ANNA UNIVERSITY, CHENNAI
AFFILIATED INSTITUTIONS
Regulations 2017
B.TECH- BIOTECHNOLOGY & BIOCHEMICAL ENGINEERING

CHOICE BASED CREDIT SYSTEM

1 .PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):

1. To excel in biotech and related industries as good process and design engineer capable of handling production related activities including quality control
2. To serve as good entrepreneurs with strong ethical values and values and communication skills
3. To peruse extended studies and research in reputed institutions in national and international level.

2. PROGRAMME OUTCOMES (POs):

The Biotechnology and Biochemical Engineering Graduates will have the ability to

PO#	Graduate Attribute
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.
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.

3. PROGRAM SPECIFIC OUTCOMES (PSO)

The Biotechnology and Biochemical Engineering Graduates will have the ability to

1. Acquire sound basic knowledge of bioscience, biotechnology and engineering concepts to emerge as good process engineers in industries.
2. Impart expertise on various bioprocess techniques for sustainable design and development
3. As bioprocess engineer, function as member or leader for managing projects, recognize the need for technological change and communicate with the society effectively.

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AFFILIATED INSTITUTIONS
REGULATIONS 2017
B. TECH. BIOTECHNOLOGY AND BIOCHEMICAL ENGINEERING
CHOICE BASED CREDIT SYSTEM (CBCS)
I TO VIII SEMESTERS (FULL TIME) CURRICULA AND SYLALBI

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 Lab	ES	4	0	0	4	2
8.	BS8161	Physics and Chemistry Lab	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.	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	BS	3	3	0	0	3
6.	BT8251	Biochemistry	PC	3	3	0	0	3
PRACTICALS								
7.	GE8261	Engineering Practices Lab	ES	4	0	0	4	2
8.	BT8261	Biochemistry Lab	PC	4	0	0	4	2
			TOTAL	**29**	**21**	**0**	**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 Equation	BS	4	4	0	0	4
2.	BT8302	Applied Thermodynamics for Biotechnologists	PC	3	3	0	0	3
3.	BI8301	Basics of Fluid and Solids Operations	ES	3	3	0	0	3
4.	BT8305	Cell Biology	PC	3	3	0	0	3
5.	BT8301	Stoichiometry	PC	5	3	2	0	4
6.	BT8304	Bioorganic Chemistry	PC	3	3	0	0	3
PRACTICALS								
7.	BI8311	Bioorganic Chemistry Lab	PC	4	0	0	4	2
8.	BI8312	Cell Biology and Microbiology Lab	PC	4	0	0	4	2
9.	HS8381	Interpersonal Skills/Listening and Speaking	EEC	2	0	0	2	1
			TOTAL	**27**	**18**	**1**	**8**	**25**

SEMESTER IV

Sl. No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MA8391	Probability and Statistics	BS	4	4	0	0	4
2.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
3.	BT8404	Bioprocess Principles	PC	3	3	0	0	3
4.	BI8401	Heat Transfer Operations	PC	3	3	0	0	3
5.	BT8502	Analytical Methods and Instrumentation	PC	3	3	0	0	3
6.	BT8501	Mass Transfer Operations	PC	3	3	0	0	3
PRACTICALS								
7.	BT8512	Analytical Methods and Instrumentation Lab	PC	4	0	0	4	2
8.	BI8411	Chemical Engineering Lab I	ES	4	0	0	4	2
9.	HS8461	Advanced Reading and Writing	EEC	2	0	0	2	1
			TOTAL	**27**	**18**	**1**	**8**	**24**

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SEMESTER V

Sl. No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	BI8501	Molecular Biology and Genetic Engineering	PC	3	3	0	0	3
2.	MA8491	Numerical Methods	BS	4	4	0	0	4
3.	BT8591	Bioprocess Engineering	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.		Open Elective I*	OE	3	3	0	0	3
PRACTICALS								
7.	BI8511	Chemical Engineering Lab II	ES	4	0	0	4	2
8.	BT8511	Bioprocess Lab I	PC	4	0	0	4	2
9.	HS8581	Professional Communication	EEC	2	0	0	2	1
			TOTAL	**26**	**18**	**0**	**8**	**24**

*Course from the curriculum of other UG programme

SEMESTER VI

Sl. No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	BT8013	Metabolic Engineering	PC	3	3	0	0	3
2.	GE8077	Total Quality Management	HS	3	3	0	0	3
3.	BI8601	Biological Reaction Engineering	PC	3	3	0	0	3
4.		Professional Elective III	PE	3	3	0	0	3
5.		Professional Elective IV	PE	3	3	0	0	3
6.		Professional Elective V	PE	3	3	0	0	3
PRACTICALS								
7.	BT8611	Bioprocess Lab II	PC	4	0	0	4	2
8.	BT8612	Genetic Engineering Lab	PC	4	0	0	4	2
			TOTAL	**27**	**18**	**1**	**8**	**22**

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SEMESTER VII

Sl. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT RIODS	L	T	P	C
THEORY								
1.	BI8701	Bioprocess Modelling and Simulation	PC	3	3	0	0	3
2.	BT8751	Down Stream Processing	PC	3	3	0	0	3
	BI8702	Bioprocess Dynamics and Control	PC	3	3	0	0	3
4.	BI8703	Good Manufacturing Practice and Validation	PC	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								
8.	BI8711	Bioprocess Modelling and Simulation Lab	PC	4	0	0	4	2
9.	BT8711	Down Stream Processing Lab	PC	4	0	0	4	2
			TOTAL	**26**	**18**	**0**	**8**	**22**

*Course from the curriculum of other UG programme

SEMESTER VIII

Sl. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
PRACTICALS								
1.	BI8811	Project Work	EEC	20	0	0	20	10
			TOTAL	**25**	**3**	**0**	**22**	**10**

TOTAL NUMBER OF CREDITS : 177

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PROFESSIONAL ELECTIVES COURSES (PEC)

Sl. No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
ELECTIVES I								
1.	CH8791	Transport Phenomena	PEC	3	3	0	0	3
2.	BT8403	Enzyme Technology and Bio-transformations	PEC	3	3	0	0	3
3.	CH8078	Process Plant Utilities	PEC	3	3	0	0	3
ELECTIVES II								
1.	BT8021	Genetics	PEC	3	3	0	0	3
2.	BT8651	Bioinformatics	PEC	5	3	2	0	4
3.	BT8005	Animal Biotechnology	PEC	3	3	0	0	3
ELECTIVES III								
1.	BI8001	Bioreactor Design	PEC	3	3	0	0	3
2.	CH8076	Piping and Instrumentation	PEC	3	3	0	0	3
3.	BT8024	Biosafety and Hazard Management	PEC	3	3	0	0	3
ELECTIVES IV								
1.	BT8016	Genomics and Proteomics	PEC	3	3	0	0	3
2.	BT8503	Protein Engineering	PEC	3	3	0	0	3
3.	BT8007	Cancer Biology	PEC	3	3	0	0	3
ELECTIVES V								
1.	BI8002	Molecular Modeling and Drug Design	PEC	3	3	0	0	3
2.	BT8008	Molecular Pathogenesis of Infectious Diseases	PEC	3	3	0	0	3
3.	BT8026	Stem Cell Technology	PEC	3	3	0	0	3
ELECTIVES VI								
1.	BI8003	Process Economics and Plant Design	PEC	3	3	0	0	3
2.	BT8017	Biofuel	PEC	3	3	0	0	3
3.	BI8004	Computational Fluid Dynamics	PEC	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.	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
4.	GE8077	Total Quality Management	HS	3	3	0	0	3

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 Lab	ES	4	0	0	4	2
4.	BE8252	Basic Civil and Mechanical Engineering	ES	4	4	0	0	4
5.	GE8261	Engineering Practices Lab	ES	4	0	0	4	2
6.	BI8301	Basics of Fluid and Solids Operations	ES	3	3	0	0	3
7.	BI8411	Chemical Engineering Lab I	ES	4	0	0	4	2
8.	BI8511	Chemical Engineering Lab II	ES	4	0	0	4	2
9.	BT8591	Bioprocess Engineering	ES	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 Lab	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.	BT8291	Microbiology	BS	3	3	0	0	3
8.	MA8353	Transforms and Partial Differential Equations	BS	4	4	0	0	4
9.	MA8391	Probability and Statistics	BS	4	4	0	0	4
10.	MA8491	Numerical Methods	BS	4	4	0	0	4

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PROFESSIONAL CORE (PC)

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	BT8251	Biochemistry	PC	3	3	0	0	3
2.	BT8261	Biochemistry Laboratory	PC	4	0	0	4	2
3.	BT8302	Applied Thermodynamics for Biotechnologists	PC	3	3	0	0	3
4.	BT8305	Cell Biology	PC	3	3	0	0	3
5.	BT8301	Stoichiometry	PC	5	3	2	0	4
6.	BT8304	Biorganic Chemistry	PC	3	3	0	0	3
7.	BI8311	Bioorganic Chemistry Lab	PC	4	0	0	4	2
8.	BI8312	Cell Biology and Microbiology Lab	PC	4	0	0	4	2
9.	BT8404	Bioprocess Principles	PC	3	3	0	0	3
10.	BI8401	Heat Transfer Operations	PC	3	3	0	0	3
11.	BT8502	Analytical Methods and Instrumentation	PC	3	3	0	0	3
12.	BT8501	Mass Transfer Operations	PC	3	3	0	0	3
13.	BT8512	Analytical Methods and Instrumentation Lab	PC	4	0	0	4	2
14.	BI8501	Molecular Biology And Genetic Engineering	PC	3	3	0	0	3
15.	BT8511	Bioprocess Lab I	PC	4	0	0	4	2
16.	BT8013	Metabolic Engineering	PC	3	3	0	0	3
17.	BI8601	Biological Reaction Engineering	PC	3	3	0	0	3
18.	BT8611	Bioprocess Lab II	PC	4	0	0	4	2
19.	BT8612	Genetic Engineering Lab	PC	4	0	0	4	2
20.	BI8701	Bioprocess Modelling and Simulation	PC	3	3	0	0	3
21.	BT8751	Downstream Processing	PC	3	3	0	0	3
22.	BI8702	Bioprocess Dynamics and Control	PC	3	3	0	0	3
23.	BI8703	Good Manufacturing Practice And Validation	PC	3	3	0	0	3
24.	BI8711	Bioprocess Modelling and Simulation Lab	PC	4	0	0	4	2
25.	BT8711	Downstream Processing Lab	PC	4	0	0	4	2

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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.	BT8811	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	-	3	-	-	14
2	BS	12	10	4	4	4	-	-	-	34
3	ES	9	6	3	2	5	-	-	-	25
4	PC	-	5	17	14	5	10	16	-	67
5	PE	-	-	-	-	6	9	3	-	18
6	OE	-	-	-	-	3	-	3	-	6
7	EEC	-	-	1	1	1	-	-	10	13
TOTAL		25	25	25	24	24	22	22	10	177

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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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		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**
YEAR 3	**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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		Highway Engineering		✓	✓	✓	✓			✓		
		Professional Elective II										
		Highway Engineering Laboratory								✓		
		Irrigation and Environmental Engineering Drawing										
		Professional Communication										
			PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
YEAR 4	**SEM 7**	Estimation, Costing and Valuation Engineering	✓	✓				✓	✓			✓
		Railways, Airports, Docks and Harbour Engineering		✓		✓			✓		✓	✓
		Structural Design and Drawing	✓	✓	✓	✓		✓				✓
		Professional Elective III										
		Open Elective II*										
		Creative and Innovative Project (Activity Based - Subject Related)		✓		✓			✓			✓
		Industrial Training (4 weeks During VI semester–Summer)				✓			✓	✓		✓
	SEM 8	Professional Elective IV										
		Professional Elective V										
		Project Work		✓		✓			✓			✓

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ANNA UNIVERSITY, CHENNAI
AFFILIATED INSTITUTIONS
B.E. CIVIL ENGINEERING
REGULATIONS – 2017
CHOICE BASED CREDIT SYSTEM
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.	PH8201	Physics For Civil Engineering	BS	3	3	0	0	3
4.	BE8251	Basic Electrical and Electronics 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.	CE8211	Computer Aided Building Drawing	PC	4	0	0	4	2
			TOTAL	**30**	**20**	**2**	**8**	**25**

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**

SEMESTER VII

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	CE8701	Estimation, Costing and Valuation Engineering	PC	3	3	0	0	3
2.	CE8702	Railways, Airports, Docks and Harbour Engineering	PC	3	3	0	0	3
3.	CE8703	Structural Design and Drawing	PC	5	3	0	2	4
4.		Professional Elective III	PE	3	3	0	0	3
5.		Open Elective II*	OE	3	3	0	0	3
PRACTICALS								
6.	CE8711	Creative and Innovative Project (Activity Based - Subject Related)	EEC	4	0	0	4	2
7.	CE8712	Industrial Training (4 weeks During VI Semester – Summer)	EEC	0	0	0	0	2
			TOTAL	**21**	**15**	**0**	**6**	**20**

SEMESTER VIII

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
PRACTICALS								
3.	CE8811	Project Work	EEC	20	0	0	20	10
			TOTAL	**26**	**6**	**0**	**20**	**16**

TOTAL NO. OF CREDITS: 183

*Course from the curriculum of other UG Programmes.

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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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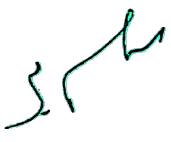
6.	CE8481	Strength of Materials Laboratory	PC	4	0	0	4	2
7.	CE8361	Surveying Laboratory	PC	4	0	0	4	2
8.	CE8311	Construction Materials Laboratory	PC	4	0	0	4	2
9.	CE8401	Construction Techniques and Practices	PC	3	3	0	0	3
10.	CE8402	Strength of Materials II	PC	3	3	0	0	3
11.	CE8403	Applied Hydraulic Engineering	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

SEMESTER VII
ELECTIVE – III

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CE8006	Pavement Engineering	PE	3	3	0	0	3
2.	CE8007	Traffic Engineering and Management	PE	3	3	0	0	3
3.	CE8008	Transport and Environment	PE	3	3	0	0	3
4.	CE8009	Industrial Structures	PE	3	3	0	0	3
5.	CE8010	Environmental and Social Impact Assessment	PE	3	3	0	0	3
6.	CE8011	Design of Prestressed Concrete Structures	PE	3	3	0	0	3
7.	CE8012	Construction Planning and Scheduling	PE	3	3	0	0	3
8.	EN8591	Municipal Solid Waste Management	PE	3	3	0	0	3
9.	GE8077	Total Quality Management	PE	3	3	0	0	3
10.	GE8072	Foundation Skills In Integrated Product Development	PE	3	3	0	0	3

SEMESTER VIII
ELECTIVE – IV

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CE8013	Coastal Engineering	PE	3	3	0	0	3
2.	CE8014	Participatory Water Resources Management	PE	3	3	0	0	3
3.	CE8015	Integrated Water Resources Management	PE	3	3	0	0	3
4.	CE8016	Groundwater Engineering	PE	3	3	0	0	3
5.	CE8017	Water Resources Systems Engineering	PE	3	3	0	0	3
6.	CE8018	Geo-Environmental Engineering	PE	3	3	0	0	3
7.	CE8091	Hydrology and Water Resources Engineering	PE	3	3	0	0	3
8.	GE8076	Professional Ethics in Engineering	PE	3	3	0	0	3

SEMESTER VIII
ELECTIVE – V

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CE8019	Computer Aided Design of Structures	PE	3	3	0	0	3
2.	CE8020	Maintenance, Repair and Rehabilitation of Structures	PE	3	3	0	0	3
3.	CE8021	Structural Dynamics and Earthquake Engineering	PE	3	3	0	0	3
4.	CE8022	Prefabricated Structures	PE	3	3	0	0	3
5.	CE8023	Bridge Engineering	PE	3	3	0	0	3
6.	GE8073	Fundamentals of Nanoscience	PE	3	3	0	0	3

SUMMARY

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**									

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ANNA UNIVERSITY, CHENNAI
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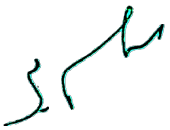
REGULATIONS – 2017
CHOICE BASED CREDIT SYSTEM
OPEN ELECTIVES (Offered By Other Branches)

SEMESTER V OPEN ELECTIVE - I

Sl. No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	OME551	Energy Conservation and Management	OE	3	3	0	0	3
2.	OAI551	Environment and Agriculture	OE	3	3	0	0	3
3.	OCH551	Industrial Nanotechnology	OE	3	3	0	0	3
4.	OAI553	Production Technology of Agricultural machinery	OE	3	3	0	0	3
5.	ORO551	Renewable Energy Sources	OE	3	3	0	0	3
6.	OAN551	Sensors and Transducers	OE	3	3	0	0	3
7.	OCS551	Software Engineering	OE	3	3	0	0	3
8.	OME552	Vibration and Noise Control	OE	3	3	0	0	3

SEMESTER VII OPEN ELECTIVE - II

Sl. No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	OAI751	Agricultural Finance, Banking and Co-operation	OE	3	3	0	0	3
2.	OGI751	Climate Change and Its Impact	OE	3	3	0	0	3
3.	OGI752	Fundamentals of Planetary Remote Sensing	OE	3	3	0	0	3
4.	OEN751	Green Building Design	OE	3	3	0	0	3
5.	OME754	Industrial Safety	OE	3	3	0	0	3
6.	OCS752	Introduction to C Programming	OE	3	3	0	0	3
7.	OIE751	Robotics	OE	3	3	0	0	3
8.	OML753	Selection of Materials	OE	3	3	0	0	3
9.	OML751	Testing of Materials	OE	3	3	0	0	3
10.	OTT752	Textile effluent treatments	OE	3	3	0	0	3



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CE8712

INDUSTRIAL TRAINING L T P C (4 Weeks During VI Semester – Summer)0 0 0 2

OBJECTIVE:

• To train the students in field work so as to have a firsthand knowledge of practical problems in carrying out engineering tasks. To develop skills in facing and solving the field problems.

STRATEGY:

The students individually undertake training in reputed civil engineering companies for the specified duration. At the end of the training, a report on the work done will be prepared and presented. The students will be evaluated through a viva-voce examination by a team of internal staff.

OUTCOMES:

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

• The intricacies of implementation textbook knowledge into practice

• The concepts of developments and implementation of new techniques

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CE8811 PROJECT WORK L T P C 0 0 20 10

OBJECTIVE:

• To develop the ability to solve a specific problem right from its identification and literature review till the successful solution of the same. To train the students in preparing project reports and to face reviews and viva voce examination.

STRATEGY:

The student works on a topic approved by the head of the department under the guidance of a faculty member and prepares a comprehensive project report after completing the work to the satisfaction. The student will be evaluated based on the report and the viva voce examination by a team of examiners including one external examiner.

TOTAL: 300 PERIODS

OUTCOME:

• On Completion of the project work students will be in a position to take up any challenging practical problems and find solution by formulating proper methodology.

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B.TECH. COMPUTER SCIENCE AND BUSINESS SYSTEMS
REGULATIONS – 2017
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PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

I. To ensure graduates will be proficient in utilizing the fundamental knowledge of basic sciences, mathematics, Computer Science and Business systems for the applications relevant to various streams of Engineering and Technology.
II. To enrich graduates with the core competencies necessary for applying knowledge of computer science and Data analytics tools to store, retrieve, implement and analyze data in the context of business enterprise
III. To enable graduates to gain employment in organizations and establish themselves as professionals by applying their technical skills and leadership qualities to solve real world problems and meet the diversified needs of industry, academia and research
IV. To equip the graduates with entrepreneurial skills and qualities which help them to perceive the functioning of business, diagnose business problems, explore the entrepreneurial opportunities and prepare them to manage business efficiently.

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.

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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.

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 SPECIFICOUTCOMES (PSOs)

PSO1: To create, select, and apply appropriate techniques, resources, modern engineering and business tools including prediction and data analytics to complex engineering activities and business solutions

PSO2: To evolve computer science domain specific methodologies for effective decision making in several critical problem domains of the real world.

PSO3: To be able to apply entrepreneurial skills and management tools for identifying, analyzing and creating business opportunities with smart business ideas.

PSO4: To manage complex IT projects with consideration of the human, financial, ethical and environmental factors and an understanding of risk management processes, and operational and policy implications

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B.TECH. COMPUTER SCIENCE AND BUSINESS SYSTEMS
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CHOICE BASED CREDIT SYSTEM
I - VIII SEMESTERS CURRICULUM

SEMESTER I

Sl. 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

Sl. 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.	MA8252	Linear Algebra	BS	4	4	0	0	4
3.	AD8251	Data Structures Design	PC	3	3	0	0	3
4.	GE8291	Environmental Science and Engineering	ES	3	3	0	0	3
5.	BE8255	Basic Electrical, Electronics, and Measurement Engineering	HS	3	3	0	0	3
6.	AD8252	Digital Principles and Computer Organization	PC	5	3	0	2	4
PRACTICALS								
7.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
8.	AD8261	Data Structures Design Laboratory	PC	4	0	0	4	2
			TOTAL	**30**	**20**	**0**	**10**	**25**

SEMESTER III

Sl. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	MA8351	Discrete Mathematics	BS	4	4	0	0	4
2.	CW8301	Fundamentals of Economics	BS	3	3	0	0	3
3.	CS8392	Object Oriented Programming	PC	3	3	0	0	3
4.	AD8351	Design and Analysis of Algorithms	PC	5	3	0	2	4
5.	CS8492	Database Management Systems	PC	3	3	0	0	3
PRACTICALS								
6.	CW8311	Business Communication and Value Science Laboratory I	PC	4	0	0	4	2
7.	CS8383	Object Oriented Programming Laboratory	PC	4	0	0	4	2
8.	CS8481	Database Management Systems Laboratory	PC	4	0	0	4	2
			TOTAL	**30**	**16**	**0**	**14**	**23**

SEMESTER IV

Sl. 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.	CS8493	Operating Systems	PC	3	3	0	0	3
3.	CW8401	Introduction to Business Systems	PC	3	3	0	0	3
4.	CW8402	Computational Statistics	PC	3	3	0	0	3
5.	CS8494	Software Engineering	PC	3	3	0	0	3
PRACTICALS								
6.	CS8461	Operating Systems Laboratory	PC	4	0	0	4	2
7.	CW8411	Computational Statistics Laboratory	PC	4	0	0	4	2
8.	CW8412	Business Communication and Value Science Laboratory II	PC	4	0	0	4	2
			TOTAL	**28**	**16**	**0**	**12**	**22**

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SEMESTER V

Sl. No	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	CW8591	Software Architecture	PC	3	3	0	0	3
2.	CW8501	Software Design using UML	PC	5	3	0	2	4
3.	CW8502	Operations Research	BS	5	3	0	2	4
4.	CW8503	Design Thinking	PC	5	3	0	2	4
5.	CS8501	Theory of Computation	PC	3	3	0	0	3
6.		Open Elective I	OE	3	3	0	0	3
PRACTICALS								
7.	CW8511	Mini Project(Software / System Design/Architecture) end to end	EEC	4	0	0	4	2
8.	CW8512	Soft Skills Laboratory	EEC	2	0	0	2	1
			TOTAL	**30**	**18**	**0**	**12**	**24**

SEMESTER VI

Sl. No	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	CW8691	Computer Networks	PC	5	3	0	2	4
2.	CS8691	Artificial Intelligence	PC	3	3	0	0	3
3.	CS8602	Compiler Design	PC	5	3	0	2	4
4.	CW8601	Fundamentals of Management	PC	3	3	0	0	3
5.	AD8551	Business Analytics	PC	3	3	0	0	3
6.		Professional Elective-1	PE	3	3	0	0	3
PRACTICALS								
7.	CW8611	Business Analytics Laboratory	PC	4	0	0	4	2
8.	CW8612	Artificial intelligence Laboratory	PC	4	0	0	4	2
			TOTAL	**30**	**18**	**0**	**12**	**24**

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SEMESTER VII

Sl. No	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	CW8701	Financial Management	PC	3	3	0	0	3
2.	IT8501	Web Technology	PC	3	3	0	0	3
3.	IT8073	Information Security	PC	3	3	0	0	3
4.		Professional Elective-II	PE	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.	CW8711	Information Security Laboratory	PC	4	0	0	4	2
8.	IT8511	Web Technology Laboratory	PC	4	0	0	4	2
9.	CW8712	Mini Project (Based on concepts of Electives)	EEC	4	0	0	4	2
			TOTAL	**30**	**18**	**0**	**12**	**24**

SEMESTER VIII

Sl. No	COURSE CODE	COURSE TITLE	CATE GORY	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.	CW8811	Project Work	EEC	20	0	0	20	10
			TOTAL	**26**	**6**	**0**	**20**	**16**

TOTAL NO. OF CREDITS: 183

PROFESSIONAL ELECTIVES (PE)

SEMESTER VI, ELECTIVE – I

Sl. No	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	CW8001	Data Mining and Analytics	PE	3	3	0	0	3
2.	CS8601	Mobile Computing	PE	3	3	0	0	3
3.	CW8002	Cryptology	PE	3	3	0	0	3
4.	CS8791	Cloud Computing	PE	3	3	0	0	3
5.	CW8003	Modern Web Applications Development	PE	3	3	0	0	3

SEMESTER VII, ELECTIVE – II

Sl. No	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	CW8004	Blockchain Technologies	PE	3	3	0	0	3
2.	AD8552	Machine Learning	PE	3	3	0	0	3
3.	AD8081	Cognitive Science and Analytics	PE	3	3	0	0	3
4.	CS8081	Internet of Things	PE	3	3	0	0	3
5.	CW8005	Social, Text and Media Analytics	PE	3	3	0	0	3

SEMESTER VII, ELECTIVE – III

Sl. No	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	CW8006	Behavioral Economics	PE	3	3	0	0	3
2.	CW8007	Computational Finance and Modeling	PE	3	3	0	0	3
3.	CW8008	Marketing Research and Marketing Management	PE	3	3	0	0	3
4.	CW8009	HR Management	PE	3	3	0	0	3
5.	CW8010	Supply Chain Management	PE	3	3	0	0	3
6.	CW8011	Psychology	PE	3	3	0	0	3
7.	CW8012	Business Research Method	PE	3	3	0	0	3

SEMESTER VIII, ELECTIVE – IV

Sl. No	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
1.	CW8013	Introduction to Innovation, IP Management and Entrepreneurship	PE	3	3	0	0	3
2.	CW8014	Digital Marketing	PE	3	3	0	0	3
3.	CW8015	Risk Analytics	PE	3	3	0	0	3
4.	CW8016	Customer Relation Management and Customer Experience Management	PE	3	3	0	0	3
5.	CW8017	IT Project Management	PE	3	3	0	0	3
6.	CW8018	Enterprise Security	PE	3	3	0	0	3

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SEMESTER VIII, ELECTIVE – V

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CW8019	Quantum Computation and Quantum Information	PE	3	3	0	0	3
2.	CW8020	Embedded Systems and Robotics	PE	3	3	0	0	3
3.	CW8021	Cloud, Micro services and Application	PE	3	3	0	0	3

SUMMARY

S. NO.	SUBJECT AREA	CREDITS AS PER SEMESTER								CREDITS TOTAL	Percentage
		I	II	III	IV	V	VI	VII	VIII		
1.	HS	4	7							11	6.01%
2.	BS	12	4	7	4	4				31	16.94%
3.	ES	9	5							14	7.65%
4.	PC		9	16	18	14	21	13		91	49.73%
5.	PE						3	6	6	15	8.2%
6.	OE					3		3		6	3.28%
7.	EEC					3		2	10	15	8.2%
	Total	25	25	23	22	24	24	24	16	183	100%
8.	Non Credit / Mandatory										

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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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POs	PEOs	
	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

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.	2	1
8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.	3	1
9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.	3	2
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.	3	2
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

PSOs		
1. Analyze, design and develop computing solutions by applying foundational concepts of computer science and engineering.	3	1
2. Apply software engineering principles and practices for developing quality software for scientific and business applications.	3	1
3. Adapt to emerging information and communication technologies (ICT) to innovate ideas and solutions to existing/novel problems.	1	3

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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 Title	Programme Outcome (PO)											
		1	2	3	4	5	6	7	8	9	10	11	12
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	√	√	√						√			
	Physics for Information Science	√	√	√									
	Basic Electrical, Electronics and Measurement Engineering	√	√	√									
	Environmental Science and Engineering	√	√	√					√	√	√	√	√
	Programming in C	√	√	√						√	√	√	√
	Engineering Practices Laboratory	√	√	√	√	√	√			√	√	√	√
	C Programming Laboratory	√	√	√						√	√	√	√

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			PROGRAMME OUTCOME (PO)											
		COURSE TITLE	1	2	3	4	5	6	7	8	9	10	11	12
YEAR II	SEMESTER III	Discrete Mathematics	√	√	√						√			
		Digital Principles and Design	√	√	√									
		Data Structures	√	√	√									
		Object Oriented Programming	√	√	√									
		Communication Engineering	√	√	√									
		Data Structures Laboratory	√	√	√						√	√	√	√
		Object Oriented Programming Laboratory	√	√	√						√	√	√	√
		Digital Systems Laboratory	√	√	√			√			√	√	√	√
		Interpersonal Skills/Listening &Speaking									√	√	√	√
	SEMESTER IV	Probability and Queueing Theory	√	√	√							√	√	√
		Computer Architecture	√	√	√									
		Database Management Systems	√	√	√									
		Design and Analysis of Algorithms	√	√	√							√	√	√
		Operating Systems	√	√	√									
		Software Engineering	√	√	√			√	√		√	√	√	√
		Database Management Systems Laboratory	√	√	√						√	√	√	√
		Operating Systems Laboratory	√	√	√						√	√	√	√
		Advanced Reading and Writing									√	√	√	√

YEAR III	SEMESTER V	Algebra and Number Theory	√	√	√						√							
		Computer 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 Elective II												
		Professional Elective III												
		Cloud Computing Laboratory	√	√	√		√			√	√	√		√
		Security Laboratory	√	√	√		√			√	√	√		√
	SEMESTER VIII	Professional Elective IV												
		Professional Elective V												
		Project Work	√	√	√	√	√	√	√	√	√	√	√	√

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PROFESSIONAL ELECTIVES

SEM	COURSE TITLE	PROGRAMME OUTCOME (PO)											
		1	2	3	4	5	6	7	8	9	10	11	12
VI	Data Warehousing and Data Mining	√	√	√									
	Software Testing	√	√	√		√				√	√		
	Embedded Systems	√	√	√									
	Agile Methodologies	√	√	√									
	Graph Theory and Applications-	√	√	√									
	Intellectual Property Rights						√	√	√	√	√	√	√
	Digital Signal Processing	√	√	√									
	Big Data Analytics	√	√	√		√				√	√		
VII	Machine Learning Techniques	√	√	√		√				√	√		
	Computer Graphics and Multimedia	√	√	√									
	Software Project Management	√	√	√			√		√	√	√	√	√
	Internet of Things	√	√	√									
	Service Oriented Architecture	√	√	√									
	Total Quality Management	√	√	√								√	
	Multi-core Architectures and Programming	√	√	√									
	Human Computer Interaction	√	√	√									
	C# and .Net Programming	√	√	√		√					√	√	
	Wireless Adhoc and Sensor Networks	√	√	√									
	Advanced Topics on Databases	√	√	√									
	Foundation Skills in Integrated Product Development	√	√	√									
	Human Rights	√	√	√									
	Disaster Management	√	√	√					√				
	Digital Image Processing	√	√	√									
VIII	Social Network Analysis	√	√	√						√			
	Information Security	√	√	√									
	Software Defined Networks	√	√	√						√			
	Cyber Forensics	√	√	√									
	Soft Computing							√	√	√	√	√		√
	Professional Ethics in Engineering	√	√	√									
	Information Retrieval Techniques	√	√	√									
	Green Computing	√	√	√									
	GPU Architecture and Programming	√	√	√									
	Natural Language Processing	√	√	√									
	Parallel Algorithms	√	√	√									
	Speech Processing	√	√	√									
	Fundamentals of Nanoscience	√	√	√									

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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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AFFILIATED INSTITUTIONS

B.E.COMPUTER SCIENCE AND ENGINEERING
REGULATIONS 2017

CHOICE BASED CREDIT SYSTEM

SEMESTER III

Sl.No	COURSE CODE	COURSETITLE	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

SEMESTERIV

Sl. No	COURSE CODE	COURSETITLE	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

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SEMESTER V

Sl. No	COURSE CODE	COURSETITLE	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

SEMESTER VI

Sl. No	COURSE CODE	COURSETITLE	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**

SEMESTERVII

Sl. No	COURSE CODE	COURSETITLE	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**

SEMESTERVIII

Sl. No	COURSE CODE	COURSETITLE	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

HUMANITIES AND SOCIAL SCIENCES (HS)

Sl. NO	COURSE CODE	COURSETITLE	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)

Sl. NO	COURSE CODE	COURSETITLE	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)

Sl. NO	COURSE CODE	COURSETITLE	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

PROFESSIONAL CORE(PC)

Sl. NO	COURSE CODE	COURSETITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1.	CS8251	Programming in C	PC	3	3	0	0	3
2.	CS8261	C Programming Laboratory	PC	4	0	0	4	2
3.	CS8391	Data Structures	PC	3	3	0	0	3
4.	CS8392	Object Oriented Programming	PC	3	3	0	0	3
5.	CS8381	Data Structures Laboratory	PC	4	0	0	4	2
6.	CS8383	Object Oriented Programming Laboratory	PC	4	0	0	4	2
7.	CS8491	Computer Architecture	PC	3	3	0	0	3
8.	CS8492	Database Management Systems	PC	3	3	0	0	3
9.	CS8451	Design and Analysis of Algorithms	PC	3	3	0	0	3
10.	CS8493	Operating Systems	PC	3	3	0	0	3
11.	CS8494	Software Engineering	PC	3	3	0	0	3
12.	CS8481	Database Management Systems Laboratory	PC	4	0	0	4	2
13.	CS8461	Operating Systems Laboratory	PC	4	0	0	4	2
14.	CS8591	Computer Networks	PC	3	3	0	0	3
15.	EC8691	Microprocessors and Microcontrollers	PC	3	3	0	0	3
16.	CS8501	Theory of Computation	PC	3	3	0	0	3
17.	CS8592	Object Oriented Analysis And Design	PC	3	3	0	0	3
18.	EC8681	Microprocessors and Microcontrollers Laboratory	PC	4	0	0	4	2
19.	CS8582	Object Oriented Analysis and Design Laboratory	PC	4	0	0	4	2
20.	CS8581	Networks Laboratory	PC	4	0	0	4	2
21.	CS8651	Internet Programming	PC	3	3	0	0	3
22.	CS8691	Artificial Intelligence	PC	3	3	0	0	3
23.	CS8601	Mobile Computing	PC	3	3	0	0	3
24.	CS8602	Compiler Design	PC	5	3	0	2	4
25.	CS8603	Distributed Systems	PC	3	3	0	0	3
26.	CS8661	Internet Programming Laboratory	PC	4	0	0	4	2
27.	CS8662	Mobile Application Development Laboratory	PC	4	0	0	4	2
28.	CS8792	Cryptography and Network Security	PC	3	3	0	0	3
29.	CS8791	Cloud Computing	PC	3	3	0	0	3
30.	CS8711	Cloud Computing Laboratory	PC	4	0	0	4	2
31.	IT8761	Security Laboratory	PC	4	0	0	4	2

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S. No.	Subject Title	Subject Code
1	Electronics laboratory	EC8311
2	Electron devices and circuits	EC8353
3	Electrical machines laboratory -i	EE8311
4	Electrical machines -i	EE8301
5	Electrical machines laboratory -ii	EE8411
6	Electrical machines -ii	EE8401
7	Linear and digital integrated circuits laboratory	EE8461
8	Linear integrated circuits and applications	EE8451
9	Technical seminar	EE8412
10	Control and instrumentation laboratory	EE8511
11	Control systems	IC8451
12	Measurements and instrumentation	EE8403
13	Professional communication	HS8581
14	Object oriented programming laboratory	CS8383
15	Object oriented programming	CS8392
16	Power electronics and drives laboratory	EE8661
17	Power electronics	EE8552
18	Microprocessors and microcontrollers laboratory	EE8681
19	Microprocessors and microcontrollers	EE8551
20	Mini project	EE8611
21	Power system simulation laboratory	EE8711
22	Power system analysis	EE8501
23	Renewable energy systems laboratory	EE8712
24	Renewable energy systems	EE8703
25	Project work	EE8811

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ANNA UNIVERSITY, CHENNAI
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B.E. ELECTRICAL AND ELECTRONICS ENGINEERING
REGULATIONS – 2017
CHOICE BASED CREDIT SYSTEM
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**

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

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 Nanoscience	PE	3	3	0	0	3

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

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

		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

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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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. <u>Mapping for B. Tech. Food Technology – R2017</u>

			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							✔			
	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		✔							✔	

		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
7.	GE8072	Foundation Skills in Integrated Product Development	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

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2.	FD8019	Food Safety Management Systems	PE	3	3	0	0	3
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	PC	3	3	0	0	3

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		Technology						
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
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 REGULATIONS 2017

B. E. PETROCHEMICAL ENGINEERINGCHOICE BASED CREDIT SYSTEM

I TO VIII SEMESTERS (FULL TIME) CURRICULA AND SYLLABISEMESTER 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 PythonProgramming 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**

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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SEMESTER V

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	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.	HS8581	Professional Communication	EEC	2	0	0	2	1
5.		Professional Elective I	PE	3	3	0	0	3
6.		Open Elective I*	OE	3	3	0	0	3
PRACTICALS								
7.	CH8561	Heat Transfer Laboratory	PC	4	0	0	4	2
8.	PM8561	Petrochemical Analysis Laboratory	PC	4	0	0	4	2
			TOTAL	**27**	**15**	**2**	**10**	**21**

* - Course from the curriculum of the other UG Programmes

SEMESTER VI

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	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

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PROFESSIONAL ELECTIVES

PROFESSIONAL ELECTIVE I, SEMESTER V

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	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

PROFESSIONAL ELECTIVE II, SEMESTER VI

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	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	CATEGORY	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	CATEGORY	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	CATEGORY	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

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PROFESSIONAL ELECTIVE VI, SEMESTER VIII

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	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

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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**

HoD/PCE

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DEPARTMENT OF PETROCHEMICAL ENGINEERING

LABORATORY INTERNSHIP AND PROJECT DETAILS

Program name	Program code	Name of the Course that include experiential learning through project work/field work/internship	Course code	Year of offering	Name of the student studied course on experiential learning through project work/field work/internship	Link to the relevant document
B.E PCE	139	Electrical Engineering Laboratory	EE8361	2017	AJAY B	-
B.E PCE	139	Mechanical Engineering laboratory	ME8362	2017	AJAY T	-
B.E PCE	139	Fluids and Solid Operations laboratory	PE8461	2017	AKASH P R	-
B.E PCE	139	Chemical Analysis Laboratory	CH8281	2017	ANANDHU KESAV	-
					AROCKIA ARUL CHANDRU S	-
					ARULGNANI K	-
					ARULSELVAN S	-
					BOOBALAN R	-
					CHETLAMALLAPURAM MAMATHA	-
					DALVIN R	-
					HARIHARAN M	-
					JOSHVA JOSEPH	-
					KAILAS KRISHNA D	
					MADHESHWARAN K P	
					MANOJ A	
					MUTHU SELVAM M	
					NOOR MOHAMMED J	
					RAMKUMAR R	
					SANJAY SUKESH	

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					SANTHOSHKUMAR M	
					SARATH KUMAR T	
					SELVA G	
					SHINILJITH K	
					SUBASH C	
					SURYA E	
					THAAYAALAN K S	
					VALANARASU V	
					VISHNU M	
					ALEN T S	
					KARTIK S	
					RAGAVENDRAN K	
					SALAMON A	
					SANTHOSH S	
					SASIKUMAR R	
B.E PCE	139	Heat Transfer Laboratory	CH8561	2017	AADHITHYAN.S	-
B.E PCE	139	Petrochemical Analysis Laboratory	PM8561	2017	ABHAY KRISHNA P S	-
B.E PCE	139	Professional Communication	HS8581	2017	ABINATH T	-
B.E PCE	139	Mass Transfer Laboratory	CH8781	2017	ABIRAM K	-
B.E PCE	139	Petroleum Testing Laboratory	PE8661	2017	ADITHYA RAJ	-
					AISWARYA ANIL	
					AKASH N	
					ANTO AJEES RAJA X	
					ARUNKUMAR S	
					ARUNSELVIN T	
					ASHISH K K	
					ASHISH M A	
					ASIF MUSHEER M J	
					ASWIN M S	
					ATHISH G R	
					ATHUL KRISHNA P A	
					BAVYA BABU	

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BHARATH.S.A	
BLESSWIN PAUL BIN.B	
DHANASEKARAN S	
DIWAHAR.M	
ENEN KARUNAN	
ESHWAR A	
GOKUL PRASATH S	
GOLDEN RENNY P	
HARIHARAN R	
T HUDSON	
JEEVA R	
KAMALAKANNAN.G	
MAHESH KANNAN.M	
MATHESWAR V	
MAYUR MANGESH GHATKAR M	
MOHAMED HALIDH.U	
MOHAMMED ALTHAF A	
PRITHVIN DEVASSY	
FAYAS .R	
RAHUL	
RANGANATHAN.K.S	
SIDHARTHAN .R	
SUJITH KARUNAKARAN	
MANOJ KUMAR	
MOHAMED AYISH.A.A	
NANDHA KUMAR.J	
NITHISHWARAN.V	
PRANAV T	
PRASANTH S	
PRAVEEN KUMAR.K	
RAAJKAMAL BORBORA	
RAHUL R	
RAJA KABILESH.R	
RESHMA L A	
ROSHIN DANNISH.R	
SAMPANTHAM.G	
S. SARATH	

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					SASIKUMAR.M	
					SATHYANARAYANAN K	
					SELVABHARATHI M	
					SHARAFARAS T K	
					SHERON VARGHESE	
					SHERYL J	
					SHREE TULASI.A	
					SRAVAN.S	
					STARVIN.D.V	
					SUBHABHARATHI	
					SUBASH S	
					SUGAN T	
					SUJAID P	
					SUJITH PRASANTH M	
					THANIYARASU.R	
					UMMAR FAROOQ K	
					VEERAPANDIYAN.P	
					VIJAY P	
					ABDULLA HAMZA A	
					ALBIN SMITH .J	
					DELPHINSHAM .R	
					KUPERARAJESH.S	
					RAMESH KUMAR SAHNI	
					RISHABH .R	
					SRINATH.V	
					TEJAVU GOPALA KRISHNA	
					ABHINAV.R	
B.E PCE	139	Reaction Engineering and Process Control Laboratory	PM8761	2017	AAJIN S	-
B.E PCE	139	Internship	PM8711	2017	AJITH JOSE FRANCIS	-
B.E PCE	139	Project Work	PM8811	2017	AKASH S	-
					ALAVI MAJID P K	
					ALWIN JOSEPH	
					AMAL O V	
					ANANDHU K S	
					ANANDHU P B	

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					SASIKUMAR.M	
					SATHYANARAYANAN K	
					SELVABHARATHI M	
					SHARAFARAS T K	
					SHERON VARGHESE	
					SHERYL J	
					SHREE TULASI.A	
					SRAVAN.S	
					STARVIN.D.V	
					SUBHABHARATHI	
					SUBASH S	
					SUGAN T	
					SUJAID P	
					SUJITH PRASANTH M	
					THANIYARASU.R	
					UMMAR FAROOQ K	
					VEERAPANDIYAN.P	
					VIJAY P	
					ABDULLA HAMZA A	
					ALBIN SMITH .J	
					DELPHINSHAM .R	
					KUPERARAJESH.S	
					RAMESH KUMAR SAHNI	
					RISHABH .R	
					SRINATH.V	
					TEJAVU GOPALA KRISHNA	
					ABHINAV.R	
B.E PCE	139	Reaction Engineering and Process Control Laboratory	PM8761	2017	AAJIN S	-
B.E PCE	139	Internship	PM8711	2017	AJITH JOSE FRANCIS	-
B.E PCE	139	Project Work	PM8811	2017	AKASH S	-
					ALAVI MAJID P K	
					ALWIN JOSEPH	
					AMAL O V	
					ANANDHU K S	
					ANANDHU P B	

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ANANDUKRISHNAN	
ANGITH A LAKSHMAN	
ARJUNRAJ T	
ARUN KUMAR S	
ASHISH V V	
ASHWIN RAJ R	
ASRAY A	
ASWIN O	
BASIL VINOD	
BAVA SALMAN M A	
BHARATH A	
BHUVANESHWARAN M	
CHANDRA MOULI B	
CHANDRU M	
CHANDRU S	
DASTON DAVID T	
DIVIN RAJ	
DURAIRAJ A	
ELAMARAN A	
ESAKKI RAJA G	
GIDEON P	
GNANA SEKAR I	
GOGUL NATH R	
GOLDWIN JENISH K S	
GOWTHAM K	
GOWTHAM K	
GUNALAN J	
JITHIN GEORGE	
JOHN BENNET J P	
KARAN P	
KARTHIKEYAN C	
LOGESWARAN D	
MADHANKUMAR R	
MAJITH ASLIN J	
MANOJ PRABHAKAR K	
ANTON JOWIN	
STEVE THOMAS	

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VISHNU MADHAVNAN	
MILIN PHILIP SUNDAR	
MOHAMED FARISH J	
MOHAMED FAYIS.P.V	
MOHAMMED FAYAS P S	
MOHAMMED MIDHLAJ.P.T	
MOHAMMED SHAREEF K	
MOHANAPRAKASH.N	
MOWLI SAMYUKTHA A A	
MUNEESWARAN.S	
MUZZAMMIL .H	
NIHITHAN J	
PAVITHRA S	
PETER BABISTAN L	
PREM NATH P	
RABIN MOHAMMED P A	
RAJAGANAPATHY.R	
RAJESHKANNA M	
RITHIKROSHAN R	
SAHAYA MICHEAL AJAY.M	
SAMSON.R	
SANDHARA ROSE SIRIL	
SARA S	
SARAVANAKUMAR G	
SATHISH KUMAR R	
SATHYAPRIYA. S	
SHAHEEM.A	
SHAHUL HAMEED G	
SHAIJU K S	
SIBI.M	
SREEVISHAKH HARIDAS	
SUBARAMA GOKILAN R	
SUBHA KABILAN.D	
SUNERIA.S	
THIRUPPATHI.R	
VENGATESAN S	
VENGATESH M	

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	VENKITESH P	
	VIBIN.M	
	VIJAYAPRABHAKARAN V	
	VIJIN VARGHESE	
	VIMAL P	
	VIMALRAJ C	
	VIPIN.T.P	
	AHAMED SHAFAHADIS	
	MADHAN. A	
	SOBHANA VARAPRASAD K	
	K VENKATA MAHENDRA	
	YADHUKRISHNA.K.M	
	SARANG P	
	GEORGE PHILIP DANIEL	

HoD/PCE

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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.

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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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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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	√	√		√		√	√	√			√	√

COURSE OUTCOMES		PROGRAMME OUTCOMES											
Sem	**Course Name**	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**	**j**	**k**	**l**
	Circuits Design and Simulation Laboratory	√	√	√	√	√	√					√	√
	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		√		√	√	√		√	√	√	√	√
	Professional Communication						√				√		√
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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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**

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
10.	HS8581	Professional Communication	EEC	2	0	0	2	1
			TOTAL	**30**	**18**	**0**	**12**	**24**

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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: 186

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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)

Sl.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 Laboratory	PC	4	0	0	4	2

JCT College of Engineering & Technology Pichanur CBE - 105.

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PICHANUR, COIMBATORE - 641 105.

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

JCT College of Engineering & Technology Pichanur CBE - 105.

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PICHANUR, COIMBATORE - 641 105.

JCT College of Engineering and Technology
Pichanur Coimbatore-641105
Department of Petroleum Engineering

Course Code	Course name	Status of implementation of CBCS
CH8281	Chemical Analysis Laboratory	yes
CH8561	Heat Transfer Laboratory	Yes
CH8181	Mass Transfer Laboratory	Yes
PE8461	Fluids and Solid operation laboratory	Yes
PE8511	Geology Laboratory	Yes
PE8661	Petroleum Testing Laboratory	Yes

ANNA UNIVERSITY, CHENNAI 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		✓					✓	✓	✓	

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	√		√		√					

		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	√	√						√		

ANNA UNIVERSITY, CHENNAI AFFILIATED
INSTITUTIONS 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**

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**

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**

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

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 ELECTIVE III, 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
5.	GE8072	Foundation Skills in Integrated Product Development	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

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 Nanoscience	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

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

ENGINEERING SCIENCES (ES)

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
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**

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		✓	✓	✓	✓				✓

		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						✓			✓

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**

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**

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

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

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

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 Nanoscience	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.	GE8072	Foundation Skills in Integrated Product Development	PE	3	3	0	0	3
7.	GE8074	Human Rights	PE	3	3	0	0	3
8.	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

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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