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ELECTIVES FOR B.E. AUTOMOBILE ENGINEERING

SEMESTER VI
ELECTIVE – I

SL. NO.	CODE NO.	COURSE TITLE	L	T	P	C
THEORY						
1	GE6075	Professional Ethics in Engineering	3	0	0	3
2	AT6001	Automotive Air-Conditioning	3	0	0	3
3	AT6002	Alternative Fuels and Energy Systems	3	0	0	3
4	AT6003	Noise, Vibration and Harshness	3	0	0	3
5	AT6004	Advance Theory of IC Engines	3	0	0	3
6	AT6005	Metrology and Instrumentation	3	0	0	3

SEMESTER VII
ELECTIVE – II

SL. NO.	CODE NO.	COURSE TITLE	L	T	P	C
THEORY						
1	AT6006	Manufacturing of Automotive Components	3	0	0	3
2	ME6006	Design of Jigs, Fixtures and Press Tools	3	0	0	3
3	ME6010	Robotics	3	0	0	3
4	AT6007	New Generation and Hybrid Vehicles	3	0	0	3
5	AT6008	Computer Simulation of IC Engines	3	0	0	3

ELECTIVE – III

SL. NO.	CODE NO.	COURSE TITLE	L	T	P	C
THEORY						
1	ME6007	Composite Materials and Mechanics	3	0	0	3
2	AT6009	Automotive Aerodynamics	3	0	0	3
3	AT6010	Off Road Vehicles	3	0	0	3
4	AT6011	Automotive Safety	3	0	0	3
5	AT6012	Engine Auxiliary Systems	3	0	0	3
6	GE6083	Disaster Management	3	0	0	3

SEMESTER VIII
ELECTIVE – IV

SL. NO.	CODE NO.	COURSE TITLE	L	T	P	C
THEORY						
1	AT6013	Transport Management	3	0	0	3
2	MG6071	Entrepreneurship Development	3	0	0	3
3	ME6015	Operations Research	3	0	0	3
4	GE6757	Total Quality Management	3	0	0	3
5	GE6084	Human Rights	3	0	0	3

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SEMESTER VI

SL. NO.	CODE NO.	COURSE TITLE	L	T	P	C
THEORY						
1	MG6851	Principles of Management	3	0	0	3
2	AT6601	Automotive Engine Components Design	3	0	0	3
3	AT6602	Automotive Chassis Components Design	3	0	0	3
4	AT6603	Two and Three Wheelers	3	0	0	3
5	AT6604	Vehicle Dynamics	3	0	0	3
6		Elective – I	3	0	0	3
PRACTICAL						
7	AT6611	Computer Aided Engine and Chassis Design Laboratory	0	0	3	2
8	AT6612	Two and Three Wheelers Laboratory	0	0	3	2
		TOTAL	**18**	**0**	**6**	**22**

SEMESTER VII

SL. NO.	CODE NO.	COURSE TITLE	L	T	P	C
THEORY						
1	AT6701	Engine and Vehicle Management System	4	0	0	4
2	ME6603	Finite Element Analysis	3	0	0	3
3	AT6702	Vehicle Maintenance	3	0	0	3
4	AT6703	Automotive Pollution and Control	3	0	0	3
5		Elective – II	3	0	0	3
6		Elective – III	3	0	0	3
PRACTICAL						
7	AT6711	Engine Performance and Emission Testing Laboratory	0	0	3	2
8	AT6712	Vehicle Maintenance Laboratory	0	0	3	2
		TOTAL	**19**	**0**	**6**	**23**

SEMESTER VIII

SL. NO.	CODE NO.	COURSE TITLE	L	T	P	C
THEORY						
1	AT6801	Vehicle Body Engineering	3	0	0	3
2		Elective – IV	3	0	0	3
PRACTICAL						
3	AT6811	Project Work	0	0	12	6
		TOTAL	**6**	**0**	**12**	**12**

TOTAL NUMBER OF CREDITS TO BE EARNED FOR AWARD OF THE DEGREE = 185

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B.E. AUTOMOBILE ENGINEERING

I – VIII SEMESTERS CURRICULUM AND SYLLABUS

SEMESTER I

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	HS6151	Technical English – I	3	1	0	4
2.	MA6151	Mathematics – I	3	1	0	4
3.	PH6151	Engineering Physics – I	3	0	0	3
4.	CY6151	Engineering Chemistry – I	3	0	0	3
5.	GE6151	Computer Programming	3	0	0	3
6.	GE6152	Engineering Graphics	2	0	3	4
PRACTICALS						
7.	GE6161	Computer Practices Laboratory	0	0	3	2
8.	GE6162	Engineering Practices Laboratory	0	0	3	2
9.	GE6163	Physics and Chemistry Laboratory - I	0	0	2	1
		TOTAL	17	2	11	26

SEMESTER II

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	HS6251	Technical English – II	3	1	0	4
2.	MA6251	Mathematics – II	3	1	0	4
3.	PH6251	Engineering Physics – II	3	0	0	3
4.	CY6251	Engineering Chemistry – II	3	0	0	3
5.	GE6252	Basic Electrical and Electronics Engineering	4	0	0	4
6.	GE6253	Engineering Mechanics	3	1	0	4
PRACTICALS						
7.	GE6261	Computer Aided Drafting and Modeling Laboratory	0	1	2	2
8.	GE6262	Physics and Chemistry Laboratory - II	0	0	2	1
		TOTAL	19	4	4	25

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SEMESTER III

SL. NO.	CODE NO.	COURSE TITLE	L	T	P	C
THEORY						
1	MA6351	Transforms and Partial Differential Equations	3	1	0	4
2	ME6301	Engineering Thermodynamics	3	0	0	3
3	CE6451	Fluid Mechanics and Machinery	3	0	0	3
4	AT6301	Automotive Engines	3	0	0	3
5	AT6302	Mechanics of Machines	3	1	0	4
6	ME6352	Manufacturing Technology	3	0	0	3
PRACTICAL						
7	AT6311	Automotive Components Laboratory	0	0	3	2
8	CE6461	Fluid Mechanics and Machinery Laboratory	0	0	3	2
9	ME6465	Manufacturing Technology Laboratory	0	0	3	2
		TOTAL	18	2	9	26

SEMESTER IV

SL. NO.	CODE NO.	COURSE TITLE	L	T	P	C
THEORY						
1	MA6452	Statistics and Numerical Methods	3	1	0	4
2	AT6401	Applied Thermodynamics and Heat Transfer	3	1	0	4
3	ME6403	Engineering Materials and Metallurgy	3	0	0	3
4	CE6306	Strength of Materials	3	1	0	4
5	EC6464	Electronics and Microprocessors	3	0	0	3
6	AT6402	Automotive Chassis	3	0	0	3
PRACTICAL						
7	PR6412	Computer Aided Machine Drawing Laboratory	0	0	3	2
8	EC6466	Electronics and Microprocessors Laboratory	0	0	3	2
9	CE6315	Strength of Materials Laboratory	0	0	3	2
		TOTAL	18	3	9	27

SEMESTER V

SL. NO.	CODE NO.	COURSE TITLE	L	T	P	C
THEORY						
1	GE6351	Environmental Science and Engineering	3	0	0	3
2	ME6503	Design of Machine Elements	3	0	0	3
3	AT6501	Automotive Transmission	3	0	0	3
4	AT6502	Automotive Electrical and Electronics Systems	3	0	0	3
5	AT6503	Vehicle Design Data Characteristics	3	0	0	3
6	AT6504	Automotive Fuels and Lubricants	3	0	0	3
PRACTICAL						
7	GE6674	Communication and Soft Skills- Laboratory Based	0	0	4	2
8	AT6511	Automotive Electrical and Electronics Laboratory	0	0	3	2
9	AT6512	Automotive Fuels and Lubricants Laboratory	0	0	3	2
		TOTAL	18	0	10	24

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B. E. CIVIL ENGINEERING

I TO VIII SEMESTERS CURRICULUM & SYLLABUS

SEMESTER I

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	HS6151	Technical English - I	3	1	0	4
2.	MA6151	Mathematics – I	3	1	0	4
3.	PH6151	Engineering Physics – I	3	0	0	3
4.	CY6151	Engineering Chemistry – I	3	0	0	3
5.	GE6151	Computer Programming	3	0	0	3
6.	GE6152	Engineering Graphics	2	0	3	4
PRACTICAL						
7.	GE6161	Computer Practices Laboratory	0	0	3	2
8.	GE6162	Engineering Practices Laboratory	0	0	3	2
9.	GE6163	Physics and Chemistry Laboratory - I	0	0	2	1
		TOTAL	17	2	11	26

SEMESTER II

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	HS6251	Technical English - II	3	1	0	4
2.	MA6251	Mathematics – II	3	1	0	4
3.	PH6251	Engineering Physics – II	3	0	0	3
4.	CY6251	Engineering Chemistry – II	3	0	0	3
5.	GE6252	Basic Electrical and Electronics Engineering	4	0	0	4
6.	GE6253	Engineering Mechanics	3	1	0	4
PRACTICAL						
7.	GE6261	Computer Aided Drafting and Modeling Laboratory	0	1	2	2
8.	GE6262	Physics and Chemistry Laboratory - II	0	0	2	1
		TOTAL	19	4	4	25

SEMESTER III

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	MA6351	Transforms and Partial Differential Equations	3	1	0	4
2.	GE6351	Environmental Science and Engineering	3	0	0	3
3.	CE6301	Engineering Geology	3	0	0	3
4.	CE6302	Mechanics of Solids	3	1	0	4
5.	CE6303	Mechanics of Fluids	3	0	0	3
6.	CE6304	Surveying I	3	0	0	3
PRACTICAL						
7.	CE6311	Survey Practical I	0	0	4	2
8.	CE6312	Computer Aided Building Drawing	0	0	4	2
		TOTAL	18	2	8	24

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SEMESTER IV

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	MA6459	Numerical Methods	3	1	0	4
2.	CE6401	Construction Materials	3	0	0	3
3.	CE6402	Strength of Materials	3	1	0	4
4.	CE6403	Applied Hydraulic Engineering	3	1	0	4
5.	CE6404	Surveying II	3	0	0	3
6.	CE6405	Soil Mechanics	3	0	0	3
PRACTICAL						
7.	CE6411	Strength of Materials Laboratory	0	0	3	2
8.	CE6412	Hydraulic Engineering Laboratory	0	0	3	2
9.	CE6413	Survey Practical II	0	0	4	2
		TOTAL	18	3	10	27

SEMESTER V

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	CE6501	Structural Analysis I	3	1	0	4
2.	CE6502	Foundation Engineering	3	0	0	3
3.	CE6503	Environmental Engineering I	3	0	0	3
4.	CE6504	Highway Engineering	3	0	0	3
5.	CE6505	Design of Reinforced Concrete Elements	3	0	0	3
6.	CE6506	Construction Techniques, Equipment and Practice	3	0	0	3
PRACTICAL						
7.	GE6563	Communication Skills - Laboratory Based	0	0	4	2
8.	CE6511	Soil Mechanics Laboratory	0	0	3	2
9.	CE6512	Survey Camp*	-	-	-	1
		TOTAL	18	1	7	24

* Survey Camp to be conducted for a period of 2 weeks during 4th Semester Summer Vacation

SEMESTER VI

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	CE6601	Design of Reinforced Concrete & Brick Masonry Structures	3	0	0	3
2.	CE6602	Structural Analysis II	3	1	0	4
3.	CE6603	Design of Steel Structures	3	1	0	4
4.	CE6604	Railways, Airports and Harbour Engineering	3	0	0	3
5.	CE6605	Environmental Engineering II	3	0	0	3
6.		Elective I	3	0	0	3
PRACTICAL						
7.	CE6611	Environmental Engineering Laboratory	0	0	3	2
8.	CE6612	Concrete and Highway Engineering Laboratory	0	0	3	2
		TOTAL	18	2	6	24

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SEMESTER VII

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	CE6701	Structural Dynamics and Earthquake Engineering	3	0	0	3
2.	CE6702	Prestressed Concrete Structures	3	0	0	3
3.	CE6703	Water Resources and Irrigation Engineering	3	0	0	3
4.		Elective II	3	0	0	3
5.		Elective III	3	0	0	3
PRACTICAL						
6.	CE6711	Computer Aided Design and Drafting Laboratory	0	0	4	2
7.	CE6712	Design Project	0	0	4	2
8.	CE6713	Estimation and Quantity Surveying	0	1	3	2
		TOTAL	15	1	11	21

SEMESTER VIII

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	MG6851	Principles of Management	3	0	0	3
2.		Elective IV	3	0	0	3
3.		Elective V	3	0	0	3
PRACTICAL						
4.	CE6811	Project Work	0	0	12	6
		TOTAL	9	0	12	15

TOTAL NO OF CREDITS: 186

LIST OF ELECTIVES

ELECTIVE I

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
1.	CE6001	Hydrology	3	0	0	3
2.	CE6002	Concrete Technology	3	0	0	3
3.	CE6003	Remote Sensing Techniques and GIS	3	0	0	3
4.	CE6004	Architecture	3	0	0	3
5.	GE6075	Professional Ethics in Engineering	3	0	0	3
6.	CE6005	Construction Planning and Scheduling	3	0	0	3

ELECTIVE II

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
7.	CE6006	Traffic Engineering and Management	3	0	0	3
8.	CE6007	Housing Planning and Management	3	0	0	3
9.	CE6008	Groundwater Engineering	3	0	0	3
10.	CE6009	Water Resources Systems Analysis	3	0	0	3
11.	CE6010	Pavement Engineering	3	0	0	3

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ELECTIVE III

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
12.	EN6801	Environmental Impact Assessment	3	0	0	3
13.	EN6704	Industrial Waste Management	3	0	0	3
14	CE6011	Air Pollution Management	3	0	0	3
15.	EN6501	Municipal Solid Waste Management	3	0	0	3
16.	CE6012	Ground Improvement Techniques	3	0	0	3

ELECTIVE IV

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
17.	CE6013	Bridge Structures	3	0	0	3
18.	CE6014	Storage Structures	3	0	0	3
19.	CE6015	Tall Buildings	3	0	0	3
20.	CE6016	Prefabricated Structures	3	0	0	3
21.	CE6017	Experimental Analysis of Stress	3	0	0	3
22.	GE6757	Total Quality Management	3	0	0	3

ELECTIVE V

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
23.	CE6018	Computer Aided Design of Structures	3	0	0	3
24.	CE6019	Industrial Structures	3	0	0	3
25.	CE6020	Finite Element Techniques	3	0	0	3
26.	CE6021	Repair and Rehabilitation of Structures	3	0	0	3
27.	CE6022	Earthquake Geotechnical Engineering	3	0	0	3

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B.E. COMPUTER SCIENCE AND ENGINEERING

I TO VIII SEMESTER CURRICULUM AND SYLLABUS

SEMESTER I

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	HS6151	Technical English – I	3	1	0	4
2.	MA6151	Mathematics – I	3	1	0	4
3.	PH6151	Engineering Physics – I	3	0	0	3
4.	CY6151	Engineering Chemistry – I	3	0	0	3
5.	GE6151	Computer Programming	3	0	0	3
6.	GE6152	Engineering Graphics	2	0	3	4
PRACTICALS						
7.	GE6161	Computer Practices Laboratory	0	0	3	2
8.	GE6162	Engineering Practices Laboratory	0	0	3	2
9.	GE6163	Physics and Chemistry Laboratory - I	0	0	2	1
		TOTAL	17	2	11	26

SEMESTER II

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	HS6251	Technical English – II	3	1	0	4
2.	MA6251	Mathematics – II	3	1	0	4
3.	PH6251	Engineering Physics – II	3	0	0	3
4.	CY6251	Engineering Chemistry – II	3	0	0	3
5.	CS6201	Digital Principles and System Design	3	0	0	3
6.	CS6202	Programming and Data Structures I	3	0	0	3
PRACTICALS						
7.	GE6262	Physics and Chemistry Laboratory - II	0	0	2	1
8.	CS6211	Digital Laboratory	0	0	3	2
9.	CS6212	Programming and Data Structures Laboratory I	0	0	3	2
		TOTAL	18	2	8	25

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SEMESTER III

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	MA6351	Transforms and Partial Differential Equations	3	1	0	4
2.	CS6301	Programming and Data Structure II	3	0	0	3
3.	CS6302	Database Management Systems	3	0	0	3
4.	CS6303	Computer Architecture	3	0	0	3
5.	CS6304	Analog and Digital Communication	3	0	0	3
6.	GE6351	Environmental Science and Engineering	3	0	0	3
PRACTICAL						
7.	CS6311	Programming and Data Structure Laboratory II	0	0	3	2
8.	CS6312	Database Management Systems Laboratory	0	0	3	2
		TOTAL	18	1	6	23

SEMESTER IV

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	MA6453	Probability and Queueing Theory	3	1	0	4
2.	CS6551	Computer Networks	3	0	0	3
3.	CS6401	Operating Systems	3	0	0	3
4.	CS6402	Design and Analysis of Algorithms	3	0	0	3
5.	EC6504	Microprocessor and Microcontroller	3	0	0	3
6.	CS6403	Software Engineering	3	0	0	3
PRACTICAL						
7.	CS6411	Networks Laboratory	0	0	3	2
8.	CS6412	Microprocessor and Microcontroller Laboratory	0	0	3	2
9.	CS6413	Operating Systems Laboratory	0	0	3	2
		TOTAL	18	1	9	25

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SEMESTER V

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	MA6566	Discrete Mathematics	3	1	0	4
2.	CS6501	Internet Programming	3	1	0	4
3.	CS6502	Object Oriented Analysis and Design	3	0	0	3
4.	CS6503	Theory of Computation	3	0	0	3
5.	CS6504	Computer Graphics	3	0	0	3
PRACTICAL						
6.	CS6511	Case Tools Laboratory	0	0	3	2
7.	CS6512	Internet Programming Laboratory	0	0	3	2
8.	CS6513	Computer Graphics Laboratory	0	0	3	2
		TOTAL	15	2	9	23

SEMESTER VI

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	CS6601	Distributed Systems	3	0	0	3
2.	IT6601	Mobile Computing	3	0	0	3
3.	CS6660	Compiler Design	3	0	0	3
4.	IT6502	Digital Signal Processing	3	1	0	4
5.	CS6659	Artificial Intelligence	3	0	0	3
6.		Elective I	3	0	0	3
PRACTICAL						
7.	CS6611	Mobile Application Development Laboratory	0	0	3	2
8.	CS6612	Compiler Laboratory	0	0	3	2
9.	GE6674	Communication and Soft Skills - Laboratory Based	0	0	4	2
		TOTAL	18	1	10	25

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SEMESTER VII

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	CS6701	Cryptography and Network Security	3	0	0	3
2.	CS6702	Graph Theory and Applications	3	0	0	3
3.	CS6703	Grid and Cloud Computing	3	0	0	3
4.	CS6704	Resource Management Techniques	3	0	0	3
5.		Elective II	3	0	0	3
6.		Elective III	3	0	0	3
PRACTICAL						
7.	CS6711	Security Laboratory	0	0	3	2
8.	CS6712	Grid and Cloud Computing Laboratory	0	0	3	2
		TOTAL	**18**	**0**	**6**	**22**

SEMESTER VIII

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	CS6801	Multi – Core Architectures and Programming	3	0	0	3
2.		Elective IV	3	0	0	3
3.		Elective V	3	0	0	3
PRACTICAL						
4.	CS6811	Project Work	0	0	12	6
		TOTAL	**9**	**0**	**12**	**15**

TOTAL NO. OF CREDITS: 184

LIST OF ELECTIVES

SEMESTER VI – Elective I

S.NO.	CODE NO.	COURSE TITLE	L	T	P	C
1.	CS6001	C# and .Net programming	3	0	0	3
2.	GE6757	Total Quality Management	3	0	0	3
3.	IT6702	Data Warehousing and Data Mining	3	0	0	3
4.	CS6002	Network Analysis and Management	3	0	0	3
5.	IT6004	Software Testing	3	0	0	3
6.	GE6084	Human Rights	3	0	0	3

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SEMESTER VII – Elective II

S.NO.	CODE NO.	COURSE TITLE	L	T	P	C
7.	CS6003	Ad hoc and Sensor Networks	3	0	0	3
8.	CS6004	Cyber Forensics	3	0	0	3
9.	CS6005	Advanced Database Systems	3	0	0	3
10.	BM6005	Bio Informatics	3	0	0	3
11.	IT6801	Service Oriented Architecture	3	0	0	3

SEMESTER VII – Elective III

S.NO	CODE NO.	COURSE TITLE	L	T	P	C
12.	IT6005	Digital Image Processing	3	0	0	3
13.	EC6703	Embedded and Real Time Systems	3	0	0	3
14.	CS6006	Game Programming	3	0	0	3
15.	CS6007	Information Retrieval	3	0	0	3
16.	IT6006	Data Analytics	3	0	0	3

SEMESTER VIII – Elective IV

S.NO.	CODE NO.	COURSE TITLE	L	T	P	C
17.	CS6008	Human Computer Interaction	3	0	0	3
18.	CS6009	Nano Computing	3	0	0	3
19.	IT6011	Knowledge Management	3	0	0	3
20.	CS6010	Social Network Analysis	3	0	0	3
21.	CS6013	Foundation Skills in Integrated Product Development	3	0	0	3

SEMESTER VIII – Elective V

S.NO.	CODE NO.	COURSE TITLE	L	T	P	C
22.	MG6088	Software Project Management	3	0	0	3
23.	GE6075	Professional Ethics in Engineering	3	0	0	3
24.	CS6011	Natural Language Processing	3	0	0	3
25.	CS6012	Soft Computing	3	0	0	3
26.	GE6083	Disaster Management	3	0	0	3

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B.E. ELECTRONICS AND COMMUNICATION ENGINEERING

I – VIII SEMESTERS CURRICULUM AND SYLLABUS

SEMESTER I

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	HS6151	Technical English – I	3	1	0	4
2.	MA6151	Mathematics – I	3	1	0	4
3.	PH6151	Engineering Physics – I	3	0	0	3
4.	CY6151	Engineering Chemistry – I	3	0	0	3
5.	GE6151	Computer Programming	3	0	0	3
6.	GE6152	Engineering Graphics	2	0	3	4
PRACTICALS						
7.	GE6161	Computer Practices Laboratory	0	0	3	2
8.	GE6162	Engineering Practices Laboratory	0	0	3	2
9.	GE6163	Physics and Chemistry Laboratory - I	0	0	2	1
		TOTAL	17	2	11	26

SEMESTER II

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	HS6251	Technical English – II	3	1	0	4
2.	MA6251	Mathematics – II	3	1	0	4
3.	PH6251	Engineering Physics – II	3	0	0	3
4.	CY6251	Engineering Chemistry – II	3	0	0	3
5.	EC6201	Electronic Devices	3	0	0	3
6.	EE6201	Circuit Theory	3	1	0	4
PRACTICALS						
7.	GE6262	Physics and Chemistry Laboratory - II	0	0	2	1
8.	EC6211	Circuits and Devices Laboratory	0	0	3	2
		TOTAL	18	3	5	24

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SEMESTER III

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	MA6351	Transforms and Partial Differential Equations	3	1	0	4
2.	EE6352	Electrical Engineering and Instrumentation	3	1	0	4
3.	EC6301	Object Oriented Programming and Data Structures	3	0	0	3
4.	EC6302	Digital Electronics	3	0	0	3
5.	EC6303	Signals and Systems	3	1	0	4
6.	EC6304	Electronic Circuits- I	3	1	0	4
PRACTICAL						
7.	EC6311	Analog and Digital Circuits Laboratory	0	0	3	2
8.	EC6312	OOPS and Data Structures Laboratory	0	0	3	2
		TOTAL	18	4	6	26

SEMESTER IV

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	MA6451	Probability and Random Processes	3	1	0	4
2.	EC6401	Electronic Circuits II	3	0	0	3
3.	EC6402	Communication Theory	3	0	0	3
4.	EC6403	Electromagnetic Fields	3	1	0	4
5.	EC6404	Linear Integrated Circuits	3	0	0	3
6.	EC6405	Control System Engineering	3	0	0	3
PRACTICAL						
7.	EC6411	Circuit and Simulation Integrated Laboratory	0	0	3	2
8.	EC6412	Linear Integrated Circuit Laboratory	0	0	3	2
9.	EE6461	Electrical Engineering and Control System Laboratory	0	0	3	2
		TOTAL	18	2	9	26

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SEMESTER V

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	EC6501	Digital Communication	3	0	0	3
2.	EC6502	Principles of Digital Signal Processing	3	1	0	4
3.	EC6503	Transmission Lines and Wave Guides	3	1	0	4
4.	GE6351	Environmental Science and Engineering	3	0	0	3
5.	EC6504	Microprocessor and Microcontroller	3	0	0	3
PRACTICAL						
6.	EC6511	Digital Signal Processing Laboratory	0	0	3	2
7.	EC6512	Communication System Laboratory	0	0	3	2
8.	EC6513	Microprocessor and Microcontroller Laboratory	0	0	3	2
		TOTAL	15	2	9	23

SEMESTER VI

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	MG6851	Principles of Management	3	0	0	3
2.	CS6303	Computer Architecture	3	0	0	3
3.	CS6551	Computer Networks	3	0	0	3
4.	EC6601	VLSI Design	3	0	0	3
5.	EC6602	Antenna and Wave propagation	3	0	0	3
6.		Elective I	3	0	0	3
PRACTICAL						
7.	EC6611	Computer Networks Laboratory	0	0	3	2
8.	EC6612	VLSI Design Laboratory	0	0	3	2
9.	GE6674	Communication and Soft Skills - Laboratory Based	0	0	4	2
		TOTAL	18	0	10	24

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SEMESTER VII

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	EC6701	RF and Microwave Engineering	3	0	0	3
2.	EC6702	Optical Communication and Networks	3	0	0	3
3.	EC6703	Embedded and Real Time Systems	3	0	0	3
4.		Elective II	3	0	0	3
5.		Elective III	3	0	0	3
6.		Elective IV	3	0	0	3
PRACTICAL						
7.	EC6711	Embedded Laboratory	0	0	3	2
8.	EC6712	Optical and Microwave Laboratory	0	0	3	2
		TOTAL	18	0	6	22

SEMESTER VIII

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	EC6801	Wireless Communication	3	0	0	3
2.	EC6802	Wireless Networks	3	0	0	3
3.		Elective V	3	0	0	3
4.		Elective VI	3	0	0	3
PRACTICAL						
5.	EC6811	Project Work	0	0	12	6
		TOTAL	12	0	12	18

TOTAL CREDITS:189

SEMESTER VI

ELECTIVE – I

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
1.	EC6001	Medical Electronics	3	0	0	3
2.	EC6002	Advanced Digital Signal Processing	3	0	0	3
3.	CS6401	Operating Systems	3	0	0	3
4.	EC6003	Robotics and Automation	3	0	0	3

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SEMESTER VII

ELECTIVE– II

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
5.	EC6004	Satellite Communication	3	0	0	3
6.	EC6005	Electronic Testing	3	0	0	3
7.	EC6006	Avionics	3	0	0	3
8.	CS6012	Soft Computing	3	0	0	3
9.	IT6005	Digital Image Processing	3	0	0	3
10.	CS6013	Foundation Skills in Integrated Product Development	3	0	0	3

ELECTIVE– III

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
11.	EC6007	Speech Processing	3	0	0	3
12.	EC6008	Web Technology	3	0	0	3
13.	EC6009	Advanced Computer Architecture	3	0	0	3
14.	EC 6010	Electronics Packaging	3	0	0	3
15.	EC6011	Electro Magnetic Interference and Compatibility	3	0	0	3

ELECTIVE – IV

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
16.	EC6012	CMOS Analog IC Design	3	0	0	3
17.	EC6013	Advanced Microprocessors and Microcontrollers	3	0	0	3
18.	EC6014	Cognitive Radio	3	0	0	3
19.	EC6015	Radar and Navigational Aids	3	0	0	3
20.	EC6016	Opto Electronic Devices	3	0	0	3

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SEMESTER VIII

ELECTIVE –V

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
21.	EC6017	RF System Design	3	0	0	3
22.	CS6003	Ad hoc and Sensors Networks	3	0	0	3
23.	GE6082	Indian Constitution and Society	3	0	0	3
24.	EC6018	Multimedia Compression and Communication	3	0	0	3
25.	GE6075	Professional Ethics in Engineering	3	0	0	3
26.	GE6083	Disaster Management	3	0	0	3

ELECTIVE – VI

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
27.	EC6019	Data Converters	3	0	0	3
28.	CS6701	Cryptography and Network Security	3	0	0	3
29.	GE6757	Total Quality Management	3	0	0	3
30.	MG6071	Entrepreneurship Development	3	0	0	3
31.	MG6088	Software Project Management	3	0	0	3
32.	GE6084	Human Rights	3	0	0	3

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PROGRAM EDUCATIONAL OBJECTIVES :

1. To prepare the students have successful career in industry and motivate for higher education.
2. To provide strong foundation in basic science and mathematics necessary to formulate, solve and analyze electrical and electronics problems
3. To provide strong foundation in circuit theory, field theory, control theory and signal processing concepts.
4. To provide good knowledge of Electrical power apparatus and their applications in power systems
5. To provide knowledge on basic electronics to power electronics and their applications in power engineering
6. To provide an opportunity to work in inter disciplinary groups
7. To promote student awareness for life long learning and inculcate professional ethics
8. To provide necessary foundation on computational platforms and software applications related to the respective field of engineering.

PROGRAM OUTCOMES :

a) Ability to understand and apply differential equations, integrals, matrix theory, probability theory and Laplace, Fourier and Z transformations for engineering problems
b) Ability to understand and apply basic science, circuit theory, Electro-magnetic field theory control theory and apply them to electrical engineering problems.
c) Ability to model and analyze electrical apparatus and their application to power system
d) Ability to understand and analyze power system operation, stability, control and protection.
e) Ability to handle the engineering aspects of electrical energy generation and utilization.
f) Ability to understand and analyse, linear and digital electronic circuits.
g) Ability to review, prepare and present technological developments
h) Ability to form a group and develop or solve engineering hardware and problems
i) To understand and apply computing platform and software for engineering problems.
j) To understand ethical issues, environmental impact and acquire management skills.

Program Educational Objective	Program Outcome									
	a	b	c	d	e	f	g	h	i	j
1		x		x		x	x		x	x
2	x									
3		x								
4				x						
5						x				
6								x		
7							x	x		
8						x			x	

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B. E. ELECTRICAL AND ELECTRONICS ENGINEERING

I TO VIII SEMESTERS CURRICULUM AND SYLLABUS

SEMESTER I

S.NO.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	HS6151	Technical English - I	3	1	0	4
2.	MA6151	Mathematics - I	3	1	0	4
3.	PH6151	Engineering Physics - I	3	0	0	3
4.	CY6151	Engineering Chemistry - I	3	0	0	3
5.	GE6151	Computer Programming	3	0	0	3
6.	GE6152	Engineering Graphics	2	0	3	4
PRACTICAL						
7.	GE6161	Computer Practices Laboratory	0	0	3	2
8.	GE6162	Engineering Practices Laboratory	0	0	3	2
9.	GE6163	Physics and Chemistry Laboratory - I	0	0	2	1
			17	**2**	**11**	**26**

SEMESTER II

S.NO.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	HS6251	Technical English - II	3	1	0	4
2.	MA6251	Mathematics - II	3	1	0	4
3.	PH6251	Engineering Physics - II	3	0	0	3
4.	CY6251	Engineering Chemistry - II	3	0	0	3
5.	GE6251	Basic Civil and Mechanical Engineering	4	0	0	4
6.	EE6201	Circuit Theory	3	1	0	4
PRACTICAL						
7.	GE6262	Physics and Chemistry Laboratory - II	0	0	2	1
8.	GE6263	Computer Programming Laboratory	0	1	2	2
9.	EE6211	Electric Circuits Laboratory	0	0	3	2
		TOTAL	**19**	**4**	**7**	**27**

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SEMESTER III

S.NO.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	MA6351	Transforms and Partial Differential Equations	3	1	0	4
2.	EE6301	Digital Logic Circuits	3	1	0	4
3.	EE6302	Electromagnetic Theory	3	1	0	4
4.	GE6351	Environmental Science and Engineering	3	0	0	3
5.	EC6202	Electronic Devices and Circuits	3	1	0	4
6.	EE6303	Linear Integrated Circuits and Applications	3	0	0	3
PRACTICAL						
7.	EC6361	Electronics Laboratory	0	0	3	2
8.	EE6311	Linear and Digital Integrated Circuits Laboratory	0	0	3	2
		TOTAL	18	4	6	26

SEMESTER IV

S.NO.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	MA6459	Numerical Methods	3	1	0	4
2.	EE6401	Electrical Machines - I	3	1	0	4
3.	CS6456	Object Oriented Programming	3	0	0	3
4.	EE6402	Transmission and Distribution	3	0	0	3
5.	EE6403	Discrete Time Systems and Signal Processing	3	0	0	3
6.	EE6404	Measurements and Instrumentation	3	0	0	3
PRACTICAL						
7.	CS6461	Object Oriented Programming Laboratory	0	0	3	2
8.	EE6411	Electrical Machines Laboratory - I	0	0	3	2
		TOTAL	18	2	6	24

SEMESTER V

S.NO.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	EE6501	Power System Analysis	3	0	0	3
2.	EE6502	Microprocessors and Microcontrollers	3	0	0	3
3.	ME6701	Power Plant Engineering	3	0	0	3
4.	EE6503	Power Electronics	3	0	0	3
5.	EE6504	Electrical Machines - II	3	1	0	4
6.	IC6501	Control Systems	3	1	0	4
PRACTICAL						
7.	EE6511	Control and Instrumentation Laboratory	0	0	3	2
8.	GE6674	Communication and Soft Skills- Laboratory Based	0	0	4	2
9.	EE6512	Electrical Machines Laboratory - II	0	0	3	2
		TOTAL	18	2	10	26

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SEMESTER VI

S.NO.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	EC6651	Communication Engineering	3	0	0	3
2.	EE6601	Solid State Drives	3	0	0	3
3.	EE6602	Embedded Systems	3	0	0	3
4.	EE6603	Power System Operation and Control	3	0	0	3
5.	EE6604	Design of Electrical Machines	3	1	0	4
6.		Elective - I	3	0	0	3
PRACTICAL						
7.	EE6611	Power Electronics and Drives Laboratory	0	0	3	2
8.	EE6612	Microprocessors and Microcontrollers Laboratory	0	0	3	2
9.	EE6613	Presentation Skills and Technical Seminar	0	0	2	1
		TOTAL	**18**	**1**	**8**	**24**

SEMESTER VII

S.NO.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	EE6701	High Voltage Engineering	3	0	0	3
2.	EE6702	Protection and Switchgear	3	0	0	3
3.	EE6703	Special Electrical Machines	3	0	0	3
4.	MG6851	Principles of Management	3	0	0	3
5.		Elective – II	3	0	0	3
6.		Elective – III	3	0	0	3
PRACTICAL						
7.	EE6711	Power System Simulation Laboratory	0	0	3	2
8.	EE6712	Comprehension	0	0	2	1
		TOTAL	**18**	**0**	**5**	**21**

SEMESTER VIII

S.NO.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	EE6801	Electric Energy Generation, Utilization and Conservation	3	0	0	3
2.		Elective – IV	3	0	0	3
3.		Elective – V	3	0	0	3
PRACTICAL						
4.	EE6811	Project Work	0	0	12	6
		TOTAL	**9**	**0**	**12**	**15**

TOTAL CREDITS: 189

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ELECTIVE - I

S.NO.	COURSE CODE	COURSE TITLE	L	T	P	C
1.	EE6001	Visual Languages and Applications	3	0	0	3
2.	IC6601	Advanced Control System	3	0	0	3
3.	EE6002	Power System Transients	3	0	0	3
4.	EE6003	Optimisation Techniques	3	0	0	3

ELECTIVE - II

S.NO.	COURSE CODE	COURSE TITLE	L	T	P	C
5.	EI6703	Fibre Optics and Laser Instruments	3	0	0	3
6.	EI6704	Biomedical Instrumentation	3	0	0	3
7.	EE6004	Flexible AC Transmission Systems	3	0	0	3
8.	EE6005	Power Quality	3	0	0	3
9.	EE6006	Applied Soft Computing	3	0	0	3

ELECTIVE - III

S.NO.	COURSE CODE	COURSE TITLE	L	T	P	C
10.	GE6081	Fundamentals of Nanoscience	3	0	0	3
11.	IC6002	System Identification and Adaptive Control	3	0	0	3
12.	EE6007	Micro Electro Mechanical Systems	3	0	0	3
13.	EE6008	Microcontroller Based System Design	3	0	0	3

ELECTIVE - IV

S.NO.	COURSE CODE	COURSE TITLE	L	T	P	C
14.	EE6009	Power Electronics for Renewable Energy Systems	3	0	0	3
15.	EE6010	High Voltage Direct Current Transmission	3	0	0	3
16.	EE6011	Power System Dynamics	3	0	0	3
17.	IC6003	Principles of Robotics	3	0	0	3
18.	GE6083	Disaster Management	3	0	0	3

ELECTIVE – V

S.NO.	COURSE CODE	COURSE TITLE	L	T	P	C
19.	GE6075	Professional Ethics in Engineering	3	0	0	3
20.	GE6757	Total Quality Management	3	0	0	3
21.	EC6002	Advanced Digital Signal Processing	3	0	0	3
22.	EE6012	Computer Aided Design of Electrical Apparatus	3	0	0	3
23.	EC6601	VLSI Design	3	0	0	3
24.	GE6084	Human Rights	3	0	0	3
25.	MA6468	Probability and Statistics	3	1	0	4
26.	EI6001	Data Structures and Algorithms	3	0	0	3

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B. TECH. FOOD TECHNOLOGY

I - VIII SEMESTERS CURRICULUM AND SYLLABUS

SEMESTER - I

CODE	COURSE TITLE	L	T	P	C
THEORY					
HS6151	Technical English – I	3	1	0	4
MA6151	Mathematics – I	3	1	0	4
PH6151	Engineering Physics – I	3	0	0	3
CY6151	Engineering Chemistry – I	3	0	0	3
GE6151	Computer Programming	3	0	0	3
GE6152	Engineering Graphics	2	0	3	4
PRACTICAL					
GE6161	Computer Practices Laboratory	0	0	3	2
GE6162	Engineering Practices Laboratory	0	0	3	2
GE6163	Physics and Chemistry Laboratory - I	0	0	2	1
	TOTAL	17	2	11	26

SEMESTER II

CODE NO	COURSE TITLE	L	T	P	C
THEORY					
HS6251	Technical English – II*	3	1	0	4
MA6251	Mathematics – II*	3	1	0	4
PH6251	Engineering Physics – II*	3	0	0	3
CY6251	Engineering Chemistry – II*	3	0	0	3
GE6253	Engineering Mechanics	3	1	0	4
GE6252	Basic Electrical & Electronics Engineering	4	0	0	4
PRACTICAL					
GE6262	Physics & Chemistry Laboratory - II*	0	0	3	2
GE6261	Computer Aided Drafting and Modeling Laboratory	0	1	2	2
	TOTAL	19	4	5	26

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SEMESTER III

CODE NO	COURSE TITLE	L	T	P	C
THEORY					
MA6351	Transforms and Partial Differential Equation	3	1	0	4
FD6301	Principles of Chemical Engineering	3	0	0	3
FD6302	Food Process Calculations	3	1	0	4
FD6303	Food Microbiology	3	0	0	3
FD6304	Fluid Mechanics	3	1	0	4
FD6305	Food Chemistry	3	0	0	3
PRACTICALS					
FD6311	Food Microbiology Lab	0	0	4	2
FD6312	Food Chemistry Lab	0	0	4	2
	TOTAL	18	2	8	25

SEMESTER IV

CODE NO	COURSE TITLE	L	T	P	C
THEORY					
MA6468	Probability And Statistics	3	1	0	4
FD6401	Food Analysis	3	0	0	3
FD6402	Fundamentals of Heat and Mass Transfer	3	1	0	4
FD6403	Introduction to food Processing	3	0	0	3
FD6404	Thermodynamics	3	0	0	3
FD6405	Unit Operations for food Industries	3	0	0	3
PRACTICALS					
FD6411	Food Analysis lab	0	0	4	2
FD6412	Chemical Engineering Lab	0	0	4	2
	TOTAL	18	3	8	24

SEMESTER V

CODE NO	COURSE TITLE	L	T	P	C
THEORY					
FD6501	Milling Technology for Food Materials	3	0	0	3
BT6604	Chemical Reaction Engineering	4	0	0	4
FD6502	Refrigeration and Cold chain Management	3	0	0	3
FD6503	Food Additives	3	0	0	3
FD6504	Food Processing and Preservation	3	0	0	3
	Electives I	3	0	0	3
PRACTICALS					
FD6511	Food Processing and Preservation Lab	0	0	4	2
FD6512	Food Production Analysis Lab	0	0	4	2
FD6513	Technical Seminar	0	0	2	1
	TOTAL	18	0	10	24

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SEMESTER VI

CODE NO	COURSE TITLE	L	T	P	C
THEORY					
FD6601	Biochemical Engineering	3	0	0	3
FD6602	Baking and Confectionary Technology	3	0	0	3
GE6351	Environmental Science and Engineering	3	0	0	3
FD6603	Fruits and Vegetable Processing Technology	3	0	0	3
GE6757	Total Quality Management	3	0	0	3
E2	Electives II	3	0	0	3
PRACTICALS					
GE6674	Communication and Soft Skills- Laboratory Based	0	0	4	2
FD6612	Bio Process Lab	0	0	4	2
FD6613	Baking and Confectionary Technology Lab	0	0	4	2
	TOTAL	**18**	**0**	**12**	**24**

SEMESTER VII

CODE NO	COURSE TITLE	L	T	P	C
THEORY					
FD6701	Genetic Engineering & Genetically Modified Food	3	0	0	3
FD6702	Meat, Fish and Poultry Process Technology	3	0	0	3
FD6703	Dairy process Technology	3	0	0	3
FD6704	Creativity, Innovation and New Food product development	3	0	0	3
GE6075	Professional Ethics in Engineering	3	0	0	3
	Elective III	3	0	0	3
PRACTICALS					
FD6711	Skills for Food Product Design and Development	0	0	4	2
FD6712	Dairy process Technology Lab	0	0	6	3
	TOTAL	**18**	**0**	**10**	**23**

SEMESTER VIII

CODE NO	COURSE TITLE	L	T	P	C
THEORY					
FD6801	Food Laws & Safety	3	0	0	3
	Elective IV	3	0	0	3
PRACTICAL					
FD6811	Project Work	0	0	12	6
	TOTAL	**6**	**0**	**12**	**12**

TOTAL NO OF CREDITS : 184

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LIST OF ELECTIVES FOR B.TECH. FOOD TECHNOLOGY PROGRAMME

ELECTIVE I

CODE NO	COURSE TITLE	L	T	P	C
FD6001	Biology and Chemistry of Food Flavours	3	0	0	3
FD6002	Biologically Active Phytochemicals in Food	3	0	0	3
FD6003	Human Nutrition	3	0	0	3

ELECTIVE II

CODE NO	COURSE TITLE	L	T	P	C
FD6004	Process Economics and Industrial Management	3	0	0	3
FD6005	Functional Foods and Neutraceuticals	3	0	0	3
FD6006	Food Toxicology and Allergy	3	0	0	3

ELECTIVE III

CODE NO	COURSE TITLE	L	T	P	C
FD6007	Entrepreneurship	3	0	0	3
FD6008	Traditional Foods	3	0	0	3
FD6009	Cereal, Pulse and Oil seed Technology	3	0	0	3
GE6083	Disaster Management	3	0	0	3

ELECTIVE IV

CODE NO	COURSE TITLE	L	T	P	C
FD6010	Food Process Equipment Design	3	0	0	3
FD6011	Food Packaging	3	0	0	3
FD6012	Food safety Management systems	3	0	0	3
GE6084	Human Rights	3	0	0	3

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B.E. MECHANICAL ENGINEERING

I – VIII SEMESTERS CURRICULUM AND SYLLABUS

SEMESTER I

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	HS6151	Technical English – I	3	1	0	4
2.	MA6151	Mathematics – I	3	1	0	4
3.	PH6151	Engineering Physics – I	3	0	0	3
4.	CY6151	Engineering Chemistry – I	3	0	0	3
5.	GE6151	Computer Programming	3	0	0	3
6.	GE6152	Engineering Graphics	2	0	3	4
PRACTICALS						
7.	GE6161	Computer Practices Laboratory	0	0	3	2
8.	GE6162	Engineering Practices Laboratory	0	0	3	2
9.	GE6163	Physics and Chemistry Laboratory - I	0	0	2	1
		TOTAL	17	2	11	26

SEMESTER II

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	HS6251	Technical English – II	3	1	0	4
2.	MA6251	Mathematics – II	3	1	0	4
3.	PH6251	Engineering Physics – II	3	0	0	3
4.	CY6251	Engineering Chemistry – II	3	0	0	3
5.	GE6252	Basic Electrical and Electronics Engineering	4	0	0	4
6.	GE6253	Engineering Mechanics	3	1	0	4
PRACTICALS						
7.	GE6261	Computer Aided Drafting and Modeling Laboratory	0	1	2	2
8.	GE6262	Physics and Chemistry Laboratory - II	0	0	2	1
		TOTAL	19	4	4	25

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SEMESTER III

SL. NO.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	MA6351	Transforms and Partial Differential Equations	3	1	0	4
2.	CE6306	Strength of Materials	3	1	0	4
3.	ME6301	Engineering Thermodynamics	3	0	0	3
4.	CE6451	Fluid Mechanics and Machinery	3	0	0	3
5.	ME6302	Manufacturing Technology - I	3	0	0	3
6.	EE6351	Electrical Drives and Controls	3	0	0	3
PRACTICAL						
7.	ME6311	Manufacturing Technology Laboratory - I	0	0	3	2
8.	CE6461	Fluid Mechanics and Machinery Laboratory	0	0	3	2
9.	EE6365	Electrical Engineering Laboratory	0	0	3	2
		TOTAL	18	2	9	26

SEMESTER IV

SL. NO.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	MA6452	Statistics and Numerical Methods	3	1	0	4
2.	ME6401	Kinematics of Machinery	3	0	0	3
3.	ME6402	Manufacturing Technology– II	3	0	0	3
4.	ME6403	Engineering Materials and Metallurgy	3	0	0	3
5.	GE6351	Environmental Science and Engineering	3	0	0	3
6.	ME6404	Thermal Engineering	3	0	0	3
PRACTICAL						
7.	ME6411	Manufacturing Technology Laboratory–II	0	0	3	2
8.	ME6412	Thermal Engineering Laboratory - I	0	0	3	2
9.	CE6315	Strength of Materials Laboratory	0	0	3	2
		TOTAL	18	1	9	25

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SEMESTER V

SL. NO.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	ME6501	Computer Aided Design	3	0	0	3
2.	ME6502	Heat and Mass Transfer	3	0	0	3
3.	ME6503	Design of Machine Elements	3	0	0	3
4.	ME6504	Metrology and Measurements	3	0	0	3
5.	ME6505	Dynamics of Machines	3	0	0	3
6.	GE6075	Professional Ethics in Engineering	3	0	0	3
PRACTICAL						
7.	ME6511	Dynamics Laboratory	0	0	3	2
8.	ME6512	Thermal Engineering Laboratory-II	0	0	3	2
9.	ME6513	Metrology and Measurements Laboratory	0	0	3	2
		TOTAL	18	0	9	24

SEMESTER VI

SL. NO.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	ME6601	Design of Transmission Systems	3	0	0	3
2.	MG6851	Principles of Management	3	0	0	3
3.	ME6602	Automobile Engineering	3	0	0	3
4.	ME6603	Finite Element Analysis	3	0	0	3
5.	ME6604	Gas Dynamics and Jet Propulsion	3	0	0	3
6.		Elective - I	3	0	0	3
PRACTICAL						
7.	ME6611	C.A.D. / C.A.M. Laboratory	0	0	3	2
8.	ME6612	Design and Fabrication Project	0	0	4	2
9.	GE6674	Communication and Soft Skills- Laboratory Based	0	0	4	2
		TOTAL	18	0	11	24

SEMESTER VII

SL. NO.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	ME6701	Power Plant Engineering	3	0	0	3
2.	ME6702	Mechatronics	3	0	0	3
3.	ME6703	Computer Integrated Manufacturing Systems	3	0	0	3
4.	GE6757	Total Quality Management	3	0	0	3
5.		Elective – II	3	0	0	3
6.		Elective – III	3	0	0	3
PRACTICAL						
7.	ME6711	Simulation and Analysis Laboratory	0	0	3	2
8.	ME6712	Mechatronics Laboratory	0	0	3	2
9.	ME6713	Comprehension	0	0	2	1
		TOTAL	18	0	8	23

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SEMESTER VIII

SL. NO.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	MG6863	Engineering Economics	3	0	0	3
2.		Elective – IV	3	0	0	3
3.		Elective – V	3	0	0	3
PRACTICAL						
4.	ME6811	Project Work	0	0	12	6
		TOTAL	9	0	12	15

TOTAL NUMBER OF CREDITS TO BE EARNED FOR AWARD OF THE DEGREE = 188

ELECTIVES FOR B.E. MECHANICAL ENGINEERING

SEMESTER VI

Elective I

SL. NO.	COURSE CODE	COURSE TITLE	L	T	P	C
1.	MG6072	Marketing Management	3	0	0	3
2.	ME6001	Quality Control and Reliability Engineering	3	0	0	3
3.	ME6002	Refrigeration and Air conditioning	3	0	0	3
4.	ME6003	Renewable Sources of Energy	3	0	0	3
5.	ME6004	Unconventional Machining Processes	3	0	0	3

SEMESTER VII

Elective II

SL. NO.	COURSE CODE	COURSE TITLE	L	T	P	C
1.	ME6005	Process Planning and Cost Estimation	3	0	0	3
2.	ME6006	Design of Jigs, Fixtures and Press Tools	3	0	0	3
3.	ME6007	Composite Materials and Mechanics	3	0	0	3
4.	ME6008	Welding Technology	3	0	0	3
5.	ME6009	Energy Conservation and Management	3	0	0	3
6.	GE6083	Disaster Management	3	0	0	3

Elective III

SL. NO.	COURSE CODE	COURSE TITLE	L	T	P	C
1.	ME6010	Robotics	3	0	0	3
2.	GE6081	Fundamentals of Nanoscience	3	0	0	3
3.	ME6011	Thermal Turbo Machines	3	0	0	3
4.	ME6012	Maintenance Engineering	3	0	0	3
5.	EE6007	Micro Electro Mechanical Systems	3	0	0	3
6.	ME6021	Hydraulics and Pneumatics	3	0	0	3

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SEMESTER-VIII

Elective IV

SL. NO.	COURSE CODE	COURSE TITLE	L	T	P	C
1.	IE6605	Production Planning and Control	3	0	0	3
2.	MG6071	Entrepreneurship Development	3	0	0	3
3.	ME6013	Design of Pressure Vessels and Piping	3	0	0	3
4.	ME6014	Computational Fluid Dynamics	3	0	0	3
5.	ME6015	Operations Research	3	0	0	3
6.	GE6084	Human Rights	3	0	0	3

Elective V

SL. NO.	COURSE CODE	COURSE TITLE	L	T	P	C
1.	ME6016	Advanced I.C. Engines	3	0	0	3
2.	ME6017	Design of Heat Exchangers	3	0	0	3
3.	ME6018	Additive Manufacturing	3	0	0	3
4.	ME6019	Non Destructive Testing and Materials	3	0	0	3
5.	ME6020	Vibration and Noise Control	3	0	0	3

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B. E. PETROCHEMICAL ENGINEERING

PROGRAMME OBJECTIVES:

1. To produce employable graduates with the knowledge and competency in Petrochemical Engineering complemented by the appropriate skills and attributes.
2. To meet the world's ever-increasing demand for hydrocarbon fuel, thermal energy, and waste and pollution management.
3. To produce creative and innovative graduates with design and soft skills to carry out various problem solving tasks.
4. To enable the students to work as teams on multidisciplinary projects with effective communication skills, individual, supportive and leadership qualities with the right attitudes and ethics.
5. To produce graduates who possess interest in research and lifelong learning, as well as continuously striving for the forefront of technology.

PROGRAMME OUTCOMES:

The graduates of this programme would have

1. Ability to apply knowledge of mathematics, science, and engineering in core industry
2. Ability to design and conduct experiments, as well as to analyze and interpret data
3. Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
4. Ability to identify, formulate, and solve engineering problems related to petrochemical industry
5. Understanding of professional and ethical responsibility
6. Recognition of the need and ability to engage in life-long learning

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B. E. PETROCHEMICAL ENGINEERING

I – VIII SEMESTERS CURRICULUM AND SYLLABUS

SEMESTER - I

CODE	COURSE TITLE	L	T	P	C
THEORY					
HS6151	Technical English - I	3	1	0	4
MA6151	Mathematics – I	3	1	0	4
PH6151	Engineering Physics – I	3	0	0	3
CY6151	Engineering Chemistry – I	3	0	0	3
GE6151	Computer Programming	3	0	0	3
GE6152	Engineering Graphics	2	0	3	4
PRACTICAL					
GE6161	Computer Practices Laboratory	0	0	3	2
GE6162	Engineering Practices Laboratory	0	0	3	2
GE6163	Physics and Chemistry Laboratory - I	0	0	2	1
	TOTAL	17	2	11	26

SEMESTER – II

CODE	COURSE TITLE	L	T	P	C
THEORY					
HS6251	Technical English - II	3	1	0	4
MA6251	Mathematics - II	3	1	0	4
PH6251	Engineering Physics - II	3	0	0	3
CY6251	Engineering Chemistry - II	3	0	0	3
GE6252	Basic Electrical and Electronics Engineering	4	0	0	4
GE6253	Engineering Mechanics	3	1	0	4
PRACTICAL					
GE6261	Computer Aided Drafting and Modeling Laboratory	0	1	2	2
GE6262	Physics and Chemistry Laboratory - II	0	0	2	1
GE6263	Computer Programming Laboratory	0	1	2	2
		19	5	6	27

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SEMESTER – III

CODE	COURSE TITLE	L	T	P	C
THEORY					
EL6302	Organic Chemistry	3	0	0	3
CH6404	Mechanical Operations	3	0	0	3
EE6351	Electrical Drives and Controls	3	0	0	3
MA6351	Transforms and Partial Differential Equations	3	1	0	4
CH6403	Chemical Process Calculations	3	0	0	3
CH6303	Physical Chemistry	3	0	0	3
PRACTICALS					
CH6311	Organic Chemistry Laboratory	0	0	3	2
EI6411	Electrical Machines Laboratory	0	0	3	2
PM6311	Machine Drawing	0	0	3	2
	TOTAL	**18**	**1**	**9**	**25**

SEMESTER – IV

CODE	COURSE TITLE	L	T	P	C
THEORY					
CE6402	Strength of Materials	3	1	0	4
PM6401	Fluid Mechanics	3	0	0	3
PC6501	Heat Transfer	3	1	0	4
MA6459	Numerical Methods	3	1	0	4
PC6301	Industrial Chemical Technology	3	0	0	3
PC6402	Engineering Thermodynamics	3	1	0	4
PRACTICALS					
CH6413	Physical Chemistry Laboratory	0	0	4	2
PM6412	Mechanical Operations Laboratory	0	0	3	2
PM6411	Fluid Mechanics Laboratory	0	0	3	2
	TOTAL	**18**	**4**	**10**	**28**

SEMESTER – V

CODE	COURSE TITLE	L	T	P	C
THEORY					
GE6351	Environmental Science and Engineering	3	0	0	3
PM6501	Mass Transfer I	3	1	0	4
PC6503	Petroleum Exploration and Exploitation Techniques	3	0	0	3
PM6502	Chemical Reaction Engineering	3	1	0	4
PE6606	Natural Gas Engineering	3	1	0	4
PC6401	Materials Technology	3	0	0	3
PRACTICALS					
CH6611	Heat Transfer Laboratory	0	0	3	2
CH6411	Technical Analysis Laboratory	0	0	3	2
GE6674	Communication and Soft Skills- Laboratory Based	0	0	4	2
	TOTAL	**18**	**3**	**10**	**27**

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SEMESTER – VI

CODE	COURSE TITLE	L	T	P	C
THEORY					
PM6601	Mass Transfer II	3	1	0	4
EL6605	Process Dynamics and Control	3	1	0	4
PM6602	Equipment Design and Drawing-I	2	0	2	3
PC6606	Petroleum Crude Processing Technology	3	0	0	3
PM6603	Water Treatment and Management	3	0	0	3
PM6605	Instrumentation and Instrumental Analysis	3	0	0	3
PRACTICALS					
PM6611	Mass Transfer Laboratory	0	0	3	2
PM6612	Petroleum Physical Properties Testing Laboratory	0	0	3	2
PC6712	Chemical Reaction Engineering Laboratory	0	0	3	2
	TOTAL	**17**	**2**	**11**	**26**

SEMESTER – VII

CODE	COURSE TITLE	L	T	P	C
THEORY					
CH6702	Transport Phenomena	3	0	0	3
PM6701	Equipment Design and Drawing-II	2	0	2	4
PM6702	Petroleum Secondary Processing Technology	3	0	0	3
PM6703	Petrochemical Unit Processes	3	0	0	3
PM6704	Refinery Process Design	3	0	0	3
	Elective – I	3	0	0	3
PRACTICALS					
EL6713	Process Dynamics and Control Laboratory	0	0	3	2
PM6711	Petrochemical Analysis Laboratory	0	0	3	2
PC6711	Petroleum Product Testing Laboratory	0	0	3	2
	TOTAL	**17**	**0**	**11**	**25**

SEMESTER – VIII

CODE	COURSE TITLE	L	T	P	C
THEORY					
PM6801	Process Engineering Economics	3	0	0	3
PM6802	Safety and Risk Management	3	0	0	3
	Elective -II	3	0	0	3
PRACTICALS					
PM6811	Project Work*	0	0	12	6
	TOTAL	**9**	**0**	**12**	**15**

TOTAL NO OF CREDITS: 199

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LIST OF ELECTIVES

B. E. PETROCHEMICAL ENGINEERING

VII SEMESTER

CODE	COURSE TITLE	L	T	P	C
CH6016	Process Modelling and Simulation	3	0	0	3
CH6009	Fertilizer Technology	3	0	0	3
PC6002	Petroleum Process Equipment Auxiliaries	3	0	0	3
MG6091	Industrial management	3	0	0	3
GE6757	Total Quality Management	3	0	0	3
GE6084	Human Rights	3	0	0	3

VIII SEMESTER

CODE	COURSE TITLE	L	T	P	C
CH6002	Fluidization Engineering	3	0	0	3
PC6005	Energy Management in Chemical Industries	3	0	0	3
PC6004	Novel Separation Processes	3	0	0	3
PC6006	Multicomponent Distillation	3	0	0	3
PC6008	Polymer Technology	3	0	0	3
GE6083	Disaster Management	3	0	0	3

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B. TECH. PETROLEUM ENGINEERING

PROGRAMME OBJECTIVES:

Department's educational objectives state the general goals of the program. Department's graduates are expected to:

- Meet the world's ever-increasing demand for hydrocarbon fuel, thermal energy, and waste and pollution management.
- Be motivated to continuously develop their knowledge and skills.
- Contribute to society

PROGRAMME OUTCOMES:

- Ability to apply knowledge of mathematics, science, and engineering.
- An ability to design and conduct experiments, as well as to analyze and interpret data
- An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- An ability to identify, formulate, and solve engineering problems related to petroleum industry.
- An understanding of professional and ethical responsibility.
- A recognition of the need for, and an ability to engage in life-long learning.

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B. TECH. PETROLEUM ENGINEERING

I – VIII SEMESTERS CURRICULUM AND SYLLABUS

SEMESTER - I

CODE	COURSE TITLE	L	T	P	C
THEORY					
HS6151	Technical English - I	3	1	0	4
MA6151	Mathematics – I	3	1	0	4
PH6151	Engineering Physics – I	3	0	0	3
CY6151	Engineering Chemistry – I	3	0	0	3
GE6151	Computer Programming	3	0	0	3
GE6152	Engineering Graphics	2	0	3	4
PRACTICAL					
GE6161	Computer Practices Laboratory	0	0	3	2
GE6162	Engineering Practices Laboratory	0	0	3	2
GE6163	Physics and Chemistry Laboratory - I	0	0	2	1
	TOTAL	17	2	11	26

SEMESTER – II

CODE	COURSE TITLE	L	T	P	C
THEORY					
HS6251	Technical English - II	3	1	0	4
MA6251	Mathematics - II	3	1	0	4
PH6251	Engineering Physics - II	3	0	0	3
CY6251	Engineering Chemistry - II	3	0	0	3
GE6252	Basic Electrical and Electronics Engineering	4	0	0	4
GE6253	Engineering Mechanics	3	1	0	4
PRACTICAL					
GE6261	Computer Aided Drafting and Modeling Laboratory	0	1	2	2
GE6262	Physics and Chemistry Laboratory - II	0	0	2	1
GE6263	Computer Programming Laboratory	0	1	2	2
		19	5	6	27

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SEMESTER – III

CODE	COURSE TITLE	L	T	P	C
THEORY					
MA6351	Transforms and Partial Differential Equations	3	1	0	4
PE6301	Process Engineering Calculations	3	1	0	4
PE6302	Geophysics-I	3	0	0	3
PE6303	Fluid Mechanics	3	0	0	3
CH6361	Heat Transfer	3	0	0	3
PE6304	Engineering Thermodynamics	3	0	0	3
PRACTICALS					
PE6311	Fluid Mechanics Laboratory	0	0	3	2
CH6368	Heat Transfer Laboratory	0	0	3	2
	TOTAL	**18**	**2**	**6**	**24**

SEMESTER – IV

CODE	COURSE TITLE	L	T	P	C
THEORY					
MA6468	Probability and Statistics	3	1	0	4
CH6454	Mass Transfer	3	0	0	3
PE6401	Reservoir Rocks and Fluid Properties	3	0	0	3
PE6402	Fundamentals of Petroleum Geology	3	0	0	3
PE6403	Geophysics –II	3	0	0	3
PE6404	Reservoir Engineering -1	3	0	0	3
PRACTICALS					
PE6411	Petroleum Testing Lab	0	0	3	2
CH6	Mass Transfer Laboratory	0	0	3	2
	TOTAL	**18**	**1**	**6**	**23**

SEMESTER – V

CODE	COURSE TITLE	L	T	P	C
THEORY					
PE6501	Well Drillling Equipments and Operation	3	0	0	3
PE6502	Well Logging	3	0	0	3
PE6503	Drilling fluids and Cementing Techniques	3	0	0	3
PE6504	Field Development Geology	3	0	0	3
PE6505	Reservoir Engineering – II	3	0	0	3
GE6351	Environmental Science and Engineering	3	0	0	3
PRACTICALS					
GE6563	Communication Skills - Laboratory Based	0	0	4	2
PE6511	Geology Laboratory	0	0	3	2
PE6512	Drilling fluids and Cementing Techniques Laboratory	0	0	3	2
	TOTAL	**18**	**0**	**10**	**24**

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SEMESTER – VI

CODE	COURSE TITLE	L	T	P	C
THEORY					
PE6601	Reservoir Characterization and Modeling	3	0	0	3
PE6602	Petroleum Production Engineering	3	0	0	3
PE6603	Well Completion Testing and Work over	3	0	0	3
PE6604	Process Control and Instrumentation	3	0	0	3
PE6605	Petroleum Refining and Petrochemicals	3	0	0	3
PE6606	Natural Gas Engineering	3	0	0	3
PRACTICALS					
PE6611	Petroleum Transportation Design	0	0	3	2
PE6612	Process Control and Instrumentation Laboratory	0	0	3	2
	TOTAL	**18**	**0**	**6**	**22**

SEMESTER – VII

CODE	COURSE TITLE	L	T	P	C
THEORY					
PE6701	Onshore and Offshore Engineering and Technology	3	0	0	3
PE6702	Integrated Oil/Gas Field Evaluation	3	0	0	3
PE6703	Petroleum Equipment Design	3	0	0	3
PE6704	Numerical Reservoir Simulation	3	0	0	3
PE6705	Water flooding and enhanced oil recovery	3	0	0	3
	Elective –I	3	0	0	3
PRACTICALS					
PE6711	Oil Field Equipment Design Drawing	0	0	3	2
PE6712	Petroleum Equipment Design Drawing	0	0	3	2
	TOTAL	**18**	**0**	**6**	**22**

SEMESTER – VIII

CODE	COURSE TITLE	L	T	P	C
PE6801	Risk Assessment and Safety Engineering	3	0	0	3
	Elective –II	3	0	0	3
	Elective –III	3	0	0	3
PRACTICALS					
PE6811	Project Work	0	0	12	6
	TOTAL	**9**	**0**	**12**	**15**

TOTAL NO OF CREDITS : 183

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LIST OF ELECTIVES

B. TECH. PETROLEUM ENGINEERING

ELECTIVE I

CODE	COURSE TITLE	L	T	P	C
PE6001	Marketing Fundamentals	3	0	0	3
PE6002	Refinery Engineering	3	0	0	3
PE6003	Petroleum Transportation Engineering	3	0	0	3
PE6004	Major Hazards Management	3	0	0	3
PE6005	Petroleum Corrosion Technology	3	0	0	3

ELECTIVE II

CODE	COURSE TITLE	L	T	P	C
PE6006	Advanced Topics in Geophysics	3	0	0	3
PE6007	Storage and Transportation of Crude Oil and Natural Gas	3	0	0	3
PE6008	Computer - Aided Process Plant Design	3	0	0	3
PE6009	Advanced Drilling Engineering	3	0	0	3
PE6010	Well Completion and simulation	3	0	0	3
PE6011	Petroleum Economics	3	0	0	3

ELECTIVE – III

CODE	COURSE TITLE	L	T	P	C
PE6012	Biochemical Engineering	3	0	0	3
PE6013	Chemical Kinetics and Reactor Design	3	0	0	3
PE6014	Principles of Geochemistry	3	0	0	3
GE6075	Professional Ethics in Engineering	3	0	0	3
GE6757	Total Quality Management	3	0	0	3

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M.E. ENGINEERING DESIGN

I TO IV SEMESTERS (FULL TIME) CURRICULUM AND SYLLABUS

SEMESTER I

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	MA7169	Advanced Numerical Methods	3	1	0	4
2.	ED7101	Advanced Mechanics of Materials	3	0	0	3
3.	ED7102	Computer Applications in Design	3	0	2	4
4.	ED7103	Quality Concepts in Design	3	0	0	3
5.	ED7104	Vibration Analysis and Control	3	0	2	4
6.		Elective I	3	0	0	3
PRACTICAL						
7.	ED7111	CAD Laboratory	0	0	2	1
		TOTAL	**18**	**1**	**6**	**22**

SEMESTER II

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	ED7201	Finite Element Methods in Mechanical Design	3	1	0	4
2.	ED7202	Mechanisms Design and Simulation	3	0	2	4
3.	ED7203	Mechanical Behavior of Materials	3	0	0	3
4.	ED7204	Integrated Mechanical Design	3	1	0	4
5.		Elective II	3	0	0	3
6.		Elective III	3	0	0	3
PRACTICAL						
7.	ED7211	Analysis and Simulation Laboratory	0	0	2	1
8.	ED7212	Design Project	0	0	3	2
		TOTAL	**18**	**2**	**7**	**24**

SEMESTER III

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.		Elective IV	3	0	0	3
2.		Elective V	3	0	0	3
3.		Elective VI	3	0	0	3
PRACTICAL						
4.	ED7311	Project Work (Phase I)	0	0	12	6
		TOTAL	**9**	**0**	**12**	**15**

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SEMESTER IV

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
PRACTICAL						
1.	ED7411	Project Work (Phase II)	0	0	24	12
		TOTAL	0	0	24	12

TOTAL CREDITS TO BE EARNED FOR THE AWARD OF THE DEGREE = 73

LIST OF ELECTIVES FOR M.E. ENGINEERING DESIGN

SEMESTER I (Elective I)

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
1	ED7001	Optimization Techniques in Design	3	0	0	3
2.	ED7003	Composite Materials and Mechanics	3	0	0	3
3	ED7005	Design of Material Handling Equipments	3	0	0	3

SEMESTER II (Elective II & III)

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
1	ED7006	Plates and Shells	3	0	0	3
2.	ED7007	Modal Analysis of Mechanical Systems	3	0	0	3
3.	ED7008	Advanced Metal Forming Techniques	3	0	0	3
4.	ED7010	Tribology in Design	3	0	0	3
5.	ED7012	Surface Engineering	3	0	0	3

SEMESTER III (Elective IV, V & VI)

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
1.	ED7002	Engineering Fracture Mechanics	3	0	0	3
2.	ED7004	Design of Hydraulic and Pneumatic Systems	3	0	0	3
3	ED7009	Design of Pressure Vessel and Piping	3	0	0	3
4.	ED7011	Bearing Design and Rotor Dynamics	3	0	0	3
5	ED7013	Advanced Finite Element Analysis	3	0	0	3
6	IC7072	Computational Fluid Dynamics	3	0	0	3
7	CC7201	Design for Manufacture Assembly and Environments	3	0	0	3

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M.E. STRUCTURAL ENGINEERING

OBJECTIVES

- To make the students know the concepts of analysis and design of structures like Reinforced Concrete, Prestressed Concrete and Steel Structures.
- To make the students to understand the effect of dynamic forces like earthquake, wind and cyclone in the structures and the method of detailing of the structures against these forces.
- To enrich students with sound knowledge on the behaviour of materials both in the elastic as well as in the plastic stages.
- To make the students to have field knowledge in the practical aspects of analysis, design and construction of various structures.
- To continually work with industry to enhance the programm's effectiveness and the opportunities for innovation.
- To conduct research to develop advanced technologies in Civil Engineering.

OUTCOME:

On successful completion of the programme, the students will

- Have the ability to apply knowledge of mathematics, science and engineering to solve problems related to structural engineering.
- Be able to apply knowledge and skill in the analysis and design of structural components and systems using appropriate standards and codes.
- Have the ability to apply modern engineering techniques, skills, and computing tools necessary for structural engineering practice.
- Have the capability to undertake real time research projects in the field of structural engineering.

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M.E.STRUCTURAL ENGINEERING

CURRICULUM AND SYLLABUS I TO IV SEMESTERS (FULL TIME)

SEMESTER I

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1	ST8101	Dynamics of Structures	3	0	0	3
2	ST8102	Concrete Structures	3	0	0	3
3	ST8103	Theory of Elasticity and Plasticity	3	0	0	3
4	MA8165	Advanced Mathematical Methods	3	1	0	4
5		Elective I	3	0	0	3
6		Elective II	3	0	0	3
		TOTAL	18	1	0	19

SEMESTER II

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1	ST8201	Earthquake Analysis and Design of Structures	3	0	0	3
2	ST8202	Experimental Techniques and Instrumentation	2	0	2	3
3	ST8203	Finite Element Analysis	3	0	0	3
4	ST8204	Steel Structures	3	0	0	3
5		Elective III	3	0	0	3
6		Elective IV	3	0	0	3
PRACTICAL						
7	ST8211	Advanced Structural Engineering Laboratory	0	0	4	2
		TOTAL	17	0	6	20

SEMESTER III

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1		Elective V	3	0	0	3
2		Elective VI	3	0	0	3
3		Elective VII	3	0	0	3
PRACTICAL						
4	ST8311	Practical Training	-	-	-	1
5	ST8312	Project Work Phase I	0	0	12	6
6	ST8313	Seminar	0	0	2	1
		TOTAL	9	0	14	17

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SEMESTER IV

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
PRACTICAL						
1	ST8411	Project Work Phase II	0	0	24	12
		TOTAL	0	0	24	12

TOTAL CREDITS TO BE EARNED FOR THE AWARD OF THE DEGREE = 68

ELECTIVES FOR M.E.STRUCTURAL ENGINEERING

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
1	ST8001	Analysis and Design of Tall Buildings	3	0	0	3
2	ST8002	Design of Bridges	3	0	0	3
3	ST8003	Design of Shell and Spatial Structures	2	0	2	3
4	ST8004	Design of Steel Concrete Composite Structures	3	0	0	3
5	ST8005	Design of Sub Structures	3	0	0	3
6	ST8006	Industrial Structures	3	0	0	3
7	ST8007	Maintenance and Rehabilitation of Structures	3	0	0	3
8	ST8008	Mechanics of Composite Materials	3	0	0	3
9	ST8009	Nonlinear Analysis of Structures	3	0	0	3
10	ST8010	Offshore Structures	3	0	0	3
11	ST8011	Optimization of Structures	3	0	0	3
12	ST8012	Pre-stressed Concrete	3	0	0	3
13	ST8013	Prefabricated Structures	3	0	0	3
14	ST8014	Stability of Structures	3	0	0	3
15	ST8015	Theory of Plates	3	0	0	3
16	ST8016	Wind and Cyclone Effects on Structures	3	0	0	3
17	CN8071	Advanced Concrete Technology	3	0	0	3

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M.E.STRUCTURAL ENGINEERING

CURRICULUM AND SYLLABUS I TO VI SEMESTERS (PART TIME)

SEMESTER I

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1	MA8165	Advanced Mathematical Methods	3	1	0	4
2	ST8102	Concrete Structures	3	0	0	3
3	ST8103	Theory of Elasticity and Plasticity	3	0	0	3
		TOTAL	9	1	0	10

SEMESTER II

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1	ST8203	Finite Element Analysis	3	0	0	3
2	ST8202	Experimental Techniques and Instrumentation	2	0	2	3
3		Elective I	3	0	0	3
		TOTAL	8	0	2	9

SEMESTER III

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1	ST8101	Dynamics of Structures	3	0	0	3
2		Elective II	3	0	0	3
3		Elective III	3	0	0	3
		TOTAL	9	0	0	9

SEMESTER IV

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1	ST8204	Steel Structures	3	0	0	3
2	ST8201	Earthquake Analysis and Design of Structures	3	0	0	3
3		Elective IV	3	0	0	3
PRACTICAL						
4	ST8211	Advanced Structural Engineering Laboratory	0	0	4	2
		TOTAL	9	0	4	11

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SEMESTER V

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1		Elective V	3	0	0	3
2		Elective VI	3	0	0	3
3		Elective VII	3	0	0	3
PRACTICAL						
4	ST8311	Practical Training	-	-	-	1
5	ST8312	Project Work Phase I	0	0	12	6
6	ST8313	Seminar	0	0	2	1
		TOTAL	**9**	**0**	**14**	**17**

SEMESTER VI

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
PRACTICAL						
1	ST8411	Project Work Phase II	0	0	24	12
		TOTAL	**0**	**0**	**24**	**12**

TOTAL CREDITS TO BE EARNED FOR THE AWARD OF THE DEGREE = 68

ELECTIVES FOR M.E.STRUCTURAL ENGINEERING

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
1	ST8001	Analysis and Design of Tall Buildings	3	0	0	3
2	ST8002	Design of Bridges	3	0	0	3
3	ST8003	Design of Shell and Spatial Structures	2	0	2	3
4	ST8004	Design of Steel Concrete Composite Structures	3	0	0	3
5	ST8005	Design of Sub Structures	3	0	0	3
6	ST8006	Industrial Structures	3	0	0	3
7	ST8007	Maintenance and Rehabilitation of Structures	3	0	0	3
8	ST8008	Mechanics of Composite Materials	3	0	0	3
9	ST8009	Nonlinear Analysis of Structures	3	0	0	3
10	ST8010	Offshore Structures	3	0	0	3
11	ST8011	Optimization of Structures	3	0	0	3
12	ST8012	Pre-stressed Concrete	3	0	0	3
13	ST8013	Prefabricated Structures	3	0	0	3
14	ST8014	Stability of Structures	3	0	0	3
15	ST8015	Theory of Plates	3	0	0	3
16	ST8016	Wind and Cyclone Effects on Structures	3	0	0	3
17	CN8071	Advanced Concrete Technology	3	0	0	3

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M.E. VLSI DESIGN

CURRICULUM AND SYLLABUS I TO IV SEMESTERS (FULL TIME)

SEMESTER I

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1	AP8152	Analog Integrated Circuit Design	3	0	0	3
2	AP8154	Statistical Signal Processing	3	0	0	3
3	MA8163	Advanced Applied Mathematics	3	1	0	4
4	VL8151	CAD for VLSI Circuits	3	0	0	3
5	VL8152	Digital CMOS VLSI Design	3	0	0	3
		Elective I	3	0	0	3
PRACTICAL						
7	VL8111	VLSI Design Laboratory I	0	0	4	2
		TOTAL	18	1	4	21

SEMESTER II

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1	AP8252	Digital Image Processing	3	0	2	4
2	VL8251	Data Converters	3	0	0	3
3		Elective II	3	0	0	3
4		Elective III	3	0	0	3
5		Elective IV	3	0	0	3
6		Elective V	3	0	0	3
PRACTICAL						
7	VL8211	VLSI Design Laboratory II	0	0	4	2
		TOTAL	18	1	4	21

SEMESTER III

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1		Elective VI	3	0	0	3
2		Elective VII	3	0	0	3
3		Elective VIII	3	0	0	3
PRACTICAL						
4	VL8311	Project Work Phase I	0	0	12	6
		TOTAL	9	0	12	15

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SEMESTER IV

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
PRACTICAL						
1	VL8411	Project Work Phase II	0	0	24	12
		TOTAL	0	0	24	12

TOTAL CREDITS TO BE EARNED FOR THE AWARD OF DEGREE:69

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M.E. VLSI DESIGN

CURRICULUM I TO VI SEMESTERS (PART - TIME)

SEMESTER I

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	MA8163	Advanced Applied Mathematics	3	1	0	4
2.	VL8152	Digital CMOS VLSI Design	3	0	0	3
3.	AP8152	Analog Integrated Circuit Design	3	0	0	3
		TOTAL	9	1	0	10

SEMESTER II

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	VL8251	Data Converters	3	0	0	3
2.		Elective I	3	0	0	3
3.		Elective II	3	0	0	3
		TOTAL	9	0	0	9

SEMESTER III

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	AP8154	Statistical Signal Processing	3	0	0	3
2.	VL8151	CAD for VLSI Circuits	3	0	0	3
3.		Elective III	3	0	0	3
PRACTICAL						
4.	VL8111	VLSI Design Laboratory I	0	0	4	2
		TOTAL	9	0	4	11

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SEMESTER IV

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.	AP8252	Digital Image Processing	3	0	2	4
2.		Elective IV	3	0	0	3
3.		Elective V	3	0	0	3
PRACTICAL						
4.	VL8211	VLSI Design Laboratory II	0	0	4	2
		TOTAL	9	1	4	12

SEMESTER V

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1.		Elective VI	3	0	0	3
2.		Elective VII	3	0	0	3
3.		Elective VIII	3	0	0	3
PRACTICAL						
4.	VL8311	Project Work Phase I	0	0	12	6
		TOTAL	9	0	12	15

SEMESTER VI

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
PRACTICAL						
1.	VL8411	Project Work Phase II	0	0	24	12
		TOTAL	0	0	24	12

TOTAL CREDITS TO BE EARNED FOR THE AWARD OF DEGREE = 69

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LIST OF ELECTIVES

SL. NO.	COURSE CODE	COURSE TITLE	L	T	P	C
1.	VL8001	Advanced MOSFET Modelling	3	0	0	3
2.	VL8002	Design of Analog Filters and Signal Conditioning Circuits	3	0	0	3
3.	AP8071	Advanced Microprocessors and Microcontrollers	3	0	0	3
4.	AP8072	Artificial Intelligence and Optimization Techniques.	3	0	0	3
5.	AP8073	Design and Analysis of Algorithms	3	0	0	3
6.	AP8076	Hardware Software Co-Design	3	0	0	3
7.	AP8078	Introduction to MEMS System Design	3	0	0	3
8.	AP8079	Nonlinear Signal Processing	3	0	0	3
9.	AP8080	RF System Design	3	0	0	3
10.	AP8081	Selected Topics in ASIC Design	3	0	0	3
11.	AP8082	Selected Topics in IC Design	3	0	0	3
12.	AP8083	Signal Integrity for High Speed Design	3	0	0	3
13.	AP8084	Wireless Sensor Networks	3	0	0	3
14.	AP8151	Advanced Digital System Design	3	0	0	3
15.	AP8153	Embedded Systems Design	3	0	0	3
16.	AP8251	Digital Control Engineering	3	0	0	3
17.	IF8151	Advanced Computer Architecture	3	0	0	3
18.	VL8071	Low Power VLSI Design	3	0	0	3
19.	VL8072	Solid State Device Modeling and Simulation	3	0	0	3
20.	VL8073	Testing of VLSI Circuits	3	0	0	3
21.	VL8074	VLSI Signal Processing	3	0	0	3

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M.E POWER ELECTRONICS AND DRIVES

I TO IV SEMESTERS (FULL TIME) CURRICULUM AND SYLLABUS

I SEMESTER

SL.NO	CODE	SUBJECT	L	T	P	C
THEORY						
1	MA7163	Applied Mathematics for Electrical Engineers	3	1	0	4
2	PX7101	Analysis of Electrical Machines	3	0	0	3
3	PX7102	Analysis of Power Converters	3	0	0	3
4	PX7103	Analysis and Design of Inverters	3	0	0	3
5	PX7104	Advanced Power Semiconductor Devices	3	0	0	3
6		Elective I	3	0	0	3
		TOTAL	18	1	0	19

II SEMESTER

SL.NO.	CODE	SUBJECT	L	T	P	C
THEORY						
1	PX7201	Solid State DC Drives	3	0	0	3
2	PX7202	Solid State AC Drives	3	0	0	3
3	PX7203	Special Electrical Machines	3	0	0	3
4	PX7204	Power Quality	3	0	0	3
5		Elective II	3	0	0	3
6		Elective III	3	0	0	3
PRACTICAL						
7	PX7211	Power Electronics and Drives Lab	0	0	3	2
		TOTAL	18	0	3	20

III SEMESTER

SL.NO	CODE	SUBJECT	L	T	P	C
THEORY						
1	PX7301	Power Electronics for Renewable Energy Systems	3	0	0	3
2		Elective IV	3	0	0	3
3		Elective V	3	0	0	3
PRACTICAL						
4	PX7311	Project work (Phase I)	0	0	12	6
		TOTAL	9	0	12	15

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IV SEMESTER

SL.NO	CODE	SUBJECT	L	T	P	C
1	PX7411	Project work (Phase II)	0	0	24	12
		TOTAL	**0**	**0**	**24**	**12**

TOTAL NUMBER OF CREDITS = 66

ELECTIVES OF POWER ELECTRONICS AND DRIVES

ELECTIVE I

SL.NO	CODE	SUBJECT	L	T	P	C
1	CL7103	System Theory	3	0	0	3
2	ET7102	Microcontroller Based System Design	3	0	0	3
3	PX7001	Electromagnetic Field Computation and Modelling	3	0	0	3

ELECTIVE II & III

SL.NO	CODE	SUBJECT	L	T	P	C
1.	CL7204	Soft Computing Techniques	3	0	0	3
2.	EB7212	Digital Simulation of Power Electronic Circuits Laboratory	0	0	3	2
3.	ET7201	VLSI Architecture and Design Methodologies	3	0	0	3
4.	PS7202	Flexible AC Transmission Systems	3	0	0	3
5.	PS7002	Energy Management and Auditing	3	0	0	3
6.	PX7002	SMPS and UPS	3	0	0	3

ELECTIVE IV & V

SL.NO	CODE	SUBJECT	L	T	P	C
1.	PS7005	High Voltage Direct Current Transmission	3	0	0	3
2.	ET7014	Application of MEMS Technology	3	0	0	3
3.	PS7004	Solar and Energy Storage Systems	3	0	0	3
4.	PS7007	Wind Energy Conversion Systems	3	0	0	3
5.	PX7003	Non Linear Dynamics for Power Electronics Circuits	3	0	0	3
6.	PS7008	Smart Grid	3	0	0	3

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AFFILIATED INSTITUTIONS
REGULATIONS – 2017
CHOICE BASED CREDIT SYSTEM
B.E. AUTOMOBILE ENGINEERING

PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

1. Students will excel in their professional career in automobile industry and research with the highest professional and ethical standards in their activities by acquiring knowledge in basic engineering, mathematics, science and automobile engineering.
2. Students will exhibit professionalism, team work in their chosen profession and adapt to current trends, technologies and industrial scenarios by pursuing life-long learning.

PROGRAMME OUTCOMES (PO)

1. Graduates will demonstrate strong basics in Mathematics, Science and Engineering
2. Graduates will demonstrate the ability to design and conduct experiments, as well as to analyze and interpret data.
3. Graduates will demonstrate the ability to design a system, component or process to meet the desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.
4. Graduates will become familiar with modern engineering tools and analyse the problems within the domains of Automobile Engineering as members of multidisciplinary teams.
5. Graduates will acquire the capability to identify, formulate and solve complex engineering problems related to Automobile Engineering.
6. Graduates will demonstrate an understanding of professional and ethical responsibility with reference to their career in the field of Automobile Engineering.
7. Graduates will be able to communicate effectively both in verbal and non-verbal forms.
8. Graduates will be trained towards developing the impact of Automobile engineering in the global, economic environmental and societal contexts.
9. Graduates will be capable of understanding the value for life-long learning.
10. Graduates will demonstrate knowledge of contemporary issues focusing on the necessity to develop new material, design, and engineering practice in the field of Automobile Engineering.
11. Graduates will demonstrate the ability to use the techniques , skills and modern engineering tools necessary for engineering practice in the field of Automobile Engineering.
12. Graduates will have a firm scientific, technological and communication base that would help them either to find the desired placement or to become an entrepreneur and explore the knowledge in their field.
13. Graduates will be capable of doing higher studies and research in inter and multi-disciplinary areas.

PEO / PO Mapping

PO / PEO	a	b	c	d	e	f	g	h	i	j	k	l	m
1	√	√	√	√	√	√		√		√	√	√	√
2		√	√	√	√		√		√	√	√	√	√

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Semester Course wise PO mapping

		Course Title	a	b	c	d	e	f	g	h	i	j	k	l	m
YEAR I	SEMESTER I	Communicative English	√	√		√		√	√		√	√		√	√
		Engineering Mathematics I	√	√		√	√					√	√	√	√
		Engineering Physics	√	√		√	√					√	√	√	√
		Engineering Chemistry	√	√		√	√					√	√	√	√
		Problem Solving and Python Programming	√	√		√	√					√	√	√	√
		Engineering Graphics	√	√	√	√		√	√	√			√	√	√
		Problem Solving and Python Programming Laboratory	√	√		√	√	√				√	√	√	√
		Physics and Chemistry Laboratory	√	√		√	√					√	√	√	√
	SEMESTER II	Technical English	√	√		√		√			√	√		√	√
		Engineering Mathematics II	√	√		√	√					√	√	√	√
		Materials Science	√	√		√	√					√	√	√	√
		Basic Electrical, Electronics and Instrumentation Engineering	√		√	√	√			√	√		√	√	√
		Environmental Science and Engineering						√		√	√	√			√
		Engineering Mechanics	√	√		√	√		√			√	√	√	√
		Engineering Practices Laboratory		√	√	√			√			√	√	√	
		Basic Electrical, Electronics and Instrumentation Engineering Laboratory	√	√		√	√				√	√	√	√	√
YEAR II	SEM III	Transforms and Partial Differential Equations	√			√	√		√		√		√		√
		Engineering Thermodynamics	√	√	√	√	√			√	√	√	√		√
		Strength of Materials for Mechanical Engineers	√	√		√	√				√	√		√	√
		Spark Ignition Engines	√				√			√	√	√	√	√	√

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SEMESTER IV	Manufacturing Technology	√	√	√	√	√			√			√		√	√	√	√	√
	Fluid Mechanics and Machinery	√			√	√								√	√	√	√	√
	Strength of Materials and Fluid Mechanics and Machinery Laboratory	√	√		√	√						√		√	√	√	√	√
	Computer Aided Machine Drawing	√	√	√	√	√						√	√	√	√	√	√	√
	Interpersonal Skills/Listening & Speaking	√	√		√		√	√				√	√		√		√	√
	Statistics and Numerical Methods	√	√				√		√			√		√		√		√
	Compression Ignition Engines	√					√			√		√	√	√	√	√	√	√
	Engineering Metallurgy	√	√	√	√		√			√		√	√	√	√	√	√	√
	Electronics and Microprocessors	√	√	√	√		√			√		√	√	√	√	√	√	√
	Automotive Chassis	√					√			√		√	√	√	√	√	√	√
	Mechanics of Machines	√	√		√		√			√				√	√	√	√	√
	Automotive Components Laboratory	√	√	√			√			√		√	√	√	√	√	√	√
	Electronics and Microprocessors Laboratory	√	√	√	√		√			√		√		√	√	√	√	√
YEAR III																		
SEMESTER V	Design of Machine Elements	√	√	√	√		√			√		√	√	√	√	√	√	√
	Automotive Transmission	√	√	√			√			√		√	√	√	√	√	√	√
	Automotive Electrical and Electronics Systems	√	√	√	√		√			√		√		√			√	√
	Vehicle Design Data Characteristics	√	√		√		√			√		√	√	√	√	√	√	√
	Automotive Fuels and Lubricants	√	√	√			√	√		√		√		√				
	Open Elective - I																	
	Professional Communication	√	√		√		√	√		√		√	√	√	√	√	√	√
	Automotive Electrical and Electronics Laboratory	√	√				√			√		√	√	√	√	√	√	√
	Automotive Fuels and Lubricants Laboratory	√					√	√		√		√	√	√	√	√	√	

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SEMESTER VI	Total Quality Management	√		√	√		√	√	√	√	√	√	√	√	√	√	√	√	√
	Automotive Engine Components Design	√	√	√		√						√			√			√	√
	Automotive Chassis Components Design	√	√	√		√						√			√			√	√
	Two and Three Wheelers	√			√						√	√	√	√	√	√	√	√	√
	Vehicle Dynamics	√	√	√	√	√					√	√	√	√	√				√
	Professional Elective – I																		
	Computer Aided Engine and Chassis Design Laboratory	√	√		√	√					√	√	√	√	√	√	√	√	√
	Two and Three Wheelers Laboratory	√	√	√							√	√	√	√	√	√	√	√	√
SEMESTER VII	Engine and Vehicle Management System	√	√	√	√	√	√				√	√	√	√	√	√	√	√	√
	Finite Element Analysis	√	√	√	√	√	√				√	√	√	√	√	√	√	√	√
	Vehicle Maintenance	√		√	√	√	√	√			√	√	√		√	√	√	√	√
	Open Elective - II																		
	Professional Elective – II																		
	Professional Elective – III																		
	Engine Performance and Emission Testing Laboratory	√	√	√		√					√		√	√		√	√		√
	Vehicle Maintenance Laboratory	√	√	√	√		√				√	√	√	√	√	√	√	√	√
SEM VIII	Vehicle Body Engineering	√	√	√	√	√	√				√	√	√	√	√	√	√		√
	Professional Elective – IV																		
	Professional Elective – V																		
	Project Work	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√

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REGULATIONS – 2017
CHOICE BASED CREDIT SYSTEM
I TO VIII SEMESTERS CURRICULA AND SYLLABI

SEMESTER I

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	MA8151	Engineering Mathematics - I	BS	4	4	0	0	4
3.	PH8151	Engineering Physics	BS	3	3	0	0	3
4.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
5.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
6.	GE8152	Engineering Graphics	ES	6	2	0	4	4
PRACTICALS								
7.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
8.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
			TOTAL	31	19	0	12	25

SEMESTER II

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	HS8251	Technical English	HS	4	4	0	0	4
2.	MA8251	Engineering Mathematics - II	BS	4	4	0	0	4
3.	PH8251	Materials Science	BS	3	3	0	0	3
4.	BE8253	Basic Electrical, Electronics and Instrumentation Engineering	ES	3	3	0	0	3
5.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
6.	GE8292	Engineering Mechanics	ES	5	3	2	0	4
PRACTICALS								
7.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
8.	BE8261	Basic Electrical, Electronics and Instrumentation Engineering Laboratory	ES	4	0	0	4	2
			TOTAL	30	20	2	8	25

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SEMESTER III

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MA8353	Transforms and Partial Differential Equations	BS	4	4	0	0	4
2.	ME8391	Engineering Thermodynamics	PC	5	3	2	0	4
3.	CE8395	Strength of Materials for Mechanical Engineers	ES	3	3	0	0	3
4.	AT8301	Spark Ignition Engines	PC	3	3	0	0	3
5.	ME8392	Manufacturing Technology	PC	3	3	0	0	3
6.	CE8394	Fluid Mechanics and Machinery	ES	4	4	0	0	4
PRACTICAL								
7.	CE8381	Strength of Materials and Fluid Mechanics and Machinery Laboratory	ES	4	0	0	4	2
8.	ME8381	Computer Aided Machine Drawing	PC	4	0	0	4	2
9.	HS8381	Interpersonal Skills/Listening & Speaking	EEC	2	0	0	2	1
			TOTAL	32	20	2	10	26

SEMESTER IV

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MA8452	Statistics and Numerical Methods	BS	4	4	0	0	4
2.	AT8401	Compression Ignition Engines	PC	3	3	0	0	3
3.	ME8491	Engineering Metallurgy	PC	3	3	0	0	3
4.	EC8396	Electronics and Microprocessors	ES	3	3	0	0	3
5.	AT8402	Automotive Chassis	PC	3	3	0	0	3
6.	PR8451	Mechanics of Machines	PC	3	3	0	0	3
PRACTICAL								
7.	AT8411	Automotive Components Laboratory	PC	4	0	0	4	2
8.	EC8382	Electronics and Microprocessors Laboratory	ES	4	0	0	4	2
			TOTAL	27	19	0	10	23

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SEMESTER V

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	ME8593	Design of Machine Elements	PC	3	3	0	0	3
2.	AT8501	Automotive Transmission	PC	3	3	0	0	3
3.	AT8502	Automotive Electrical and Electronics Systems	PC	3	3	0	0	3
4.	AT8503	Vehicle Design Data Characteristics	PC	3	3	0	0	3
5.	AT8504	Automotive Fuels and Lubricants	PC	3	3	0	0	3
6.		Open Elective - I	OE	3	3	0	0	3
PRACTICAL								
7.	AT8511	Automotive Electrical and Electronics Laboratory	PC	4	0	0	4	2
8.	AT8512	Automotive Fuels and Lubricants Laboratory	PC	4	0	0	4	2
9.	HS8581	Professional Communication	EEC	2	0	0	2	1
			TOTAL	28	18	0	10	23

SEMESTER VI

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	GE8077	Total Quality Management	HS	3	3	0	0	3
2.	AT8601	Automotive Engine Components Design	PC	3	3	0	0	3
3.	AT8602	Automotive Chassis Components Design	PC	3	3	0	0	3
4.	AT8603	Two and Three Wheelers	PC	3	3	0	0	3
5.	AT8604	Vehicle Dynamics	PC	3	3	0	0	3
6.		Professional Elective – I	PE	3	3	0	0	3
PRACTICAL								
7.	AT8611	Computer Aided Engine and Chassis Design Laboratory	PC	4	0	0	4	2
8.	AT8612	Two and Three Wheelers Laboratory	PC	4	0	0	4	2
			TOTAL	26	18	0	8	22

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SEMESTER VII

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	AT8701	Engine and Vehicle Management System	PC	3	3	0	0	3
2.	ME8692	Finite Element Analysis	PC	3	3	0	0	3
3.	AT8702	Vehicle Maintenance	PC	3	3	0	0	3
4.		Open Elective - II	OE	3	3	0	0	3
5.		Professional Elective – II	PE	3	3	0	0	3
6.		Professional Elective – III	PE	3	3	0	0	3
PRACTICAL								
7.	AT8711	Engine Performance and Emission Testing Laboratory	PC	4	0	0	4	2
8.	AT8712	Vehicle Maintenance Laboratory	PC	4	0	0	4	2
			TOTAL	26	18	0	8	22

SEMESTER VIII

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	AT8801	Vehicle Body Engineering	PC	3	3	0	0	3
2.		Professional Elective – IV	PE	3	3	0	0	3
3.		Professional Elective – V	PE	3	3	0	0	3
PRACTICAL								
4.	AT8811	Project Work	EEC	20	0	0	20	10
			TOTAL	29	9	0	20	19

TOTAL NUMBER OF CREDITS TO BE EARNED FOR AWARD OF THE DEGREE = 185

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HUMANITIES AND SOCIAL SCIENCES (HS)

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	HS8251	Technical English	HS	4	4	0	0	4
3.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
4.	GE8077	Total Quality Management	HS	3	3	0	0	3

BASIC SCIENCES (BS)

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	MA8151	Engineering Mathematics I	BS	5	3	2	0	4
2.	PH8151	Engineering Physics	BS	3	3	0	0	3
3.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
4.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
5.	MA8251	Engineering Mathematics II	BS	4	4	0	0	4
6.	PH8251	Materials Science	BS	3	3	0	0	3
7.	MA8353	Transforms and Partial Differential Equations	BS	4	4	0	0	4
8.	MA8452	Statistics and Numerical Methods	BS	4	4	0	0	4

ENGINEERING SCIENCES (ES)

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
2.	GE8152	Engineering Graphics	ES	6	2	0	4	4
3.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
4.	BE8253	Basic Electrical, Electronics and Instrumentation Engineering	ES	3	3	0	0	3
5.	GE8292	Engineering Mechanics	ES	5	3	2	0	4
6.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
7.	BE8261	Basic Electrical, Electronics and Instrumentation Engineering Laboratory	ES	4	0	0	4	2
8.	CE8395	Strength of Materials for Mechanical Engineers	ES	3	3	0	0	3
9.	CE8394	Fluid Mechanics and Machinery	ES	4	4	0	0	4
10.	CE8381	Strength of Materials and Fluid Mechanics and Machinery Laboratory	ES	4	0	0	4	2
11.	EC8396	Electronics and Microprocessors	ES	3	3	0	0	3
12.	EC8382	Electronics and Microprocessors Laboratory	ES	4	0	0	4	2

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PROFESSIONAL CORE (PC)

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	ME8391	Engineering Thermodynamics	PC	5	3	2	0	4
2.	AT8301	Spark Ignition Engines	PC	3	3	0	0	3
3.	ME8392	Manufacturing Technology	PC	3	3	0	0	3
4.	ME8381	Computer Aided Machine Drawing	PC	4	0	0	4	2
5.	AT8401	Compression Ignition Engines	PC	3	3	0	0	3
6.	ME8491	Engineering Metallurgy	PC	3	3	0	0	3
7.	AT8402	Automotive Chassis	PC	3	3	0	0	3
8.	PR8451	Mechanics of Machines	PC	3	3	0	0	3
9.	AT8411	Automotive Components Laboratory	PC	4	0	0	4	2
10.	ME8593	Design of Machine Elements	PC	3	3	0	0	3
11.	AT8501	Automotive Transmission	PC	3	3	0	0	3
12.	AT8502	Automotive Electrical and Electronics Systems	PC	3	3	0	0	3
13.	AT8503	Vehicle Design Data Characteristics	PC	3	3	0	0	3
14.	AT8504	Automotive Fuels and Lubricants	PC	3	3	0	0	3
15.	AT8511	Automotive Electrical and Electronics Laboratory	PC	4	0	0	4	2
16.	AT8512	Automotive Fuels and Lubricants Laboratory	PC	4	0	0	4	2
17.	AT8601	Automotive Engine Components Design	PC	3	3	0	0	3
18.	AT8602	Automotive Chassis Components Design	PC	3	3	0	0	3
19.	AT8603	Two and Three Wheelers	PC	3	3	0	0	3
20.	AT8611	Computer Aided Engine and Chassis Design Laboratory	PC	4	0	0	4	2
21.	AT8612	Two and Three Wheelers Laboratory	PC	4	0	0	4	2
22.	AT8701	Engine and Vehicle Management System	PC	3	3	0	0	3
23.	ME8692	Finite Element Analysis	PC	3	3	0	0	3
24.	AT8702	Vehicle Maintenance	PC	3	3	0	0	3
25.	AT8604	Vehicle Dynamics	PC	3	3	0	0	3
26.	AT8711	Engine Performance and Emission Testing Laboratory	PC	4	0	0	4	2
27.	AT8712	Vehicle Maintenance Laboratory	PC	4	0	0	4	2
28.	AT8801	Vehicle Body Engineering	PC	3	3	0	0	3

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ELECTIVES FOR B.E. AUTOMOBILE ENGINEERING

SEMESTER VI, ELECTIVE – I

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	AT8001	Automotive Air-Conditioning	PE	3	3	0	0	3
2.	AT8002	Advance Theory of IC Engines	PE	3	3	0	0	3
3.	AT8003	Metrology and Measurements for Automobile Engineers	PE	3	3	0	0	3
4.	PR8072	New Product Development	PE	3	3	0	0	3
5.	GE8075	Intellectual Property Rights	PE	3	3	0	0	3
6.	GE8073	Fundamentals of Nano Science	PE	3	3	0	0	3

SEMESTER VII, ELECTIVE – II

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	AT8091	Manufacturing of Automotive Components	PE	3	3	0	0	3
2.	AT8004	New Generation and Hybrid Vehicles	PE	3	3	0	0	3
3.	AT8005	Automotive Aerodynamics	PE	3	3	0	0	3
4.	AT8006	Off Road Vehicles	PE	3	3	0	0	3
5.	MG8491	Operations Research	PE	3	3	0	0	3
6.	GE8071	Disaster Management	PE	3	3	0	0	3

SEMESTER VII, ELECTIVE – III

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	AT8007	Noise, Vibration and Measurements	PE	3	3	0	0	3
2.	PR8071	Lean Six Sigma	PE	3	3	0	0	3
3.	ME8099	Robotics	PE	3	3	0	0	3
4.	ME8092	Composite Materials and Mechanics	PE	3	3	0	0	3
5.	GE8074	Human Rights	PE	3	3	0	0	3

SEMESTER VIII, ELECTIVE – IV

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	AT8008	Transport Management	PE	3	3	0	0	3
2.	MG8091	Entrepreneurship Development	PE	3	3	0	0	3
3.	AT8009	Automotive Safety	PE	3	3	0	0	3
4.	AT8010	Automotive Pollution and Control	PE	3	3	0	0	3
5.	AT8011	Automotive Testing	PE	3	3	0	0	3

SEMESTER VIII, ELECTIVE – V

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	PR8491	Computer Integrated Manufacturing	PE	3	3	0	0	3
2.	AT8012	Alternative Fuels and Energy Systems	PE	3	3	0	0	3
3.	MG8591	Principles of Management	PE	3	3	0	0	3
4.	GE8076	Professional Ethics in Engineering	PE	3	3	0	0	3

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EMPLOYABILITY ENHANCEMENT COURSES (EEC)

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	HS8381	Interpersonal Skills/Listening and Speaking	EEC	2	0	0	2	1
2.	HS8581	Professional Communication	EEC	2	0	0	2	1
3.	AT8811	Project Work	EEC	20	0	0	20	10

SUMMARY

SL NO	SUBJECT AREA	CREDITS AS PER SEMESTER								CREDITS TOTAL	Percentage %
		I	II	III	IV	V	VI	VII	VIII		
1.	HS	04	07	00	00	00	03	00	00	14	7.56
2.	BS	12	07	04	04	00	00	00	00	27	14.59
3.	ES	09	11	09	05	00	00	00	00	34	17.83
4.	PC	00	00	12	14	19	16	13	03	77	42.00
5.	PE	00	00	00	00	00	03	06	06	15	8.10
6.	OE	00	00	00	00	03	00	03	00	06	3.24
7.	EEC	00	00	01	00	01	00	00	10	13	7.02
	Total	25	25	26	23	23	22	22	19	185	
8	Non Credit/ Mandatory										

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ANNA UNIVERSITY, CHENNAI
AFFILIATED INSTITUTIONS
B.E. CIVIL ENGINEERING
REGULATIONS – 2017
CHOICE BASED CREDIT SYSTEM

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs) :

I. To prepare students for successful careers in Civil Engineering field that meets the needs of Indian and multinational companies.

II. To develop the confidence and ability among students to synthesize data and technical concepts and thereby apply it in real world problems.

III. To develop students to use modern techniques, skill and mathematical engineering tools for solving problems in Civil Engineering.

IV. To provide students with a sound foundation in mathematical, scientific and engineering fundamentals necessary to formulate, solve and analyse engineering problems and to prepare them for graduate studies.

V. To promote students to work collaboratively on multi-disciplinary projects and make them engage in life-long learning process throughout their professional life.

PROGRAMME OUTCOMES (POs):

On successful completion of the programme,

1. Graduates will demonstrate knowledge of mathematics, science and engineering.
2. Graduates will demonstrate an ability to identify, formulate and solve engineering problems.
3. Graduate will demonstrate an ability to design and conduct experiments, analyze and interpret data.
4. Graduates will demonstrate an ability to design a system, component or process as per needs and specifications.
5. Graduates will demonstrate an ability to visualize and work on laboratory and multidisciplinary tasks.
6. Graduate will demonstrate skills to use modern engineering tools, software and equipment to analyze problems.
7. Graduates will demonstrate knowledge of professional and ethical responsibilities.
8. Graduate will be able to communicate effectively in both verbal and written form.
9. Graduate will show the understanding of impact of engineering solutions on the society and also will be aware of contemporary issues.
10. Graduate will develop confidence for self education and ability for life-long learning.

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PEOs & POs

The B.E. Civil Engineering Program outcomes leading to the achievement of the objectives are summarized in the following Table.

Programme Educational Objectives	Programme Outcomes									
	a	b	c	d	e	f	g	h	i	j
I	X	X		X	X					
II		X	X							
III				X			X			
IV	X				X					
V						X		X	X	X

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			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
YEAR 1	SEM 1	Communicative English				✓				✓		
		Engineering Mathematics – I	✓									
		Engineering Physics	✓	✓	✓	✓	✓	✓				
		Engineering Chemistry	✓	✓	✓		✓	✓	✓			
		Problem Solving and Python Programming	✓	✓			✓	✓	✓			
		Engineering Graphics	✓	✓	✓		✓	✓	✓		✓	✓
		Problem Solving and Python Programming Laboratory	✓	✓			✓	✓	✓			
		Physics and Chemistry Laboratory	✓	✓			✓	✓	✓			
	SEM 2	Technical English				✓				✓		
		Engineering Mathematics – II	✓									
		Physics for Civil Engineering	✓	✓	✓	✓	✓	✓				
		Basic Electrical and Electronics Engineering										
		Environmental Science and Engineering							✓		✓	
		Engineering Mechanics	✓	✓	✓		✓	✓	✓		✓	✓
		Engineering Practices Laboratory	✓	✓				✓	✓			
		Computer Aided Building Drawing										
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
YEAR 2	SEM 3	Transforms and Partial Differential Equations										
		Engineering Geology		✓	✓		✓		✓			✓
		Construction Materials		✓	✓		✓		✓			✓
		Strength of Materials I	✓	✓	✓	✓	✓					✓
		Fluid Mechanics	✓	✓		✓			✓	✓	✓	✓
		Surveying		✓	✓		✓		✓			✓
		Surveying Laboratory										
		Construction Materials Laboratory										

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			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
YEAR 3		Interpersonal Skills / Listening and Speaking										
	SEM 4	Numerical Methods										
		Construction Techniques and Practices		✓			✓		✓		✓	✓
		Strength of Materials II	✓	✓	✓	✓	✓					✓
		Applied Hydraulic Engineering	✓	✓		✓			✓	✓	✓	✓
		Concrete Technology	✓	✓		✓			✓	✓	✓	✓
		Soil Mechanics	✓	✓					✓	✓	✓	✓
		Strength of Materials Laboratory	✓	✓	✓	✓	✓					✓
		Hydraulic Engineering Laboratory	✓		✓		✓	✓	✓	✓	✓	✓
		Advanced Reading and Writing										
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
	SEM 5	Design of Reinforced Cement Concrete Elements	✓	✓	✓	✓	✓					✓
		Foundation Engineering		✓		✓			✓		✓	✓
		Structural Analysis I	✓	✓	✓	✓	✓				✓	✓
		Water Supply Engineering			✓	✓	✓	✓			✓	
		Open Elective- I*										
		Professional Elective I										
		Water and Waste Water Analysis Laboratory		✓		✓			✓			✓
		Soil Mechanics Laboratory			✓		✓	✓				
		Survey Camp (2 weeks–During V Semester)			✓	✓					✓	
	SEM 6	Design of Steel Structural Elements	✓	✓	✓	✓	✓					✓
		Structural Analysis II	✓	✓	✓	✓	✓				✓	✓
		Irrigation Engineering	✓	✓		✓						
		Wastewater Engineering	✓	✓		✓						

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Professional Elective III										
Open Elective II*										
Creative and Innovative Project (Activity Based - Subject Related)		✓		✓		✓				✓
Industrial Training (4 weeks During VI semester–Summer)				✓		✓		✓		✓

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5.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
6.	GE8152	Engineering Graphics	ES	6	2	0	4	4
PRACTICALS								
7.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
8.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
			TOTAL	**31**	**19**	**0**	**12**	**25**

SEMESTER II

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C

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SEMESTER III

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MA8353	Transforms and Partial Differential Equations	BS	4	4	0	0	4
2.	CE8301	Strength of Materials I	PC	3	3	0	0	3
3.	CE8302	Fluid Mechanics	PC	3	3	0	0	3
4.	CE8351	Surveying	PC	3	3	0	0	3
5.	CE8391	Construction Materials	PC	3	3	0	0	3
6.	CE8392	Engineering Geology	ES	3	3	0	0	3
PRACTICALS								
7.	CE8311	Construction Materials Laboratory	PC	4	0	0	4	2
8.	CE8361	Surveying Laboratory	PC	4	0	0	4	2
9.	HS8381	Interpersonal Skills / Listening and Speaking	EEC	2	0	0	2	1
			TOTAL	29	19	0	10	24

SEMESTER IV

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MA8491	Numerical Methods	BS	4	4	0	0	4
2.	CE8401	Construction Techniques and Practices	PC	3	3	0	0	3
3.	CE8402	Strength of Materials II	PC	3	3	0	0	3
4.	CE8403	Applied Hydraulic Engineering	PC	3	3	0	0	3
5.	CE8404	Concrete Technology	PC	3	3	0	0	3
6.	CE8491	Soil Mechanics	PC	3	3	0	0	3
PRACTICALS								
7.	CE8481	Strength of Materials Laboratory	PC	4	0	0	4	2
8.	CE8461	Hydraulic Engineering Laboratory	PC	4	0	0	4	2
9.	HS8461	Advanced Reading and Writing	EEC	2	0	0	2	1
			TOTAL	29	19	0	10	24

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SEMESTER V

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	CE8501	Design of Reinforced Cement Concrete Elements	PC	5	3	2	0	4
2.	CE8502	Structural Analysis I	PC	3	3	0	0	3
3.	EN8491	Water Supply Engineering	PC	3	3	0	0	3
4.	CE8591	Foundation Engineering	PC	3	3	0	0	3
5.		Professional Elective I	PE	3	3	0	0	3
6.		Open Elective I*	OE	3	3	0	0	3
PRACTICALS								
7.	CE8511	Soil Mechanics Laboratory	PC	4	0	0	4	2
8.	CE8512	Water and Waste Water Analysis Laboratory	PC	4	0	0	4	2
9.	CE8513	Survey Camp (2 weeks –During IV Semester)	EEC	0	0	0	0	2
			TOTAL	28	18	2	8	25

SEMESTER VI

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	CE8601	Design of Steel Structural Elements	PC	5	3	2	0	4
2.	CE8602	Structural Analysis II	PC	3	3	0	0	3
3.	CE8603	Irrigation Engineering	PC	3	3	0	0	3
4.	CE8604	Highway Engineering	PC	3	3	0	0	3
5.	EN8592	Wastewater Engineering	PC	3	3	0	0	3
6.		Professional Elective II	PE	3	3	0	0	3
PRACTICALS								
7.	CE8611	Highway Engineering Laboratory	PC	4	0	0	4	2
8.	CE8612	Irrigation and Environmental Engineering Drawing	PC	4	0	0	4	2
9.	HS8581	Professional Communication	EEC	2	0	0	2	1
			TOTAL	30	18	2	10	24

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EMESTER VII

CATEGORY	CONTACT PERIODS	L	T	P	C
PC	3	3	0	0	3
PC	3	3	0	0	3
PC	5	3	0	2	4
PE	3	3	0	0	3
OE	3	3	0	0	3
EEC	4	0	0	4	2
EEC	0	0	0	0	2
TOTAL	**21**	**15**	**0**	**6**	**20**

SEMESTER VIII

CATEGORY	CONTACT PERIODS	L	T	P	C

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HUMANITIES AND SOCIAL SCIENCES (HS)

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	HS8251	Technical English	HS	4	4	0	0	4
3.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3

BASIC SCIENCES (BS)

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	MA8151	Engineering Mathematics – I	BS	4	4	0	0	4
2.	PH8151	Engineering Physics	BS	3	3	0	0	3
3.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
4.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
5.	MA8251	Engineering Mathematics – II	BS	4	4	0	0	4
6.	PH8201	Physics for Civil Engineering	BS	3	3	0	0	3
7.	MA8353	Transforms and Partial Differential Equations	BS	4	4	0	0	4
8.	MA8491	Numerical Methods	BS	4	4	0	0	4

ENGINEERING SCIENCES (ES)

S.No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
2.	GE8152	Engineering Graphics	ES	6	2	0	4	4
3.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
4.	BE8251	Basic Electrical and Electronics Engineering	ES	3	3	0	0	3
5.	GE8292	Engineering Mechanics	ES	5	3	2	0	4
6.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
7.	CE8392	Engineering Geology	ES	3	3	0	0	3

PROFESSIONAL CORE (PC)

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CE8211	Computer Aided Building Drawing	PC	4	0	0	4	2
2.	CE8391	Construction Materials	PC	3	3	0	0	3
3.	CE8301	Strength of Materials I	PC	3	3	0	0	3
4.	CE8302	Fluid Mechanics	PC	3	3	0	0	3
5.	CE8351	Surveying	PC	3	3	0	0	3

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6.	CE8481	Strength of Materials Laboratory	PC	4	0	0	4	2
7.	CE8361	Surveying Laboratory	PC	4	0	0	4	2
8.	CE8311	Construction Materials Laboratory	PC	4	0	0	4	2
9.	CE8401	Construction Techniques and Practices	PC	3	3	0	0	3
10.	CE8402	Strength of Materials II	PC	3	3	0	0	3
11.	CE8403	Applied Hydraulic Engineering	PC	3	3	0	0	3
12.	CE8404	Concrete Technology	PC	3	3	0	0	3
13.	CE8491	Soil Mechanics	PC	3	3	0	0	3
14.	CE8461	Hydraulic Engineering Laboratory	PC	4	0	0	4	2
15.	CE8501	Design of Reinforced Cement Concrete Elements	PC	5	3	2	0	4
16.	CE8502	Structural Analysis I	PC	3	3	0	0	3
17.	CE8511	Soil Mechanics Laboratory	PC	4	0	0	4	2
18.	CE8512	Water and Waste Water Analysis Laboratory	PC	4	0	0	4	2
19.	CE8591	Foundation Engineering	PC	3	3	0	0	3
20.	CE8601	Design of Steel Structural Elements	PC	5	3	2	0	4
21.	CE8602	Structural Analysis II	PC	3	3	0	0	3
22.	CE8603	Irrigation Engineering	PC	3	3	0	0	3
23.	CE8604	Highway Engineering	PC	3	3	0	0	3
24.	CE8611	Highway Engineering Laboratory	PC	4	0	0	4	2
25.	CE8612	Irrigation and Environmental Engineering Drawing	PC	4	0	0	4	2
26.	EN8592	Wastewater Engineering	PC	3	3	0	0	3
27.	EN8491	Water Supply Engineering	PC	3	3	0	0	3
28.	CE8701	Estimation, Costing and Valuation Engineering	PC	3	3	0	0	3
29.	CE8702	Railways, Airports, Docks and Harbour Engineering	PC	3	3	0	0	3
30.	CE8703	Structural Design and Drawing	PC	5	3	0	2	4

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EMPLOYABILITY ENHANCEMENT COURSES (EEC)

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	HS8381	Interpersonal Skills / Listening and Speaking	EEC	2	0	0	2	1
2.	HS8461	Advanced Reading and Writing	EEC	2	0	0	2	1
3.	CE8513	Survey Camp (2 weeks – During IV Semester)	EEC	0	0	0	0	2
4.	HS8581	Professional Communication	EEC	2	0	0	2	1
5.	CE8711	Creative and Innovative Project (Activity Based - Subject Related)	EEC	4	0	0	4	2
6.	CE8712	Industrial Training (4 weeks During VI Semester – Summer)	EEC	0	0	0	0	2
7.	CE8811	Project Work	EEC	20	0	0	20	10

PROFESSIONAL ELECTIVE

SEMESTER V
ELECTIVE - I

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	GI8012	Digital Cadastre	PE	3	3	0	0	3
2.	GI8013	Advanced Surveying	PE	3	3	0	0	3
3.	GI8014	Geographic Information System	PE	3	3	0	0	3
4.	GI8015	Geoinformatics Applications for Civil Engineers	PE	3	3	0	0	3
5.	GI8491	Total Station and GPS Surveying	PE	3	3	0	0	3
6.	GE8071	Disaster Management	PE	3	3	0	0	3
7.	GE8074	Human Rights	PE	3	3	0	0	3

SEMESTER VI
ELECTIVE - II

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CE8001	Ground Improvement Techniques	PE	3	3	0	0	3
2.	CE8002	Introduction to Soil Dynamics and Machine Foundations	PE	3	3	0	0	3
3.	CE8003	Rock Engineering	PE	3	3	0	0	3
4.	CE8004	Urban Planning and Development	PE	3	3	0	0	3
5.	CE8005	Air Pollution and Control Engineering	PE	3	3	0	0	3
6.	GE8075	Intellectual Property Rights	PE	3	3	0	0	3

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ER VIII
'E – IV

CATEGORY	CONTACT PERIODS	L	T	P	C
PE	3	3	0	0	3
PE	3	3	0	0	3
PE	3	3	0	0	3
PE	3	3	0	0	3
PE	3	3	0	0	3
PE	3	3	0	0	3
PE	3	3	0	0	3
PE	3	3	0	0	3

ER VIII
/E – V

CATEGORY	CONTACT PERIODS	L	T	P	C
PE	3	3	0	0	3
PE	3	3	0	0	3
PE	3	3	0	0	3
PE	3	3	0	0	3
PE	3	3	0	0	3
PE	3	3	0	0	3

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S.No	Subject Area	Credits per Semester								Credits Total
		I	II	III	IV	V	VI	VII	VIII	
1	HS	4	7							11
2	BS	12	7	4	4					27
3	ES	9	9	3						21
4	PC		2	16	19	17	20	10		84
5	PE					3	3	3	6	15
6	OE					3		3		6
7	EEC			1	1	2	1	4	10	19
	Total	25	25	24	24	25	24	20	16	183
8	Non-Credit/Mandatory									

SUMMARY

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ANNA UNIVERSITY, CHENNAI
AFFILIATED INSTITUTIONS
B.E. COMPUTER SCIENCE AND ENGINEERING
REGULATIONS – 2017
CHOICE BASED CREDIT SYSTEM

PROGRAM EDUCATIONAL OBJECTIVES (PEOs):

1. To enable graduates to pursue higher education and research, or have a successful career in industries associated with Computer Science and Engineering, or as entrepreneurs. To ensure that graduates will have the ability and attitude to adapt to emerging technological changes.

PROGRAM OUTCOMES POs:

Engineering Graduates will be able to:

1. **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.

2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3. **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6. **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

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11. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OBJECTIVES (PSOs)

To analyze, design and develop computing solutions by applying foundational concepts of Computer Science and Engineering.

To apply software engineering principles and practices for developing quality software for scientific and business applications.

To adapt to emerging Information and Communication Technologies (ICT) to innovate ideas and solutions to existing/novel problems.

Mapping of POs/PSOs to PEOs

Contribution 1: Reasonable 2:Significant 3:Strong

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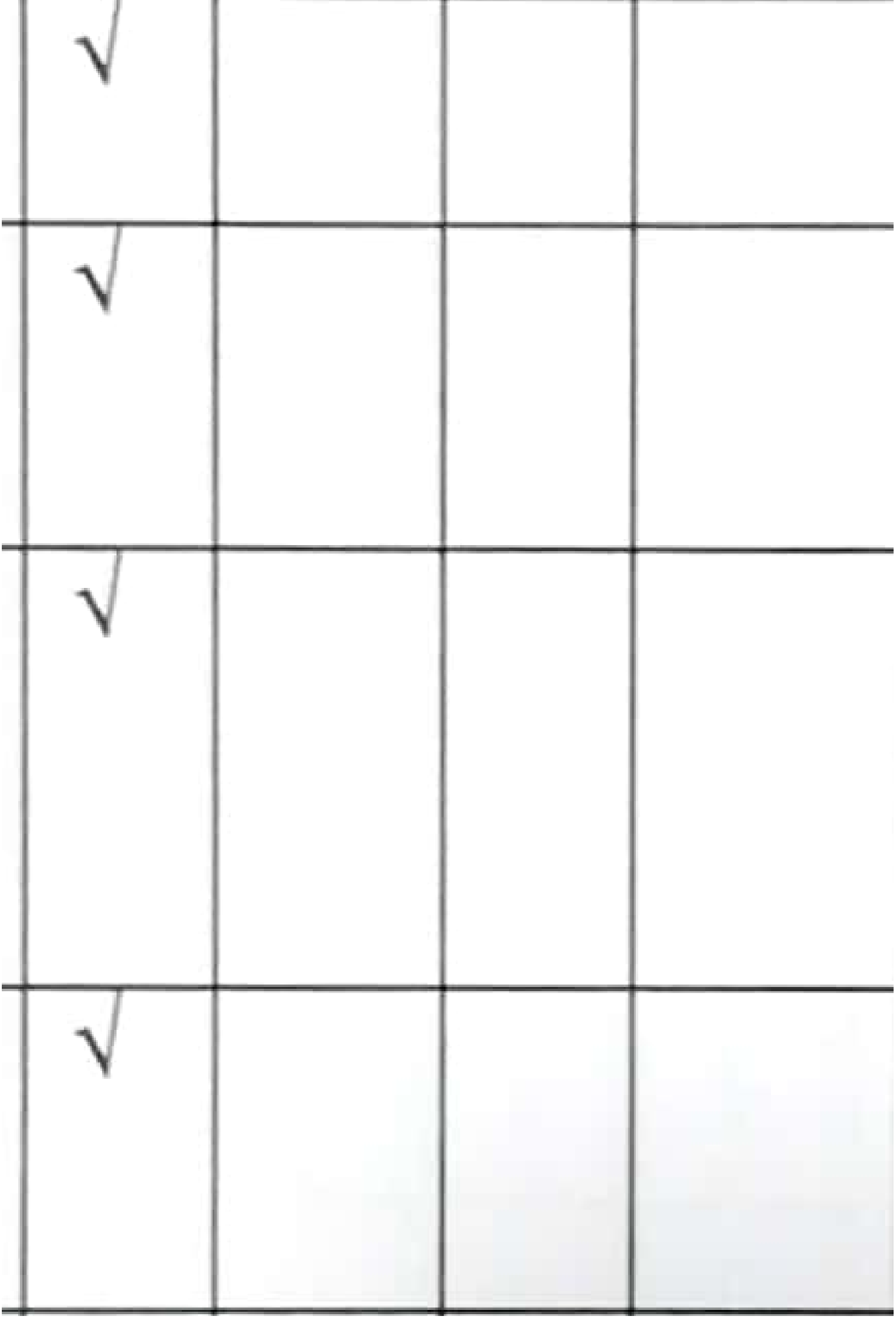
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POs	1. Graduates will pursue higher education and research, or have a successful career in industries associated with Computer Science and Engineering, or as entrepreneurs.	2. Graduates will have the ability and attitude to adapt to emerging technological changes.
1. **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.	3	1
2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.	3	1
3. **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.	3	2
4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.	3	2
5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.	2	3
6. **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.	2	2

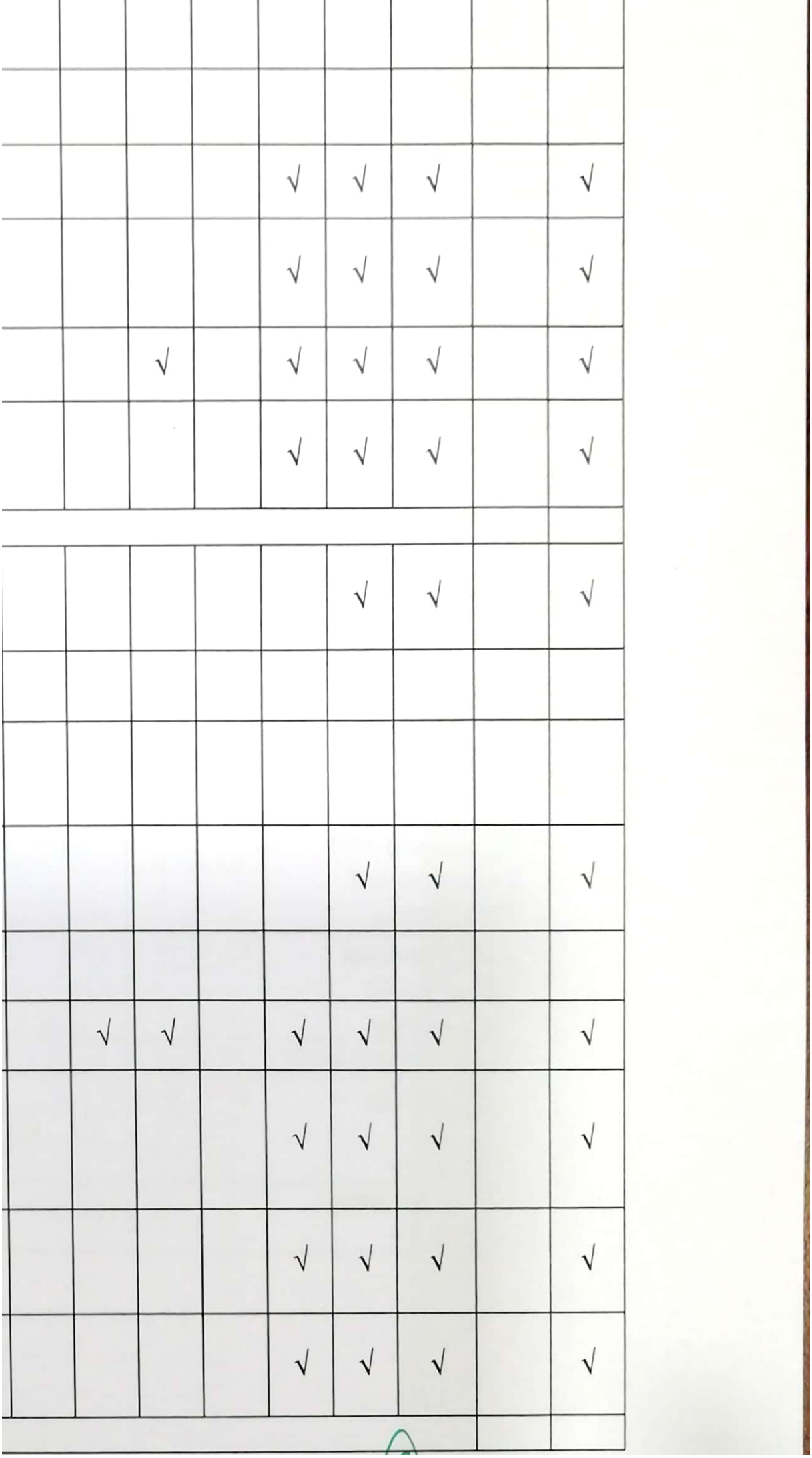
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11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.	2	2
12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.	1	3

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YEAR III	SEMESTER V	Networks																						
		Microprocessors and Microcontrollers	√	√	√																			
		Theory of Computation	√	√	√																			
		Object Oriented Analysis and Design	√	√	√			√																
		Open Elective I																						
		Microprocessors and Microcontrollers Laboratory	√	√	√					√	√	√		√										
		Object Oriented Analysis and Design Laboratory	√	√	√		√	√		√	√	√		√										
		Networks Laboratory	√	√	√					√	√	√		√										
	SEMESTER VI	Internet Programming	√	√	√					√	√	√		√										
		Artificial Intelligence	√	√	√																			
		Mobile Computing	√	√	√																			
		Compiler Design	√	√	√					√	√	√		√										
		Distributed Systems	√	√	√																			
		Professional Elective I																						
		Internet Programming Laboratory	√	√	√		√			√	√	√		√										
		Mobile Application Development Laboratory	√	√	√		√	√		√	√	√		√										
		Mini Project	√	√	√	√	√	√	√	√	√	√	√	√										
		Professional Communication						√				√		√										
YEAR IV	SEMESTER VII	Principles of Management	√	√	√								√											
		Cryptography and Network Security	√	√	√																			
		Cloud Computing	√	√	√																			
		Open Elective II																						
		Professional																						

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		Elective II												
		Professional Elective III												
		Cloud Computing Laboratory	√	√	√		√			√	√	√		√
		Security Laboratory	√	√	√		√			√	√	√		√
	SEMESTER VIII	Professional Elective IV												
		Professional Elective V												
		Project Work	√	√	√	√	√	√	√	√	√	√	√	√

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√	√	√	
√	√	√	
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REGULATIONS – 2017
CHOICE BASED CREDIT SYSTEM
I - VIII SEMESTERS CURRICULA AND SYLLABI

SEMESTER I

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	MA8151	Engineering Mathematics - I	BS	4	4	0	0	4
3.	PH8151	Engineering Physics	BS	3	3	0	0	3
4.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
5.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
6.	GE8152	Engineering Graphics	ES	6	2	0	4	4
PRACTICALS								
7.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
8.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
			TOTAL	31	19	0	12	25

SEMESTER II

Sl.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	HS8251	Technical English	HS	4	4	0	0	4
2.	MA8251	Engineering Mathematics - II	BS	4	4	0	0	4
3.	PH8252	Physics for Information Science	BS	3	3	0	0	3
4.	BE8255	Basic Electrical, Electronics and Measurement Engineering	ES	3	3	0	0	3
5.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
6.	CS8251	Programming in C	PC	3	3	0	0	3
PRACTICALS								
7.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
8.	CS8261	C Programming Laboratory	PC	4	0	0	4	2
			TOTAL	28	20	0	8	24

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SEMESTER III

Sl.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MA8351	Discrete Mathematics	BS	4	4	0	0	4
2.	CS8351	Digital Principles and System Design	ES	4	4	0	0	4
3.	CS8391	Data Structures	PC	3	3	0	0	3
4.	CS8392	Object Oriented Programming	PC	3	3	0	0	3
5.	EC8395	Communication Engineering	ES	3	3	0	0	3
PRACTICALS								
6.	CS8381	Data Structures Laboratory	PC	4	0	0	4	2
7.	CS8383	Object Oriented Programming Laboratory	PC	4	0	0	4	2
8.	CS8382	Digital Systems Laboratory	ES	4	0	0	4	2
9.	HS8381	Interpersonal Skills/Listening &Speaking	EEC	2	0	0	2	1
			TOTAL	31	17	0	14	24

SEMESTER IV

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MA8402	Probability and Queueing Theory	BS	4	4	0	0	4
2.	CS8491	Computer Architecture	PC	3	3	0	0	3
3.	CS8492	Database Management Systems	PC	3	3	0	0	3
4.	CS8451	Design and Analysis of Algorithms	PC	3	3	0	0	3
5.	CS8493	Operating Systems	PC	3	3	0	0	3
6.	CS8494	Software Engineering	PC	3	3	0	0	3
PRACTICALS								
7.	CS8481	Database Management Systems Laboratory	PC	4	0	0	4	2
8.	CS8461	Operating Systems Laboratory	PC	4	0	0	4	2
9.	HS8461	Advanced Reading and Writing	EEC	2	0	0	2	1
			TOTAL	29	19	0	10	24

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SEMESTER V

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MA8551	Algebra and Number Theory	BS	4	4	0	0	4
2.	CS8591	Computer Networks	PC	3	3	0	0	3
3.	EC8691	Microprocessors and Microcontrollers	PC	3	3	0	0	3
4.	CS8501	Theory of Computation	PC	3	3	0	0	3
5.	CS8592	Object Oriented Analysis and Design	PC	3	3	0	0	3
6.		Open Elective I	OE	3	3	0	0	3
PRACTICALS								
7.	EC8681	Microprocessors and Microcontrollers Laboratory	PC	4	0	0	4	2
8.	CS8582	Object Oriented Analysis and Design Laboratory	PC	4	0	0	4	2
9.	CS8581	Networks Laboratory	PC	4	0	0	4	2
			TOTAL	31	19	0	12	25

SEMESTER VI

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	CS8651	Internet Programming	PC	3	3	0	0	3
2.	CS8691	Artificial Intelligence	PC	3	3	0	0	3
3.	CS8601	Mobile Computing	PC	3	3	0	0	3
4.	CS8602	Compiler Design	PC	5	3	0	2	4
5.	CS8603	Distributed Systems	PC	3	3	0	0	3
6.		Professional Elective I	PE	3	3	0	0	3
PRACTICALS								
7.	CS8661	Internet Programming Laboratory	PC	4	0	0	4	2
8.	CS8662	Mobile Application Development Laboratory	PC	4	0	0	4	2
9.	CS8611	Mini Project	EEC	2	0	0	2	1
10.	HS8581	Professional Communication	EEC	2	0	0	2	1
			TOTAL	32	18	0	14	25

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SEMESTER VII

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MG8591	Principles of Management	HS	3	3	0	0	3
2.	CS8792	Cryptography and Network Security	PC	3	3	0	0	3
3.	CS8791	Cloud Computing	PC	3	3	0	0	3
4.		Open Elective II	OE	3	3	0	0	3
5.		Professional Elective II	PE	3	3	0	0	3
6.		Professional Elective III	PE	3	3	0	0	3
PRACTICALS								
7.	CS8711	Cloud Computing Laboratory	PC	4	0	0	4	2
8.	IT8761	Security Laboratory	PC	4	0	0	4	2
			TOTAL	26	18	0	8	22

SEMESTER VIII

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.		Professional Elective IV	PE	3	3	0	0	3
2.		Professional Elective V	PE	3	3	0	0	3
PRACTICALS								
3.	CS8811	Project Work	EEC	20	0	0	20	10
			TOTAL	26	6	0	20	16

TOTAL NO. OF CREDITS: 185

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HUMANITIES AND SOCIAL SCIENCES (HS)

SI. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	HS8251	Technical English	HS	4	4	0	0	4
3.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
4.	MG8591	Principles of Management	HS	3	3	0	0	3

BASIC SCIENCES (BS)

SI. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	MA8151	Engineering Mathematics I	BS	4	4	0	0	4
2.	PH8151	Engineering Physics	BS	3	3	0	0	3
3.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
4.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
5.	MA8251	Engineering Mathematics II	BS	4	4	0	0	4
6.	PH8252	Physics for Information Science	BS	3	3	0	0	3
7.	MA8351	Discrete Mathematics	BS	4	4	0	0	4
8.	MA8402	Probability and Queueing Theory	BS	4	4	0	0	4
9.	MA8551	Algebra and Number Theory	BS	4	4	0	0	4

ENGINEERING SCIENCES (ES)

SI. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
2.	GE8152	Engineering Graphics	ES	6	2	0	4	4
3.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
4.	BE8255	Basic Electrical, Electronics and Measurement Engineering	ES	3	3	0	0	3
5.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
6.	CS8351	Digital Principles and System Design	ES	4	4	0	0	4
7.	EC8395	Communication Engineering	ES	3	3	0	0	3
8.	CS8382	Digital Systems Laboratory	ES	4	0	0	4	2

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PC	4	0	0	4	2
PC	4	0	0	4	2
PC	3	3	0	0	3
PC	3	3	0	0	3
PC	3	3	0	0	3
PC	3	3	0	0	3
PC	3	3	0	0	3
PC	4	0	0	4	2
PC	4	0	0	4	2
PC	3	3	0	0	3
PC	3	3	0	0	3
PC	3	3	0	0	3
PC	3	3	0	0	3
PC	4	0	0	4	2
PC	4	0	0	4	2
PC	4	0	0	4	2
PC	3	3	0	0	3
PC	3	3	0	0	3
PC	3	3	0	0	3
PC	5	3	0	2	4
PC	3	3	0	0	3
PC	4	0	0	4	2
PC	4	0	0	4	2
PC	3	3	0	0	3
PC	3	3	0	0	3

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PE	3	3	0	0	3
PE	3	3	0	0	3
PE	3	3	0	0	3
PE	3	3	0	0	3
PE	3	3	0	0	3
PE	3	3	0	0	3
PE	3	3	0	0	3

ESTER VII
CTIVE - II

CATEGORY	CONTACT PERIODS	L	T	P	C
PE	3	3	0	0	3
PE	3	3	0	0	3
PE	3	3	0	0	3
PE	3	3	0	0	3
PE	3	3	0	0	3
PE	3	3	0	0	3
PE	3	3	0	0	3

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SEMESTER VIII
ELECTIVE - IV

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	EC8093	Digital Image Processing	PE	3	3	0	0	3
2.	CS8085	Social Network Analysis	PE	3	3	0	0	3
3.	IT8073	Information Security	PE	3	3	0	0	3
4.	CS8087	Software Defined Networks	PE	3	3	0	0	3
5.	CS8074	Cyber Forensics	PE	3	3	0	0	3
6.	CS8086	Soft Computing	PE	3	3	0	0	3
7.	GE8076	Professional Ethics in Engineering	PE	3	3	0	0	3

SEMESTER VIII
ELECTIVE - V

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CS8080	Information Retrieval Techniques	PE	3	3	0	0	3
2.	CS8078	Green Computing	PE	3	3	0	0	3
3.	CS8076	GPU Architecture and Programming	PE	3	3	0	0	3
4.	CS8084	Natural Language Processing	PE	3	3	0	0	3
5.	CS8001	Parallel Algorithms	PE	3	3	0	0	3
6.	IT8077	Speech Processing	PE	3	3	0	0	3
7.	GE8073	Fundamentals of Nano Science	PE	3	3	0	0	3

EMPLOYABILITY ENHANCEMENT COURSES (EEC)

SI. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	HS8381	Interpersonal Skills/Listening & Speaking	EEC	2	0	0	2	1
2.	HS8461	Advanced Reading and Writing	EEC	2	0	0	2	1
3.	CS8611	Mini Project	EEC	2	0	0	2	1
4.	HS8581	Professional Communication	EEC	2	0	0	2	1
5.	CS8811	Project Work	EEC	20	0	0	20	10

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SUMMARY

S.NO.	SUBJECT AREA	CREDITS AS PER SEMESTER								CREDITS TOTAL	Percentage
		I	II	III	IV	V	VI	VII	VIII		
1.	HS	4	7					3		14	7.60%
2.	BS	12	7	4	4	4				31	16.8%
3.	ES	9	5	9						23	12.5%
4.	PC		5	10	19	18	20	10		82	44.5%
5.	PE						3	6	6	15	8.15%
6.	OE					3		3		6	3.3%
7.	EEC			1	1		2		10	14	7.65%
	Total	25	24	24	24	25	25	22	16	185	
8.	Non Credit / Mandatory										

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MAPPING OF COURSE OUTCOMES WITH PROGRAMME OUTCOMES:

A broad relation between the Course Outcomes and Programme Outcomes is given in the following table

COURSE OUTCOMES		PROGRAMME OUTCOMES											
Sem	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
I	Communicative English						√	√	√	√	√	√	
	Engineering Mathematics – I	√	√	√	√							√	√
	Engineering Physics	√	√	√	√							√	√
	Engineering Chemistry	√	√	√	√							√	√
	Problem Solving and Python Programming	√	√	√	√	√						√	√
	Engineering Graphics	√									√	√	√
	Problem Solving and Python Programming Laboratory	√	√	√	√	√						√	√
	Physics and Chemistry Laboratory	√	√	√	√							√	√
II	Technical English					√	√	√	√	√	√	√	√
	Engineering Mathematics – II	√	√	√	√							√	√
	Physics for Electronics Engineering	√	√	√	√							√	√
	Basic Electrical and Instrumentation Engineering	√	√	√	√	√	√					√	√
	Circuit Analysis	√	√	√	√	√	√					√	√
	Electronic Devices	√	√	√	√	√	√					√	√
	Circuits and Devices Laboratory	√	√	√	√	√						√	√
	Engineering Practices Laboratory	√	√	√	√	√						√	√
III	Linear Algebra and Partial Differential Equations	√	√	√	√	√						√	√
	Fundamentals of Data Structures In C	√	√	√	√	√	√					√	√
	Electronic Circuits- I	√	√	√	√	√	√					√	√
	Signals and Systems	√	√	√	√	√	√					√	√
	Digital Electronics	√	√	√	√	√	√					√	√
	Control System Engineering	√	√	√	√	√	√					√	√
	Fundamentals of Data Structures in C Laboratory	√	√	√	√	√	√					√	√
	Analog and Digital Circuits Laboratory	√	√	√	√	√	√					√	√
	Interpersonal Skills/Listening &Speaking						√		√	√	√	√	√
IV	Probability and Random Processes	√	√	√	√	√						√	√
	Electronic Circuits II	√	√	√	√	√	√					√	√
	Communication Theory	√	√	√	√	√	√					√	√
	Electromagnetic Fields	√	√	√	√	√	√					√	√
	Linear Integrated Circuits	√	√	√	√	√	√					√	√
	Environmental Science and Engineering	√	√		√		√	√	√			√	√
	Circuits Design and Simulation Laboratory	√	√	√	√	√	√					√	√

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MAPPING OF PROGRAMME EDUCATIONAL OBJECTIVES WITH PROGRAMME OUTCOMES

A broad relation between the programme objective and the outcomes is given in the following table

PROGRAMME EDUCATIONAL OBJECTIVES	PROGRAMME OUTCOMES											
	A	B	C	D	E	F	G	H	I	J	K	L
1	3	3	2	3	2	1	1	2	1	1	3	1
2	3	3	3	3	3	1	1	1	1	1	1	2
3	3	3	3	3	3	2	2	3	1	2	2	2

MAPPING OF PROGRAM SPECIFIC OBJECTIVES WITH PROGRAMME OUTCOMES

A broad relation between the Program Specific Objectives and the outcomes is given in the following table

PROGRAM SPECIFIC OBJECTIVES	PROGRAMME OUTCOMES											
	A	B	C	D	E	F	G	H	I	J	K	L
1	3	3	2	3	2	1	1	1	1	1	1	2
2	3	3	3	3	3	2	2	3	1	3	3	3
3	3	3	3	3	3	3	3	2	1	1	1	3

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ANNA UNIVERSITY, CHENNAI
AFFILIATED INSTITUTIONS
B.E. ELECTRONICS AND COMMUNICATION ENGINEERING
REGULATIONS – 2017

PROGRAMME EDUCATIONAL OBJECTIVES:

PEO1: To enable graduates to pursue research, or have a successful career in academia or industries associated with Electronics and Communication Engineering, or as entrepreneurs.

PEO2: To provide students with strong foundational concepts and also advanced techniques and tools in order to enable them to build solutions or systems of varying complexity.

PEO3: To prepare students to critically analyze existing literature in an area of specialization and ethically develop innovative and research oriented methodologies to solve the problems identified.

PROGRAMME OUTCOMES:

Engineering Graduates will be able to:

1. **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3. **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6. **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

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8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OBJECTIVES (PSOs)

1. To analyze, design and develop solutions by applying foundational concepts of electronics and communication engineering.
2. To apply design principles and best practices for developing quality products for scientific and business applications.
3. To adapt to emerging information and communication technologies (ICT) to innovate ideas and solutions to existing/novel problems.

Contribution **1: Reasonable** **2: Significant** **3: Strong**

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B.E. ELECTRONICS AND COMMUNICATION ENGINEERING
REGULATIONS – 2017
CHOICE BASED CREDIT SYSTEM
I - VIII SEMESTERS CURRICULA AND SYLLABI

SEMESTER I

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	MA8151	Engineering Mathematics - I	BS	4	4	0	0	4
3.	PH8151	Engineering Physics	BS	3	3	0	0	3
4.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
5.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
6.	GE8152	Engineering Graphics	ES	6	2	0	4	4
PRACTICALS								
7.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
8.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
			TOTAL	31	19	0	12	25

SEMESTER II

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	HS8251	Technical English	HS	4	4	0	0	4
2.	MA8251	Engineering Mathematics - II	BS	4	4	0	0	4
3.	PH8253	Physics for Electronics Engineering	BS	3	3	0	0	3
4.	BE8254	Basic Electrical and Instrumentation Engineering	ES	3	3	0	0	3
5.	EC8251	Circuit Analysis	PC	4	4	0	0	4
6.	EC8252	Electronic Devices	PC	3	3	0	0	3
PRACTICALS								
7.	EC8261	Circuits and Devices Laboratory	PC	4	0	0	4	2
8.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
			TOTAL	29	21	0	8	25

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COURSE OUTCOMES		PROGRAMME OUTCOMES											
Sem	Course Name	a	b	c	d	e	f	g	h	i	j	k	l
	Linear Integrated Circuits Laboratory	√	√	√	√	√	√					√	√
V	Digital Communication	√	√	√	√	√	√					√	√
	Discrete-Time Signal Processing	√	√	√	√	√	√					√	√
	Computer Architecture and Organization	√	√	√	√		√					√	√
	Communication Networks	√	√	√	√	√	√					√	√
	Professional Elective I												
	Open Elective I												
	Digital Signal Processing Laboratory	√	√	√	√	√	√					√	√
	Communication Systems Laboratory	√	√	√	√	√	√					√	√
	Networks Laboratory	√	√	√	√	√	√					√	√
VI	Microprocessors and Microcontrollers	√	√	√	√	√	√					√	√
	VLSI Design	√	√	√	√	√	√					√	√
	Wireless Communication	√	√	√	√	√	√					√	√
	Principles of Management						√	√	√		√	√	√
	Transmission Lines and RF Systems	√	√	√	√	√	√					√	√
	Professional Elective -II												
	Microprocessors and Microcontrollers Laboratory	√	√	√	√	√	√					√	√
	VLSI Design Laboratory	√	√	√	√	√	√					√	√
	Technical Seminar		√		√	√	√		√	√	√	√	√
VII	Antennas and Microwave Engineering	√	√	√	√	√	√					√	√
	Optical Communication	√	√	√	√		√					√	√
	Embedded and Real Time Systems	√	√	√	√	√	√					√	√
	Ad hoc and Wireless Sensor Networks	√	√	√	√	√	√					√	√
	Professional Elective -III												
	Open Elective - II												
	Embedded Laboratory	√	√	√	√	√	√					√	√
	Advanced Communication Laboratory	√	√	√	√	√	√					√	√
VIII	Professional Elective - IV												
	Professional Elective - V												
	Project Work	√	√	√	√	√	√		√	√	√	√	√

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SEMESTER III

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MA8352	Linear Algebra and Partial Differential Equations	BS	4	4	0	0	4
2.	EC8393	Fundamentals of Data Structures In C	ES	3	3	0	0	3
3.	EC8351	Electronic Circuits- I	PC	3	3	0	0	3
4.	EC8352	Signals and Systems	PC	4	4	0	0	4
5.	EC8392	Digital Electronics	PC	3	3	0	0	3
6.	EC8391	Control Systems Engineering	PC	3	3	0	0	3
PRACTICALS								
7.	EC8381	Fundamentals of Data Structures in C Laboratory	ES	4	0	0	4	2
8.	EC8361	Analog and Digital Circuits Laboratory	PC	4	0	0	4	2
9.	HS8381	Interpersonal Skills/Listening &Speaking	EEC	2	0	0	2	1
			TOTAL	30	20	0	10	25

SEMESTER IV

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MA8451	Probability and Random Processes	BS	4	4	0	0	4
2.	EC8452	Electronic Circuits II	PC	3	3	0	0	3
3.	EC8491	Communication Theory	PC	3	3	0	0	3
4.	EC8451	Electromagnetic Fields	PC	4	4	0	0	4
5.	EC8453	Linear Integrated Circuits	PC	3	3	0	0	3
6.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
PRACTICALS								
7.	EC8461	Circuits Design and Simulation Laboratory	PC	4	0	0	4	2
8.	EC8462	Linear Integrated Circuits Laboratory	PC	4	0	0	4	2
			TOTAL	28	20	0	8	24

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SEMESTER V

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	EC8501	Digital Communication	PC	3	3	0	0	3
2.	EC8553	Discrete-Time Signal Processing	PC	4	4	0	0	4
3.	EC8552	Computer Architecture and Organization	PC	3	3	0	0	3
4.	EC8551	Communication Networks	PC	3	3	0	0	3
5.		Professional Elective I	PE	3	3	0	0	3
6.		Open Elective I	OE	3	3	0	0	3
PRACTICALS								
7.	EC8562	Digital Signal Processing Laboratory	PC	4	0	0	4	2
8.	EC8561	Communication Systems Laboratory	PC	4	0	0	4	2
9.	EC8563	Communication Networks Laboratory	PC	4	0	0	4	2
			TOTAL	31	19	0	12	25

SEMESTER VI

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	EC8691	Microprocessors and Microcontrollers	PC	3	3	0	0	3
2.	EC8095	VLSI Design	PC	3	3	0	0	3
3.	EC8652	Wireless Communication	PC	3	3	0	0	3
4.	MG8591	Principles of Management	HS	3	3	0	0	3
5.	EC8651	Transmission Lines and RF Systems	PC	3	3	0	0	3
6.		Professional Elective -II	PE	3	3	0	0	3
PRACTICALS								
7.	EC8681	Microprocessors and Microcontrollers Laboratory	PC	4	0	0	4	2
8.	EC8661	VLSI Design Laboratory	PC	4	0	0	4	2
9.	EC8611	Technical Seminar	EEC	2	0	0	2	1
			TOTAL	28	18	0	10	23

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SEMESTER VII

Sl.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	EC8701	Antennas and Microwave Engineering	PC	3	3	0	0	3
2.	EC8751	Optical Communication	PC	3	3	0	0	3
3.	EC8791	Embedded and Real Time Systems	PC	3	3	0	0	3
4.	EC8702	Ad hoc and Wireless Sensor Networks	PC	3	3	0	0	3
5.		Professional Elective -III	PE	3	3	0	0	3
6.		Open Elective - II	OE	3	3	0	0	3
PRACTICALS								
7.	EC8711	Embedded Laboratory	PC	4	0	0	4	2
8.	EC8761	Advanced Communication Laboratory	PC	4	0	0	4	2
			TOTAL	26	18	0	8	22

SEMESTER VIII

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.		Professional Elective IV	PE	3	3	0	0	3
2.		Professional Elective V	PE	3	3	0	0	3
PRACTICALS								
3.	EC8811	Project Work	EEC	20	0	0	20	10
			TOTAL	26	6	0	20	16

TOTAL NO. OF CREDITS: 185

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HUMANITIES AND SOCIALSCIENCES (HS)

SI.NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	HS8251	Technical English	HS	4	4	0	0	4
3.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
4.	MG8591	Principles of Management	HS	3	3	0	0	3

BASIC SCIENCES (BS)

SI.NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	MA8151	Engineering Mathematics I	BS	4	4	0	0	4
2.	PH8151	Engineering Physics	BS	3	3	0	0	3
3.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
4.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
5.	MA8251	Engineering Mathematics II	BS	4	4	0	0	4
6.	PH8253	Physics for Electronics Engineering	BS	3	3	0	0	3
7.	MA8352	Linear Algebra and Partial Differential Equations	BS	4	4	0	0	4
8.	MA8451	Probability and Random Processes	BS	4	4	0	0	4

ENGINEERING SCIENCES (ES)

SI. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
2.	GE8152	Engineering Graphics	ES	6	2	0	4	4
3.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
4.	BE8254	Basic Electrical and Instrumentation Engineering	ES	3	3	0	0	3
5.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
6.	EC8393	Fundamentals of Data Structures In C	ES	3	3	0	0	3
7.	EC8381	Fundamentals of Data Structures in C Laboratory	ES	4	0	0	4	2

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PROFESSIONAL CORE (PC)

SI.NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	EC8251	Circuit Analysis	PC	4	4	0	0	4
2.	EC8252	Electronic Devices	PC	3	3	0	0	3
3.	EC8261	Circuits and Devices Lab	PC	4	0	0	4	2
4.	EC8351	Electronic Circuits- I	PC	3	3	0	0	3
5.	EC8352	Signals and Systems	PC	4	4	0	0	4
6.	EC8392	Digital Electronics	PC	3	3	0	0	3
7.	EC8391	Control System Engineering	PC	3	3	0	0	3
8.	EC8361	Analog and Digital Circuits Laboratory	PC	4	0	0	4	2
9.	EC8452	Electronic Circuits II	PC	3	3	0	0	3
10.	EC8491	Communication Theory	PC	3	3	0	0	3
11.	EC8451	Electromagnetic Fields	PC	4	4	0	0	4
12.	EC8453	Linear Integrated Circuits	PC	3	3	0	0	3
13.	EC8461	Circuits Design and Simulation Laboratory	PC	4	0	0	4	2
14.	EC8462	Linear Integrated Circuits Laboratory	PC	4	0	0	4	2
15.	EC8501	Digital Communication	PC	3	3	0	0	3
16.	EC8553	Discrete-Time Signal Processing	PC	4	4	0	0	4
17.	EC8651	Transmission Lines and RF Systems	PC	3	3	0	0	3
18.	EC8552	Computer Architecture and Organization	PC	3	3	0	0	3
19.	EC8551	Communication Networks	PC	3	3	0	0	3
20.	EC8562	Digital Signal Processing Laboratory	PC	4	0	0	4	2
21.	EC8561	Communication Systems Laboratory	PC	4	0	0	4	2
22.	EC8563	Communication Networks Laboratory	PC	4	0	0	4	2
23.	EC8691	Microprocessors and Microcontrollers	PC	3	3	0	0	3
24.	EC8095	VLSI Design	PC	3	3	0	0	3
25.	EC8652	Wireless Communication	PC	3	3	0	0	3
26.	EC8661	VLSI Design	PC	4	0	0	4	2

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		Laboratory						
27.	EC8681	Microprocessors and Microcontrollers Laboratory	PC	4	0	0	4	2
28.	EC8701	Antennas and Microwave Engineering	PC	3	3	0	0	3
29.	EC8751	Optical Communication	PC	3	3	0	0	3
30.	EC8791	Embedded and Real Time Systems	PC	3	3	0	0	3
31.	EC8702	Ad hoc and Wireless Sensor Networks	PC	3	3	0	0	3
32.	EC8711	Embedded Laboratory	PC	4	0	0	4	2
33.	EC8761	Advanced Communication Laboratory	PC	4	0	0	4	2

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PROFESSIONAL ELECTIVES (PE)*
SEMESTER V
ELECTIVE I

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CS8392	Object Oriented Programming	PE	3	3	0	0	3
2.	EC8073	Medical Electronics	PE	3	3	0	0	3
3.	CS8493	Operating Systems	PE	3	3	0	0	3
4.	EC8074	Robotics and Automation	PE	3	3	0	0	3
5.	EC8075	Nano Technology and Applications	PE	3	3	0	0	3
6.	GE8074	Human Rights	PE	3	3	0	0	3
7.	GE8077	Total Quality Management	PE	3	3	0	0	3

SEMESTER VI
ELECTIVE II

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CS8792	Cryptography and Network Security	PE	3	3	0	0	3
2.	EC8091	Advanced Digital Signal Processing	PE	3	3	0	0	3
3.	EC8001	MEMS and NEMS	PE	3	3	0	0	3
4.	EC8002	Multimedia Compression and Communication	PE	3	3	0	0	3
5.	EC8003	CMOS Analog IC Design	PE	3	3	0	0	3
6.	EC8004	Wireless Networks	PE	3	3	0	0	3
7.	GE8075	Intellectual Property Rights	PE	3	3	0	0	3

SEMESTER VII
ELECTIVE III

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	EC8092	Advanced Wireless Communication	PE	3	3	0	0	3
2.	EC8071	Cognitive Radio	PE	3	3	0	0	3
3.	GE8072	Foundation Skills in Integrated Product Development	PE	3	3	0	0	3
4.	CS8082	Machine Learning Techniques	PE	3	3	0	0	3
5.	EC8005	Electronics Packaging and Testing	PE	3	3	0	0	3
6.	EC8006	Mixed Signal IC Design	PE	3	3	0	0	3
7.	GE8071	Disaster Management	PE	3	3	0	0	3

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SEMESTER VIII
ELECTIVE IV

Sl.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	EC8072	Electro Magnetic Interference and Compatibility	PE	3	3	0	0	3
2.	EC8007	Low power SoC Design	PE	3	3	0	0	3
3.	EC8008	Photonic Networks	PE	3	3	0	0	3
4.	EC8009	Compressive Sensing	PE	3	3	0	0	3
5.	EC8093	Digital Image Processing	PE	3	3	0	0	3
6.	GE8076	Professional Ethics in Engineering	PE	3	3	0	0	3

SEMESTER VIII
ELECTIVE V

Sl.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	EC8010	Video Analytics	PE	3	3	0	0	3
2.	EC8011	DSP Architecture and Programming	PE	3	3	0	0	3
3.	EC8094	Satellite Communication	PE	3	3	0	0	3
4.	CS8086	Soft Computing	PE	3	3	0	0	3
5.	IT8006	Principles of Speech Processing	PE	3	3	0	0	3
6.	GE8073	Fundamentals of Nano Science	PE	3	3	0	0	3

***Professional Electives are grouped according to elective number as was done previously.**

EMPLOYABILITY ENHANCEMENT COURSES (EEC)

S.NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	HS8381	Interpersonal Skills/Listening & Speaking	EEC	2	0	0	2	1
2.	EC8611	Technical Seminar	EEC	2	0	0	2	1
3.	EC8811	Project Work	EEC	20	0	0	20	10

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SUMMARY

S.NO.	SUBJECT AREA	CREDITS AS PER SEMESTER								CREDITS TOTAL	Percentage
		I	II	III	IV	V	VI	VII	VIII		
1.	HS	4	4		3		3			14	7.56%
2.	BS	12	7	4	4					27	14.6%
3.	ES	9	5	5						19	10.27%
4.	PC		9	15	17	19	16	16		92	50%
5.	PE					3	3	3	6	15	8.10%
6.	OE					3		3		6	3.24%
7.	EEC			1			1		10	12	6.48%
	Total	25	25	25	24	25	23	22	16	185	
8.	Non Credit / Mandatory										

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Educational Objectives

Bachelor of Electrical and Electronics Engineering curriculum is designed to prepare the graduates having attitude and knowledge to

1. Have successful technical and professional careers in their chosen fields such as circuit theory, Field theory, control theory and computational platforms.
2. Engross in life long process of learning to keep themselves abreast of new developments in the field of Electronics and their applications in power engineering.

Programme Outcomes

The graduates will have the ability to

a. Apply the Mathematical knowledge and the basics of Science and Engineering to solve the problems pertaining to Electronics and Instrumentation Engineering.
b. Identify and formulate Electrical and Electronics Engineering problems from research literature and be ability to analyze the problem using first principles of Mathematics and Engineering Sciences.
c. Come out with solutions for the complex problems and to design system components or process that fulfill the particular needs taking into account public health and safety and the social, cultural and environmental issues.
d. Draw well-founded conclusions applying the knowledge acquired from research and research methods including design of experiments, analysis and interpretation of data and synthesis of information and to arrive at significant conclusion.
e. Form, select and apply relevant techniques, resources and Engineering and IT tools for Engineering activities like electronic prototyping, modeling and control of systems and also being conscious of the limitations.
f. Understand the role and responsibility of the Professional Electrical and Electronics Engineer and to assess societal, health, safety issues based on the reasoning received from the contextual knowledge.
g. Be aware of the impact of professional Engineering solutions in societal and environmental contexts and exhibit the knowledge and the need for Sustainable Development.
h. Apply the principles of Professional Ethics to adhere to the norms of the engineering practice and to discharge ethical responsibilities.
i. Function actively and efficiently as an individual or a member/leader of different teams and multidisciplinary projects.
j. Communicate efficiently the engineering facts with a wide range of engineering community and others, to understand and prepare reports and design documents; to make effective presentations and to frame and follow instructions.
k. Demonstrate the acquisition of the body of engineering knowledge and insight and Management Principles and to apply them as member / leader in teams and multidisciplinary environments.
l. Recognize the need for self and life-long learning, keeping pace with technological challenges in the broadest sense.

PEO \PO	a	b	c	d	e	f	g	h	i	j	k	l
1	✓	✓	✓	✓	✓	✓	✓					✓
2	✓	✓	✓	✓	✓	✓		✓		✓		

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SEMESTER	NAME OF THE SUBJECT	PROGRAM OUTCOMES											
		a	b	c	d	e	f	g	h	i	j	k	l
	THEORY												
SEM I	Communicative English									✓	✓		✓
	Engineering Mathematics - I	✓	✓			✓							✓
	Engineering Physics	✓	✓	✓		✓		✓					✓
	Engineering Chemistry	✓	✓	✓		✓							✓
	Problem Solving and Python Programming	✓	✓	✓	✓	✓							✓
	Engineering Graphics			✓	✓								
	PRACTICAL												
	Problem Solving and Python Programming Laboratory	✓		✓	✓	✓	✓				✓		✓
	Physics and Chemistry Laboratory	✓	✓										
	THEORY												
SEM II	Technical English									✓	✓		✓
	Engineering Mathematics - II	✓	✓	✓		✓							✓
	Physics For Electronics Engineering	✓	✓	✓		✓		✓					✓
	Basic Civil and Mechanical Engineering				✓		✓						
	Circuit Theory	✓	✓	✓	✓	✓							✓
	Environmental Science and Engineering	✓	✓			✓	✓	✓	✓				✓
	PRACTICALS												
	Engineering Practices Laboratory	✓		✓	✓	✓	✓				✓		
	Electric Circuits Lab	✓		✓	✓	✓	✓				✓		✓
	THEORY												
SEM III	Transforms and Partial Differential Equations	✓	✓			✓							✓
	Digital Logic Circuits				✓	✓							
	Electromagnetic Theory	✓	✓	✓	✓	✓					✓		✓
	Electrical Machines – I	✓	✓	✓	✓	✓					✓		

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SEM IV	Electron Devices and Circuits	✓	✓	✓	✓	✓										✓
	Power Plant Engineering			✓	✓	✓			✓	✓	✓					
	PRACTICALS															
	Electronics Laboratory	✓			✓	✓								✓	✓	
	Electrical Machines Laboratory - I	✓			✓	✓								✓	✓	
	THEORY															
	Numerical Methods	✓	✓	✓											✓	
	Electrical Machines – II	✓	✓	✓	✓	✓			✓						✓	
	Transmission and Distribution	✓	✓	✓	✓	✓			✓						✓	
	Measurements and Instrumentation	✓	✓	✓	✓	✓									✓	
	Linear Integrated Circuits and Applications	✓	✓	✓		✓										
	Control Systems	✓	✓	✓	✓	✓									✓	
	PRACTICALS															
	Electrical Machines Lab II	✓	✓	✓	✓	✓									✓	
	Linear and Digital Integrated Circuits Laboratory	✓		✓	✓							✓	✓		✓	
	Technical Seminar										✓	✓	✓			
SEM V	**THEORY**															
	Power System Analysis	✓	✓	✓	✓	✓			✓						✓	
	Microprocessors and Microcontrollers	✓		✓		✓				✓	✓			✓	✓	
	Power Electronics	✓	✓	✓	✓	✓			✓							
	Digital Signal Processing	✓	✓	✓	✓	✓			✓						✓	
	Object Oriented Programming			✓	✓	✓									✓	
	Open Elective I															
	PRACTICALS															
	Control and Instrumentation Laboratory			✓	✓	✓	✓				✓	✓				

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	Professional Communication									✓	✓	✓	
	Object Oriented Programming Laboratory			✓	✓	✓							✓
	THEORY												
SEM VI	Solid State Drives	✓	✓	✓	✓	✓		✓					
	Protection and Switchgear	✓	✓	✓	✓	✓		✓					✓
	Embedded Systems												
	Professional Elective I												
	Professional Elective II												
	PRACTICALS												
	Power Electronics and Drives Laboratory	✓		✓	✓						✓	✓	✓
	Microprocessors and Microcontrollers Laboratory	✓		✓	✓						✓	✓	✓
	Mini Project	✓		✓	✓						✓	✓	✓
	THEORY												
SEM VII	High Voltage Engineering	✓	✓	✓	✓	✓		✓					✓
	Power System Operation and Control	✓	✓	✓	✓	✓		✓					✓
	Renewable Energy Systems	✓	✓	✓	✓	✓		✓					✓
	Open Elective II												
	Professional Elective III												
	Professional Elective IV												
	PRACTICALS												
	Power System Simulation Laboratory	✓		✓	✓						✓	✓	✓
	Renewable Energy Systems Laboratory	✓		✓	✓						✓	✓	✓
SEM VIII	**THEORY**												
	Professional Elective V												

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	Professional Elective VI												
	PRACTICALS												
	Project Work	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

. PROFESSIONAL ELECTIVE

SL.NO.	NAME OF THE SUBJECT	PROGRAM OUTCOMES											
		a	b	c	d	e	f	g	h	i	j	k	l
	THEORY												
ELECTIVE – I	Advanced Control System		✓	✓					✓	✓			
	Visual Languages and Applications	✓	✓		✓	✓							
	Design of Electrical Apparatus	✓		✓	✓	✓		✓					
	Power Systems Stability				✓	✓							
	Modern Power Converters	✓		✓	✓	✓		✓					
	Intellectual Property Rights								✓		✓		✓
ELECTIVE – II	Principles of Robotics	✓		✓		✓							
	Special Electrical Machines	✓		✓	✓	✓			✓				
	Power Quality	✓		✓	✓	✓			✓				✓
	EHVAC Transmission	✓		✓	✓	✓			✓				✓
	Communication Engineering												
ELECTIVE – III	Disaster Management	✓		✓		✓	✓					✓	✓
	Human Rights			✓	✓	✓	✓						
	Operations Research	✓	✓	✓					✓	✓			✓
	Probability and Statistics												
	Fibre Optics and Laser Instrumentation	✓	✓			✓						✓	✓
	Foundation Skills in Integrated Product Development												

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ELECTIVE – IV	System Identification and Adaptive Control	✓	✓	✓		✓							
	Computer Architecture	✓		✓		✓							
	Control of Electrical Drives	✓		✓		✓			✓				✓
	VLSI Design	✓	✓	✓			✓	✓					
	Power Systems Transients		✓		✓	✓							
	Total Quality Management		✓			✓	✓	✓	✓	✓	✓		
ELECTIVE – V	Flexible AC Transmission Systems	✓	✓	✓		✓					✓		✓
	Soft Computing Techniques	✓		✓		✓							
	Power Systems Dynamics	✓		✓		✓							
	SMPS and UPS	✓		✓		✓							
	Electric Energy Generation, Utilization and Conservation	✓	✓	✓	✓	✓		✓					✓
	Professional Ethics in Engineering	✓	✓		✓			✓				✓	✓
	Principals of Management					✓	✓			✓			
ELECTIVE – VI	Energy Management and Auditing		✓			✓	✓	✓	✓	✓	✓		
	Data Structures					✓	✓			✓			
	High Voltage Direct Current Transmission	✓	✓	✓					✓	✓			✓
	Microcontroller Based System Design	✓	✓	✓					✓	✓			✓
	Smart Grid	✓	✓	✓					✓	✓			✓
	Biomedical Instrumentation	✓		✓	✓	✓	✓						
	Fundamentals of Nano Science												

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I TO VIII SEMESTERS CURRICULA & SYLLABI

SEMESTER I

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	MA8151	Engineering Mathematics - I	BS	4	4	0	0	4
3.	PH8151	Engineering Physics	BS	3	3	0	0	3
4.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
5.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
6.	GE8152	Engineering Graphics	ES	6	2	0	4	4
PRACTICALS								
7.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
8.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
			TOTAL	31	19	0	12	25

SEMESTER II

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	HS8251	Technical English	HS	4	4	0	0	4
2.	MA8251	Engineering Mathematics - II	BS	4	4	0	0	4
3.	PH8253	Physics for Electronics Engineering	BS	3	3	0	0	3
4.	BE8252	Basic Civil and Mechanical Engineering	ES	4	4	0	0	4
5.	EE8251	Circuit Theory	PC	4	2	2	0	3
6.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
PRACTICALS								
7.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
8.	EE8261	Electric Circuits Laboratory	PC	4	0	0	4	2
			TOTAL	30	20	2	8	25

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SEMESTER III

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MA8353	Transforms and Partial Differential Equations	BS	4	4	0	0	4
2.	EE8351	Digital Logic Circuits	PC	4	2	2	0	3
3.	EE8391	Electromagnetic Theory	PC	4	2	2	0	3
4.	EE8301	Electrical Machines - I	PC	4	2	2	0	3
5.	EC8353	Electron Devices and Circuits	ES	3	3	0	0	3
6.	ME8792	Power Plant Engineering	ES	3	3	0	0	3
PRACTICALS								
7.	EC8311	Electronics Laboratory	ES	4	0	0	4	2
8.	EE8311	Electrical Machines Laboratory - I	PC	4	0	0	4	2
			TOTAL	30	16	6	8	23

SEMESTER IV

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MA8491	Numerical Methods	BS	4	4	0	0	4
2.	EE8401	Electrical Machines - II	PC	4	2	2	0	3
3.	EE8402	Transmission and Distribution	PC	3	3	0	0	3
4.	EE8403	Measurements and Instrumentation	PC	3	3	0	0	3
5.	EE8451	Linear Integrated Circuits and Applications	PC	3	3	0	0	3
6.	IC8451	Control Systems	PC	5	3	2	0	4
PRACTICALS								
7.	EE8411	Electrical Machines Laboratory - II	PC	4	0	0	4	2
8.	EE8461	Linear and Digital Integrated Circuits Laboratory	PC	4	0	0	4	2
9.	EE8412	Technical Seminar	EEC	2	0	0	2	1
			TOTAL	32	18	4	10	25

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SEMESTER V

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	EE8501	Power System Analysis	PC	3	3	0	0	3
2.	EE8551	Microprocessors and Microcontrollers	PC	3	3	0	0	3
3.	EE8552	Power Electronics	PC	3	3	0	0	3
4.	EE8591	Digital Signal Processing	PC	4	2	2	0	3
5.	CS8392	Object Oriented Programming	ES	3	3	0	0	3
6.		Open Elective I*	OE	3	3	0	0	3
PRACTICALS								
7.	EE8511	Control and Instrumentation Laboratory	PC	4	0	0	4	2
8.	HS8581	Professional Communication	EEC	2	0	0	2	1
9.	CS8383	Object Oriented Programming Laboratory	ES	4	0	0	4	2
			TOTAL	29	17	2	10	23

SEMESTER VI

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	EE8601	Solid State Drives	PC	3	3	0	0	3
2.	EE8602	Protection and Switchgear	PC	3	3	0	0	3
3.	EE8691	Embedded Systems	ES	3	3	0	0	3
4.		Professional Elective I	PE	3	3	0	0	3
5.		Professional Elective II	PE	3	3	0	0	3
PRACTICALS								
6.	EE8661	Power Electronics and Drives Laboratory	PC	4	0	0	4	2
7.	EE8681	Microprocessors and Microcontrollers Laboratory	PC	4	0	0	4	2
8.	EE8611	Mini Project	EEC	4	0	0	4	2
			TOTAL	27	15	0	12	21

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SEMESTER VII

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	EE8701	High Voltage Engineering	PC	3	3	0	0	3
2.	EE8702	Power System Operation and Control	PC	3	3	0	0	3
3.	EE8703	Renewable Energy Systems	PC	3	3	0	0	3
4.		Open Elective II*	OE	3	3	0	0	3
5.		Professional Elective III	PE	3	3	0	0	3
6.		Professional Elective IV	PE	3	3	0	0	3
PRACTICALS								
7.	EE8711	Power System Simulation Laboratory	PC	4	0	0	4	2
8.	EE8712	Renewable Energy Systems Laboratory	PC	4	0	0	4	2
			TOTAL	26	18	0	8	22

SEMESTER VIII

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.		Professional Elective V	PE	3	3	0	0	3
2.		Professional Elective VI	PE	3	3	0	0	3
PRACTICALS								
3.	EE8811	Project Work	EEC	20	0	0	20	10
			TOTAL	26	6	0	20	16

TOTAL NO. OF CREDITS: 180

*Course from the curriculum of other UG Programmes.

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PROFESSIONAL ELECTIVE –I (VI SEMESTER)

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	IC8651	Advanced Control System	PE	4	2	2	0	3
2.	EE8001	Visual Languages and Applications	PE	3	3	0	0	3
3.	EE8002	Design of Electrical Apparatus	PE	3	3	0	0	3
4.	EE8003	Power Systems Stability	PE	3	3	0	0	3
5.	EE8004	Modern Power Converters	PE	3	3	0	0	3
6.	GE8075	Intellectual Property Rights	PE	3	3	0	0	3

PROFESSIONAL ELECTIVE – II (VI SEMESTER)

1.	RO8591	Principles of Robotics	PE	3	3	0	0	3
2.	EE8005	Special Electrical Machines	PE	3	3	0	0	3
3.	EE8006	Power Quality	PE	3	3	0	0	3
4.	EE8007	EHVAC Transmission	PE	3	3	0	0	3
5.	EC8395	Communication Engineering	PE	3	3	0	0	3

PROFESSIONAL ELECTIVE – III (VII SEMESTER)

1.	GE8071	Disaster Management	PE	3	3	0	0	3
2.	GE8074	Human Rights	PE	3	3	0	0	3
3.	MG8491	Operations Research	PE	3	3	0	0	3
4.	MA8391	Probability and Statistics	PE	4	4	0	0	4
5.	EI8075	Fibre Optics and Laser Instrumentation	PE	3	3	0	0	3
6.	GE8072	Foundation Skills in Integrated Product Development	PE	3	3	0	0	3

PROFESSIONAL ELECTIVE – IV (VII SEMESTER)

1.	EE8008	System Identification and Adaptive Control	PE	3	3	0	0	3
2.	CS8491	Computer Architecture	PE	3	3	0	0	3
3.	EE8009	Control of Electrical Drives	PE	3	3	0	0	3
4.	EC8095	VLSI Design	PE	3	3	0	0	3
5.	EE8010	Power Systems Transients	PE	3	3	0	0	3
6.	GE8077	Total Quality Management	PE	3	3	0	0	3

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PROFESSIONAL ELECTIVE – V (VIII SEMESTER)

1.	EE8011	Flexible AC Transmission Systems	PE	3	3	0	0	3
2.	EE8012	Soft Computing Techniques	PE	3	3	0	0	3
3.	EE8013	Power Systems Dynamics	PE	3	3	0	0	3
4.	EE8014	SMPS and UPS	PE	3	3	0	0	3
5.	EE8015	Electric Energy Generation, Utilization and Conservation	PE	3	3	0	0	3
6.	GE8076	Professional Ethics in Engineering	PE	3	3	0	0	3
7.	MG8591	Principles of Management	PE	3	3	0	0	3

PROFESSIONAL ELECTIVE – VI (VIII SEMESTER)

1.	EE8016	Energy Management and Auditing	PE	3	3	0	0	3
2.	CS8391	Data Structures	PE	3	3	0	0	3
3.	EE8017	High Voltage Direct Current Transmission	PE	3	3	0	0	3
4.	EE8018	Microcontroller Based System Design	PE	3	3	0	0	3
5.	EE8019	Smart Grid	PE	3	3	0	0	3
6.	EI8073	Biomedical Instrumentation	PE	3	3	0	0	3
7.	GE8073	Fundamentals of Nano Science	PE	3	3	0	0	3

***Professional Electives are grouped according to elective number as was done previously.**

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HUMANITIES AND SOCIALSCIENCES (HS)

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	HS8251	Technical English	HS	4	4	0	0	4
3.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3

BASIC SCIENCES (BS)

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	MA8151	Engineering Mathematics I	BS	4	4	0	0	4
2.	PH8151	Engineering Physics	BS	3	3	0	0	3
3.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
4.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
5.	MA8251	Engineering Mathematics II	BS	4	4	0	0	4
6.	PH8253	Physics For Electronics Engineering	BS	3	3	0	0	3
7.	MA8353	Transforms and Partial Differential Equations	BS	4	4	0	0	4
8.	MA8491	Numerical Methods	BS	4	4	0	0	4

ENGINEERING SCIENCES (ES)

S.NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	GE8151	Problem Solving and Python programming	ES	3	3	0	0	3
2.	GE8152	Engineering Graphics	ES	6	2	0	4	4
3.	GE8161	Problem Solving and	ES		0	0	4	2

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		Python programming Laboratory		4				
4.	BE8252	Basic Civil and Mechanical Engineering	ES	4	4	0	0	4
5.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
6.	EC8353	Electron Devices and Circuits	ES	3	3	0	0	3
7.	ME8792	Power Plant Engineering	ES	3	3	0	0	3
8.	EC8311	Electronics Laboratory	ES	4	0	0	4	2
9.	CS8392	Object Oriented Programming	ES	3	3	0	0	3
10.	CS8383	Object Oriented Programming Laboratory	ES	4	0	0	4	2
11.	EE8691	Embedded Systems	ES	3	3	0	0	3

PROFESSIONAL CORE (PC)

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	EE8251	Circuit Theory	PC	4	2	2	0	3
2.	EE8261	Electric Circuits Laboratory	PC	4	0	0	4	2
3.	EE8351	Digital Logic Circuits	PC	4	2	2	0	3
4.	EE8391	Electromagnetic Theory	PC	4	2	2	0	3
5.	EE8301	Electrical Machines - I	PC	4	2	2	0	3
6.	EE8311	Electrical Machines Laboratory - I	PC	4	0	0	4	2
7.	EE8401	Electrical Machines - II	PC	4	2	2	0	3
8.	EE8402	Transmission and Distribution	PC	3	3	0	0	3
9.	EE8403	Measurements and Instrumentation	PC	3	3	0	0	3
10.	EE8451	Linear Integrated Circuits and Applications	PC	3	3	0	0	3
11.	IC8451	Control Systems	PC	5	3	2	0	4
12.	EE8411	Electrical Machines Laboratory II	PC	4	0	0	4	2

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13.	EE8461	Linear and Digital Integrated Circuits Laboratory	PC	4	0	0	4	2
14.	EE8501	Power System Analysis	PC	3	3	0	0	3
15.	EE8551	Microprocessors and Microcontrollers	PC	3	3	0	0	3
16.	EE8552	Power Electronics	PC	3	3	0	0	3
17.	EE8591	Digital Signal Processing	PC	4	2	2	0	3
18.	EE8511	Control and Instrumentation Laboratory	PC	4	0	0	4	2
19.	EE8601	Solid State Drives	PC	3	3	0	0	3
20.	EE8602	Protection and Switchgear	PC	3	3	0	0	3
21.	EE8661	Power Electronics and Drives Laboratory	PC	4	0	0	4	2
22.	EE8681	Microprocessors and Microcontrollers Laboratory	PC	4	0	0	4	2
23.	EE8701	High Voltage Engineering	PC	3	3	0	0	3
24.	EE8702	Power System Operation and Control	PC	3	3	0	0	3
25.	EE8703	Renewable Energy Systems	PC	3	3	0	0	3
26.	EE8711	Power System Simulation Laboratory	PC	4	0	0	4	2
27.	EE8712	Renewable Energy Systems Laboratory	PC	4	0	0	4	2

EMPLOYABILITY ENHANCEMENT COURSES (EEC)

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	EE8412	Technical seminar	EEC	2	0	0	2	1
2.	HS8581	Professional Communication	EEC	2	0	0	2	1
3.	EE8611	Mini Project	EEC	4	0	0	4	2
4.	EE8811	Project work	EEC	20	0	0	20	10

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SUMMARY

S.NO.	SUBJECT AREA	CREDITS AS PER SEMESTER								CREDITS TOTAL
		I	II	III	IV	V	VI	VII	VIII	
1.	HS	4	7	-	-	-	-	-		11
2.	BS	12	7	4	4	-	-	-		27
3.	ES	9	6	8	-	5	3	-		31
4.	PC	-	5	11	20	14	10	13	-	73
5.	PE						6	6	6	18
6.	OE					3	-	3		6
7.	EEC				1	1	2		10	14
	Total	25	25	23	25	23	21	22	16	180
	Non Credit / Mandatory	-	-	-	-	-	-	-	-	0

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REGULATIONS – 2017
CHOICE BASED CREDIT SYSTEM
B.E. AUTOMOBILE ENGINEERING

PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

1. Students will excel in their professional career in automobile industry and research with the highest professional and ethical standards in their activities by acquiring knowledge in basic engineering, mathematics, science and automobile engineering.
2. Students will exhibit professionalism, team work in their chosen profession and adapt to current trends, technologies and industrial scenarios by pursuing life-long learning.

PROGRAMME OUTCOMES (PO)

1. Graduates will demonstrate strong basics in Mathematics, Science and Engineering
2. Graduates will demonstrate the ability to design and conduct experiments, as well as to analyze and interpret data.
3. Graduates will demonstrate the ability to design a system, component or process to meet the desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.
4. Graduates will become familiar with modern engineering tools and analyse the problems within the domains of Automobile Engineering as members of multidisciplinary teams.
5. Graduates will acquire the capability to identify, formulate and solve complex engineering problems related to Automobile Engineering.
6. Graduates will demonstrate an understanding of professional and ethical responsibility with reference to their career in the field of Automobile Engineering.
7. Graduates will be able to communicate effectively both in verbal and non-verbal forms.
8. Graduates will be trained towards developing the impact of Automobile engineering in the global, economic environmental and societal contexts.
9. Graduates will be capable of understanding the value for life-long learning.
10. Graduates will demonstrate knowledge of contemporary issues focusing on the necessity to develop new material, design, and engineering practice in the field of Automobile Engineering.
11. Graduates will demonstrate the ability to use the techniques , skills and modern engineering tools necessary for engineering practice in the field of Automobile Engineering.
12. Graduates will have a firm scientific, technological and communication base that would help them either to find the desired placement or to become an entrepreneur and explore the knowledge in their field.
13. Graduates will be capable of doing higher studies and research in inter and multi-disciplinary areas.

PEO / PO Mapping

PO / PEO	a	b	c	d	e	f	g	h	i	j	k	l	m
1	√	√	√	√	√	√		√		√	√	√	√
2		√	√	√	√		√		√	√	√	√	√

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Semester Course wise PO mapping

		Course Title	a	b	c	d	e	f	g	h	i	j	k	l	m
YEAR I	SEMESTER I	Communicative English	√	√		√		√	√		√	√		√	√
		Engineering Mathematics I	√	√		√	√					√	√	√	√
		Engineering Physics	√	√		√	√					√	√	√	√
		Engineering Chemistry	√	√		√	√					√	√	√	√
		Problem Solving and Python Programming	√	√		√	√					√	√	√	√
		Engineering Graphics	√	√	√	√		√	√	√			√	√	√
		Problem Solving and Python Programming Laboratory	√	√		√	√	√				√	√	√	√
		Physics and Chemistry Laboratory	√	√		√	√					√	√	√	√
	SEMESTER II	Technical English	√	√		√		√			√	√		√	√
		Engineering Mathematics II	√	√		√	√					√	√	√	√
		Materials Science	√	√		√	√					√	√	√	√
		Basic Electrical, Electronics and Instrumentation Engineering	√		√	√	√			√	√		√	√	√
		Environmental Science and Engineering						√		√	√	√			√
		Engineering Mechanics	√	√		√	√		√			√	√	√	√
		Engineering Practices Laboratory		√	√	√			√			√	√	√	
		Basic Electrical, Electronics and Instrumentation Engineering Laboratory	√	√		√	√				√	√	√	√	√
YEAR II	SEM III	Transforms and Partial Differential Equations	√			√	√		√		√		√		√
		Engineering Thermodynamics	√	√	√	√	√			√	√	√	√		√
		Strength of Materials for Mechanical Engineers	√	√		√	√				√	√		√	√
		Spark Ignition Engines	√				√			√	√	√	√	√	√

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	Manufacturing Technology	√	√	√	√	√	√			√		√	√	√	√	√	√	√
	Fluid Mechanics and Machinery	√			√	√								√	√	√	√	√
	Strength of Materials and Fluid Mechanics and Machinery Laboratory	√	√		√	√					√	√	√		√	√	√	√
	Computer Aided Machine Drawing	√	√	√	√	√				√	√	√	√	√	√	√	√	√
	Interpersonal Skills/Listening & Speaking	√	√		√		√	√		√	√		√	√		√	√	√
SEMESTER IV	Statistics and Numerical Methods	√	√			√		√		√		√		√		√		√
	Compression Ignition Engines	√				√				√	√	√	√	√	√	√	√	√
	Engineering Metallurgy	√	√	√	√	√				√	√	√	√	√	√	√	√	√
	Electronics and Microprocessors	√	√	√	√	√				√	√	√	√	√	√	√	√	√
	Automotive Chassis	√				√				√	√	√	√	√	√	√	√	√
	Mechanics of Machines	√	√		√	√							√	√	√	√	√	√
	Automotive Components Laboratory	√	√	√		√				√	√	√	√	√	√	√	√	√
	Electronics and Microprocessors Laboratory	√	√	√	√	√				√		√	√	√	√	√	√	√
YEAR III	Design of Machine Elements	√	√	√		√		√		√	√	√	√	√	√	√	√	√
SEMESTER V	Automotive Transmission	√	√	√		√				√	√	√	√	√	√	√	√	√
	Automotive Electrical and Electronics Systems	√	√	√	√	√				√	√	√		√			√	√
	Vehicle Design Data Characteristics	√	√		√	√				√	√	√	√	√	√	√	√	√
	Automotive Fuels and Lubricants	√	√	√		√	√			√	√	√		√				
	Open Elective - I																	
	Professional Communication	√	√		√		√	√		√	√	√		√		√	√	√
	Automotive Electrical and Electronics Laboratory	√	√			√				√	√	√		√	√	√	√	√
	Automotive Fuels and Lubricants Laboratory	√					√	√		√	√	√		√	√	√	√	

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YEAR IV	SEMESTER VI	Total Quality Management	√		√	√		√	√										
		Automotive Engine Components Design	√	√	√		√							√			√	√	√
		Automotive Chassis Components Design	√	√	√		√							√			√	√	√
		Two and Three Wheelers	√			√					√	√	√	√	√	√	√	√	√
		Vehicle Dynamics	√	√	√	√	√				√	√	√	√					√
		Professional Elective – I																	
		Computer Aided Engine and Chassis Design Laboratory	√	√		√	√				√	√	√	√	√	√	√	√	√
		Two and Three Wheelers Laboratory	√	√	√						√	√	√	√	√	√	√	√	√
	SEMESTER VII	Engine and Vehicle Management System	√	√	√	√	√	√			√	√	√	√	√	√	√	√	√
		Finite Element Analysis	√	√	√	√	√				√	√	√	√	√	√	√	√	√
		Vehicle Maintenance	√		√	√	√	√			√	√		√	√	√	√	√	√
		Open Elective - II																	
		Professional Elective – II																	
		Professional Elective – III																	
		Engine Performance and Emission Testing Laboratory	√	√	√		√				√			√	√				√
		Vehicle Maintenance Laboratory	√	√	√	√					√	√	√	√	√	√	√	√	√
	SEM VIII	Vehicle Body Engineering	√	√	√	√	√	√			√	√	√	√	√	√			√
		Professional Elective – IV																	
		Professional Elective – V																	
		Project Work	√	√	√	√	√	√			√	√	√	√	√	√	√	√	√

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REGULATIONS – 2017
CHOICE BASED CREDIT SYSTEM
I TO VIII SEMESTERS CURRICULA AND SYLLABI

SEMESTER I

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	MA8151	Engineering Mathematics - I	BS	4	4	0	0	4
3.	PH8151	Engineering Physics	BS	3	3	0	0	3
4.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
5.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
6.	GE8152	Engineering Graphics	ES	6	2	0	4	4
PRACTICALS								
7.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
8.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
			TOTAL	31	19	0	12	25

SEMESTER II

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	HS8251	Technical English	HS	4	4	0	0	4
2.	MA8251	Engineering Mathematics - II	BS	4	4	0	0	4
3.	PH8251	Materials Science	BS	3	3	0	0	3
4.	BE8253	Basic Electrical, Electronics and Instrumentation Engineering	ES	3	3	0	0	3
5.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
6.	GE8292	Engineering Mechanics	ES	5	3	2	0	4
PRACTICALS								
7.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
8.	BE8261	Basic Electrical, Electronics and Instrumentation Engineering Laboratory	ES	4	0	0	4	2
			TOTAL	30	20	2	8	25

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SEMESTER III

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MA8353	Transforms and Partial Differential Equations	BS	4	4	0	0	4
2.	ME8391	Engineering Thermodynamics	PC	5	3	2	0	4
3.	CE8395	Strength of Materials for Mechanical Engineers	ES	3	3	0	0	3
4.	AT8301	Spark Ignition Engines	PC	3	3	0	0	3
5.	ME8392	Manufacturing Technology	PC	3	3	0	0	3
6.	CE8394	Fluid Mechanics and Machinery	ES	4	4	0	0	4
PRACTICAL								
7.	CE8381	Strength of Materials and Fluid Mechanics and Machinery Laboratory	ES	4	0	0	4	2
8.	ME8381	Computer Aided Machine Drawing	PC	4	0	0	4	2
9.	HS8381	Interpersonal Skills/Listening & Speaking	EEC	2	0	0	2	1
			TOTAL	32	20	2	10	26

SEMESTER IV

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MA8452	Statistics and Numerical Methods	BS	4	4	0	0	4
2.	AT8401	Compression Ignition Engines	PC	3	3	0	0	3
3.	ME8491	Engineering Metallurgy	PC	3	3	0	0	3
4.	EC8396	Electronics and Microprocessors	ES	3	3	0	0	3
5.	AT8402	Automotive Chassis	PC	3	3	0	0	3
6.	PR8451	Mechanics of Machines	PC	3	3	0	0	3
PRACTICAL								
7.	AT8411	Automotive Components Laboratory	PC	4	0	0	4	2
8.	EC8382	Electronics and Microprocessors Laboratory	ES	4	0	0	4	2
			TOTAL	27	19	0	10	23

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SEMESTER V

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	ME8593	Design of Machine Elements	PC	3	3	0	0	3
2.	AT8501	Automotive Transmission	PC	3	3	0	0	3
3.	AT8502	Automotive Electrical and Electronics Systems	PC	3	3	0	0	3
4.	AT8503	Vehicle Design Data Characteristics	PC	3	3	0	0	3
5.	AT8504	Automotive Fuels and Lubricants	PC	3	3	0	0	3
6.		Open Elective - I	OE	3	3	0	0	3
PRACTICAL								
7.	AT8511	Automotive Electrical and Electronics Laboratory	PC	4	0	0	4	2
8.	AT8512	Automotive Fuels and Lubricants Laboratory	PC	4	0	0	4	2
9.	HS8581	Professional Communication	EEC	2	0	0	2	1
			TOTAL	28	18	0	10	23

SEMESTER VI

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	GE8077	Total Quality Management	HS	3	3	0	0	3
2.	AT8601	Automotive Engine Components Design	PC	3	3	0	0	3
3.	AT8602	Automotive Chassis Components Design	PC	3	3	0	0	3
4.	AT8603	Two and Three Wheelers	PC	3	3	0	0	3
5.	AT8604	Vehicle Dynamics	PC	3	3	0	0	3
6.		Professional Elective – I	PE	3	3	0	0	3
PRACTICAL								
7.	AT8611	Computer Aided Engine and Chassis Design Laboratory	PC	4	0	0	4	2
8.	AT8612	Two and Three Wheelers Laboratory	PC	4	0	0	4	2
			TOTAL	26	18	0	8	22

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SEMESTER VII

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	AT8701	Engine and Vehicle Management System	PC	3	3	0	0	3
2.	ME8692	Finite Element Analysis	PC	3	3	0	0	3
3.	AT8702	Vehicle Maintenance	PC	3	3	0	0	3
4.		Open Elective - II	OE	3	3	0	0	3
5.		Professional Elective – II	PE	3	3	0	0	3
6.		Professional Elective – III	PE	3	3	0	0	3
PRACTICAL								
7.	AT8711	Engine Performance and Emission Testing Laboratory	PC	4	0	0	4	2
8.	AT8712	Vehicle Maintenance Laboratory	PC	4	0	0	4	2
			TOTAL	26	18	0	8	22

SEMESTER VIII

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	AT8801	Vehicle Body Engineering	PC	3	3	0	0	3
2.		Professional Elective – IV	PE	3	3	0	0	3
3.		Professional Elective – V	PE	3	3	0	0	3
PRACTICAL								
4.	AT8811	Project Work	EEC	20	0	0	20	10
			TOTAL	29	9	0	20	19

TOTAL NUMBER OF CREDITS TO BE EARNED FOR AWARD OF THE DEGREE = 185

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HUMANITIES AND SOCIAL SCIENCES (HS)

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	HS8251	Technical English	HS	4	4	0	0	4
3.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
4.	GE8077	Total Quality Management	HS	3	3	0	0	3

BASIC SCIENCES (BS)

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	MA8151	Engineering Mathematics I	BS	5	3	2	0	4
2.	PH8151	Engineering Physics	BS	3	3	0	0	3
3.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
4.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
5.	MA8251	Engineering Mathematics II	BS	4	4	0	0	4
6.	PH8251	Materials Science	BS	3	3	0	0	3
7.	MA8353	Transforms and Partial Differential Equations	BS	4	4	0	0	4
8.	MA8452	Statistics and Numerical Methods	BS	4	4	0	0	4

ENGINEERING SCIENCES (ES)

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
2.	GE8152	Engineering Graphics	ES	6	2	0	4	4
3.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
4.	BE8253	Basic Electrical, Electronics and Instrumentation Engineering	ES	3	3	0	0	3
5.	GE8292	Engineering Mechanics	ES	5	3	2	0	4
6.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
7.	BE8261	Basic Electrical, Electronics and Instrumentation Engineering Laboratory	ES	4	0	0	4	2
8.	CE8395	Strength of Materials for Mechanical Engineers	ES	3	3	0	0	3
9.	CE8394	Fluid Mechanics and Machinery	ES	4	4	0	0	4
10.	CE8381	Strength of Materials and Fluid Mechanics and Machinery Laboratory	ES	4	0	0	4	2
11.	EC8396	Electronics and Microprocessors	ES	3	3	0	0	3
12.	EC8382	Electronics and Microprocessors Laboratory	ES	4	0	0	4	2

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PROFESSIONAL CORE (PC)

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	ME8391	Engineering Thermodynamics	PC	5	3	2	0	4
2.	AT8301	Spark Ignition Engines	PC	3	3	0	0	3
3.	ME8392	Manufacturing Technology	PC	3	3	0	0	3
4.	ME8381	Computer Aided Machine Drawing	PC	4	0	0	4	2
5.	AT8401	Compression Ignition Engines	PC	3	3	0	0	3
6.	ME8491	Engineering Metallurgy	PC	3	3	0	0	3
7.	AT8402	Automotive Chassis	PC	3	3	0	0	3
8.	PR8451	Mechanics of Machines	PC	3	3	0	0	3
9.	AT8411	Automotive Components Laboratory	PC	4	0	0	4	2
10.	ME8593	Design of Machine Elements	PC	3	3	0	0	3
11.	AT8501	Automotive Transmission	PC	3	3	0	0	3
12.	AT8502	Automotive Electrical and Electronics Systems	PC	3	3	0	0	3
13.	AT8503	Vehicle Design Data Characteristics	PC	3	3	0	0	3
14.	AT8504	Automotive Fuels and Lubricants	PC	3	3	0	0	3
15.	AT8511	Automotive Electrical and Electronics Laboratory	PC	4	0	0	4	2
16.	AT8512	Automotive Fuels and Lubricants Laboratory	PC	4	0	0	4	2
17.	AT8601	Automotive Engine Components Design	PC	3	3	0	0	3
18.	AT8602	Automotive Chassis Components Design	PC	3	3	0	0	3
19.	AT8603	Two and Three Wheelers	PC	3	3	0	0	3
20.	AT8611	Computer Aided Engine and Chassis Design Laboratory	PC	4	0	0	4	2
21.	AT8612	Two and Three Wheelers Laboratory	PC	4	0	0	4	2
22.	AT8701	Engine and Vehicle Management System	PC	3	3	0	0	3
23.	ME8692	Finite Element Analysis	PC	3	3	0	0	3
24.	AT8702	Vehicle Maintenance	PC	3	3	0	0	3
25.	AT8604	Vehicle Dynamics	PC	3	3	0	0	3
26.	AT8711	Engine Performance and Emission Testing Laboratory	PC	4	0	0	4	2
27.	AT8712	Vehicle Maintenance Laboratory	PC	4	0	0	4	2
28.	AT8801	Vehicle Body Engineering	PC	3	3	0	0	3

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ELECTIVES FOR B.E. AUTOMOBILE ENGINEERING

SEMESTER VI, ELECTIVE – I

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	AT8001	Automotive Air-Conditioning	PE	3	3	0	0	3
2.	AT8002	Advance Theory of IC Engines	PE	3	3	0	0	3
3.	AT8003	Metrology and Measurements for Automobile Engineers	PE	3	3	0	0	3
4.	PR8072	New Product Development	PE	3	3	0	0	3
5.	GE8075	Intellectual Property Rights	PE	3	3	0	0	3
6.	GE8073	Fundamentals of Nano Science	PE	3	3	0	0	3

SEMESTER VII, ELECTIVE – II

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	AT8091	Manufacturing of Automotive Components	PE	3	3	0	0	3
2.	AT8004	New Generation and Hybrid Vehicles	PE	3	3	0	0	3
3.	AT8005	Automotive Aerodynamics	PE	3	3	0	0	3
4.	AT8006	Off Road Vehicles	PE	3	3	0	0	3
5.	MG8491	Operations Research	PE	3	3	0	0	3
6.	GE8071	Disaster Management	PE	3	3	0	0	3

SEMESTER VII, ELECTIVE – III

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	AT8007	Noise, Vibration and Measurements	PE	3	3	0	0	3
2.	PR8071	Lean Six Sigma	PE	3	3	0	0	3
3.	ME8099	Robotics	PE	3	3	0	0	3
4.	ME8092	Composite Materials and Mechanics	PE	3	3	0	0	3
5.	GE8074	Human Rights	PE	3	3	0	0	3

SEMESTER VIII, ELECTIVE – IV

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	AT8008	Transport Management	PE	3	3	0	0	3
2.	MG8091	Entrepreneurship Development	PE	3	3	0	0	3
3.	AT8009	Automotive Safety	PE	3	3	0	0	3
4.	AT8010	Automotive Pollution and Control	PE	3	3	0	0	3
5.	AT8011	Automotive Testing	PE	3	3	0	0	3

SEMESTER VIII, ELECTIVE – V

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	PR8491	Computer Integrated Manufacturing	PE	3	3	0	0	3
2.	AT8012	Alternative Fuels and Energy Systems	PE	3	3	0	0	3
3.	MG8591	Principles of Management	PE	3	3	0	0	3
4.	GE8076	Professional Ethics in Engineering	PE	3	3	0	0	3

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EMPLOYABILITY ENHANCEMENT COURSES (EEC)

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	HS8381	Interpersonal Skills/Listening and Speaking	EEC	2	0	0	2	1
2.	HS8581	Professional Communication	EEC	2	0	0	2	1
3.	AT8811	Project Work	EEC	20	0	0	20	10

SUMMARY

SL NO	SUBJECT AREA	CREDITS AS PER SEMESTER								CREDITS TOTAL	Percentage %
		I	II	III	IV	V	VI	VII	VIII		
1.	HS	04	07	00	00	00	03	00	00	14	7.56
2.	BS	12	07	04	04	00	00	00	00	27	14.59
3.	ES	09	11	09	05	00	00	00	00	34	17.83
4.	PC	00	00	12	14	19	16	13	03	77	42.00
5.	PE	00	00	00	00	00	03	06	06	15	8.10
6.	OE	00	00	00	00	03	00	03	00	06	3.24
7.	EEC	00	00	01	00	01	00	00	10	13	7.02
	Total	25	25	26	23	23	22	22	19	185	
8	Non Credit/ Mandatory										

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ANNA UNIVERSITY, CHENNAI
AFFILIATED INSTITUTIONS
REGULATIONS 2017
B. TECH. FOOD TECHNOLOGY
CHOICE BASED CREDIT SYSTEM

1. Programme Educational Objectives (PEOs)

I. To prepare students as a qualified food technologists for Food industries, research organization and teaching.

II. To provide students with a solid foundation in basic sciences related to food technology, food science and food technology & engineering.

III. To enable the students with good scientific and engineering knowledge so as to comprehend, design, and create food products and device for food industry and provide solutions for the challenges in food industry as well as in agriculture.

IV. To train students in professional and ethical attitude, effective communication skills, teamwork skills and multidisciplinary approaches related to food technology and engineering.

V. To provide student with an academic environment aware of excellence, leadership, written ethical codes and guidelines, and the life-long learning needed for a successful professional career.

2. Programme Outcomes (POs)

On successful completion of the programme,

1. Graduates will demonstrate knowledge of mathematics, food science and engineering.
2. Graduates will demonstrate an ability to identify, formulate and solve engineering problems related to food sector/industry.
3. Graduate will able to focus on the importance of safe processed nutritious food.
4. Graduates will demonstrate an ability to design or process food products as per the needs and specifications.
5. Graduates will demonstrate an ability to work in Food industries, research organization and teaching.
6. Graduate will demonstrate skills to use modern tools and equipment to analyze food prone infection and food spoilage.
7. Graduates will demonstrate knowledge of professional and ethical responsibilities.
8. Graduate will be able to understand economic importance of food products and food laws.
9. Graduate will show the understanding of impact of engineering solutions on the society and also will be aware of contemporary issues.
10. Graduate will develop confidence for self education and ability for life-long learning.

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Programme Educational Objectives	Programme Outcomes									
	1	2	3	4	5	6	7	8	9	10
I		✔		✔	✔		✔			
II	✔	✔			✔				✔	
III	✔	✔		✔	✔					
IV						✔	✔	✔	✔	
V							✔	✔	✔	✔

3. Mapping for B. Tech. Food Technology – R2017

			1	2	3	4	5	6	7	8	9	10
1	SEM 1	Communicative English			✔				✔			
		Engineering Mathematics I	✔	✔								
		Engineering Physics	✔	✔								
		Engineering Chemistry	✔	✔								
		Problem Solving and Python Programming	✔		✔							
		Engineering Graphics	✔									
		Problem Solving and Python Programming Laboratory							✔			
		Physics and Chemistry Laboratory							✔			
	SEM 2	Technical English					✔					
		Engineering Mathematics II	✔	✔								
		Physics of Materials	✔	✔						✔		
		Basic Civil and Mechanical Engineering										
		Microbiology	✔							✔		
		Biochemistry	✔							✔		
		Engineering Practices Laboratory										
		Biochemistry Laboratory							✔			
Year 2	SEM 3	Transforms and Partial Differential Equations	✔									
		Introduction to Food Processing			✔	✔						
		Food Process Calculations		✔							✔	
		Food Microbiology										
		Principles of Fluid Mechanics		✔	✔							
		Food Chemistry and Nutrition										
		Food Microbiology Lab					✔	✔				
		Food Chemistry and Nutrition Lab					✔	✔				
		Interpersonal Skills/Listening and Speaking					✔					
Year 2	SEM 4	Probability and Statistics	✔									
		Food Analysis			✔	✔						
		Fundamentals of Heat and Mass		✔							✔	

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		Transfer										
		Environmental Science and Engineering										✔
		Thermodynamics		✔	✔							
		Unit Operations for Food Industries		✔								
		Food Analysis Laboratory					✔	✔				
		Unit Operations Laboratory					✔	✔				
		Advanced Reading and Writing					✔					
Year 3	SEM 5	Food Additives			✔	✔						
		Biochemical Engineering for Food Technologists		✔								
		Refrigeration and Cold Chain Management		✔								
		Food Processing and Preservation			✔	✔						
		Professional Communication	✔								✔	
		Food Processing and Preservation Lab					✔	✔				
		Biochemical Engineering Lab	✔				✔	✔				
Year 3	SEM 6	Food Process Engineering and Economics		✔								
		Baking and Confectionary Technology			✔	✔						
		Fruits and Vegetable Processing Technology			✔	✔						
		Fruits and Vegetable Processing Technology Lab					✔	✔				
		Baking and Confectionary Technology Lab					✔	✔				
Year 4	SEM 7	Dairy Process Technology			✔	✔						
		Food Safety, Quality and Regulation				✔						
		Food Packaging Technology			✔							
		Testing of Packaging Materials Lab					✔	✔				
		Dairy Process Technology Lab					✔	✔				
Year 4	SEM 8	Project Work					✔				✔	✔

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REGULATIONS 2017
B. TECH. FOOD TECHNOLOGY
CHOICE BASED CREDIT SYSTEM
I TO VIII SEMESTERS (FULL TIME) CURRICULA AND SYLLABI

SEMESTER I

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1	HS8151	Communicative English	HS	4	4	0	0	4
2	MA8151	Engineering Mathematics - I	BS	4	4	0	0	4
3	PH8151	Engineering Physics	BS	3	3	0	0	3
4	CY8151	Engineering Chemistry	BS	3	3	0	0	3
5	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
6	GE8152	Engineering Graphics	ES	6	2	0	4	4
PRACTICALS								
7	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
8	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
			TOTAL	31	19	0	12	25

SEMESTER II

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1	HS8251	Technical English	HS	4	4	0	0	4
2	MA8251	Engineering Mathematics – II	BS	4	4	0	0	4
3	PH8254	Physics of Materials	BS	3	3	0	0	3
4	BE8252	Basic Civil and Mechanical Engineering	ES	4	4	0	0	4
5	BT8291	Microbiology	PC	3	3	0	0	3
6	FD8201	Biochemistry	PC	3	3	0	0	3
PRACTICALS								
7	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
8	BT8261	Biochemistry Laboratory	PC	4	0	0	4	2
			TOTAL	29	21	0	8	25

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SEMESTER III

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1	MA8353	Transforms and Partial Differential Equations	BS	4	4	0	0	4
2	FD8301	Introduction to Food Processing	PC	3	3	0	0	3
3	FD8302	Food Process Calculations	PC	5	3	2	0	4
4	FD8303	Food Microbiology	PC	3	3	0	0	3
5	FD8304	Principles of Fluid Mechanics	PC	5	3	2	0	4
6	FD8305	Food Chemistry and Nutrition	PC	3	3	0	0	3
PRACTICALS								
7	FD8311	Food Microbiology Laboratory	PC	4	0	0	4	2
8	FD8312	Food Chemistry and Nutrition Laboratory	PC	4	0	0	4	2
9	HS8381	Interpersonal Skills/Listening and Speaking	EEC	2	0	0	2	1
			TOTAL	33	19	4	10	26

SEMESTER IV

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1	MA8391	Probability and Statistics	BS	4	4	0	0	4
2	FD8401	Food Analysis	PC	3	3	0	0	3
3	FD8491	Fundamentals of Heat and Mass Transfer	PC	5	3	2	0	4
4	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
5	FD8402	Thermodynamics	PC	3	3	0	0	3
6	FD8403	Unit Operations for Food Industries	PC	3	3	0	0	3
PRACTICALS								
7	FD8411	Food Analysis Laboratory	PC	4	0	0	4	2
8	FD8412	Unit Operations Laboratory	PC	4	0	0	4	2
9	HS8461	Advanced Reading and Writing	EEC	2	0	0	2	1
			TOTAL	31	19	2	10	25

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SEMESTER V

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	FD8501	Food Additives	PC	3	3	0	0	3
2.	FD8502	Biochemical Engineering for Food Technologists	PC	4	4	0	0	4
3.	FD8503	Refrigeration and Cold Chain Management	PC	3	3	0	0	3
4.	FD8504	Food Processing and Preservation	PC	3	3	0	0	3
5.		Professional Elective I	PE	3	3	0	0	3
6.		Open Elective I*	PE	3	3	0	0	3
PRACTICALS								
7.	FD8511	Food Processing and Preservation Laboratory	PC	4	0	0	4	2
8.	FD8512	Biochemical Engineering Laboratory	PC	4	0	0	4	2
9.	HS8581	Professional Communication	EEC	2	0	0	2	1
			TOTAL	29	19	0	10	24

* - Course from the curriculum of the other UG Programmes

SEMESTER VI

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1	FD8601	Food Process Engineering and Economics	PC	3	3	0	0	3
2	FD8602	Baking and Confectionary Technology	PC	3	3	0	0	3
3	FD8603	Fruits and Vegetable Processing Technology	PC	3	3	0	0	3
4		Professional Elective II	PE	3	3	0	0	3
5		Professional Electives III	PE	3	3	0	0	3
6		Professional Electives IV	PE	3	3	0	0	3
PRACTICALS								
7	FD8611	Fruits and Vegetable Processing Technology Laboratory	PC	4	0	0	4	2
8	FD8612	Baking and Confectionary Technology Laboratory	PC	4	0	0	4	2
			TOTAL	26	18	0	8	22

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SEMESTER VII

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1	FD8701	Dairy Process Technology	PC	3	3	0	0	3
2	FD8702	Food Safety, Quality and Regulation	PC	3	3	0	0	3
3	FD8703	Food Packaging Technology	PC	3	3	0	0	3
4		Professional Elective V	PE	3	3	0	0	3
5		Professional Elective VI	PE	3	3	0	0	3
6		Open Elective II*	OE	3	3	0	0	3
PRACTICALS								
7	FD8711	Testing of Packaging Materials Laboratory	PC	4	0	0	4	2
8	FD8712	Dairy Process Technology Laboratory	PC	4	0	0	4	2
			TOTAL	26	18	0	8	22

* - Course from the curriculum of the other UG Programmes

SEMESTER VIII

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
PRACTICALS								
1	FD8811	Project Work	EEC	20	0	0	20	10
			TOTAL	20	0	0	20	10

TOTAL CREDITS: 179

PROFESSIONAL ELECTIVES (PE)

PROFESSIONAL ELECTIVE I, SEMESTER V

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	FD8001	Biology and Chemistry of Food Flavours	PE	3	3	0	0	3
2.	FD8002	Pulse and Oil Seed Technology	PE	3	3	0	0	3
3.	FD8003	Traditional Foods	PE	3	3	0	0	3
4.	GE8071	Disaster Management	PE	3	3	0	0	3

PROFESSIONAL ELECTIVE II, SEMESTER VI

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	FD8004	Process Economics and Industrial Management	PE	3	3	0	0	3
2.	FD8005	Functional Foods and	PE	3	3	0	0	3

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		Nutraceuticals						
3.	FD8006	Food Toxicology and Allergy	PE	3	3	0	0	3
4.	FD8007	Spices and Plantation Technology	PE	3	3	0	0	3
5.	GE8075	Intellectual Property Rights	PE	3	3	0	0	3

PROFESSIONAL ELECTIVE III, SEMESTER VI

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	FD8008	Food Process Equipment Design	PE	3	3	0	0	3
2.	FD8009	Cereal Technology	PE	3	3	0	0	3
3.	GE8076	Professional Ethics in Engineering	PE	3	3	0	0	3
4.	BT8091	Instrumentation and Process Control	PE	3	3	0	0	3
5.	BT8071	Biological Spectroscopy	PE	3	3	0	0	3

PROFESSIONAL ELECTIVE IV, SEMESTER VI

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	FD8010	Meat, Fish and Poultry Processing Technology	PE	3	3	0	0	3
2.	GE8073	Fundamentals of Nanoscience	PE	3	3	0	0	3
3.	FD8011	Food Plant Design	PE	3	3	0	0	3
4.	FD8012	Speciality Foods	PE	3	3	0	0	3
5.	FD8013	Entrepreneurship	PE	3	3	0	0	3

PROFESSIONAL ELECTIVE V, SEMESTER VII

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	FD8014	Beverage Technology	PE	3	3	0	0	3
2.	FD8015	Post Harvest Technology	PE	3	3	0	0	3
3.	FD8016	Milling Technology	PE	3	3	0	0	3
4.	FD8017	Creativity, Innovation and New Food Product Development	PE	3	3	0	0	3
5.	BT8751	Downstream Processing	PE	3	3	0	0	3
6.	GE8074	Human Rights	PE	3	3	0	0	3

PROFESSIONAL ELECTIVE VI, SEMESTER VII

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	FD8018	Management of Food Waste	PE	3	3	0	0	3
2.	FD8019	Food Safety Management Systems	PE	3	3	0	0	3

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3.	FD8020	Genetic Engineering and Genetically Modified Foods	PE	3	3	0	0	3
4.	FD8021	Storage Engineering	PE	3	3	0	0	3
5.	FD8022	Technology of Fat and Oil	PE	3	3	0	0	3
6.	FD8023	Emerging Technologies in Food Processing	PE	3	3	0	0	3
7.	GE8077	Total Quality Management	PE	3	3	0	0	3

SUBJECT AREAWISE DETAILS

HUMANITIES AND SOCIAL SCIENCES (HS)

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	HS8251	Technical English	HS	4	4	0	0	4
3.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3

BASIC SCIENCES (BS)

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	MA8151	Engineering Mathematics I	BS	4	4	0	0	4
2.	PH8151	Engineering Physics	BS	3	3	0	0	3
3.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
4.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
5.	MA8251	Engineering Mathematics II	BS	4	4	0	0	4
6.	PH8254	Physics of Materials	BS	3	3	0	0	3
7.	MA8353	Transforms and Partial Differential Equations	BS	4	4	0	0	4
8.	MA8391	Probability and Statistics	BS	4	4	0	0	4

ENGINEERING SCIENCES (ES)

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
2.	GE8152	Engineering Graphics	ES	6	2	0	4	4
3.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
4.	BE8252	Basic Civil and Mechanical Engineering	ES	4	4	0	0	4
5.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2

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PROFESSIONAL CORE (PC)

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	BT8291	Microbiology	PC	3	3	0	0	3
2.	FD8201	Biochemistry	PC	3	3	0	0	3
3.	BT8261	Biochemistry Laboratory	PC	4	0	0	4	2
4.	FD8301	Introduction to Food Processing	PC	3	3	0	0	3
5.	FD8302	Food Process Calculations	PC	4	3	2	0	4
6.	FD8303	Food Microbiology	PC	3	3	0	0	3
7.	FD8304	Principles of Fluid Mechanics	PC	4	3	2	0	4
8.	FD8305	Food Chemistry and Nutrition	PC	3	3	0	0	3
9.	FD8311	Food Microbiology Laboratory	PC	4	0	0	4	2
10.	FD8312	Food Chemistry and Nutrition Laboratory	PC	4	0	0	4	2
11.	FD8401	Food Analysis	PC	3	3	0	0	3
12.	FD8491	Fundamentals of Heat and Mass Transfer	PC	4	3	2	0	4
13.	FD8402	Thermodynamics	PC	3	3	0	0	3
14.	FD8403	Unit Operations for Food Industries	PC	3	3	0	0	3
15.	FD8411	Food Analysis Laboratory	PC	4	0	0	4	2
16.	FD8412	Unit Operations Laboratory	PC	4	0	0	4	2
17.	FD8501	Food Additives	PC	3	3	0	0	3
18.	FD8502	Biochemical Engineering for Food Technologists	PC	4	4	0	0	4
19.	FD8503	Refrigeration and Cold Chain Management	PC	3	3	0	0	3
20.	FD8504	Food Processing and Preservation	PC	3	3	0	0	3
21.	FD8511	Food Processing and Preservation Laboratory	PC	4	0	0	4	2
22.	FD8512	Biochemical Engineering Laboratory	PC	4	0	0	4	2
23.	FD8601	Food Process Engineering and Economics	PC	3	3	0	0	3
24.	FD8602	Baking and Confectionary Technology	PC	3	3	0	0	3
25.	FD8603	Fruits and Vegetable Processing Technology	PC	3	3	0	0	3
26.	FD8611	Fruits and Vegetable Processing Technology Laboratory	PC	4	0	0	4	2
27.	FD8612	Baking and Confectionary Technology Laboratory	PC	4	0	0	4	2
28.	FD8701	Dairy Process Technology	PC	3	3	0	0	3
29.	FD8702	Food Safety, Quality and Regulation	PC	3	3	0	0	3
30.	FD8703	Food Packaging Technology	PC	3	3	0	0	3
31.	FD8711	Testing of Packaging Materials Laboratory	PC	4	0	0	4	2

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32.	FD8712	Dairy Process Technology Laboratory	PC	4	0	0	4	2

EMPLOYABILITY ENHANCEMENT COURSES (EEC)

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	HS8381	Interpersonal Skills/Listening and Speaking	EEC	2	0	0	2	1
2.	HS8461	Advanced Reading And Writing	EEC	2	0	0	2	1
3.	HS8581	Professional Communication	EEC	2	0	0	2	1
4.	FD8811	Project Work	EEC	20	0	0	20	10

SUMMARY

S. No	Subject Area	Credits Per Semester								Total Credits
		I	II	III	IV	V	VI	VII	VIII	
1	HS	4	4	-	3	-	-	-	-	11
2	BS	12	7	4	4	-	-	-	-	27
3	ES	9	6	-	-	-	-	-	-	15
4	PC	-	8	21	17	17	13	13	-	89
5	PE	-	-	-	-	3	9	6	-	18
6	OE	-	-	-	-	3	-	3	-	6
7	EEC	-	-	1	1	1	-	-	10	13
Total		25	25	26	25	24	22	22	10	179

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ANNA UNIVERSITY, CHENNAI

AFFILIATED INSTITUTIONS

B.E. MECHANICAL ENGINEERING

REGULATIONS – 2017

CHOICE BASED CREDIT SYSTEM

PROGRAMME EDUCATIONAL OBJECTIVES:

Bachelor of Mechanical Engineering curriculum is designed to impart Knowledge, Skill and Attitude on the graduates to

1. Have a successful career in Mechanical Engineering and allied industries.
2. Have expertise in the areas of Design, Thermal, Materials and Manufacturing.
3. Contribute towards technological development through academic research and industrial practices.
4. Practice their profession with good communication, leadership, ethics and social responsibility.
5. Graduates will adapt to evolving technologies through life-long learning.

PROGRAMME OUTCOMES

1. An ability to apply knowledge of mathematics and engineering sciences to develop mathematical models for industrial problems.
2. An ability to identify, formulates, and solve complex engineering problems. with high degree of competence.
3. An ability to design and conduct experiments, as well as to analyze and interpret data obtained through those experiments.
4. An ability to design mechanical systems, component, or a process to meet desired needs within the realistic constraints such as environmental, social, political and economic sustainability.
5. An ability to use modern tools, software and equipment to analyze multidisciplinary problems.
6. An ability to demonstrate on professional and ethical responsibilities.
7. An ability to communicate, write reports and express research findings in a scientific community.
8. An ability to adapt quickly to the global changes and contemporary practices.
9. An ability to engage in life-long learning.

PEO / PO Mapping

Programme Educational Objectives	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
I	✓	✓	✓	✓	✓	✓	✓	✓	✓
II	✓	✓	✓		✓			✓	
III		✓		✓	✓	✓		✓	
IV					✓	✓	✓		✓
V		✓	✓	✓	✓				✓

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		COURSE TITLE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
YEAR 1	SEM 1	Communicative English							✓		
		Engineering Mathematics I	✓	✓	✓						✓
		Engineering Physics	✓	✓	✓						✓
		Engineering Chemistry				✓					
		Problem Solving and Python Programming					✓				
		Engineering Graphics		✓	✓				✓		
		Problem Solving and Python Programming Laboratory			✓		✓				
		Physics and Chemistry Laboratory			✓						
		COURSE TITLE	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**
	SEM 2	Technical English							✓		
		Engineering Mathematics II	✓	✓	✓				✓		✓
		Materials Science				✓				✓	
		Basic Electrical, Electronics and Instrumentation Engineering				✓				✓	
		Environmental Science and Engineering				✓					
		Engineering Mechanics	✓	✓					✓	✓	✓
		Engineering Practices Laboratory			✓						
		Basic Electrical, Electronics and Instrumentation Engineering			✓						
		COURSE TITLE	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**
YEAR 2	SEM 3	Transforms and Partial Differential Equations	✓	✓	✓					✓	✓
		Engineering Thermodynamics	✓	✓	✓				✓	✓	
		Fluid Mechanics and Machinery	✓	✓	✓						
		Manufacturing Technology - I			✓	✓	✓	✓		✓	✓
		Electrical Drives and Controls									
		Manufacturing Technology Laboratory - I			✓	✓	✓	✓		✓	✓
		Computer Aided Machine Drawing			✓	✓	✓	✓		✓	✓
		Electrical Engineering Laboratory			✓						
		Interpersonal Skills / Listening & Speaking			✓						
		COURSE TITLE	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**
	SEM 4	Statistics and Numerical Methods	✓	✓							
		Kinematics of Machinery	✓	✓	✓		✓				
		Manufacturing Technology– II	✓		✓	✓	✓			✓	✓
		Engineering Metallurgy							✓		

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		Strength of Materials for Mechanical Engineers	✓	✓	✓	✓								
		Thermal Engineering- I	✓	✓			✓							
		Manufacturing Technology Laboratory–II			✓									
		Strength of Materials and Fluid Mechanics Machinery Laboratory			✓									
		Advanced Reading and Writing							✓					✓
		COURSE TITLE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9			
YEAR 3	SEM 5	Thermal Engineering- II	✓	✓			✓			✓				
		Design of Machine Elements		✓		✓			✓	✓	✓			
		Metrology and Measurements	✓		✓	✓			✓	✓				
		Dynamics of Machines	✓	✓	✓		✓		✓		✓			
		Kinematics and Dynamics Laboratory	✓	✓	✓	✓								
		Thermal Engineering Laboratory	✓	✓	✓									
		Metrology and Measurements Laboratory	✓	✓	✓	✓			✓					
		COURSE TITLE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9			
	SEM 6	Design of Transmission Systems		✓		✓			✓		✓			
		Computer Aided Design and Manufacturing		✓	✓		✓							
		Heat and Mass Transfer	✓	✓	✓	✓				✓	✓			
		Finite Element Analysis	✓	✓		✓					✓			
		Hydraulics and Pneumatics	✓	✓		✓				✓				
		C.A.D. / C.A.M. Laboratory		✓	✓			✓						
		Design and Fabrication Project						✓	✓		✓			
		Professional Communication				✓	✓	✓	✓		✓			
		COURSE TITLE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9			
YEAR 4	SEM 7	Power Plant Engineering	✓	✓	✓	✓				✓				
		Mechatronics	✓	✓	✓		✓			✓	✓			
		Process Planning and Cost Estimation		✓		✓								
		Simulation and Analysis Laboratory	✓				✓		✓					
		Mechatronics Laboratory	✓	✓	✓		✓			✓	✓			
		Technical Seminar						✓						
	SEM 8	Project Work	✓	✓	✓			✓	✓					
		Principles of Management						✓			✓			

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ANNA UNIVERSITY, CHENNAI
AFFILIATED INSTITUTIONS
B.E. MECHANICAL ENGINEERING
REGULATIONS - 2017
CHOICE BASED CREDIT SYSTEM
I TO VIII SEMESTERS CURRICULA AND SYLLABI

SEMESTER I

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	MA8151	Engineering Mathematics - I	BS	4	4	0	0	4
3.	PH8151	Engineering Physics	BS	3	3	0	0	3
4.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
5.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
6.	GE8152	Engineering Graphics	ES	6	2	0	4	4
PRACTICALS								
7.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
8.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
			TOTAL	**31**	**19**	**0**	**12**	**25**

SEMESTER II

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	HS8251	Technical English	HS	4	4	0	0	4
2.	MA8251	Engineering Mathematics - II	BS	4	4	0	0	4
3.	PH8251	Materials Science	BS	3	3	0	0	3
4.	BE8253	Basic Electrical, Electronics and Instrumentation Engineering	ES	3	3	0	0	3
5.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
6.	GE8292	Engineering Mechanics	ES	5	3	2	0	4
PRACTICALS								
7.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
8.	BE8261	Basic Electrical, Electronics and Instrumentation Engineering Laboratory	ES	4	0	0	4	2
			TOTAL	**30**	**20**	**2**	**8**	**25**

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SEMESTER III

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MA8353	Transforms and Partial Differential Equations	BS	4	4	0	0	4
2.	ME8391	Engineering Thermodynamics	PC	5	3	2	0	4
3.	CE8394	Fluid Mechanics and Machinery	ES	4	4	0	0	4
4.	ME8351	Manufacturing Technology - I	PC	3	3	0	0	3
5.	EE8353	Electrical Drives and Controls	ES	3	3	0	0	3
PRACTICAL								
6.	ME8361	Manufacturing Technology Laboratory - I	PC	4	0	0	4	2
7.	ME8381	Computer Aided Machine Drawing	PC	4	0	0	4	2
8.	EE8361	Electrical Engineering Laboratory	ES	4	0	0	4	2
9.	HS8381	Interpersonal Skills / Listening & Speaking	EEC	2	0	0	2	1
			TOTAL	**33**	**17**	**2**	**14**	**25**

SEMESTER IV

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MA8452	Statistics and Numerical Methods	BS	4	4	0	0	4
2.	ME8492	Kinematics of Machinery	PC	3	3	0	0	3
3.	ME8451	Manufacturing Technology – II	PC	3	3	0	0	3
4.	ME8491	Engineering Metallurgy	PC	3	3	0	0	3
5.	CE8395	Strength of Materials for Mechanical Engineers	ES	3	3	0	0	3
6.	ME8493	Thermal Engineering- I	PC	3	3	0	0	3
PRACTICAL								
7.	ME8462	Manufacturing Technology Laboratory – II	PC	4	0	0	4	2
8.	CE8381	Strength of Materials and Fluid Mechanics and Machinery Laboratory	ES	4	0	0	4	2
9.	HS8461	Advanced Reading and Writing	EEC	2	0	0	2	1
			TOTAL	**29**	**19**	**0**	**10**	**24**

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SEMESTER V

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	ME8595	Thermal Engineering- II	PC	3	3	0	0	3
2.	ME8593	Design of Machine Elements	PC	3	3	0	0	3
3.	ME8501	Metrology and Measurements	PC	3	3	0	0	3
4.	ME8594	Dynamics of Machines	PC	4	4	0	0	4
5.		Open Elective I	OE	3	3	0	0	3
PRACTICAL								
6.	ME8511	Kinematics and Dynamics Laboratory	PC	4	0	0	4	2
7.	ME8512	Thermal Engineering Laboratory	PC	4	0	0	4	2
8.	ME8513	Metrology and Measurements Laboratory	PC	4	0	0	4	2
			TOTAL	28	16	0	12	22

SEMESTER VI

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	ME8651	Design of Transmission Systems	PC	3	3	0	0	3
2.	ME8691	Computer Aided Design and Manufacturing	PC	3	3	0	0	3
3.	ME8693	Heat and Mass Transfer	PC	5	3	2	0	4
4.	ME8692	Finite Element Analysis	PC	3	3	0	0	3
5.	ME8694	Hydraulics and Pneumatics	PC	3	3	0	0	3
6.		Professional Elective - I	PE	3	3	0	0	3
PRACTICAL								
7.	ME8681	CAD / CAM Laboratory	PC	4	0	0	4	2
8.	ME8682	Design and Fabrication Project	EEC	4	0	0	4	2
9.	HS8581	Professional Communication	EEC	2	0	0	2	1
			TOTAL	30	18	2	10	24

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SEMESTER VII

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	ME8792	Power Plant Engineering	PC	3	3	0	0	3
2.	ME8793	Process Planning and Cost Estimation	PC	3	3	0	0	3
3.	ME8791	Mechatronics	PC	3	3	0	0	3
4.		Open Elective - II	OE	3	3	0	0	3
5.		Professional Elective – II	PE	3	3	0	0	3
6.		Professional Elective – III	PE	3	3	0	0	3
PRACTICAL								
7.	ME8711	Simulation and Analysis Laboratory	PC	4	0	0	4	2
8.	ME8781	Mechatronics Laboratory	PC	4	0	0	4	2
9.	ME8712	Technical Seminar	EEC	2	0	0	2	1
			TOTAL	28	18	0	10	23

SEMESTER VIII

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MG8591	Principles of Management	HS	3	3	0	0	3
2.		Professional Elective– IV	PE	3	3	0	0	3
PRACTICAL								
3.	ME8811	Project Work	EEC	20	0	0	20	10
			TOTAL	29	9	0	20	16

TOTAL NUMBER OF CREDITS TO BE EARNED FOR AWARD OF THE DEGREE = 184

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HUMANITIES AND SOCIAL SCIENCES (HS)

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	HS8251	Technical English	HS	4	4	0	0	4
3.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
4.	MG8591	Principles of Management	HS	3	3	0	0	3

BASIC SCIENCE (BS)

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	MA8151	Engineering Mathematics - I	BS	5	3	2	0	4
2.	PH8151	Engineering Physics	BS	3	3	0	0	3
3.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
4.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
5.	MA8251	Engineering Mathematics II	BS	4	4	0	0	4
6.	PH8251	Materials Science	BS	3	3	0	0	3
7.	MA8353	Transforms and Partial Differential Equations	BS	4	4	0	0	4
8.	MA8452	Statistics and Numerical Methods	BS	4	4	0	0	4

ENGINEERING SCIENCES (ES)

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
2.	GE8152	Engineering Graphics	ES	6	2	0	4	4
3.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
4.	BE8253	Basic Electrical, Electronics and Instrumentation Engineering	ES	3	3	0	0	3
5.	GE8292	Engineering Mechanics	ES	5	3	2	0	4
6.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
7.	BE8261	Basic Electrical, Electronics and Instrumentation Engineering Laboratory	ES	4	0	0	4	2
8.	CE8394	Fluid Mechanics and Machinery	ES	5	3	2	0	4
9.	EE8353	Electrical Drives and Controls	ES	3	3	0	0	3
10.	EE8361	Electrical Engineering Laboratory	ES	4	0	0	4	2
11.	CE8395	Strength of Materials for Mechanical Engineers	ES	3	3	0	0	3
12.	CE8381	Strength of Materials and Fluid Mechanics and Machinery Laboratory	ES	4	0	0	4	2

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PROFESSIONAL CORE (PC)

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	ME8391	Engineering Thermodynamics	PC	5	3	2	0	4
2.	ME8351	Manufacturing Technology - I	PC	3	3	0	0	3
3.	ME8361	Manufacturing Technology Laboratory - I	PC	4	0	0	4	2
4.	ME8381	Computer Aided Machine Drawing	PC	4	0	0	4	2
5.	ME8492	Kinematics of Machinery	PC	3	3	0	0	3
6.	ME8451	Manufacturing Technology– II	PC	3	3	0	0	3
7.	ME8491	Engineering Metallurgy	PC	3	3	0	0	3
8.	ME8493	Thermal Engineering- I	PC	3	3	0	0	3
9.	ME8462	Manufacturing Technology Laboratory–II	PC	4	0	0	4	2
10.	ME8595	Thermal Engineering- II	PC	3	3	0	0	3
11.	ME8593	Design of Machine Elements	PC	3	3	0	0	3
12.	ME8501	Metrology and Measurements	PC	3	3	0	0	3
13.	ME8594	Dynamics of Machines	PC	4	4	0	0	4
14.	ME8511	Kinematics and Dynamics Laboratory	PC	4	0	0	4	2
15.	ME8512	Thermal Engineering Laboratory	PC	4	0	0	4	2
16.	ME8513	Metrology and Measurements Laboratory	PC	4	0	0	4	2
17.	ME8651	Design of Transmission Systems	PC	3	3	0	0	3
18.	ME8691	Computer Aided Design and Manufacturing	PC	3	3	0	0	3
19.	ME8693	Heat and Mass Transfer	PC	5	3	2	0	4
20.	ME8692	Finite Element Analysis	PC	3	3	0	0	3
21.	ME8694	Hydraulics and Pneumatics	PC	3	3	0	0	3
22.	ME8681	C.A.D. / C.A.M. Laboratory	PC	4	0	0	4	2
23.	ME8682	Design and Fabrication Project	PC	4	0	0	4	2
24.	ME8792	Power Plant Engineering	PC	3	3	0	0	3
25.	ME8791	Mechatronics	PC	3	3	0	0	3
26.	ME8793	Process Planning and Cost Estimation	PC	3	3	0	0	3
27.	ME8711	Simulation and Analysis Laboratory	PC	4	0	0	4	2
28.	ME8781	Mechatronics Laboratory	PC	4	0	0	4	2

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PROFESSIONAL ELECTIVES FOR B.E. MECHANICAL ENGINEERING

SEMESTER VI, ELECTIVE I

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	ME8091	Automobile Engineering	PE	3	3	0	0	3
2.	PR8592	Welding Technology	PE	3	3	0	0	3
3.	ME8096	Gas Dynamics and Jet Propulsion	PE	3	3	0	0	3
4.	GE8075	Intellectual Property Rights	PE	3	3	0	0	3
5.	GE8073	Fundamentals of Nano Science	PE	3	3	0	0	3

SEMESTER VII, ELECTIVE II

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	ME8071	Refrigeration and Air conditioning	PE	3	3	0	0	3
2.	ME8072	Renewable Sources of Energy	PE	3	3	0	0	3
3.	ME8098	Quality Control and Reliability Engineering	PE	3	3	0	0	3
4.	ME8073	Unconventional Machining Processes	PE	3	3	0	0	3
5.	MG8491	Operations Research	PE	3	3	0	0	3
6.	MF8071	Additive Manufacturing	PE	3	3	0	0	3
7.	GE8077	Total Quality Management	PE	3	3	0	0	3

SEMESTER VII, ELECTIVE III

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	ME8099	Robotics	PE	3	3	0	0	3
2.	ME8095	Design of Jigs, Fixtures and Press Tools	PE	3	3	0	0	3
3.	ME8093	Computational Fluid Dynamics	PE	3	3	0	0	3
4.	ME8097	Non Destructive Testing and Evaluation	PE	3	3	0	0	3
5.	ME8092	Composite Materials and Mechanics	PE	3	3	0	0	3
6.	GE8074	Human Rights	PE	3	3	0	0	3
7.	GE8071	Disaster Management	PE	3	3	0	0	3

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SEMESTER VIII, ELECTIVE IV

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	IE8693	Production Planning and Control	PE	3	3	0	0	3
2.	MG8091	Entrepreneurship Development	PE	3	3	0	0	3
3.	ME8094	Computer Integrated Manufacturing Systems	PE	3	3	0	0	3
4.	ME8074	Vibration and Noise Control	PE	3	3	0	0	3
5.	EE8091	Micro Electro Mechanical Systems	PE	3	3	0	0	3
6.	GE8076	Professional Ethics in Engineering	PE	3	3	0	0	3

EMPLOYABILITY ENHANCEMENT COURSES (EEC)

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	HS8381	Interpersonal Skills/Listening &	EEC	4	0	0	4	2
2.	ME8712	Technical Seminar	EEC	2	0	0	2	1
3.	ME8811	Project Work	EEC	20	0	0	20	12
4.	HS8461	Advanced Reading and Writing	EEC	2	0	0	2	1
5.	ME8682	Design and Fabrication Project	EEC	4	0	0	4	2
6.	HS8581	Professional Communication	EEC	2	0	0	2	1

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SUMMARY

SL. NO.	SUBJECT AREA	CREDITS PER SEMESTER								CREDITS TOTAL	Percentage %
		I	II	III	IV	V	VI	VII	VIII		
1.	HS	4	7	-	-	-		-	3	14	7.61%
2.	BS	12	7	4	4	-	-	-	-	27	14.67%
3.	ES	9	11	9	5	-	-	-	-	33	17.80%
4.	PC	-	-	11	14	19	18	13	-	74	40.22%
5.	PE	-	-	-	-	-	3	6	3	15	8.15%
6.	OE	-	-	-	-	3	-	3		6	3.26%
7.	EEC	-	-	1	1	-	3	1	10	16	7.6%
	Total	25	25	25	24	22	24	23	16	184	
8.	Non Credit / Mandatory										

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AFFILIATED INSTITUTIONS
REGULATIONS 2017
B. E. PETROCHEMICAL ENGINEERING
CHOICE BASED CREDIT SYSTEM

1. Programme Educational Objectives (PEOs)

Graduates of B. E. Petrochemical Engineering will

I. Exhibit a professional and ethical attitude, effective communication skills, teamwork, multidisciplinary approach, and an ability to solve the problems encountered in petrochemical sector.
II. Gain knowledge in basic sciences, mathematics and computational platforms.
III. Have a knowledge and competency in refinery process industries complemented by the appropriate skills and attributes.
IV. Understand the theory and applications of analytical equipments used in industries for testing the quality of petroleum, intermediates and products.
V. Address to meet the world's ever-increasing demand for hydrocarbon fuel, thermal energy, and waste management.

2. Programme Outcomes (POs)

On successful completion of the programme,

I. Graduates will be able to demonstrate their knowledge professionally and shoulder ethical responsibilities.
II. Graduates will able be to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
III. Graduates will be able to identify, formulate, and solve engineering problems related to petrochemical industry.
IV. Graduates will be capable to design experiments, analyze and interpret data.
V. Graduates will be able to meet the world's ever-increasing demand for hydrocarbon fuel, thermal energy, and waste management.
VI. Graduates will be able to communicate effectively and work in interdisciplinary groups.
VII. Graduates will have a knowledge to analyze chemical and petrochemical products.
VIII. Graduates will understand the characteristics of source and reservoir Engineering.
IX. Graduates will gain expertise with environmentally sound exploration, evaluation and recovery of oil, gas and other fluids in the earth.
X. Graduates will Understand the pre requisites of control strategies and the mechanism of advance control systems.

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3. PEOs / POs Mapping

Programme Educational Objectives	Programme Outcomes									
	I	II	III	IV	V	VI	VII	VIII	IX	X
I	✓	✓	✓			✓				✓
II			✓	✓			✓			
III	✓		✓	✓	✓		✓	✓	✓	✓
IV		✓	✓				✓			
V		✓					✓	✓	✓	

4. Semester Course Wise PEOs Mapping

YEAR	SEM	Course Title	I	II	III	IV	V	VI	VII	VIII	IX	X
YEAR I	SEM I	Communicative English	√								√	
		Engineering Mathematics I		√								√
		Engineering Physics				√						
		Engineering Chemistry				√	√					
		Problem Solving and Python Programming	√	√								√
		Engineering Graphics	√									
		Physics and Chemistry Laboratory				√	√					
		Problem Solving and Python Programming Laboratory	√	√								√
	SEM II	Technical English	√								√	
		Engineering Mathematics II		√				√				√
		Physics of Materials				√						
		Organic Chemistry				√	√					
		Basic Mechanical Engineering	√		√		√					
		Industrial Chemical Technology			√				√	√		
		Organic Chemistry Laboratory			√	√		√				
		Engineering Practices Laboratory	√		√		√					
YEAR II	SEM III	Probability and Statistics		√				√				√
		Engineering Mechanics			√				√	√		
		Fluid Mechanics			√	√		√				
		Materials Technology	√		√	√		√				
		Process calculations			√	√		√				
		Principles of Electrical and Electronics Engineering			√	√						√
		Electrical Engineering Laboratory			√	√						√
		Mechanical Engineering			√	√						

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		Laboratory										
	SEMIV	Chemical Engineering Thermodynamics			√	√		√				
		Petroleum Exploration and Exploitation Techniques			√				√	√		
		Chemistry for Technologists				√	√					
		Natural Gas Engineering	√		√		√					
		Mechanical Operations	√		√		√					
		Petroleum Primary Processing Technology				√	√					
		Fluids and Solid Operations Laboratory	√		√		√					
		Chemical Analysis Laboratory				√	√					
YEAR III	SEM V	Heat Transfer			√	√		√				
		Mass Transfer I			√	√		√				
		Chemical Reaction Engineering			√	√		√				
		Professional Communication	√								√	
		Heat Transfer Laboratory			√	√		√				
		Petrochemical Analysis Laboratory			√				√	√		
	SEM VI	Petroleum Secondary Processing Technology			√				√	√		
		Mass Transfer II			√	√		√				
		Catalytic Reaction Engineering			√	√		√				
		Professional Ethics In Engineering	√		√		√					
		Process Instrumentation, Dynamics and Control			√	√						√
		Mass Transfer Laboratory			√	√		√				
		Petroleum Testing Laboratory			√				√	√		
YEAR IV	SEM VII	Process Equipment Design and Drawing			√				√	√		
		Environmental Science And Engineering	√		√		√					
		Reaction Engineering and Process Control Laboratory			√	√		√				
		Internship	√								√	
	SEM VIII	Project	√	√						√		
		Pipeline and Welding Technology	√	√			√	√		√		
		Seminar	√	√						√		

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B. E. PETROCHEMICAL ENGINEERING
CHOICE BASED CREDIT SYSTEM
I TO VIII SEMESTERS (FULL TIME) CURRICULA AND SYLLABI

SEMESTER I

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	MA8151	Engineering Mathematics–I	BS	4	4	0	0	4
3.	PH8151	Engineering Physics	BS	3	3	0	0	3
4.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
5.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
6.	GE8152	Engineering Graphics	ES	6	2	0	4	4
PRACTICALS								
7.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
8.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
			TOTAL	31	19	0	12	25

SEMESTER II

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	HS8251	Technical English	HS	4	4	0	0	4
2.	MA8251	Engineering Mathematics–II	BS	4	4	0	0	4
3.	PH8254	Physics of Materials	BS	3	3	0	0	3
4.	CY8291	Organic Chemistry	BS	3	3	0	0	3
5.	BE8256	Basic Mechanical Engineering	ES	4	4	0	0	4
6.	PM8251	Industrial Chemical Technology	PC	3	3	0	0	3
PRACTICALS								
7.	CY8281	Organic Chemistry Laboratory	BS	4	0	0	4	2
8.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
			TOTAL	29	21	0	8	25

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SEMESTER III

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MA8391	Probability and Statistics	BS	4	4	0	0	4
2.	GE8292	Engineering Mechanics	ES	5	3	2	0	4
3.	PM8351	Fluid Mechanics	PC	5	3	2	0	4
4.	PM8391	Materials Technology	ES	3	3	0	0	3
5.	CH8351	Process Calculations	PC	5	3	2	0	4
6.	EE8352	Principles of Electrical and Electronics Engineering	ES	3	3	0	0	3
PRACTICALS								
7.	EE8361	Electrical Engineering Laboratory	ES	4	0	0	4	2
8.	ME8362	Mechanical Engineering Laboratory	ES	4	0	0	4	2
			TOTAL	33	19	6	8	26

SEMESTER IV

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	PE8491	Chemical Engineering Thermodynamics	PC	3	3	0	0	3
2.	PM8451	Petroleum Exploration and Exploitation Techniques	PC	3	3	0	0	3
3.	CY8292	Chemistry for Technologists	BS	3	3	0	0	3
4.	PE8092	Natural Gas Engineering	PC	3	3	0	0	3
5.	CH8451	Mechanical Operations	PC	3	3	0	0	3
6.	PM8452	Petroleum Primary Processing Technology	PC	3	3	0	0	3
PRACTICALS								
7.	PE8461	Fluids and Solid Operations Laboratory	ES	4	0	0	4	2
8.	CH8281	Chemical Analysis Laboratory	BS	4	0	0	4	2
			TOTAL	26	18	0	8	22

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SEMESTER V

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	CH8591	Heat Transfer	PC	5	3	2	0	4
2.	CH8551	Mass Transfer I	PC	3	3	0	0	3
3.	PE8091	Chemical Reaction Engineering	PC	3	3	0	0	3
4.		Professional Elective I	PE	3	3	0	0	3
5.		Open Elective I*	OE	3	3	0	0	3
PRACTICALS								
6.	CH8561	Heat Transfer Laboratory	PC	4	0	0	4	2
7.	PM8561	Petrochemical Analysis Laboratory	PC	4	0	0	4	2
8.	HS8581	Professional Communication	EEC	2	0	0	2	1
			TOTAL	27	15	2	10	21

* - Course from the curriculum of the other UG Programmes

SEMESTER VI

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	PM8651	Petroleum Secondary Processing Technology	PC	3	3	0	0	3
2.	CH8651	Mass Transfer II	PC	5	3	2	0	4
3.	PE8072	Catalytic Reaction Engineering	PC	3	3	0	0	3
4.	GE8076	Professional Ethics in Engineering	HS	3	3	0	0	3
5.	CH8653	Process Instrumentation, Dynamics and Control	PC	3	3	0	0	3
6.		Professional Elective II	PE	3	3	0	0	3
PRACTICALS								
7.	CH8781	Mass Transfer Laboratory	PC	4	0	0	4	2
8.	PE8661	Petroleum Testing Laboratory	PC	4	0	0	4	2
			TOTAL	28	18	2	8	23

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SEMESTER VII

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	PM8751	Process Equipment Design and Drawing	PC	5	3	0	2	4
2.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
3.		Professional Elective III	PE	3	3	0	0	3
4.		Professional Elective IV	PE	3	3	0	0	3
5.		Professional Elective V	PE	3	3	0	0	3
6.		Open Elective II*	OE	3	3	0	0	3
PRACTICALS								
7.	PM8761	Reaction Engineering and Process Control Laboratory	PC	4	0	0	4	2
8.	PM8711	Internship	EEC	0	0	0	0	2
			TOTAL	24	18	0	6	23

* - Course from the curriculum of the other UG Programmes

SEMESTER VIII

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.		Professional Elective VI	PE	3	3	0	0	3
2.	PM8801	Pipeline and Welding Technology	PC	3	3	0	0	3
PRACTICALS								
3.	PM8811	Project Work	EEC	20	0	0	20	10
4.	PM8812	Seminar	EEC	4	0	0	4	2
			TOTAL	30	6	0	24	18

TOTAL CREDITS: 183

PROFESSIONAL ELECTIVES

PROFESSIONAL ELECTIVE I, SEMESTER V

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	PM8078	Petrochemical Unit Processes	PE	3	3	0	0	3
2.	PM8075	Instrumentation and Instrumental Analysis	PE	3	3	0	0	3
3.	CH8094	Polymer Technology	PE	3	3	0	0	3
4.	PM8076	Non-Conventional hydrocarbon sources	PE	3	3	0	0	3
5.	GE8071	Disaster Management	PE	3	3	0	0	3

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PROFESSIONAL ELECTIVE II, SEMESTER VI

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	PM8073	Design of Pressure Vessels and Piping	PE	3	3	0	0	3
2.	PM8074	Drilling and Well Engineering	PE	3	3	0	0	3
3.	PM8080	Production Engineering	PE	3	3	0	0	3
4.	PE8071	Advanced Separation Techniques	PE	3	3	0	0	3
5.	GE8075	Intellectual Property Rights	PE	3	3	0	0	3
6.	CH8791	Transport Phenomena	PE	3	3	0	0	3

PROFESSIONAL ELECTIVE III, SEMESTER VII

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	PM8082	Water Treatment and Management	PE	3	3	0	0	3
2.	CH8072	Fluidization Engineering	PE	3	3	0	0	3
3.	PM8071	Chemical Process Design	PE	3	3	0	0	3
4.	PE8073	Enhanced Oil Recovery	PE	3	3	0	0	3
5.	GE8074	Human Rights	PE	3	3	0	0	3
6.	CH8077	Process Modeling and Simulation	PE	3	3	0	0	3

PROFESSIONAL ELECTIVE IV, SEMESTER VII

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	PM8079	Petroleum Process Equipment Auxiliaries	PE	3	3	0	0	3
2.	PE8074	Multicomponent Distillation	PE	3	3	0	0	3
3.	PE8075	Petroleum Corrosion Technology	PE	3	3	0	0	3
4.	PM8081	Refinery Process Design	PE	3	3	0	0	3

PROFESSIONAL ELECTIVE V, SEMESTER VII

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	PE8079	Storage Transportation of Crude Oil and Natural gas	PE	3	3	0	0	3
2.	PE8078	Reservoir Characterization and Modeling	PE	3	3	0	0	3
3.	PM8077	Petrochemical Derivatives	PE	3	3	0	0	3
4.	GE8077	Total Quality Management	PE	3	3	0	0	3

PROFESSIONAL ELECTIVE VI, SEMESTER VIII

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	PE8076	Petroleum Economics	PE	3	3	0	0	3
2.	PM8072	Design of Heat Exchangers	PE	3	3	0	0	3
3.	PE8093	Plant Safety and Risk Analysis	PE	3	3	0	0	3
4.	PC8071	Safety in Chemical Industries	PE	3	3	0	0	3
5.	GE8073	Fundamentals of Nano Science	PE	3	3	0	0	3

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SUBJECT AREAWISE DETAILS

HUMANITIES AND SOCIAL SCIENCES (HS)

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	HS8251	Technical English	HS	4	4	0	0	4
3.	GE8076	Professional Ethics in Engineering	HS	3	3	0	0	3
4.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3

BASIC SCIENCES (BS)

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	MA8151	Engineering Mathematics I	BS	4	4	0	0	4
2.	PH8151	Engineering Physics	BS	3	3	0	0	3
3.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
4.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
5.	MA8251	Engineering Mathematics II	BS	4	4	0	0	4
6.	PH8254	Physics of Materials	BS	3	3	0	0	3
7.	CY8291	Organic Chemistry	BS	3	3	0	0	3
8.	CY8281	Organic Chemistry Laboratory	BS	2	0	0	4	2
9.	MA8391	Probability and Statistics	BS	4	4	0	0	4
10.	CY8292	Chemistry for Technologists	BS	3	3	0	0	3
11.	CH8281	Chemical Analysis Laboratory	BS	4	0	0	4	2

ENGINEERING SCIENCES (ES)

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
2.	GE8152	Engineering Graphics	ES	6	2	0	4	4
3.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
4.	BE8256	Basic Mechanical Engineering	ES	4	4	0	0	4
5.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
6.	GE8292	Engineering Mechanics	ES	5	3	2	0	4
7.	PM8391	Materials Technology	ES	3	3	0	0	3
8.	EE8352	Principles of Electrical and Electronics Engineering	ES	3	3	0	0	3
9.	EE8361	Electrical Engineering Laboratory	ES	4	0	0	4	2
10.	ME8362	Mechanical Engineering Laboratory	ES	4	0	0	4	2
11.	PE8461	Fluids and Solid operations Laboratory	ES	4	0	0	4	2

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PROFESSIONAL CORE (PC)

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	PM8251	Industrial Chemical Technology	PC	3	3	0	0	3
2.	PM8351	Fluid Mechanics	PC	5	3	2	0	4
3.	CH8351	Process Calculations	PC	5	3	2	0	4
4.	PE8491	Chemical Engineering Thermodynamics	PC	3	3	0	0	3
5.	PM8451	Petroleum Exploration and Exploitation Techniques	PC	3	3	0	0	3
6.	PE8092	Natural Gas Engineering	PC	3	3	0	0	3
7.	CH8451	Mechanical Operations	PC	3	3	0	0	3
8.	PM8452	Petroleum Primary Processing Technology	PC	3	3	0	0	3
9.	CH8591	Heat Transfer	PC	5	3	2	0	4
10.	CH8551	Mass Transfer I	PC	3	3	0	0	3
11.	PE8091	Chemical Reaction Engineering	PC	3	3	0	0	3
12.	CH8561	Heat Transfer Laboratory	PC	4	0	0	4	2
13.	PM8561	Petrochemical Analysis Laboratory	PC	4	0	0	4	2
14.	PM8651	Petroleum Secondary Processing Technology	PC	3	3	0	0	3
15.	CH8651	Mass Transfer II	PC	5	3	2	0	4
16.	PE8072	Catalytic Reaction Engineering	PC	3	3	0	0	3
17.	CH8781	Mass Transfer Laboratory	PC	4	0	0	4	2
18.	PE8661	Petroleum Testing Laboratory	PC	4	0	0	4	2
19.	CH8653	Process Instrumentation, Dynamics and control	PC	3	3	0	0	3
20.	PM8751	Process Equipment Design and Drawing	PC	5	3	0	2	4
21.	PM8761	Reaction Engineering and Process Control Laboratory	PC	4	0	0	4	2
22.	PM8801	Pipeline and welding Technology	PC	3	3	0	0	3

EMPLOYABILITY ENHANCEMENT COURSES (EEC)

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	HS8581	Professional Communication	EEC	2	0	0	2	1
2.	PM8711	Internship	EEC	0	0	0	0	2
3.	PM8811	Project Work	EEC	20	0	0	20	10
4.	PM8812	Seminar	EEC	4	0	0	4	2

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SUMMARY

S. No.	Subject Area	Credits per Semester								Credits Total
		I	II	III	IV	V	VI	VII	VIII	
1.	HUMANITIES AND SOCIAL SCIENCES (HS)	4	4	0	0	0	3	3	0	14
2.	BASIC SCIENCE (BS)	12	12	4	5	0	0	0	0	33
3.	ENGINEERING SCIENCE (ES)	9	6	14	2	0	0	0	0	31
4.	PROFESSIONAL COURE (PC)	0	3	8	15	14	17	6	3	66
5.	EMPLOYABILITY ENHANCEMENT COURSES (EEC)	0	0	0	0	1	0	2	12	15
6.	PROFESSIONAL ELECTIVES (PE)	0	0	0	0	3	3	9	3	18
7.	OPEN ELECTIVES (OE)	0	0	0	0	3	0	3	0	6
	TOTAL	**25**	**25**	**26**	**22**	**21**	**23**	**23**	**18**	**183**

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AFFILIATED INSTITUTIONS
REGULATIONS 2017
B. TECH. PETROLEUM ENGINEERING
CHOICE BASED CREDIT SYSTEM

1. Programme Educational Objectives (PEOs)

Graduates of B. Tech. Petroleum Engineering will

I. Exhibit a professional and ethical attitude, effective communication skills, teamwork, multidisciplinary approach, and an ability to solve the problems encountered in petroleum sector.
II. Gain knowledge in basic sciences, mathematics, reservoir engineering and onshore & offshore petroleum engineering.
III. Have a knowledge and competency in Petrochemical Engineering complemented by the appropriate skills and attributes.
IV. Understand the theory and applications of analytical equipment used in industries for testing the quality of petroleum and its products.
V. Address to meet the world's ever-increasing demand for hydrocarbon fuel, and waste management.

2. Programme Outcomes (POs)

On successful completion of the programme,

I. Graduates will be able to demonstrate their knowledge professionally and shoulder ethical responsibilities.
II. Graduates will able be to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
III. Graduates will be able to identify, formulate, and solve engineering problems related to petroleum industry.
IV. Graduates will be capable to design experiments, analyze and interpret data.
V. Graduates will be able to meet the world's ever-increasing demand for hydrocarbon fuel, reservoir engineering and waste management.
VI. Graduates will be able to communicate effectively and work in interdisciplinary groups.
VII. Graduates will have knowledge to analyze petroleum products.
VIII. Graduates will understand the characteristics of source and reservoir engineering.
IX. Graduates will become familiar with environmentally sound exploration, evaluation and recovery of oil, gas and other fluids in the earth.
X. Graduates will Understand the pre requisites of onshore & offshore reservoir engineering.

3. PEOs / POs Mapping

Programme Educational Objectives	Programme Outcomes									
	I	II	III	IV	V	VI	VII	VIII	IX	X
I	✓	✓	✓			✓				✓
II			✓	✓			✓			
III	✓		✓	✓	✓		✓	✓	✓	✓
IV		✓	✓				✓			
V		✓					✓	✓	✓	

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4. Semester Course wise PEOs mapping

YEAR	SEM	Course Title	I	II	III	IV	V	VI	VII	VIII	IX	X
YEAR I	SEM I	Communicative English		√							√	
		Engineering Mathematics I		√				√				√
		Engineering Physics				√						
		Engineering Chemistry				√	√					
		Problem Solving and Python Programming	√	√								√
		Engineering Graphics	√									
		Physics and Chemistry Laboratory				√	√					
		Problem Solving and Python Programming Laboratory	√	√								√
	SEM II	Technical English		√							√	
		Engineering Mathematics II		√				√				√
		Physics of Materials				√						
		Organic Chemistry				√	√					
		Basic Mechanical Engineering			√							
		Introduction to Petroleum Engineering			√				√	√		
		Organic Chemistry Laboratory			√	√		√				
		Engineering Practices Laboratory			√							
YEAR II	SEM III	Probability and Statistics		√				√				√
		Reservoir Rocks and Fluid Properties			√				√	√		
		Engineering Mechanics			√							
		Fluids and Solid Operations			√	√		√				
		Process Calculations			√	√		√				
		Principles of Electrical and Electronics Engineering			√	√						√
		Electrical Engineering Laboratory			√	√						√
		Mechanical Engineering Laboratory			√	√		√				
	SEM IV	Chemical Engineering Thermodynamics			√	√		√				
		Geophysics	√		√	√	√					
		Chemistry for Technologists				√	√					
		Fundamentals of Petroleum Geology	√		√		√					

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		Health, Safety and Environmental Management in Petroleum Industries	√	√	√			√				
		Heat Transfer			√	√		√				
		Fluids and Solid operations Laboratory			√							
		Chemical Analysis Laboratory				√	√					
YEAR III	SEM V	Process Control and Instrumentation	√	√	√						√	
		Mass Transfer			√	√		√				
		Reservoir Engineering I			√				√	√		
		Professional Communication	√								√	
		Heat Transfer Laboratory			√	√		√				
		Geology Laboratory	√		√	√	√					
	SEM VI	Well Drilling Equipment and Operation			√				√	√		
		Well Logging			√				√	√		
		Reservoir Engineering II			√				√	√		
		Professional Ethics in Engineering	√		√		√					
		Drilling Fluids and Cementing Techniques			√				√	√	√	
		Mass Transfer Laboratory			√	√		√				
		Petroleum Testing Laboratory			√				√	√		
YEAR IV	SEM VII	Petroleum Production Engineering			√				√	√		
		Environmental Science and Engineering	√		√		√					
		Drilling Fluids and Cementing Techniques Laboratory			√	√		√	√	√		
		Internship	√								√	
	SEMVIII	Project	√	√						√		
		Seminar	√	√						√		

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REGULATIONS 2017
B.TECH. PETROLEUM ENGINEERING
CHOICE BASED CREDIT SYSTEM
I TO VIII SEMESTERS (FULL TIME) CURRICULA AND SYLLABI

SEMESTER I

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	MA8151	Engineering Mathematics–I	BS	4	4	0	0	4
3.	PH8151	Engineering Physics	BS	3	3	0	0	3
4.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
5.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
6.	GE8152	Engineering Graphics	ES	6	2	0	4	4
PRACTICALS								
7.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
8.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
			TOTAL	31	19	0	12	25

SEMESTER II

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	HS8251	Technical English	HS	4	4	0	0	4
2.	MA8251	Engineering Mathematics–II	BS	4	4	0	0	4
3.	PH8254	Physics of Materials	BS	3	3	0	0	3
4.	CY8291	Organic Chemistry	BS	3	3	0	0	3
5.	BE8256	Basic Mechanical Engineering	ES	4	4	0	0	4
6.	PE8201	Introduction to Petroleum Engineering	PC	3	3	0	0	3
PRACTICALS								
7.	CY8281	Organic Chemistry Laboratory	BS	4	0	0	4	2
8.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
			TOTAL	29	21	0	8	25

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SEMESTER III

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MA8391	Probability and Statistics	BS	4	4	0	0	4
2.	PE8301	Reservoir Rocks and Fluid Properties	PC	3	3	0	0	3
3.	GE8292	Engineering Mechanics	ES	5	3	2	0	4
4.	PE8302	Fluids and Solid Operations	PC	5	3	2	0	4
5.	CH8351	Process Calculations	PC	5	3	2	0	4
6.	EE8352	Principles of Electrical and Electronics Engineering	ES	3	3	0	0	3
PRACTICALS								
7.	EE8361	Electrical Engineering Laboratory	ES	4	0	0	4	2
8.	ME8362	Mechanical Engineering Laboratory	ES	4	0	0	4	2
			TOTAL	**33**	**19**	**6**	**8**	**26**

SEMESTER IV

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	PE8491	Chemical Engineering Thermodynamics	PC	3	3	0	0	3
2.	PE8401	Geophysics	PC	3	3	0	0	3
3.	CY8292	Chemistry for Technologists	BS	3	3	0	0	3
4.	PE8402	Fundamentals of Petroleum Geology	PC	4	4	0	0	4
5.	PE8403	Health, Safety and Environmental Management in Petroleum Industries	PC	3	3	0	0	3
6.	CH8591	Heat Transfer	PC	5	3	2	0	4
PRACTICALS								
7.	PE8461	Fluids and Solid Operations Laboratory	ES	4	0	0	4	2
8.	CH8281	Chemical Analysis Laboratory	BS	4	0	0	4	2
			TOTAL	**29**	**19**	**2**	**8**	**24**

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SEMESTER V

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	PE8501	Process Control and Instrumentation	PC	5	3	2	0	4
2.	PE8502	Mass Transfer	PC	5	3	2	0	4
3.	PE8503	Reservoir Engineering I	PC	4	4	0	0	4
4.		Professional Elective I	PE	3	3	0	0	3
5.		Open Elective I*	OE	3	3	0	0	3
PRACTICALS								
6.	CH8561	Heat Transfer Laboratory	PC	4	0	0	4	2
7.	PE8511	Geology Laboratory	PC	4	0	0	4	2
8.	HS8581	Professional Communication	EEC	2	0	0	2	1
			TOTAL	30	16	4	10	23

* - Course from the curriculum of the other UG Programmes

SEMESTER VI

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	PE8601	Well Drilling Equipment and Operation	PC	3	3	0	0	3
2.	PE8602	Well Logging	PC	4	4	0	0	4
3.	PE8603	Reservoir Engineering II	PC	4	4	0	0	4
4.	GE8076	Professional Ethics in Engineering	HS	3	3	0	0	3
5.	PE8604	Drilling Fluids and Cementing Techniques	PC	3	3	0	0	3
6.		Professional Elective II	PE	3	3	0	0	3
PRACTICALS								
7.	CH8781	Mass Transfer Laboratory	PC	4	0	0	4	2
8.	PE8661	Petroleum Testing Laboratory	PC	4	0	0	4	2
			TOTAL	28	20	0	8	24

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SEMESTER VII

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	PE8701	Petroleum Production Engineering	PC	3	3	0	0	3
2.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
3.		Professional Elective III	PE	3	3	0	0	3
4.		Professional Elective IV	PE	3	3	0	0	3
5.		Professional Elective V	PE	3	3	0	0	3
6.		Open Elective II*	OE	3	3	0	0	3
PRACTICALS								
7.	PE8711	Drilling Fluids and Cementing Techniques Laboratory	PC	4	0	0	4	2
8.	PE8712	Internship	EEC	0	0	0	0	2
			TOTAL	22	18	0	4	22

* - Course from the curriculum of the other UG Programmes

SEMESTER VIII

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.		Professional Elective VI	PE	3	3	0	0	3
PRACTICALS								
2.	PE8811	Project Work	EEC	20	0	0	20	10
3.	PE8812	Seminar	EEC	4	0	0	4	2
			TOTAL	27	3	0	24	15

TOTAL CREDITS : 184

PROFESSIONAL ELECTIVES

PROFESSIONAL ELECTIVE I, SEMESTER V

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	PE8091	Chemical Reaction Engineering	PE	3	3	0	0	3
2.	CH8075	Petroleum Refining and Petrochemicals	PE	3	3	0	0	3
3.	PE8092	Natural Gas Engineering	PE	3	3	0	0	3
4.	PE8001	Principles of Geochemistry	PE	3	3	0	0	3
5.	GE8071	Disaster Management	PE	3	3	0	0	3

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PROFESSIONAL ELECTIVE II, SEMESTER VI

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	PE8071	Advanced Separation Techniques	PE	3	3	0	0	3
2.	PE8002	Well Completion Testing and Work Over	PE	3	3	0	0	3
3.	PE8072	Catalytic Reaction Engineering	PE	3	3	0	0	3
4.	PE8003	Numerical Reservoir Simulation	PE	3	3	0	0	3
5.	GE8075	Intellectual Property Rights	PE	3	3	0	0	3

PROFESSIONAL ELECTIVEIII, SEMESTER VII

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	PE8004	Onshore and Offshore Engineering and Technology	PE	3	3	0	0	3
2.	PE8005	Petroleum Equipment Design	PE	3	3	0	0	3
3.	PE8073	Enhanced Oil Recovery	PE	3	3	0	0	3
4.	GE8074	Human Rights	PE	3	3	0	0	3

PROFESSIONAL ELECTIVEIV, SEMESTER VII

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	PE8006	Water Flooding and Enhanced Oil Recovery	PE	3	3	0	0	3
2.	PE8093	Plant Safety and Risk Analysis	PE	3	3	0	0	3
3.	PE8074	Multicomponent Distillation	PE	3	3	0	0	3
4.	CH8076	Piping and Instrumentation	PE	3	3	0	0	3
5.	GE8077	Total Quality Management	PE	3	3	0	0	3
6.	PE8007	Petroleum Transportation and Design	PE	3	3	0	0	3

PROFESSIONAL ELECTIVE V, SEMESTER VII

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	PE8075	Petroleum Corrosion Technology	PE	3	3	0	0	3
2.	PE8008	Well Completion and Simulation	PE	3	3	0	0	3
3.	PE8079	Storage Transportation of Crude Oil and Natural Gas	PE	3	3	0	0	3
4.	PE8078	Reservoir Characterization and Modeling	PE	3	3	0	0	3

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PROFESSIONAL ELECTIVEVI, SEMESTER VIII

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	PE8009	Oil Field Equipment Design and Drawing	PE	3	3	0	0	3
2.	PE8077	Process Economics	PE	3	3	0	0	3
3.	PE8076	Petroleum Economics	PE	3	3	0	0	3
4.	PE8010	Integrated Oil/Gas Field Evaluation	PE	3	3	0	0	3
5.	GE8073	Fundamentals of Nano Science	PE	3	3	0	0	3

SUBJECT AREAWISE DETAILS

HUMANITIES AND SOCIAL SCIENCES (HS)

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	HS8251	Technical English	HS	4	4	0	0	4
3.	GE8076	Professional Ethics in Engineering	HS	3	3	0	0	3
4.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3

BASIC SCIENCES (BS)

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	MA8151	Engineering Mathematics I	BS	4	4	0	0	4
2.	PH8151	Engineering Physics	BS	3	3	0	0	3
3.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
4.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
5.	MA8251	Engineering Mathematics II	BS	4	4	0	0	4
6.	PH8254	Physics of Materials	BS	3	3	0	0	3
7.	CY8291	Organic Chemistry	BS	3	3	0	0	3
8.	CY8281	Organic Chemistry Laboratory	BS	2	0	0	4	2
9.	MA8391	Probability and Statistics	BS	4	4	0	0	4
10.	CY8292	Chemistry for Technologists	BS	3	3	0	0	3
11.	CH8281	Chemical Analysis Laboratory	BS	4	0	0	4	2

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ENGINEERING SCIENCES (ES)

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
2.	GE8152	Engineering Graphics	ES	4	2	0	4	4
3.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
4.	BE8256	Basic Mechanical Engineering	ES	4	4	0	0	4
5.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
6.	GE8292	Engineering Mechanics	ES	5	3	2	0	4
7.	EE8352	Principles of Electrical and Electronics Engineering	ES	3	3	0	0	3
8.	EE8361	Electrical Engineering Laboratory	ES	4	0	0	4	2
9.	ME8362	Mechanical Engineering Laboratory	ES	4	0	0	4	2
10.	PE8461	Fluid and Solid operations Laboratory	ES	4	0	0	4	2

PROFESSIONAL CORE (PC)

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	PE8201	Introduction to Petroleum Engineering	PC	3	3	0	0	3
2.	PE8301	Reservoir Rocks and Fluid Properties	PC	3	3	0	0	3
3.	PE8302	Fluids and Solid Operations	PC	5	3	2	0	4
4.	CH8351	Process Calculations	PC	5	3	2	0	4
5.	PE8491	Chemical Engineering Thermodynamics	PC	3	3	0	0	3
6.	PE8401	Geophysics	PC	3	3	0	0	3
7.	PE8402	Fundamentals of Petroleum Geology	PC	4	4	0	0	4
8.	PE8403	Health, Safety and Environmental Management in Petroleum Industries	PC	3	3	0	0	3
9.	CH8591	Heat Transfer	PC	5	3	2	0	4
10.	PE8501	Process Control and Instrumentation	PC	5	3	2	0	4
11.	PE8502	Mass Transfer	PC	5	3	2	0	4
12.	PE8503	Reservoir Engineering I	PC	4	4	0	0	4
13.	CH8561	Heat Transfer Laboratory	PC	4	0	0	4	2
14.	PE8511	Geology Laboratory	PC	4	0	0	4	2
15.	PE8601	Well Drilling Equipment and Operation	PC	3	3	0	0	3
16.	PE8602	Well Logging	PC	4	4	0	0	4

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17.	PE8603	Reservoir Engineering II	PC	4	4	0	0	4
18.	CH8781	Mass Transfer Laboratory	PC	4	0	0	4	2
19.	PE8661	Petroleum Testing Laboratory	PC	4	0	0	4	2
20.	PE8604	Drilling Fluids and Cementing Techniques	PC	3	3	0	0	3
21.	PE8701	Petroleum Production Engineering	PC	3	3	0	0	3
22.	PE8711	Drilling Fluids and Cementing Techniques Laboratory	PC	4	0	0	4	2

EMPLOYABILITY ENHANCEMENT COURSES (EEC)

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	HS8581	Professional Communication	EEC	2	0	0	2	1
2.	PE8712	Internship	EEC	0	0	0	0	2
3.	PE8811	Project Work	EEC	20	0	0	20	10
4.	PE8812	Seminar	EEC	4	0	0	4	2

SUMMARY

S. No.	SUBJECT AREA	CREDITS PER SEMESTER								CREDITS TOTAL
		I	II	III	IV	V	VI	VII	VIII	
1.	HUMANITIES AND SOCIAL SCIENCES (HS)	4	4	0	0	0	3	3	0	14
2.	BASIC SCIENCE (BS)	12	12	4	5	0	0	0	0	33
3.	ENGINEERING SCIENCE (ES)	9	6	11	2	0	0	0	0	28
4.	PROFESSIONAL COURE (PC)	0	3	11	17	16	18	5	0	70
5.	EMPLOYABILITY ENHANCEMENT COURSES(EEC)	0	0	0	0	1	0	2	12	15
6.	PROFESSIONAL ELECTIVES (PE)	0	0	0	0	3	3	9	3	18
7.	OPEN ELECTIVES (OE)	0	0	0	0	3	0	3	0	6
	TOTAL	25	25	26	24	23	24	22	15	184

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ANNA UNIVERSITY, CHENNAI
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M.E. ENGINEERING DESIGN
REGULATIONS 2017
CHOICE BASED CREDIT SYSTEM

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs) :

Enable the students :

I. To develop an aptitude to use fundamental engineering principles to conceptualize, create, model, test and evaluate designs within the context of local and global needs.
II. To understand and explore the behaviour of existing and new materials suitable for the design needs.
III. To develop innovative technologies and find solutions to contemporary issues in Engineering Design using modern engineering tools and methods.
IV. To pursue advanced education, research and development and other creative/ innovative efforts in their professional career.

PROGRAMME OUTCOMES (POs):

On successful completion of the programme,

1. Graduates will demonstrate knowledge of mathematics, science and engineering.
2. Graduates will demonstrate an ability to design a system, component or process as per needs and specifications.
3. Graduates will have the ability to use the computer aided design tools to design a component or system.
4. Graduate will demonstrate an ability to design and conduct experiments, analyze, interpret, and validate data in the area of design engineering.
5. Graduate will demonstrate skills to use modern engineering tools, software and equipment to analyze multidisciplinary problems.
6. Graduate will have the knowledge of material behaviour under various circumstances exist which can be utilize for the material selection process
7. Graduate will have the knowledge of mechanisms behaviour and its design by analytical method and using software tools.
8. Graduates will demonstrate knowledge of professional and ethical responsibilities in the field of mechanical design.
9. Graduate will communicate their technical knowledge.
10. Graduate will develop confidence for self-education and ability for life-long learning and research.

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Mapping of PEOs with POs

Programme Educational Objectives	Programme Outcomes								
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
I		√	√	√	√	√		√	
II		√	√	√	√	√	√	√	
III	√	√	√	√	√		√	√	√
IV		√		√	√			√	√

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		Subjects	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
YEAR 1	SEM 1	Engineering Fracture Mechanics	√	√	√	√					√
		Computer Applications in Design	√	√	√		√				
		Quality Concepts in Design			√			√		√	√
		Applied Mathematics for Engineers	√		√					√	√
		Advanced Finite Element Analysis	√	√	√		√			√	√
		Professional Elective I									
		CAD Laboratory			√		√		√	√	√
		Advanced Analysis and Simulation Laboratory			√		√		√	√	√
	SEM 2	Mechanical Behavior of Materials				√		√		√	√
		Integrated Mechanical Design	√	√	√	√	√			√	
		Vibration Analysis and Control	√	√	√	√	√			√	√
		Mechanisms Design and Simulation	√	√	√	√	√			√	
		Professional Elective I									
		Professional Elective II									
		Vibration Laboratory		√	√				√	√	
		Design Project	√	√	√	√	√	√	√	√	√
YEAR 2	SEM 3	Product Lifecycle Management	√	√	√	√	√			√	
		Professional Elective III									
		Professional Elective IV									
		Project Work Phase I	√	√	√	√	√	√	√	√	√
	SEM 4	Project Work Phase II	√	√	√	√	√	√	√	√	√

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Professional Electives

ELECTIVES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
SEMESTER I									
Additive Manufacturing and Tooling			√		√			√	√
Design of Material Handling Equipments	√			√				√	√
Optimization Techniques in Design	√			√				√	√
Design of Pressure Vessels and Piping	√			√					√
Information Analytics	√			√				√	√
SEMESTER II									
Advanced Metal Forming Techniques		√						√	√
Plates and shell	√			√	√			√	
Surface Engineering	√			√	√			√	√
Tribology in Design			√	√				√	√
Modal Analysis of Mechanical Systems	√	√	√	√	√			√	
Advanced Mechanics of Materials	√			√					√
SEMESTER III									
Bearing Design and Rotor Dynamics	√	√	√	√					
Composite Materials and Mechanics	√	√	√	√	√			√	√
Design for Manufacture, Assembly and Environments		√	√	√	√			√	√
Design of Hydraulic and Pneumatic systems			√	√				√	√
Computational Fluid Dynamics	√	√	√	√	√			√	√
Biomechanics									
Design for Internet of Things									
Product Design for Sustainability	√	√	√	√	√			√	√

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M.E. ENGINEERING DESIGN
REGULATIONS 2017
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I TO IV SEMESTERS (FULL TIME) CURRICULUM AND SYLLABUS

SEMESTER I

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MA5156	Applied Mathematics for Engineers	FC	4	4	0	0	4
2.	ED5191	Engineering Fracture Mechanics	PC	3	3	0	0	3
3.	ED5151	Computer Applications in Design	PC	3	3	0	0	3
4.	ED5152	Quality Concepts in Design	PC	3	3	0	0	3
5.	ED5153	Advanced Finite Element Analysis	PC	3	3	0	0	3
6.		Professional Elective I	PE	3	3	0	0	3
PRACTICAL								
7.	ED5161	CAD Laboratory	PC	4	0	0	4	2
8.	ED5162	Advanced Analysis and Simulation Laboratory	PC	4	0	0	4	2
			TOTAL	27	19	0	8	23

SEMESTER II

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	ED5251	Mechanisms Design and Simulation	PC	3	3	0	0	3
2.	ED5252	Mechanical Behavior of Materials	PC	3	3	0	0	3
3.	ED5253	Integrated Mechanical Design	PC	3	3	0	0	3
4.	ED5254	Vibration Analysis and Control	PC	3	3	0	0	3
5.		Professional Elective II	PE	3	3	0	0	3
6.		Professional Elective III	PE	3	3	0	0	3
PRACTICAL								
7.	ED5261	Vibration Laboratory	PC	2	0	0	2	1
8.	ED5211	Design Project	EEC	4	0	0	4	2
			TOTAL	24	18	0	6	21

SEMESTER III

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	PD5091	Product Lifecycle Management	PC	3	3	0	0	3
2.		Elective IV	PE	3	3	0	0	3
3.		Elective V	PE	3	3	0	0	3
PRACTICAL								
4.	ED5311	Project Work Phase I	EEC	12	0	0	12	6
			TOTAL	21	9	0	12	15

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CHOICE BASED CREDIT SYSTEM
M. E. STRUCTURAL ENGINEERING

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs) :

I. To prepare students to excel in research and to succeed in Structural engineering profession through global, rigorous post graduate education

II. To provide students with a solid foundation in mathematical, scientific and engineering fundamentals required to solve structural engineering problems

III. To train students with good scientific and engineering knowledge so as to comprehend, analyze, design, and create novel products and solutions for the real life problems

IV. To inculcate students in professional and ethical attitude, effective communication skills, teamwork skills, multidisciplinary approach, and an ability to relate structural engineering issues to broader social context.

V. To provide student with an academic environment aware of excellence, leadership, written ethical codes and guidelines, and the life-long learning needed for a successful professional career

PROGRAMME OUTCOMES (POs):
On successful completion of the programme,

1. Graduates will demonstrate knowledge of mathematics, science and engineering.
2. Graduates will demonstrate an ability to identify, formulate and solve engineering problems.
3. Graduate will demonstrate an ability to design and conduct experiments, analyze and interpret data.
4. Graduates will demonstrate an ability to design a system, component or process as per needs and specifications.
5. Graduates will demonstrate an ability to visualize and work on laboratory and multidisciplinary tasks.
6. Graduate will demonstrate skills to use modern engineering tools, software and equipment to analyze problems.
7. Graduates will demonstrate knowledge of professional and ethical responsibilities.
8. Graduate will be able to communicate effectively in both verbal and written form.
9. Graduate will show the understanding of impact of engineering solutions on the society and also will be aware of contemporary issues.
10. Graduate will develop confidence for self education and ability for life-long learning.

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Programme Educational Objectives	Programme Outcomes									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
I	✓	✓		✓						
II					✓	✓	✓			
III				✓	✓	✓	✓			
IV							✓	✓	✓	
V		✓	✓						✓	✓

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			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
YEAR 1	SEM 1	Advanced Mathematical Methods	✓									
		Advanced Concrete Structures				✓	✓					
		Dynamics of Structures	✓	✓	✓		✓					
		Theory of Elasticity and Plasticity	✓	✓								
		Professional Elective I										
		Professional Elective II										
	SEM 2	Advanced Steel Structures		✓		✓					✓	
		Stability of Structures		✓		✓					✓	
		Earthquake Analysis and Design of Structures		✓	✓							
		Experimental Techniques		✓	✓	✓		✓			✓	
		Finite Element Analysis of Structures	✓					✓			✓	
		Professional Elective III										
		Professional Elective IV										
		Advanced Structural Engineering Laboratory		✓		✓	✓	✓				
		Practical Training I (2 weeks)				✓			✓	✓		✓
YEAR 2	SEM 1	Earthquake Analysis and Design of Structures										
		Professional Elective V										
		Professional Elective VI										
		Practical Training II (2 weeks)				✓			✓	✓		✓
		Seminar								✓		
		Project Work (Phase I)		✓		✓			✓			✓
	SEM 2	Project Work (Phase II)		✓		✓			✓			✓
		Practical Training III (2 weeks)				✓			✓	✓		✓

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Professional Electives (PE)

Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
Maintenance and Rehabilitation of Structures					✓	✓			✓	
Prefabricated Structures		✓	✓	✓					✓	✓
Offshore Structures		✓							✓	
Analysis and Design of Tall Buildings	✓	✓		✓		✓			✓	✓
Theory of Plates	✓			✓						
Matrix Methods for Structural Analysis	✓					✓				
Mechanics of Composite Materials		✓		✓	✓					
Industrial Structures		✓		✓						
Pre-stressed Concrete		✓		✓		✓			✓	✓
Wind and Cyclone Effects on Structures		✓		✓		✓			✓	✓
Nonlinear Analysis Structures			✓							
Design of Sub Structures	✓	✓		✓		✓			✓	✓
Optimization of Structures	✓					✓				
Design of Steel Concrete Composite Structures		✓		✓						
Design of Bridges		✓		✓		✓				
Design of Shell and Spatial Structures				✓		✓				
Computer Aided Analysis and Design	✓	✓	✓	✓	✓	✓				

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SEMESTER I

S.No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MA5151	Advanced Mathematical Methods	FC	4	4	0	0	4
2.	ST5101	Advanced Concrete Structures	PC	3	3	0	0	3
3.	ST5102	Dynamics of Structures	PC	3	3	0	0	3
4.	ST5103	Theory of Elasticity and Plasticity	PC	3	3	0	0	3
5.		Professional Elective I	PE	3	3	0	0	3
6.		Professional Elective II	PE	3	3	0	0	3
			TOTAL	19	19	0	0	19

SEMESTER II

S.No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	ST5201	Advanced Steel Structures	PC	3	3	0	0	3
2.	ST5202	Stability of Structures	PC	3	3	0	0	3
3.	ST5203	Experimental Techniques	PC	3	3	0	0	3
4.	ST5204	Finite Element Analysis of Structures	PC	3	3	0	0	3
5.		Professional Elective III	PE	3	3	0	0	3
6.		Professional Elective IV	PE	3	3	0	0	3
PRACTICAL								
7.	ST5211	Advanced Structural Engineering Laboratory	PC	4	0	0	4	2
8.	ST5212	Practical Training I (2 weeks)	EEC	0	0	0	0	1
			TOTAL	22	18	0	4	21

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SEMESTER III

S.No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	ST5301	Earthquake Analysis and Design of Structures	PC	3	3	0	0	3
2.		Professional Elective V	PE	3	3	0	0	3
3.		Professional Elective VI	PE	3	3	0	0	3
PRACTICAL								
4.	ST5311	Practical Training II (2 weeks)	EEC	0	0	0	0	1
5.	ST5312	Seminar	EEC	2	0	0	2	1
6.	ST5313	Project Work (Phase I)	EEC	12	0	0	12	6
			TOTAL	**23**	**9**	**0**	**14**	**17**

SEMESTER IV

S.No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
PRACTICAL								
1.	ST5411	Practical Training III (2 weeks)	EEC	0	0	0	0	1
2.	ST5412	Project Work (Phase II)	EEC	24	0	0	24	12
			TOTAL	**24**	**0**	**0**	**24**	**13**

TOTAL NO. OF CREDITS: 70

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FOUNDATION COURSES (FC)

S.No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	MA5151	Advanced Mathematical Methods	FC	4	4	0	0	4

PROFESSIONAL CORE (PC)

S.No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	ST5101	Advanced Concrete Structures	PC	3	3	0	0	3
2.	ST5102	Dynamics of Structures	PC	3	3	0	0	3
3.	ST5103	Theory of Elasticity and Plasticity	PC	3	3	0	0	3
4.	ST5201	Advanced Steel Structures	PC	3	3	0	0	3
5.	ST5202	Stability of Structures	PC	3	3	0	0	3
6.	ST5203	Experimental Techniques	PC	3	3	0	0	3
7.	ST5204	Finite Element Analysis of Structures	PC	3	3	0	0	3
8.	ST5211	Advanced Structural Engineering Laboratory	PC	4	0	0	4	2
9.	ST5301	Earthquake Analysis and Design of Structures	PC	3	3	0	0	3

PROFESSIONAL ELECTIVES

SEMESTER I

ELECTIVE I & II

S.No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	ST5001	Maintenance and Rehabilitation of Structures	PE	3	3	0	0	3
2.	ST5002	Prefabricated Structures	PE	3	3	0	0	3
3.	ST5003	Offshore Structures	PE	3	3	0	0	3
4.	ST5004	Matrix Methods for Structural Analysis	PE	3	3	0	0	3

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SEMESTER II

ELECTIVE III & IV

S.No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	ST5005	Theory of Plates	PE	3	3	0	0	3
2.	ST5006	Mechanics of Composite Materials	PE	3	3	0	0	3
3.	ST5007	Analysis and Design of Tall Buildings	PE	3	3	0	0	3
4.	ST5008	Industrial Structures	PE	3	3	0	0	3
5.	ST5009	Prestressed Concrete	PE	3	3	0	0	3
6.	ST5010	Wind and Cyclone Effects on Structures	PE	3	3	0	0	3

SEMESTER III

ELECTIVE V & VI

S.No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	ST5011	Nonlinear Analysis of Structures	PE	3	3	0	0	3
2.	ST5012	Design of Sub Structures	PE	3	3	0	0	3
3.	ST5013	Optimization of Structures	PE	3	3	0	0	3
4.	ST5014	Design of Steel Concrete Composite Structures	PE	3	3	0	0	3
5.	ST5015	Design of Bridges	PE	3	3	0	0	3
6.	ST5016	Design of Shell and Spatial Structures	PE	3	3	0	0	3
7.	ST5017	Computer Aided Analysis and Design	PE	4	2	0	2	3

EMPLOYABILITY ENHANCEMENT COURSES (EEC)

S.No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	ST5212	Practical Training I (2 weeks)	EEC	-	-	-	-	1
2.	ST5311	Practical Training II (2 weeks)	EEC	-	-	-	-	1
3.	ST5411	Practical Training III (2 weeks)	EEC	-	-	-	-	1
4.	ST5312	Seminar	EEC	2	0	0	2	1
5.	ST5313	Project Work (Phase I)	EEC	12	0	0	12	6
6.	ST5412	Project Work (Phase II)	EEC	24	0	0	24	12

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PROGRAM OUTCOMES (POs)

Engineering Graduates will be able to:

1. **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

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12. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

The Programme Educational Objectives (PEOs) are,

1. To equip the graduates to have an in-depth knowledge along with new technical ideas, to analyse and evaluate the potential engineering problems and to contribute to the research and development in the core areas by using modern engineering and IT tools.
2. To demonstrate self – management and teamwork in a collaborative and multidisciplinary arena
3. To inculcate good professional practices with a responsibility to contribute to sustainable development of society.
4. To have a zeal for improving technical competency by continuous and corrective learning.

The Programme Specific Objectives (PSOS) are,

1. To design and develop VLSI circuits to optimise power and area requirements, free from faults and dependencies by modelling, simulation and testing.
2. To develop VLSI systems by learning advanced algorithms, architectures and software – hardware co – design.
3. To communicate engineering concepts effectively by exhibiting high standards of technical presentations and scientific documentations.

MAPPING OF PROGRAMME EDUCATIONAL OBJECTIVES WITH PROGRAMME OUTCOMES:

A broad relation between the Programme Educational Objectives (PEO) and the Program Outcomes (PO) is given in the following table.

PROGRAMME EDUCATIONAL OBJECTIVES	PROGRAMME OUTCOMES											
	A	B	C	D	E	F	G	H	I	J	K	L
PEO1	1	1	1	1	1	3	3	3	2	3	3	2
PEO2	1	2	2	2	3	1	1	1	1	2	1	2
PEO3	2	2	2	2	2	3	3	3	3	1	3	1

1. Strong **2. Significant** **3. Reasonable**

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SEMESTER COURSE WISE PO MAPPING

YEAR	SEMESTER	COURSE TITLE	a	b	c	d	e	f	g	h	i	j	k	l
YEAR I	SEM I	Applied Mathematics for Electronics Engineers	2	1	1	1	3	3	3	3	3	3	2	2
		Advanced Digital System Design	1	2	2	3	2	3	3	3	2	3	3	2
		CMOS Digital VLSI Design	1	2	2	2	2	3	3	3	3	3	3	3
		DSP Integrated Circuits	1	1	2	2	2	3	3	3	3	3	3	3
		CAD for VLSI Circuits	1	1	2	2	1	3	2	3	3	3	3	2
		Analog IC Design	1	1	2	2	1	3	3	3	3	3	3	3
		VLSI Design Lab I	1	1	1	1	1	3	3	3	2	2	2	2
	SEM II	Testing of VLSI Circuits	1	2	2	2	1	3	2	3	3	3	3	3
		VLSI Signal Processing	1	1	1	1	2	3	3	3	3	3	3	3
		Low Power VLSI Design	1	1	1	1	2	3	1	1	2	3	1	2
		Professional Elective I												
		Professional Elective II												
		Professional Elective III												
		VLSI Design Lab II	1	1	1	1	1	3	3	3	2	2	2	2
		Term Paper Writing and Seminar	1	3	3	2	3	3	3	3	1	1	1	2
YEAR II	SEM III	Analog to Digital Interfaces	1	2	2	2	1	3	3	3	2	3	2	3
		Professional Elective IV												
		Professional Elective V												
		Project Work Phase-I	1	1	1	1	1	3	3	3	3	3	2	2
	SEM IV	Project Work Phase-II	1	1	1	1	1	3	3	3	3	3	2	2

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ELECTIVES														
	SEM II ELECTIVE I	Device Modeling - I	1	2	2	2	1	3	3	3	3	3	3	3
		RF IC Design	1	2	1	1	1	3	2	3	3	3	2	3
		Design of Analog Filters and Signal Conditioning Circuits	1	2	1	1	2	3	3	3	3	3	2	3
		Nano Scale Devices	1	3	3	3	2	3	3	3	3	3	3	3
	SEM II ELECTIVE II	DSP Architectures and Programming	1	2	2	3	3	3	3	3	3	3	3	3
		Networks on Chip	1	3	3	3	1	3	2	3	2	3	2	3
		Signal Integrity for High Speed Design	1	1	2	2	1	3	2	3	3	3	3	3
		Digital Control Engineering												
	SEM II ELECTIVE III	Embedded System Design	1	2	2	2	2	3	3	3	3	3	3	3
		Soft Computing and Optimization Techniques	1	1	1	1	1	3	3	3	3	3	3	3
		Reconfigurable Architectures	1	2	2	2	2	2	3	3	3	3	3	3
		Advanced Microprocessors and Architectures	1	2	2	2	2	2	3	3	3	3	3	3
	SEM III ELECTIVE IV	Selected Topics in ASIC Design	2	2	2	2	2	3	3	3	3	3	3	3
		Design and Analysis of Computer Algorithms	1	2	2	2	2	3	3	3	3	3	3	3
		Device Modeling - II	1	2	2	2	1	3	3	3	3	3	3	3
		Digital Image Processing	2	2	2	2	2	2	3	3	3	3	3	3
	SEM III ELECTIVE V	MEMS and NEMS	1	3	3	3	2	3	3	3	3	3	3	3
		Scripting Languages for VLSI	1	1	1	1	1	3	3	3	3	3	3	3
		Hardware – Software Co-design	1	1	1	1	1	3	2	3	2	3	2	3
		Selected Topics in IC Design												

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AFFILIATED INSTITUTIONS
M.E. VLSI DESIGN
REGULATIONS – 2017
CHOICE BASED CREDIT SYSTEM
CURRICULA AND SYLLABI

SEMESTER I

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MA5152	Applied Mathematics for Electronics Engineers	FC	4	4	0	0	4
2.	AP5151	Advanced Digital System Design	PC	3	3	0	0	3
3.	VL5101	CMOS Digital VLSI Design	PC	3	3	0	0	3
4.	VL5191	DSP Integrated Circuits	PC	3	3	0	0	3
5.	VL5102	CAD for VLSI Circuits	PC	3	3	0	0	3
6.	VL5103	Analog IC Design	PC	4	4	0	0	4
PRACTICALS								
7.	VL5111	VLSI Design Laboratory I	PC	4	0	0	4	2
			TOTAL	**24**	**20**	**0**	**4**	**22**

SEMESTER II

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	VL5201	Testing of VLSI Circuits	PC	3	3	0	0	3
2.	VL5291	VLSI Signal Processing	PC	3	3	0	0	3
3.	VL5202	Low Power VLSI Design	PC	3	3	0	0	3
4.		Professional Elective I	PE	3	3	0	0	3
5.		Professional Elective II	PE	3	3	0	0	3
6.		Professional Elective III	PE	3	3	0	0	3
PRACTICALS								
7.	VL5211	VLSI Design Laboratory II	PC	4	0	0	4	2
8.	CP5281	Term Paper Writing and Seminar	EEC	2	0	0	2	1
			TOTAL	**24**	**18**	**0**	**6**	**21**

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SEMESTER III

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	VL5301	Analog to Digital Interfaces	PC	3	3	0	0	3
2.		Professional Elective IV	PE	3	3	0	0	3
3.		Professional Elective V	PE	3	3	0	0	3
PRACTICALS								
4.	VL5311	Project Work Phase-I	EEC	12	0	0	12	6
			TOTAL	**21**	**9**	**0**	**12**	**15**

SEMESTER IV

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
PRACTICALS								
1.	VL5411	Project Work Phase-II	EEC	24	0	0	24	12
			TOTAL	**24**	**0**	**0**	**24**	**12**

TOTAL NO. OF CREDITS:70

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FOUNDATION COURSES (FC)

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	MA5152	Applied Mathematics for Electronics Engineers	FC	4	4	0	0	4

PROFESSIONAL CORE (PC)

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	AP5151	Advanced Digital System Design	PC	3	3	0	0	3
2.	VL5101	CMOS Digital VLSI Design	PC	3	3	0	0	3
3.	VL5191	DSP Integrated Circuits	PC	3	3	0	0	3
4.	VL5102	CAD for VLSI Circuits	PC	3	3	0	0	3
5.	VL5103	Analog IC Design	PC	4	4	0	0	4
6.	VL5111	VLSI Design Laboratory I	PC	4	0	0	4	2
7.	VL5201	Testing of VLSI Circuits	PC	3	3	0	0	3
8.	VL5291	VLSI Signal Processing	PC	3	3	0	0	3
9.	VL5202	Low Power VLSI Design	PC	3	3	0	0	3
10.	VL5211	VLSI Design Laboratory II	PC	4	0	0	4	2
11.	VL5301	Analog to Digital Interfaces	PC	3	3	0	0	3

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EMPLOYABILITY ENHANCEMENT COURSE (EEC)

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1	CPE291	Term Paper Writing and Seminar	EEC	2	0	0	2	1
2	VLE911	Project Work Phase - I	EEC	12	0	0	12	6
3	VLE411	Project Work Phase - II	EEC	24	0	0	24	12

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PROFESSIONAL ELECTIVES (PE)

SEMESTER II
ELECTIVE I

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	VL5001	Device Modeling - I	PE	3	3	0	0	3
2.	VL5002	RF IC Design	PE	3	3	0	0	3
3.	VL5003	Design of Analog Filters and Signal Conditioning Circuits	PE	3	3	0	0	3
4.	VL5004	Nano Scale Devices	PE	3	3	0	0	3

SEMESTER II
ELECTIVE II

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	DS5191	DSP Processor Architecture and Programming	PE	3	3	0	0	3
2.	VL5005	Networks on Chip	PE	3	3	0	0	3
3.	AP5094	Signal Integrity for High Speed Design	PE	3	3	0	0	3
4.	AP5091	Digital Control Engineering	PE	3	3	0	0	3

SEMESTER II
ELECTIVE III

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	AP5191	Embedded System Design	PE	3	3	0	0	3
2.	AP5251	Soft Computing and Optimization Techniques	PE	3	3	0	0	3
3.	VL5006	Reconfigurable Architectures	PE	3	3	0	0	3
4.	VL5007	Advanced Microprocessors and Architectures	PE	3	3	0	0	3

SEMESTER III
ELECTIVE IV

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	VL5008	Selected Topics in ASIC Design	PE	3	3	0	0	3
2.	VL5009	Design and Analysis of Computer Algorithms	PE	3	3	0	0	3
3.	VL5010	Device Modeling- II	PE	3	3	0	0	3
4.	AP5292	Digital Image Processing	PE	3	3	0	0	3

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SEMESTER III
ELECTIVE V

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	VL5091	MEMS and NEMS	PE	3	3	0	0	3
2.	VL5011	Scripting Languages for VLSI	PE	3	3	0	0	3
3.	AP5291	Hardware – Software Co-Design	PE	3	3	0	0	3
4.	VL5012	Selected Topics in IC Design	PE	3	3	0	0	3

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REGULATIONS – 2017
CHOICE BASED CREDIT SYSTEM
M.E. POWER ELECTRONICS AND DRIVES

PROGRAM EDUCATIONAL OUTCOMES

PEO1: Graduates of this program will have technical knowledge, skills and ability to design, develop and test power electronic converters and drives using advanced tools.

PEO2: Graduates of this program will have skills and knowledge in the field of power electronics and drives to work in the design, fabrication industries and research organizations.

PEO3: Graduates of this program will show confidence and exhibit self-learning capability and demonstrate a pursuit in life-long learning through higher studies and research.

PEO4: Graduates of this program will show involvement and willingness in assuming responsibility in societal and environmental causes.

PROGRAM OUTCOMES

PO1: Acquire sound knowledge in power electronics and drives.

PO2: Analyse power electronics and drives related engineering problems and synthesize the information for conducting high level of research.

PO3: Think widely to offer creative and innovative solutions of engineering problems that are inconformity with social and environmental factors.

PO4: Extract the new methodologies by carrying out the literature survey, proper design and conduction of experiments, interpret and analyse the data to arrive at meaningful research methodologies in power electronics and drives.

PO5: Learn and apply modern engineering and IT tools to solve complex engineering problems related to power converters and electric drives.

PO6: Ability to form, understand group dynamics and work in inter-disciplinary groups in order to achieve the goal.

PO7: Ability to communicate effectively in appropriate technical forums and understand the concepts and ideas to prepare reports, to make effective presentations.

PO8: Ability to update knowledge and skills through lifelong learning to keep abreast with the technological developments.

PO9: Follow the professional and research ethics, comprehend the impact of research and responsibility in order to contribute to the society.

PO10: Understand the leadership principles and subject oneself to introspection and take voluntary remedial measures for effective professional practice in the field of power electronics and electric drives.

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	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
PEO-1	x	x	x	x	x		X	x		
PEO-2	x			x	x	x	X	x	x	x
PEO-3				x	x	x		x	x	
PEO-4	x	x	x						x	x

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CHOICE BASED CREDIT SYSTEM
M.E. POWER ELECTRONICS AND DRIVES (FULL TIME)
CURRICULUM AND SYLLABUS I TO IV SEMESTERS

SEMESTER I

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MA5155	Applied Mathematics for Electrical Engineers	FC	4	4	0	0	4
2.	PX5101	Power Semiconductor Devices	PC	3	3	0	0	3
3.	PX5151	Analysis of Electrical Machines	PC	3	3	0	0	3
4.	PX5152	Analysis and Design of Power Converters	PC	3	3	0	0	3
5.	IN5152	System Theory	PC	5	3	2	0	4
6.		Professional Elective I	PE	3	3	0	0	3
PRACTICALS								
7.	PX5111	Power Electronics Circuits Lab	PC	4	0	0	4	2
			TOTAL	25	19	2	4	22

SEMESTER II

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	PX5201	Analysis and Design of Inverters	PC	3	3	0	0	3
2.	PX5202	Solid State Drives	PC	5	3	2	0	4
3.	PX5251	Special Electrical Machines	PC	3	3	0	0	3
4.	PX5252	Power Quality	PC	3	3	0	0	3
5.		Professional Elective II	PE	3	3	0	0	3
6.		Professional Elective III	PE	3	3	0	0	3
PRACTICALS								
7.	PX5211	Electrical Drives Laboratory	PC	4	0	0	4	2
8.	PX5212	Mini Project	EEC	4	0	0	4	2
			TOTAL	28	18	2	8	23

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SEMESTER III

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.		Professional Elective IV	PE	3	3	0	0	3
2.		Professional Elective V	PE	3	3	0	0	3
3.		Professional Elective VI	PE	3	3	0	0	3
PRACTICALS								
4.	PX5311	Project Work Phase I	EEC	12	0	0	12	6
			TOTAL	21	9	0	12	15

SEMESTER IV

Sl.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
PRACTICALS								
1.	PX5411	Project Work Phase II	EEC	24	0	0	24	12
			TOTAL	24	0	0	24	12

TOTAL NO. OF CREDITS: 72

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FOUNDATION COURSES(FC)

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	MA5155	Applied Mathematics for Electrical Engineering	FC	4	4	0	0	4

PROFESSIONAL CORE(PC)

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	PX5101	Power Semiconductor Devices	PC	3	3	0	0	3
2.	PX5151	Analysis of Electrical Machines	PC	3	3	0	0	3
3.	PX5152	Analysis and Design of Power Converters	PC	3	3	0	0	3
4.	PX5201	Analysis and Design of Inverters	PC	3	3	0	0	3
5.	IN5152	System Theory	PC	5	3	2	0	4
6.	PX5202	Solid State Drives	PC	5	3	2	0	4
7.	PX5251	Special Electrical Machines	PC	3	3	0	0	3
8.	PX5252	Power Quality	PC	3	3	0	0	3
9.	PX5111	Power Electronics Circuits Lab	PC	4	0	0	4	2
10.	PX5211	Electrical Drives Laboratory	PC	4	0	0	4	2

PROFESSIONAL ELECTIVES(PE)

Semester I
Elective I

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	IN5091	Soft Computing Techniques	PE	3	3	0	0	3
2.	PX5001	Electromagnetic Field Computation and Modelling	PE	3	3	0	0	3
3.	PX5091	Control System Design for Power Electronics	PE	3	3	0	0	3

Semester II
Elective II and III

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	PX5002	Analog and Digital Controllers	PE	3	3	0	0	3

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2.	PX5003	Flexible AC Transmission Systems	PE	3	3	0	0	3
3.	PX5004	Modern Rectifiers and Resonant Converters	PE	3	3	0	0	3
4.	PX5092	Electromagnetic Interference and Compatibility	PE	3	3	0	0	3
5.	ET5091	MEMS Technology	PE	3	3	0	0	3
6.	PS5071	Distributed Generation and Microgrid	PE	3	3	0	0	3

Semester III
Elective IV, V and VI

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	PX5005	High Voltage Direct Current Transmission	PE	3	3	0	0	3
2.	PS5092	Solar and Energy Storage Systems	PE	3	3	0	0	3
3.	PX5071	Wind Energy Conversion Systems	PE	3	3	0	0	3
4.	PS5072	Energy Management and Auditing	PE	3	3	0	0	3
5.	PS5073	Electric Vehicles and Power Management	PE	3	3	0	0	3
6.	PX5006	Non Linear Dynamics for Power Electronics Circuits	PE	3	3	0	0	3
7.	PS5091	Smart Grid	PE	3	3	0	0	3
8.	PX5072	Power Electronics for Renewable Energy Systems	PE	3	3	0	0	3
9.	IN5079	Robotics and Control	PE	3	3	0	0	3
10.	PX5007	Non Linear Control	PE	3	3	0	0	3

Professional Electives are grouped according to elective number as was done previously.

EMPLOYABILITY ENHANCEMENT COURSES(EEC)

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	PX5212	Mini Project	EEC	4	0	0	4	2
2.	PX5311	Project Work Phase I	EEC	12	0	0	12	6
3.	PX5411	Project Work Phase II	EEC	24	0	0	24	12

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