management*, Vikas Publishing House New Delhi, 1997.
3. Gupta, N. Dass: *Environmental Accounting*, Wheeler Publishing 19, K.G. Marg, New Delhi, 1997.
4. Mahanty, S.K. *Environment & Pollution Law Manual*, Universal Law Publishing, G.T. Karnal Road, New Delhi, 1996.
5. Harley, Nick: *Environmental Economics*, MacMillan India Ltd., Ansari Road, New Delhi, 1997.
6. Kolstad, Charles D.: *Environmental Economics*, Oxford University Press, 2000.
7. Nigel Horan, : Environment Waste Management: An European Perspective, John Wiley & Sons, 1996.

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Practical Examination:

The practical examination shall be consisting of Viva-Voce based on the study carried out and practical visits to various establishments mentioned as per the syllabus.

SEMINAR

Teaching Scheme

Practical: 2 Hrs/Week

Credit: 2

Examination Scheme

Term Work: 50 Marks

Every individual student shall work on a recent topic selected or assigned from any engineering/allied/applied fields for the seminar of academic or industrial interest. It is expected that the student has to collect information on a topic which is not covered in curriculum of the under graduate course. Student has to refer hand book, research journals, reference books, proceeding of conference through library or internet and record of references considered for seminar is to preserved in hard copy or soft copy, which shall be produced at the time of seminar.

The report of seminar should be submitted in printed volume duly certified by guide, HOD and Principal in prescribed format given below. The student should deliver a seminar talk at leastnfor 20 minutes based on the work done by him/her. The performance will be judged by his guide and another expert appointed by HOD.

INSTRUCTIONS TO PREPARE REPORT AND PPT

1. Seminar report shall be typed on A-4 size white bond paper.
2. Typing shall be with line spacing of 1.5using black inkjet print on one side of the paper.
3. Margins a) Left 37.5mm b) Right, Top and Bottom 25mm.
4. Page number - At the bottom center aligned 12 point font size.
5. Header and Footer (12 point font size - Times New Roman)

a) Header - Right side at top stating title of the seminar.

b) Footer - Right side at bottom stating institute name.

6. Font

a) Main title font - 14 point - bold - Times New Roman - Upper case

International Centre of Excellence In Engg. & MGMT. Aurangabad

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

12) Industrial visit to Calibration lab /Quality control lab / Gear manufacturing unit / Automotive Industry / Engineering Industry.

Term work:

The term work shall consist of Performing / Studying above mentioned experiments. The candidate shall submit the report of each experiment and the assignments.

Practical Examination:

The Practical Examination will consist of performing an experiment based on practical work done during the course and viva voce based on the syllabus and term work. The practical examination will be assessed by two examiners, one will be the subject teacher and other examiner appointed by Dr. B.A.M.U. Aurangabad.

LAB-IV MED424- ENERGY CONSERVATION AND MANAGEMENT

Teaching Scheme

Practical: 2 Hrs/week

Credit: 1

Examination Scheme

Practical Exam: 25 Marks

Practical:

List of experiments:

1. To study Road map of Jawaharlal Nehru National Solar Mission.
2. To study Basics of Biofuels, Resources for production of Biodiesel and national status.
3. Study of Cogeneration in Sugar Factories.
4. Visit to Glass Industry/Paper Mills etc.
5. Study Energy for transportation through e-vehicle development
6. Visit to Roof top Solar Photovoltaic Establishment/Agriculture water pumping station
7. Trial Energy audit of household/laboratory/paper industry/glass industry etc
8. Financial calculation of replacing old equipment with energy efficient appliances.
9. Study on Investment of Renewable Energy Systems e.g. Solar Water Heater/PV system etc.

Note: Any Six experiments from above list should be performed out of which at least one visit to Solar Water Pump/Solar PV system/Sugar Factory/Paper Mill/Glass Factory to be conducted.

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Practical Examination:

The practical examination shall be consisting of Viva-Voce based on the study carried out and practical visits to various establishments mentioned as per the syllabus.

SEMINAR

Teaching Scheme

Practical: 2 Hrs/Week

Credit: 2

Examination Scheme

Term Work: 50 Marks

Every individual student shall work on a recent topic selected or assigned from any engineering/allied/applied fields for the seminar of academic or industrial interest. It is expected that the student has to collect information on a topic which is not covered in curriculum of the under graduate course. Student has to refer hand book, research journals, reference books, proceeding of conference through library or internet and record of references considered for seminar is to preserved in hard copy or soft copy, which shall be produced at the time of seminar.

The report of seminar should be submitted in printed volume duly certified by guide, HOD and Principal in prescribed format given below. The student should deliver a seminar talk at leastnfor 20 minutes based on the work done by him/her. The performance will be judged by his guide and another expert appointed by HOD.

INSTRUCTIONS TO PREPARE REPORT AND PPT

1. Seminar report shall be typed on A-4 size white bond paper.
2. Typing shall be with line spacing of 1.5using black inkjet print on one side of the paper.
3. Margins a) Left 37.5mm b) Right, Top and Bottom 25mm.
4. Page number - At the bottom center aligned 12 point font size.
5. Header and Footer (12 point font size - Times New Roman)

a) Header - Right side at top stating title of the seminar.

b) Footer - Right side at bottom stating institute name.

6. Font

a) Main title font - 14 point - bold - Times New Roman - Upper case

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

CED307: PROFESSIONAL PRACTICES

Teaching Scheme
Theory: 04 Hrs / Week

Examination Scheme
Theory: 80 Marks
Class Test: 20 Marks

Unit-I (7)

a) Introduction: Professional practice as career; modes of measurements of civil engineering works ; Details and formats in English & PWD methods of measurements; Methods of taking – out quantities; Introduction to IS 1200 (Rev) & details; Units of measurements; Least counts (errors & accuracy margins) Prime cost: Provisional sum ; Provisional quantities.

b) Approximate estimates: Meaning; Necessity; General principles; Methods of preparing approximate estimates for buildings, roads, bridges, water supply schemes, drainage schemes, retaining walls etc.

Unit –II (7)

Detailed estimates: Rules of measurements; Error margins & degrees of accuracy; Uses of estimates; Essentials of an estimator; Requirements of an estimator, Estimates of building, slab, culverts, septic tank, band –stand , RCC well, steel-truss roof, earthen dam, plumbing works, RCC elements , canals, roads, bridges, earth- works.

Unit –III (6)

a) Specifications: Meaning; Uses & objectives; Types; Detailed Specifications; Provisions & classification; Principles of writing specifications, Drafting detailed specifications – samples (Civil Engg. works)

b) Rate analysis: Purpose; Factors affecting rate analysis; Task work; Schedules of rates; Catalogues; D.S.R.; AISSR; Labour wages; Thumb rules for reinforcement; Traditional ratios of concrete; Volume reduction theories; Leads and lifts; Batching; Rate analysis- samples (Civil Engg. works).

Unit –IV (7)

Contracts: Meaning; objects; Various conditions and categories; Contract documents; Labour laws & patent rights, Agencies involved in construction industry ; Role of engineer in organizations ; Role of architect ; Essentials of valid contracts ; Termination & breach of contracts ; Arbitration ; Damages ,Responsibilities of owner & contractor ; Forms & types of contracts(lump sum ,unit price ,cost plus, piece work,); contract for supply of materials & transport of materials ; Labour contracts ; Negotiated contracts ; demolition contracts.

Unit –V (7)

a) Tenders: Meaning; Categories; Tender notice; Notification in press and media; N.B.C.; Corrigendum; Preparation & submission of tenders, Tenders form & information; E.M.D. & S.D. objectives; Revocation of tenders; Unbalanced tenders; Opening of tenders; Scrutiny of tenders; Acceptance of tenders. (A mockup exercise of preparation, submission, opening of tender document is suggested.)

b) Valuation: Meaning; Purpose; Cost, price and value; Values forms and terms; salvage value, scrap value, book value, market value, prospective value, factors affecting value of property, Property forms; Property holdings; Leases; Depreciation; Methods of cost

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

depreciation; Incomes and outgoings; Sinking fund and parameters; Year's purchase; Capitalized value; methods of valuation of buildings .

Unit –VI **(6)**

a) Govt procedure for work execution: Work classification; Administrative approval & technical sanction; Bills; Measurement books; N.M.R.; Accounts of works, stores, plants; M.A.S. account; Daily diary; Daily work.

b) Properties & Estates: Meaning; Mortgages; Amortization; Deals of property; Registration; Sale deed; Formation of cooperative housing societies; Building bye-laws and Municipal norms; N.A. concept; Loans; Repayments; E.M.I.; Apartment acts; Mathematics of finance; Banking finance terms; New construction works and documents; Real estates.

A. Recommended Books:

1. B. N. Dutta, Estimating and Costing In Civil Engineering, Ubs Publishers Distributors Ltd.
2. S. C. Rangwala, Estimating And Costing, Charotar Publishing House, Anand.
3. G. S. Biridi, Textbook of Estimating & Costing, Dhanapat Rai & Sons. Delhi.
4. B. S. Patil, Civil Engineering Contracts and Estimates, University Press, 2006.
5. M.Chakroborti, Estimating, Costing, Specification and Valuation. Calcutta.

B. Reference Books:

1. Rangwala, S.C., Elements of Estimating and Costing, Professional practice, Charotar Publishing House, Anand.
2. Aggarwal, A., Upadhyay, A.K., Civil Estimating, Costing &Valuation, S.K Kataria & Sons, New Delhi.
3. Chandola, S.P. and Vazirani, Estimating and Costing, Khanna Publication.
4. Kohali D D and Kohali R C,A text book on Estimating, Costing and Accounts,S Chand: New Delhi.

C.Handbook

1. Practical Information for quantity surveyors, property valuers, Architects, Engineers & builders: By. P.T. Joglekar, Published by: Pune Vidyarthi Griha Prakashan, Pune.
2.P.W.D. Hand Book Is Codes

D.Codes

1. I.S.1200 (Part 01 to 25): Methods of Measurement of building & Civil Engineering works.
2. D.S.R: District Schedule of Rates.

E.E-resources: nptel.iitm.ac.in

International Centre of Excellence In Engg. & MGMT. Aurangabad

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Lab: PROFESSIONAL PRACTICES (PRACTICALS)

Teaching Scheme
Practical: 04 Hrs / Week

Examination Scheme
Term Work: 50 Marks
Pr. /Oral: 25 Marks

Term Work:

1. Procedural report for new construction work and documents.
2. Detailed specifications (Ten samples)
3. Rate analysis (Fifteen samples)
4. Detailed estimate: Road work with cross slope/Railway track.
5. Detailed estimate: Steel truss roof.
6. Detailed estimate: G+1 Building manual and using estimating and costing software.
7. Valuation report of residential building.
8. Preparation of draft tender notice & collecting minimum three tender notice of civil Engineering works.

Practical Examination:-

The oral/practical examination shall consist of viva-voce based on the assignments given during the course, the record of assignments submitted by the candidate and the syllabus of the subject.

****

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

BSH 275: Communication Skill-I

Teaching scheme

Practical : 04 hrs /week

Credit : 2

Examination scheme

Term work / Oral Exam : 50 Marks

The teacher shall explain in detail, the gist and techniques involved in the following work units to the students. The teacher shall subsequently formulate the exercises to adjudge the skill sets acquired by the students.

Unit 1: Time Management **[4 hrs.]**

Value of time, Diagnosing Time Management, Weekly Planner to do list and Prioritizing work.

Unit 2: Grammar and Usage **[8 hrs.]**

Overview of basic Mid-level English Grammar, Parts of speech, Preparations and Conditions, Tense and Concept of time, Sentence Construction (Concord), Vocabulary: Words, Idioms, Phrases, Antonyms and Synonyms

Unit 3: Speaking Skills **[8 hrs.]**

Training in Sound Recognition, the speech process, message, audience, speech style, feedback, conversation and oral skills, fluency and self-expression body language phonetics and spoken English, speaking techniques, word stress, correct stress patterns, voice quality, correct tone, types of tones, Presentation skills-planning, preparation, organization, Stress and Intonation pattern in spoken communication, Sound Recording Exercise (Language Lab Exercise), Communication Errors in English

Unit 4: Listening and Reading Skills **[8 hrs.]**

Active and Passive Listening, the reading process, purpose, different kinds of texts, reference material, scientific and technical texts, active and passive reading, strategies-vocabulary skills, eye reading and visual perception, Skimming and scanning reading, drawing inferences and conclusions, comprehension of technical material- scientific and technical texts, instructions and technical manuals, graphic information. Note making-tool for study skills.

Unit 5: Writing Skills **[6 hrs.]**

Identification of different writing styles (Four Writing Style), Types of reports, information and analytical reports, oral and written reports, formal and non-formal

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

reports, printed forms, letter and memo format, manuscript format, proposals, technical articles, journal articles and conference papers, Drafting: Memo, Circulars, Notices, agendas etc. E-mails, Business Memos / Letters, Employment Communication- resume design, resume style.

Unit 6: Developing Skills and Presentations [6 hrs.]

Developing key traits 1: creativity, critical thinking and problem solving. Effective Presentations- Gathering Information and Building Presentation. Presentation by students in team.

Text Books:

1. 'Effective Technical Communication' by M Ashraf Rizvi, Tata McGraw Hill Publishing Company Ltd.
2. 'Basic Managerial Skills for all' E. H. McGrath, Eastern Economy Edition, Prentice hall India.
3. 'Developing Communication Skills' Krishna Mohan, Meera Banerji, McMillan India Ltd.
4. Skills' Krishna Mohan, Meera Banerji, McMillan India Ltd.

Term Work:
Term work marks should be given on the basis of online test conducted internally at college level.

International Centre of Excellence In Engg. & MGMT. Aurangabad

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

BSH :305 -Communication Skill

Semester – I

Course Code: BSH 305 **Title: Communication Skill**

Teaching Scheme **Examination Scheme**

Theory: 02Hours/Week Term Work: 50 Marks

Prerequisite:

1. **Basic Knowledge of Soft Skills**
2. **Good understanding of English**

Objectives:

1. To imbibe leadership skills
2. To develop interpersonal Skills
3. To introduce corporate etiquettes
4. To imbibe team skills

CONTENTS

Unit I: **Understanding self and Goal Setting** (5 Hours)

- Self-Assessment: Understanding Self Core Competency (SWOT/SWOC)
- Long term and short-term Goal Setting
- Execution Skills

Unit 2: **Interpersonal Skills** (6 Hours)

- Interpersonal Communication
- Conflict Management
- Problem Solving
- Decision Making
- Persuasion and Influence

Unit 3: **Group Dynamics and Team Building** (4 Hours)

- Group Vs Team
- Team Building
- Team Work
- Developing Leadership Skills

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Unit 4: **Corporate Etiquette** (5 Hours)

- Clothing Etiquette, Personal hygiene and grooming
- Time Management
- Influencing Skills (Impression)
- Balancing personal and professional Life
- Ethics, Values and Laws

Text Book:

The Ace of Soft Skills (Gopalaswamy Ramesh) Pearson Publication

Reference Books:

1. **Execution;** :Ram Charan
(Publisher: Crown Business; 1 edition (June 15, 2002)
Language: EnglishISBN-10: 0609610570ISBN-13: 978-0609610572)

2. **Laws of Teamwork** : John C Maxwell

3. **Master of Business Etiquette**: Cyrus Gonda
(Author: Cyrus Gonda, Publisher EMBASSY BOOKS, 2017, ISBN 9385492721, 9789385492723)

4. **Goals** :
(Author: Brain Tracy ISBN: 1-57675-235-6Published by Berrett-Koehler Publishers, Inc)

5. **Interpersonal Skills at work** :
(Author: John Hayes Second Edition: Routledge)

6. **People Smart** :
(Author: Freda Hansburgby Berrett-Koehler Publishers, Inc)

Term Work Assessment (50 marks):

The term work shall consist of internal online examination of 50 Marks, conducted at institute level. The marks of the examination shall be forwarded to the University.

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

16

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Theory: 4 Hrs./Week.

Practical: 2hrs./Week.

Theory Paper: 80 Marks

Class-Test: 20 Marks

Term Work: 50 Marks

UNIT 1: Energy sources & Availability [06 hours]

Conventional, Non-conventional, renewable, non renewable sources of energy, prospects &perspectives of development of Non conventional energy sources in India.. Any one case study.

Introduction to different types of non conventional source of energy - solar, wind, biomass, OTEC, geothermal, hydrogen energy, fuel cells, MHD, thermonic convertor, thermo-electric power.

UNIT 2: Solar Energy[08 hours]

Solar radiation, its measurement and prediction, Flat plate collectors: liquid and air type. Theory of flat plate collectors, advanced collectors, optical design of concentrators, selective coatings, solar water heating, solar dryers, solar stills, solar cooling and refrigeration, Thermal storage, Conversion of heat into mechanical energy , Active and passive heating of buildings, Solar cells.

PV cell Characteristics, MPPT System, rooftop PV installation case study.

UNIT 3: Wind Energy[08 hours]

Wind energy potential measurement, general theories of wind machines, basic laws and concepts of aerodynamics, aerofoil design; wind mill and wind electric generator. Description and performance of the horizontal–axis wind machines. Description and performance of the vertical–axis wind machines. The generation of electricity by wind machines, case studies.

UNIT 4: Biomass Energy[08 hours]

Introduction to biomass, biofuels & their heat content, biomass conversion technologies, Aerobic & anaerobic digester, Factors affection biogas, biogas plants - types & description. Utilization of biogas - Gasifiers, directs thermal application of Gasifiers. Advantages & problems in development of Gasifiers, use in I.C. engines.

UNIT 5: Other Energy Sources[10 hours]

Geothermal Energy: Status & estimates, geothermal sources, geothermal systems & their characteristics. Fuel Cells. Principle & Classification, types conversion efficiency, polarization & advantages, MHD power generation - principle, types closed & open cycle system materials. Energy form thermo nuclear fusion, OTEC, hydrogen, thermoionic generation & tidal waves.

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

TEXT BOOKS:

1) "Non-Conventional Sources of Energy," Rai G. D., Khanna Publishers, 4th Edition, 2007.

2) "Non-Conventional Energy Resources," Khan B. H., TMH, 2nd Edition.

REFERENCE BOOK:

1) "Fundamentals of Renewable Energy Systems," Mukherjee D. and Chakrabarti S., New Age International Publishers, 2005.

LAB EXPERIMENTS:

Experiments on Solar Energy

1) Single PV module I-V and P-V characteristics (with radiation and temperature changing effect)

2) I-V and P-V characteristics with series and parallel combination of modules.

3) Effect of shading and tilt angle.

4) Battery charging and discharging characteristics.

5) Demo of only DC load system with and without battery. (with variable rated capacity of system)

6) Demo of only AC load system with and without battery.

7) Combine AC and DC load system with and without battery.

8) Find the MPP manually by varying the resistive load across the PV panel.

9) Find the MPP by varying the duty cycle of DC-DC converter.

10) Roof top PV installation case study

More Experiments may be designed as per the requirement and may be conducted on MATLAB/Simulink and/or actual implementation.

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

2. Question no. 1 and 6 are compulsory for 10 marks each which contains short answer questions of 02 marks each.
3. From remaining four questions, attempt any two questions from each section.

MED404-ENERGY CONSERVATION AND MANAGEMENT

Teaching Scheme

Lectures: 4 Hrs/week

Credit: 4

Examination Scheme

Theory Exam: 80 Marks (3Hrs.)

Class Test: 20 Marks (1Hrs.)

Objective: Students are expected to learn the importance and the need for conserving the Energy and apply the knowledge gain through methodologies and the management techniques in the energy conservation.

Course Content:

Unit-1: Energy Scenario and Renewable Systems **(08 Hrs)**

Commercial and Non-Commercial Energy, Primary Energy Resources, Energy Pricing, Importance of Energy Conservation, Energy Security, Energy Conservation Act and Star Rating by BEE,Road map of Jawaharlal Nehru National Solar Mission,Energy Efficiency in Buildings: Earth air heat exchangers, Skylight, Photovoltaic systems, Kyoto Protocol, Clean Development Mechanism (CDM).

Unit-2: Mechanical System **(08 Hrs)**

Thermal Energy Systems and Energy conservation in Boilers, Steam distribution system, compressed air systems, refrigeration and air-conditioning system, pumps and fans.Solar hot water systems, Basics of Biofuels, International recent advances in Biodiesel, its resources for production, case studies of biofuels production etc.

Unit-3: Co-generation **(04 Hrs)**

Case study of Cogeneration in Sugar Factories, various options of cogeneration in Industries, selection criteria, control strategy.

Unit-4: Electrical system **(8 Hrs)**

E-vehicle for emission control, E-vehicle power storage options, merits and demerits of E-vehicle, Requirement of Charging station for E-vehicle, Power Generation and Demand Side Management (DSM), Power factor improvement, Load Scheduling, Energy-efficient electric motors, variable speed drive, Strategy for daylight control and artificial energy efficient illumination.

Unit-5: Energy Audit **(08 Hrs)**

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Definition, Need of Energy audit, Types of energy audit, Energy audit steps/methodologies, Instruments for Energy audit, Case study of Energy Audit at household and in Sugar/Glass/Paper Industries etc.

Unit-6: Financial Management: **(08 Hrs)**

Energy flow Sankey Diagrams, Energy conservation options for household and industry, Investment on energy efficient appliances and renewable energy systemand its financial analysis using Simple payback period, Return on investment, Net present value, Internal rate of return, Life cycle costs etc.

Section – A Unit 1, 2 and 3
Section – B Unit 4, 5 and 6

References:

1. S.K. Shukla and J. Tirkey, Text Book on Energy Conservation and Management, Narosa Publication.
2. Yogi Goswami and F. Kreith, Reference Book on Energy Conversion, CRC Press.
3. Amlan Chakrabarti, Text Book on Energy Engineering and Management, PHI Learning Press.
4. G. Kaushik, S. Patil, S. Chaturvedi and A. Chel, Reference Book on Biofuels: Advances and Perspectives, Studium Press, 2018.
5. D. Mukherjee, S. Chakrabarti, Text Book on Fundamentals of Renewable Energy Systems, New Age Publication.
6. S.P. Sukhatme and J.K.Nayak, Text Book on Solar Energy: Principles of Thermal Collection and Storage, The McGraw Hill Publication.
7. A. Chel, Reference book on Thermal Model: Adobe house, Earth Air heat exchanger, Skylight & PV, Lambert Academic Publishing.
8. Y.P.Abbi, Handbook on Energy Audit: Thermal Plants, Combined Cycle and Cogeneration Plants, The Energy and Resources Institute, TERI Press.
9. I. Dincer, Reference Book on Comprehensive Energy Systems, Elsevier Publication.

Pattern of Question Paper:

The units in the syllabus are divided in two equal sections. Question paper consists of two sections A and B. Section A includes first three units (1, 2, and 3) and Section B includes remaining three units (4, 5 and 6). Question paper should cover the entire syllabus.

For 80 marks Paper:

1. Five questions in each Section.
2. Question no. 1 and 6 are compulsory for 10 marks each which contains short answer questions of 02 marks each.

International Centre of Excellence In Engg. & MGMT. Aurangabad

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

CED 402: Water Resources Engineering – II

Teaching Schemes
Theory: 04 Hrs / Week

Examination Scheme
Theory: 80 Marks
Class Test: 20 Marks

SECTION-A

Unit-I: Reservoir Planning **(4 Hrs)**

Reservoir types, investigation of site and selection, storage capacity estimation by mass curves, fixing various control levels. Height of dams and economics.

Unit-II: Gravity & Earthen dams **(12 Hrs)**

a) Dams in general: Classification, site selection, choice of types and instrumentation in gravity dams.

b) Gravity dams: Forces acting, modes of failure, stability analysis, design of low and high gravity dams, galleries, joints, keys and water seals. Control of cracking in concrete dams.

c) Earthen dams: Types, components and their functions, causes of failure, design criteria, stability analysis, seepage and its control through earth dams and its foundation, drainage of earthen dams, Maintenance of earthen dams.

Unit-III: Arch and Buttress dams

Types and suitability, forces acting and design methods of arch dams. Buttress dam and types of buttress dam.

SECTION-B

Unit-IV **(06 Hrs)**

a) Spillways: Types and suitability under different conditions, construction features, design criteria, energy dissipation and I.S. recommendations, spillway gates.

b) Canals: Classification, factors influencing alignment cross sections, design of canal in non-alluvial soils, Kennedy's and Lacey's silt theories.

Unit-V: Canal masonry works: **(8 Hrs)**

Cross Drainage works: purpose, types, suitability, components and hydraulic design and design of transitions.

Canal Falls: Necessity, location, types and design, regulating works, energy dissipation, roughening devices.

Head and cross regulators: Construction features and hydraulic designs. Modules: Functions, requirements, types and hydraulic design.

Unit-VI: Design weir head works **(4 Hrs)**

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

CED 494-Elective – III: Industrial Waste Treatment

Teaching Schemes
Theory: 04 Hrs / Week

Examination Scheme
Theory: 80 Marks
Class Test: 20 Marks

SECTION-A

UNIT I **(8 Hrs)**

Stream Pollution: Physical, Chemical and Biological Pollutants: Natural System of stream purification; Streeter and Phelps DO – model; Oxygen sag curve; Whipple Ecological model; Problems on DO – Model. Effects of industrial effluents on sewers and treatment plants

Water pollution Control Acts: Need and Importance; Central and State Pollution Control, Boards, Functions and Responsibilities. Maharashtra Pollution Control Act; ISI effluent standards for disposal of Industrial wastes

UNIT II **(4 Hrs)**

Pre and Primary Treatment: Industrial Waste: Volume reduction & strength reduction of Industrial waste; Bye product recovery; Equalization & Neutralization. Importance; Necessity; Suitability

UNIT III **(8 Hrs)**

Advanced Waste Water Treatment Methods: Chemical Precipitation, Air stripping, Electro dialysis, Ion – Exchange, Reverse Osmosis, Nitrification and Denitrification, Radio Active wastes; Treatment and Disposal methods. Environmental impacts of radioactive wastes

SECTION –B

UNIT IV **(8 Hrs)**

Detailed study of the following Industries W.R.T. manufacturing process:

Characterization of waste: Suitability of treatment unit.

i. Sugar Industry. ii.Paper and pulp Industry. iii.Tannery Industry. iv. Dairy Industry.

v. Pharmaceutical Industry. vi.Cotton Textile Industry. vii.Breweries Industry. viii.Electro Plating Industry. ix. Distillery.

International Centre of Excellence In Engg. & MGMT. Aurangabad

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

generation, collection, separation, storage, transport, processing and transformation both at the source and off-site; disposal of solid wastes and residual matter (landfills, landfill leachates and landfill gases); separation, transformation and recycling of waste materials, restoration and rehabilitation of landfills; and solid waste management and planning issues.

Recommended Books

1. Water Supply Engineering, S. K. Garg, Khanna Publishers.
2. Water Supply and Sanitary Engineering, G.S. Birde & J.S. Birde, Dhanpat Rai Publishing Company.
3. Elements of Environmental Engineering, Duggal K.N., S. Chand & Company.
4. Water Supply Engineering, B.C. Punmia & Ashok Jain & Arun Jain, Laxmi Publications.
5. Wastewater Engineering, B.C. Punmia & Ashok Jain & Arun Jain, Laxmi Publications.
6. Wastewater engineering: treatment, disposal, and Reuse: Metcalf, L., Eddy, H.P., McGraw-Hill, Inc.
7. Environmental Engineering: Peavy, Rowe- McGraw Hill, Inc. New Delhi
8. Water and Wastewater Technology: Mark J Hammer, Mark J Hammer Jr., PHI Pvt. Ltd.
9. Water Supply and Sewerage: Terence J McGhee, McGraw-Hill, Inc. New Delhi
10. Integrated solid waste management: engineering principles and management issues: Tchobanoglous, Theisen H & Vigil S.

Pattern of Question Paper:

The units in the syllabus shall be divided in two equal sections. Question paper shall be set having two sections A and B. Section A questions shall be set on first three units (1,2,3) and Section B questions on remaining three units (4,5,6) . Question paper should cover the entire syllabus.

For 80 marks Paper:

1. Minimum ten questions
2. Five questions in each section
3. Three questions from each section are asked to solve.

International Centre of Excellence In Engg. & MGMT. * Aurangabad *

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad 4

Term Work: Term work shall consist of record of set of six exercises and minimum two drawings on the syllabus. Term Work Examination: The assessment of the term work shall be done on the Continuous assessment.

CED 422 (E): Lab-VIII: Environment Impact Assessment

Teaching Schemes
Theory: 02 Hrs / Week

Examination Scheme
Term Work: 25 Marks

Term Work: Term work shall consist of record of set of six exercises on the syllabus as below. Term Work Examination and the assessment of the term work shall be done on the Continuous assessment.

1. Introduction to EIA
2. Policies, rules and regulations
3. EIA Procedure
4. EIA Parameters
5. Environmental management plan for different development projects
6. C

ase studies

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

SEMESTER I

CED 401: Environmental Engineering

Teaching Schemes
Theory: 04 Hrs / Week

Examination Scheme
Theory: 80 Marks
Class Test: 20 Marks

Section-A

Unit I: Water Supply Engineering **(6 Hrs)**

Water Demand per capita demand and variations in demand, Factors affecting demand, design period, population forecasting, **Sources of Water** Surface and subsurface sources, **Water Quality** impurities in water, water quality parameters, standards for potable water.

Unit II: Water Treatment Units **(8 Hrs)**

Intake Structures River intake, Reservoir intake, canal intake, Lake Intake, **Water treatment Theory and Design** screens, grit removal, aeration, plain and secondary sedimentation, filtration, disinfection, tertiary treatment, water softening, **Distribution System.**

Unit III: Waste Water Collection System **(4 Hrs)**

Definitions, General considerations, Combined and separate sewers, Computation of sewage/wastewater; Design of Storm and Sanitary sewer systems, Sewer materials, Sewer Appurtenances, Sewage pumping, Sewer Construction and maintenance.

Section-B

Unit IV: Characteristics of wastewater and waste water treatment-I **(8 Hrs)**

Sampling, Physical, Chemical and Biological characteristics, Microbiology of Sewage, Interpretation of results, Effluent standards for disposal of wastewater on land, into Surface water, and for Irrigation, **Sewage treatment units** preliminary, primary and secondary treatment.

Unit V: Waste water Treatment -II **(8 Hrs)**

Biological Sewage treatment and Sludge disposal activated sludge process, trickling filter, oxidation pond and aerated lagoons. Advance waste water treatments, Sludge digester, UASBR and disposal, **Design of treatment unit's** activated sludge process, trickling filter, oxidation pond.

Unit VI **(6 Hrs)**

Solid Waste Management Introduction; legislative trends and impacts; sources, types, composition and properties of municipal solid wastes; sources, types and properties of hazardous wastes found in municipal solid waste; engineering principles of solid waste

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Subject Title **HRD – Strategies & Systems**
Subject Ref. No. **MANB 505H**

No. of Credits 4
No. of Periods/Week 4
Assignments / Sessional 20
Semester Exams 80

Course Objectives

With the fierce competition amongst industries; the essence of strategic excellence lies in able – capable Workforce. This has led to the role of HR Managers turning to Strategic Partners.

The subject aims at arming students to align HR Department's Functioning with the Strategic Goals of the Organizations

Pre-requisite

The Students are enshrined with the responsibility of referring the requisite articles, books, cases as suggested by the course faculty. Furthermore, the students are supposed to refer additional content for developing better understanding of the concepts & techniques.

Unit – I

Conceptualization & Fundamentals:

Strategy, HRM Architecture. Strategy Alignment to Organizational Goals, Ulrich's Theory on HR Functions, Factors influencing HRM in India, WTO - ILO & Labour Standards

Unit – II

Human Resource Development

Job and Work Design Considerations, Strategic HR Planning and Staffing.

HR Environments: Diversity at Workplace, Organizational Culture and Development practices, Human-side of Mergers and Acquisitions

Unit – III

Trends in HRM

Quality of work life, Work - life balance, Employee engagement and empowerment, Employee involvement, Autonomous work teams and HPWS

Creating a learning organization, Competency mapping, Multi-Skilling, Succession planning.

Unit – IV

SHRM Tools and Methods

Human Sigma, Balanced Scorecard, Quantification of HR Value, Competency Mapping & HRIS.

Unit – V

HR Analytics

Approaches to HR Analytics and Functional specifics.

Understanding HR indicators, metrics and data, Data collection, tracking, entry, Assess IT equirements to meet HR needs, Relational databases

Predictive analytics, Statistical analysis for HR, Metricular Approach to decision-making: Cost-justification – Return on Investment.

Text Books

1. Strategic HRM – Jeffery Mello, Thompson publication, New Delhi
2. Strategic HRM – Charles Greer, Pearson education Asia, New Delhi
3. Strategic HRM - Michael Armstrong, Kogan page, London
4. Predictive HR Analytics – Edwards M.R. and Edwards K., Kogan page, London

Additional References

1. Strategic HRM – Agarwal, Oxford university press, New Delhi
2. Human resource management – Garry Dessler, PHI, New Delhi

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Subject Title: **Human Resource Planning And Development**
Subject Ref. No.: **MANB-502H**

No. of credits: 04
No of periods /week: 04
Assignments/ sessions: 20
Semester Exam: 80

Course Objectives: To equip the students with the basic understanding of the Human Resource Planning and to provide an insight into the application of Human Resource Forecasting tools and techniques for the purpose of management decision Making.

Pre-requisites: Basics of Human Resource Planning & Role of human resource planning in Human resource Management.

Unit-I Human Resource Planning; Meaning, Importance and Benefits of HRP, Influence of strategic management on HRP, Factor affecting HRP, Process of HRP, Ethics in Human Resource Planning

Unit-II Models and Techniques of Manpower Demand and Supply Forecasting; Recruitment, Centralized and Decentralized Recruitment, Traditional and Modern Sources of Recruitment, Selection Procedure;

Unit-III Human Resource Development, Training methods ,HRD Climate; Culture; QWL, Management of Change; TQM and HRD Strategies; HRD in Strategic Organizations

Unit-IV Career Management and Career Planning; Performance Planning; Potentials Appraisal and Career Development;

Unit-V Human Resource Information System; Indian Labour market Analysis. Retention; Redeployment and Exit Strategies;

Text Books:

1. P.Subba Rao, Personnel and Human Resource Management: Text & Cases, Himalaya Publishing House, 4th revised & Enlarged edition 2010,2011
2. Dr. L.M Prasad, Human Resource Management, Sultan Chand & sons, 2nd Edition Reprint 2009.
3. Dr. P.C. Tripathi, Human Resource Development, Sultan Chand & Sons 5th renised Edition Reprint 2009.
4. Dr. C.B. Gupta, Human Resource Management, Sultan chand & son's, 2009.
5. H. John Bernardin, Florida Atlantic, U-boca Raton, Human Resource Management, McGraw Hill, 2001.
6. George Dreher Indian a university Bloomington & Thomas W Doughherty university of Missouri Columbia, Human resource strategy A ehavioral perspective for the general manager, McGraw Hill companies, 2001.
7. Dipak Kumar Bhattacharyya, Human Resource Planning, Excel Books, 2007.
8. Biswanath Ghosh, Human Resources development & Management,

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Subject Title	:	Laws governing HR			
Subject Ref. No.	:	MANB501H	**No. of Credits**	:	4
			No. of Periods / Week	:	4
			Assignments / Sessionals	:	20
			Semester Examination	:	80
Course Objectives	:	The course aims at orienting students with laws governing human employment and their relations, within an organizational contexts.			
Pre Requisite	:	The students are required to refer Bare Acts, Law Codes & Supreme Court Precedents on the topics to be discussed in the lecture beforehand.			
Unit – I	:	**Constitution of Labour Laws** Meaning of 'State', Fundamental Rights and Directive Principles governing employment relations: 'Equality before Law' and its application to Labor Laws, Article 19, 21, 23 and 24. Sexual Harassment of Women at workplace (Prevention, Prohibition and Redressal) Act, 2013: Definition of Sexual Harassment, Constitution of Internal Complaints Committee, Measure to prohibit sexual harassment, Duties of Employer.			
Unit – II	:	**Welfare and Working Conditions Law** The Factories Act, 1948: Objective, The Inspecting Staff, Health, Safety, Welfare, Working Hours Of Adults, Employment Of Young Persons, Annual Leave With Wages, Special Provisions, Penalties And Procedure			
Unit – III	:	**Law of Industrial Relations** The Trade Unions Act, 1926: History of Trade Unions in India, Concept of TU, difference between recognized and registered TU, Collective Bargaining, Union participation in management, popular TUs of India. The Industrial Employment (Standing Orders) Act, 1946, The Industrial Disputes Act, 1947 (downsizing, retrenchment, lay-off, bench employees and termination), Industrial discipline and domestic inquiry			
Unit – IV	:	**Law of Wages** The Minimum Wages Act, 1948: Concept, Procedure for fixation of minimum wages, fixation of working hours, and its enforcement. The Payment of Wages Act, 1936: Payment of Wages; procedure for Ensuring payment of wages; Authorised deductions. The Equal Remuneration Act, 1976 The Payment of Bonus Act, 1965: Concept, Tribunals under the act, Calculation and relevant provisions.			

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Unit – V	:	**Social Security Legislations** The Employees Compensation Act, 1923: Nature and extent of Compensation of workers suffering an injury in course of employment; variants and disablement; social and Social Insurance. The Employees State Insurance Act, 1948: Concept, eligibility for ESIC, Tribunals under the act, Facilities offered. The Employees Provident Funds and Miscellaneous Provisions Act, 1952: Concept, Contribution of PF, Calculation, Punitive actions. The Payment of Gratuity Act, 1972: Concept of Gratuity, when to be paid, procedure for settlement, Calculation. The Maternity Benefit Act, 1961 and policies relating to Maternity Benefit
Text Books	:	Bare Acts & Code Books
Additional Reference Books	:	Ghosh P., Nandan S., *Industrial Relations and Labour Laws*, McGraw Hill Education, 2015, 1st Ed. Monappa A., Nambudri R., Selvaraj P., *Industrial Relations and Labour Laws*, McGraw Hill Education, 2012, 8th Ed. Supreme Court Journals, Supreme Court Reports & other Reference Journals

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

LAB-III Electrical Power Generation and its Economics

CODE: EED/223
Teaching Scheme
Practical: 2 Hrs. / week

Examination Scheme
Term work: 50 marks

Practical:
The term work shall consist of a record of any FIVE of the following:

PART-A
1. Study of boiler mounting and accessories.
2. Study of modern thermal power plant.
3. Demonstration and study on diesel engine.
4. Demonstration and study on diesel power plant.
5. Study of modern hydroelectric power plant.
6. Demonstration and study of solar photo voltaic system.
7. Demonstration and study of any water turbine.
8. Demonstration and study of a centrifugal pump.
9. Demonstration and study of a pelton wheel turbine, Francis and Kaplan turbines.

PART-B
Arrange one industrial visit to any electrical power generating station and ask the students to submit the report.

LAB-IV Electrical Engineering Materials

CODE: EED/224
Teaching Scheme
Practical: 2 Hrs. / week

Examination Scheme
Practical oral: 50 marks

List of Experiments:
At least two experiments should be designed by the faculty members and can be included in the term work apart from the experiment list given below. SIX experiments from the list below and remaining two from the experiments designed and set up by the faculty member will form part of term work.
1. To measure electric strength of solid insulating materials as per IS 2584
2. To measure electric strength of liquid insulating materials as per IS 6798.
3. To measure electric strength of gaseous insulating materials using Sphere Gap-Unit.
4. To obtain Hysteresis Loop of the Ferro-Magnetic Material.
5. To understand the principle of thermocouple & to obtain characteristics of different thermocouples.
6. To measure Insulation Resistance & KVA capacity of power capacitor.
7. To measure Resistivity of High Resistive Alloys.
8. To observe development of tracks due to ageing on different insulating materials e.g. Bakelite, Perspex, Mica, Micanite, Fiberglass etc.

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

BSH122: LAB II: ENGINEERING CHEMISTRY and ENVIRONMENTAL SCIENCE

Semester I/II

Teaching Scheme
Practical 2 Hrs/week

Examination Scheme
Term work 50 Marks

COURSE CONTENT

At least ten experiments out of the following experiments are to be performed.

LIST OF EXPERIMENTS:

1. Study of effect of dilution on conductivity and determination of cell constant
2. Conductometric titrations with acid-base, mixture of acids-base, precipitation.
3. Determination of hardness of water by EDTA.
4. Determination of pH values of solutions by indicators, pH papers and pH meter.
5. To study the different factors affecting rate of electro-chemical corrosion.
6. Determination of free chlorine in water in water sample.
7. Determination of dissolved oxygen in water sample.
8. Determination of viscosity of liquid by Ostwald/ Redwoods Viscometer.
9. Determination of acid value of lubricating oil.
10. Preparation of phenol formaldehyde plastic.
11. Determination of molecular weight of polymer.
12. .Preparation of Urea formaldehyde resin.
13. Determination of Aniline point of a lubricating oil
14. Determination of acid value of plastic material.
15. Determination of percentage of ash.
16. Determination of percentage of moisture.

TERM WORK

Term work shall consists of the write up on the experiments carried out during the course (at least ten) which should include aim, procedure, neat labeled figures and appropriate explanation for the corresponding experiment indicating what is learnt from the experiment.

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

BSH103: ENGINEERING CHEMISTRY and ENVIRONMENTAL SCIENCE
Semester I/II

Teaching Scheme
Lectures 4 Hrs/week

Examination Scheme
Theory 80 Marks
Class Test 20 Marks
Duration of Theory paper 3 Hrs

OBJECTIVES:

- The syllabus of Engineering Chemistry and Environmental Science highlights the basic concepts of as applied to all branches of engineering.
- With the knowledge of Engineering Chemistry and Environmental Science basic principles of engineering can be understood easily.
- To acquaint students with modern techniques in Engineering Chemistry and Environmental Science which can be applied in engineering field.

COURSE CONTENT:

Unit 1: Polymer Science (8 Hrs)
Introduction, Classification, Functionality in monomer, Polymerisation: addition and condensation polymerization, Free radical mechanism of addition polymerization, effect of polymer structure on properties, Plastics: properties, compounding of plastic, types of plastics (thermosetting and thermoplastics), synthesis, properties and applications of polyethene, PVC, PVA, Teflon, PMMA, Kevlar, ABS, Bakelite, elastomers, vulcanization, need of vulcanization of rubber, Synthetic rubber: Buna-s, Buna-N, butyl rubber, polymers in medicine and surgery.

Unit 2: Abrasives and Adhesives (6 Hrs)
Definition, Natural and artificial abrasives, Cement: Introduction, classification, manufacturing and chemical composition of Portland cement,
Adhesives: Introduction, bonding processes by adhesives, Classification, Physical and chemical factors affection on adhesive action.

Unit 3: Water Technology (6 Hrs)
Sources of water, Hardness, Type and causes of hardness, units of hardness, disadvantages of hard water, Scale and slugde, Priming and foaming, caustic embrittlement, Alkalinity, Numericals on water analysis, softening methods such as Zeolite process, Ion exchange process, purification of water by electrodialysis and Reverse osmosis, Applications of pH meter and Conductometer.

Unit 4: Corrosion Science and lubricants (6 Hrs)
Definition, chemical and electrochemical corrosion and its mechanism, factors influencing on corrosion, Corrosion control, anodizing and phosphating, galvanizing and tinning, cathodic and anodic protection.
Lubricants: Introduction classification, mechanism of lubrication, Characteristics of lubricants such as viscosity, viscosity index, cloud and pour points, flash and fire point, acid value and aniline point, selection of best lubricant.

Unit 5: Chemical and Electrochemical energy sources (9 Hrs)
Introduction, classification of chemical energy (fuels), Characteristics of good fuel, Calorific values and its determination by Bomb calorimeter, Coal: classification, proximate and ultimate analysis of coal, petroleum: source, composition, refining, octane number, cetain number, Gaseous fuels, Natural gas, CNG.
Electrochemical energies; electrolysis, conductivity of electrolytes, factor affecting on conductivity of electrolytes, Batteries, types of batteries, Construction, working and application of Acid storage batteries, Lithium ion batteries, Nickel Cadmium battery, Fuel cells.

Unit 6: Chemistry in Environment (5 Hrs)

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Introduction, segments of environment, Pollutions such as Air, water, soil, noise and radioactive and their preventive measures, concept of acid rain, global warming, depletion of ozone layer.

Section A: Unit 1,2,3
Section B: Unit 4,5,6

TEXT BOOKS:

1) A Textbook of Engineering Chemistry by S. S. Dara, S. Chand Publication
2) Engineering Chemistry by Jain & Jain, Dhanpat Rai And Sons

REFERENCE BOOKS:

1) A Textbook of Engineering Chemistry by M.M.Uppal
2) Applied Chemistry by Krishnamurthy, P. Vallinayagam and K. Jeysubramanian TMH Publication
3) A Textbook of Engineering Chemistry by Shashi Chawla
4) A textbook on experiment and calculations in Engineering Chemistry by S. S. Dara, S. Chand Publication
5) Engineering Chemistry by R.V.Gadag and A.N. Shetty
6) Textbook of polymers science by F.W.Billmer, John Wiley and sons.
7) University Chemistry, Mahan, Pearson education

PATTERN OF QUESTION PAPER:

Six units in the syllabus shall be divided in two equal parts i.e. 3 units in each part. Question paper shall be set having two sections A and B. Section A questions shall be set on first part and Section B questions on second part. Question paper should cover the entire syllabus.

For 80 marks Paper:

1. Minimum ten questions
2. Five questions in each section
3. Question no 1 from section A and Question no 6 from section B having weightage of 10 marks each be made compulsory and should have at least eight bits of two marks out of which five to be solved.
4. Two questions from remaining questions from each section A and B be asked to solve each having weightage of 15 marks.

International Centre of Excellence in Engg. & MGMT. Aurangabad

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Subject Title: **Performance & Compensation Management**
Subject Ref. No.: **MANB-504H**

No. of credits: 04
No of periods /week: 04
Assignments/ sessions: 20
Semester Exam: 80

Course Objectives: To equip the students with the basic understanding of the Performance Management Systems and Compensation practices to provide an insight into the application of modern assessment tools and techniques for the purpose of management decision making.

Pre-requisites: Basics of Performance Appraisals and its importance.

Unit-I **Performance Management System**- Definition, Introduction, purposes of Performance Management and its cycle, Pay for Performance, Potential Appraisal, Performance Management process

Unit-II **Performance Planning**- Key performance Areas, Performance expectations, performance dimensions, Performance Standards, Standard setting, & performance goals.
Self-Appraisal/ Assessment, Why Performance Appraisal fails-Halo Effect, Performance Feedback,

Unit-III **Performance Appraisal**-Definition, Objectives, Uses, Benefits, Process.
Planning the Appraisal, Requisites of an Effective Appraisal System, Components, Types & Methods- Traditional and Modern,

Unit-IV **Job Evaluation**: Objectives, Principles of Job evaluation Program Procedure, Methods/ Techniques, Advantages, Problems
Merit Rating, Need for Remuneration.

Unit-V **Wage & Salary Administration**- Definitions, Concepts, Objectives, The need bas
Minimum Wage, need for sound salary administration, factors affecting Wage /Salar
Compensation plans, Direct Compensation & Indirect Compensation, Wage Boards & P
Commissions, Wage Incentives, Profit Sharing, Bonus

Text Books:

1. R.K. Sahu, Performance Management system, Excel Books, 2007.
2. T.V. Kao, Appraising& Developing Managerial Performance, Excel Books, 2007.
3. G.K.Suri, C.S. Venkata Ratnam, N.K. Gupta, Performance Measurement and Management, Excel Book, 2007.
4. Sarma A.M., Performanc Management systems, Himalaya Publication House, 2008.
5. Kandula, Performance Management, straltgies, interventions, Drivers, Printice Hall of India, 2007.
6. Cardy, Performance Management concepts skills & exercise, printice Hall of India 2007.
7. Appannaiah Reddy Anitha, Personnel and human resource Management Text & Cases, Himalaya Publishing House 1st Edition 2004
8. P. Subba Rao, Personnel and human resource Management Text & Cases, Himalaya Publishing House 4th Revised & Enlarged Edition 2010, 2011

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Subject Title	:	**Managerial Economics**			
Subject Ref. No.	:	**MANB403**	**No. of Credits**	:	4
			No. of Periods / Week	:	4
			Assignments / Sessional	:	20
			Semester Examination	:	80

Course Objective : The objective of the course is to acquaint the students with concepts and theories of Micro Economics helpful in business decision making at firm level.

Pre Requisite : Basic understanding of concepts, theories of economics.

Unit – I : **Introduction:**

i. Basic concepts and Principles
ii. Theory of firm

Unit – II : **Theory of Demand:**

i. Demand and supply analysis
ii. Consumer preference and choice
iii. Elasticity of demand
iv. Demand forecasting

Unit – III : **Theory of Production and Cost:**

i. Production Theory
ii. Cost concepts

Unit – IV : **Market Structure:**

i. Perfect Competition
ii. Monopoly
iii. Oligopoly

Unit – V : **Macro-Economic Aspects:**

i. National Income
ii. Money Supply and Inflation
iii. Business cycles

Text Books :

1. M Adhikari, *Business Economics,* Excel Books New Delhi 2000
2. Baumol , W J *Economics Theory and Operation Analysis 3rd Ed* New Delhi, Prentice Hall Inc. 1996
3. Chopra O P *Managerial Economics* New Delhi, Tata McGraw Hills 1985
4. Geetika , Ghosh, and ChaudhariPurba Roy, *Managerial Economics* Tata McGraw Hills
5. Mithani*Managerial Economics*

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Subject Title: Human Resource Management
Subject Code: MANB-410

No. of credits: 04
No of periods / week: 04
Assignments/sessions: 20
Semester Exam: 80

Course Objectives: In a complex world of industry and business organizational efficiency is largely dependent on the contribution made by the members of the organization. The Objectives of this course is to sensitize students to the various facets of managing people and to create an understanding of the policies and practices of human resource management.

Pre-requisites: Evolution of Human Resource Management, basic Functions and impact on Human Resource Management.

Unit-I **Conceptualization & fundamentals**: Introduction to HRM, corporate objectives & HRM, Concepts & functions of HRM, comparison between Personnel Management & HRM, corporate level strategies & its effect on HRM, Role of Human Resources Manager.

Unit-II **Employment:** Job Design, Job Analysis, Human Resource Planning, Recruitment, Selection, Placement, Induction.

Unit-III **Human Resource Development**: Training & Development, career planning & succession Planning, Performance Appraisal, Potential Appraisal, Promotion, Transfer & Demotion, Retention & Retrenchment, Exit Interviews

Unit-IV **Compensation** : Job Evaluation, Wage & salary Administration

Unit-V **Employee Engagement Practices**: Employee welfare, Industrial Relations, fringe Benefits, social Security measures.

Text Books:

1. Dessler, Gary Human Resource Management, Prentice Hall
2. Aswathappa K. Human Resources and Personnel Management Tata McGraw Hill New Delhi, 1997.
3. P. Subba Rao; Personnel And Human Resource Management" Text & Cases, Himalaya Publishing House. 2009.
4. Sarma A.M., Performance Management systems, Himalaya Publication House, 2008.
5. Cardy, Performance Management concepts skills & exercise, printice Hall of India 2007.

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Subject Title	:	**Business Laws**			
Subject Ref. No.	:	**MANB414**	**No. of Credits**	:	4
			No. of Periods / Week	:	4
			Assignments / Sessional	:	20
			Semester Examination	:	80

Course Objective : The Course bears the onus of developing technical insights in students about the legislative framework of Indian Business Scene.

Pre Requisite : The students are required to refer Bare Acts, Law Codes & Supreme Court Precedents on the topics to be discussed in the lecture beforehand.

Unit – I : **The Indian Contract Act, 1872 (Section 1 – 100)**

Fundamentals & Conceptualization, Essentials of a Valid Contract, Void-Voidable Contracts, Performance & Breach of Contracts, Remedies on Breach of Contract & Quasi Contracts.

Unit – II : **The Company Act, 1956**

Concept, Nature & Types of Companies, Formation of Company, Memorandum of Association & Articles of Association, Prospectus, Allotment of Shares, Director & its Qualifications, Shares & Share Capital, Membership, Borrowing Powers, Management & Meetings, Winding-up of a Company.

Unit – III : **The Sale of Goods Act, 1930**

Concept, Definitions, Solemnization of a Sale of Goods Contract, Paid & Unpaid Seller, Rights of an Unpaid Seller, Remedies on breach of Contract,

Unit – IV : **The Negotiable Instruments Act, 1881**

Types & Nature of Instruments, Negotiation & Assignment, Holder-in-due Course, Dishonor & Discharge of Negotiable Instruments, Arbitration.

& Consumer Protection Act

Unit – V : **Information Technology Act & Cyber Laws**

Text Books : Bare Acts & Code Books

Additional Reference Books : Supreme Court Journals, Supreme Court Reports & other Reference Journals

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Subject Title	:	**Indian Ethos & Values**			
Subject Ref. No.	:	**MANB415**	**No. of Credits**	:	2
			No. of Periods / Week	:	2
			Assignments / Sessionals	:	10
			Semester Examination	:	40

Unit I

Fundamentals & Conceptualization: Morals – Ethics – Values, Indian Heritage on Ethics, Fundamental principles of Ethics-Values in Business, Need for values in Global change,

Professional Ethics of a Manager, Indian Leaders on Business Ethics.

Unit II

Societal Aspect of Ethics & Corporate Governance: Corporate Social Responsibility & corporate Governance, Corporate Global Citizenship.

Reference Books

1. Mishra "Business Ethics", Tata McGraw Hill
2. Chakraborty, S.K.: Foundation of Managerial work-Contribution from Indian Thought, Himalaya Publishing House Delhi 1998.
3. Biswanath Ghose, Indian Ethos & Values, Vikas Publishing, 2008.
4. S.A. Sherlekar, Global Dharmic Management, Himalaya Publication House, 2nd Edition 2005.
5. CVS Murthy, Business Ethics, Himalaya Publishing House, 2006
6. N.M. Khandelwal, Indian Ethnos & values for Manager, Himalaya

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Subject Title Sales And Customer Relationship Management
Subject Ref. No. MANB-505M

No. of Credits : 04
No. of Periods / Week : 04
Assignments / Sessional : 20
Semester Examination : 80

Course Objective

The purpose of this paper is to acquaint the student with concepts which are helpful in developing a sound sales and distribution policy, organizing and managing the sales force and Customer Relationship.

Unit-I

Nature and Scope of Sales Management ; Setting and Formulating Personal Selling Objectives; Recruiting and Selecting Sales Personnel

Unit-II

Developing and Conducting Sales Training Programme; Designing and Administering Compensation Plans; Supervision of Salesmen; Motivating Sales Personnel; Sales Meetings and Sales Contests

Unit-III

Designing Territories and Allocating Sales Efforts; Objectives and Quotas for Sales Personnel; Developing and Managing Sales Evaluation Program; Sales Cost and Cost Analysis

Unit-IV

An Overview of Customer relationship Management(CRM),Meaning and definition of CRM, Dimensions of CRM-Nature of CRM,-Goals of CRM, Advantages of CRM, Importance of Customer -Consumer Behavior

Unit-V

CRM Implementation-Comprehensive model-Developing CRM vision and Strategy Management Support., CRM in Services in Services Marketing-Service Delivery –CRM in Banking-CRM in Insurance-CRM in Hospitality

Suggested Readings

Anderson, R. *Professional Sales Management* Englewood Cliffs, New Jersey, Prentice Hall Inc. 1992.

Anderson, R. *Professional Personal Selling*. Englewood Cliffs, New Jersey, Prentice Hall Inc., 1991.

Buskirk, R H and Stanton, W.J. *Management of Sales Force*. Homewood Illinois, Richard D. Irwin, 1983.

Dalrymple, D J. *Sales Management Concept and Cases*, New York, John Wiley, 1989.

Johnson, E M etc. *Sales Management: Concepts, Practices and Cases*. New York, McGraw Hill, 1986

Stanton, William J etc. *Management of a Sales Force*., Chicago, Irwin, 1995.

Still, R R. *Sales Management*, Englewood Cliffs, New Jersey, Prentice Hall Inc., 1988.

Adrian Payne,Services Marketing

Balasubramaniyan, K, Essence of Customer relationship Management.

Helen Woodruffe, Service Marketing

Service Marketing and Management-Balaji-S.Chand

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Subject Title **Cross Culture & Global Human Resource Management**
Subject Ref. No. **MANB 506H**

No. of Credits 4
No. of Periods/Week 4
Assignments / Sessional 20
Semester Exams 80

Course Objectives

Metamorphosis from a Closed Economy to a Globalized World has led to free-flow of Goods, Services, Stock & now Humans; & hence the need to study International Human Resource Management.

The subject aims to expose & articulate the budding HR Managers, with the concept of Country Cultures, influence on Organizational functioning; thereby arming them to with the skills of International Employee Selection, Engagement & Retention Program.

Pre-requisite

The Students are expected to study various National Cultures; & study their influence on the Organizational Functioning, Expatriate Management & HR Strategies. The students are required to refer various caselets, folklore, research articles & Business Magazines on the subject.

Unit – I **Fundamentals of Culture**

Structural Evolution of Global Organizations, The Iceberg Model of Organizational Culture, Hofsted's Theory of Culture, 7-S Framework, Kurt-Lewin Model of Change, Hopson's Change Curve, Virginia Satir's Model.

Unit – II **Cross-Culture Variables:**

National Cultures according to Hofsted's Study: India, USA, Japan, Europe (Germany, France and England), Australia and Middle East.

Diversity Management in an organizational context: Socio-cultural context and employee management issues.Cross Cultural Communication and Negotiation

Unit – III **Expatriate Management - I**

Institutional & Structural Context-Managing alliances and joint ventures ,HR challenges in cross-

border integrations-Legal issues in global workforce management.

Functional Aspects: Staffing in International context, Appraisal of Expat

Unit – IV **Expatriate Management - II**

International Training, Compensation Approaches, Social Security Systems across countries

Unit – V **International Contexts**

International Labour Relations , HRM practices in different countries

Text Books

1. Peter. J. Dowling & others, International Human Resource Management, South western publisher,2nd Edition 2001.
2. P.L.Rao, International Human resource Management Text & cases, Excel Books, Print Edition 2008.

Additional References

1. Muthinah, K., International relation, Himalaya Publishing House, 2005.
2. Fred Maidment, Western Connecticut, Annual Editions Human Resources, McGraw Hill Dushkin, 17th Edition 2009.
3. K.A. swathappa Canara Bank School of Management studies, International Human Resource Management Text & cases, McGraw

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad

Subject Title : **Research Methodology**
Subject Ref. No. : **MANB404**

No. of Credits	:	4
No. of Periods / Week	:	4
Assignments /Sessional	:	20
Semester Examination	:	80

Course Objective : To equip the students with the basic understanding of the Research Methodology and to provide an insight into the application of modern analytical tools and techniques for the purpose of management decision making.

Unit – I : **Introduction to Research**: Scope, Objectives, Motivation, significance, Types, Research Applications, Research Methodology.

Unit – II : **Research Problem**: Components of a Problem, Conditions for selecting Problem , Research Problem identification; Problem Formulation and Statement of Research Objectives; Techniques of defining research Problem

Unit – III : **Research designs & Sample Design**: Features, Significance, Introduction to Types- exploratory, descriptive & experimental research designs; Sample Design: Steps in sample design, types- Probability & Non Probability sample design.

Unit – IV : **Data collection**: Methods –Primary Data & Secondary Data, Survey methods, selection of an appropriate data collection method, conditions before using secondary data, Questionnaire design.

Unit – V : **Data Processing**: Editing, Coding, classification, Tabulation, Analysis of Data; Introduction to SPSS, ANOVA, Research Proposal; Research process

Text Books :

1. Research methodology methods & techniques by C.R. Kothari
2. Statistical methods: Dr. S.P. Gupta-sultan Chand & sons New Delhi.
3. Research methodology by Gupta
4. Research methodology in social science by Giridhari
5. Management Research Methodology by K.N. Krishnaswamy, Appa Iyer Sivakumar and M. Mathirajan.
6. Management Research by Andrews, F.M. and S.B. Withey Social Indicators of Well Being. Plenum Press. NY, Bennet, Roger
7. Survey Methods by Fowler, Floyd J. Jr.,
8. Exploring Research by Salkind, Neil J.,

International Centre of Excellence In Engg. & MGMT. ★ Aurangabad ★

CAMPUS DIRECTOR
International Centre of
Excellence In Engg. & MGMT.
Aurangabad