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

# PROGRAMME EDUCATIONAL OBJECTIVES (PEOs) :

- I. To prepare students for successful careers in Civil Engineering field that meets the needs of Indian and multinational companies.
- II. To develop the confidence and ability among students to synthesize data and technical concepts and thereby apply it in real world problems.
- III. To develop students to use modern techniques, skill and mathematical engineering tools for solving problems in Civil Engineering.
- IV. To provide students with a sound foundation in mathematical, scientific and engineering fundamentals necessary to formulate, solve and analyse engineering problems and to prepare them for graduate studies.
- V. To promote students to work collaboratively on multi-disciplinary projects and make them engage in life-long learning process throughout their professional life.

#### PROGRAMME OUTCOMES (POs):

On successful completion of the programme,

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

### PEOs & POs

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

Programme			F	Program	mme O	utcom	es			
Objectives	а	b	С	d	е	f	g	h	i	j
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111				Х			Х			
IV	Х				Х					
$\vee$						Х		Х	Х	Х

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					SEM 3									SEM 2										SEM 1					
	Construction Materials Laboratory	Surveying Laboratory	Surveying	Fluid Mechanics	Strength of Materials I	Construction Materials	Engineering Geology	Equations		Computer Aided Building Drawing	Engineering Practices Laboratory	Engineering Mechanics	Engineering		Basic Electrical and Electronics	Physics for Civil Engineering	Engineering Mathematics – II	Technical English		Physics and Chemistry Laboratory	Problem Solving and Python Programming Laboratory	Engineering Graphics	Programming	Problem Solving and Python	Engineering Chemistry	Engineering Physics	Engineering Mathematics – I	Communicative English	
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	Wastewater Engineering	Irrigation Engineering	Structural Analysis II	Design of Steel Structural Elements	Survey Camp (2 weeks–During V Semester)	Soil Mechanics Laboratory	Water and Waste Water Analysis Laboratory	Professional Elective I	Open Elective- I*	Water Supply Engineering	Structural Analysis I	Foundation Engineering	Design of Reinforced Cement Concrete Elements		Advanced Reading and Writing	Hydraulic Engineering Laboratory	Strength of Materials Laboratory	Soil Mechanics	Concrete Technology	Applied Hydraulic Engineering	Strength of Materials II	Construction Techniques and Practices	Numerical Methods	Interpersonal Skills / Listening and Speaking
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	SEM 8					SEM 7									
Project Work	Professional Elective V	Professional Elective IV	Industrial Training (4 weeks During VI semester-Summer)	Creative and Innovative Project (Activity Based - Subject Related)	Open Elective II*	Professional Elective III	Structural Design and Drawing	Railways, Airports, Docks and Harbour Engineering	Estimation, Costing and Valuation	1 	Professional Communication	Irrigation and Environmental Engineering Drawing	Highway Engineering Laboratory	Professional Elective II	Highway Engineering
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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	Т	Ρ	С
THEO	RY	1						
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
PRAC	TICALS							
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	т	Ρ	С
THEOR	ŶY	1						
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
PRACT	FICALS							
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

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S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Ρ	С
THEO	RY							
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
PRAC	TICALS							
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	20	40	0	4.0	04
			TUTAL	29	19	0	10	24
		SI	EMESTER IV	29	19	0	10	24
S.No	COURSE CODE	SI COURSE TITLE	EMESTER IV CATEGORY	CONTACT PERIODS	L	Т	10 P	24 C
S.No THEC	COURSE CODE DRY	SE COURSE TITLE	EMESTER IV CATEGORY	CONTACT PERIODS	L	Т	10 P	24 C
S.No THEC	COURSE CODE DRY MA8491	SI COURSE TITLE	EMESTER IV CATEGORY BS	CONTACT PERIODS	L 4	0 T 0	10 P	<b>C</b>
<b>S.No</b> <b>THEC</b> 1. 2.	COURSE CODE DRY MA8491 CE8401	SI COURSE TITLE Numerical Methods Construction Techniques and Practices	BS PC	29 CONTACT PERIODS 4 3	<b>L</b>	0 0 0	<b>P</b>	<b>C</b>
<b>S.No</b> <b>THEC</b> 1. 2. 3.	COURSE CODE DRY MA8491 CE8401 CE8402	SE COURSE TITLE Numerical Methods Construction Techniques and Practices Strength of Materials II	BS PC PC	29 CONTACT PERIODS 4 3	<b>L</b> 4 3	0 0 0 0	<b>P</b> 0 0 0 0	24 C 4 3
<b>S.No</b> <b>THEC</b> 1. 2. 3. 4.	COURSE CODE DRY MA8491 CE8401 CE8402 CE8402 CE8403	Steep	BS PC PC PC	29 CONTACT PERIODS 4 3 3 3	19 L 4 3 3	0 0 0 0	<b>P</b> 0 0 0 0 0 0	24 C 4 3 3 3
S.No THEC 1. 2. 3. 4. 5.	COURSE CODE DRY MA8491 CE8401 CE8402 CE8403 CE8404	SI COURSE TITLE Numerical Methods Construction Techniques and Practices Strength of Materials II Applied Hydraulic Engineering Concrete Technology	BS PC PC PC PC	29 CONTACT PERIODS 4 3 3 3 3	19 L 4 3 3 3 3	0 0 0 0 0	<b>P</b> 0 0 0 0 0 0 0	24 C 4 3 3 3 3
S.No THEC 1. 2. 3. 4. 5. 6.	CE8402 CE8404 CE8401	SI COURSE TITLE Numerical Methods Construction Techniques and Practices Strength of Materials II Applied Hydraulic Engineering Concrete Technology Soil Mechanics	BS PC PC PC PC PC PC	29 CONTACT PERIODS 4 3 3 3 3 3 3 3	19 L 4 3 3 3 3 3 3	0 7 0 0 0 0 0 0 0 0	10 P 0 0 0 0 0 0 0	24 C 4 3 3 3 3 3
S.No THEC 1. 2. 3. 4. 5. 6. PRAC	COURSE CODE DRY MA8491 CE8401 CE8401 CE8402 CE8403 CE8404 CE8404 CE8491 CE8491	Steep	BS PC PC PC PC PC	29 CONTACT PERIODS 4 3 3 3 3 3 3 3	19 L 4 3 3 3 3 3	0 0 0 0 0 0	10 P 0 0 0 0 0	24 C 4 3 3 3 3 3
S.No THEC 1. 2. 3. 4. 5. 6. <b>PRAC</b> 7.	CE8402 CE8403 CE8404 CE8404 CE8404 CE8491 CE8481	SI COURSE TITLE Numerical Methods Construction Techniques and Practices Strength of Materials II Applied Hydraulic Engineering Concrete Technology Soil Mechanics Strength of Materials Laboratory	BS PC PC PC PC PC PC PC	29 CONTACT PERIODS 4 3 3 3 3 4	19 L 4 3 3 3 3 3 0	0 0 0 0 0 0 0	0         0           0         0           0         0           0         0           0         0           4         4	24 C 4 3 3 3 3 2

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PRINCIPAL MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGE 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-600 024

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EEC

TOTAL

Laboratory

and Writing

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HS8461

Advanced Reading

# SEMESTER V

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Ρ	С
THEO	RY							
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
PRACI	ICALS							
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	Т	Ρ	С
THEOF	RY							
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
PRACT	ICALS							
7.	CE8611	Highway Engineering Laboratory	PC	4	0	0	4	2
8.	CE8612	Irrigation and Environmental Engineering Drawing	PC	4	0	0	4	2
9.	HS8581	Professional Communication	EEC	2	0	0	2	1
			TOTAL	30	18	2	10	24

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# SEMESTER VII

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Ρ	С
THEO	RY							
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
PRAC	TICALS							
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	Т	Ρ	С
THEO	RY							
1.		Professional Elective IV	PE	3	3	0	0	3
2.		Professional Elective V	PE	3	3	0	0	3
PRAC	TICALS					-		
3.	CE8811	Project Work	EEC	20	0	0	20	10
	1		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	т	Ρ	С
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	Т	Ρ	С
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	т	Ρ	с
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	ES	4	0	0	4	2
4.	BE8251	Basic Electrical and	ES	3	3	0	0	3
5	GE8292	Engineering Mechanics	ES	5	3	2	0	4
6.	GE8261	Engineering Practices	ES	4	0	0	4	2
7.	CE8392	Engineering Geology	ES	3	3	0	0	3

# PROFESSIONAL CORE (PC)

S.No	COURSE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	Т	Ρ	С
1.	CE8211	Computer Aided Building	PC	4	0	0	4	2
0	CE9301	Construction Materials	PC	3	3	0	0	3
2.	CE8391	Strength of Materials I	PC	3	3	0	0	3
4.	CE8302	Fluid Mechanics	PC	3	3	0	0	3
5	CE8351	Surveying	PC	5	- Y			

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6.	CE8481	Strength of Materials	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	т	Ρ	С
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	Т	Ρ	С
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	Т	Ρ	С
1.	CE8001	Ground Improvement Techniques	PE	3	3	0	0	3
2.	CE8002	Introduction to Soil Dynamics and Machine Foundations	PE	3	3	0	0	3
3.	CE8003	Rock Engineering	PE	3	3	0	0	3
4.	CE8004	Urban Planning and Development	PE	3	3	0	0	3
5.	CE8005	Air Pollution and Control Engineering	PE	3	3	0	0	3
6.	GE8075	Intellectual Property Rights	PE	3	3	0	0	3
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# PICHACHPAL MEENAKSHI SUHDARARAJAN ENDIMEERING COLLEGE 363, ARCOT ROAD, KODAMBAKKAM, Chennai-600 024

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### SEMESTER VII ELECTIVE – III

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	Т	Ρ	С
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	т	Ρ	С
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	т	Ρ	С
1.	CE8019	Computer Aided Design of Structures	Design of PE		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	Br	las	0	3

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

#### SUMMARY

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PRINCIPAL MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGE 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-600 024

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

### **PROGRAM EDUCATIONAL OBJECTIVES (PEOs):**

 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:

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

PRINCIPAL MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGL 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-600 024

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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

	PEOs				
POs	1,	Graduates will pursue higher education and research, or have a successful career in industries associated with Computer Science and Engineering, or as entrepreneurs.	2. Graduates will have the ability and attitude to adapt to emerging technological changes.		
1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex		3	1		
engineering problems. 2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles o mathematics, natural sciences, and	/ c f f	3	1		
<ul> <li>engineering sciences.</li> <li>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 environmentations.</li> </ul>	n s e /, al	3	2		
4. Conduct investigations of comple problems: Use research-based knowledge an research methods including design experiments, analysis and interpretation data, and synthesis of the information provide valid conclusions.	x of of to	3	2		
5. Modern tool usage: Create, select, and app appropriate techniques, resources, and mode engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.	oly rn on es	2	3		
6. The engineer and society: Apply reasoni informed by the contextual knowledge assess societal, health, safety, legal a cultural issues and the conseque responsibilities relevant to the profession engineering practice.	ng to nd ent nal	2	2		
	3	PRIM	NCIPAL		

MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGE 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-600 024

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<ol> <li>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.</li> </ol>	2	4
8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.	3	1
<ol> <li>Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.</li> </ol>	3	2
<b>10. Communication</b> : 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
<b>11. Project management and finance:</b> 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
<b>12. Life-long learning</b> : 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
bioddest context of teermonegreat entanger		

PSOs			_
<ol> <li>Analyze, design and develop computing solutions by computer science and engineering.</li> </ol>	applying foundational concepts of	3	1
<ol> <li>Apply software engineering principles and practices to scientific and business applications.</li> </ol>	for developing quality software for	3	1
<ol> <li>Adapt to emerging information and communication ter and solutions to existing/novel problems.</li> </ol>	chnologies (ICT) to innovate ideas	1	3
La construction de la construction	and		

# MAPPING OF COURSE OUTCOMES WITH PROGRAMME OUTCOMES

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

	-	Programme Outcome (PO)													
	Course Title		-	•	A		;	6	7	8	Τ	9	10	11	12
		1	2	3	4		2	0	-	J	-	V	V		$\checkmark$
	Communicative									4					
	English														
	Engineering	$\nabla$	V	V								V			
	Mathematics - I														
	Engineering Physics	V	$\checkmark$	V		_		-							
	Engineering	V	$\vee$	$ $ $\vee$											
	Chemistry									-					
n n	Problem Solving		1 ,	1											
Ē	and Python		V	N											
S	Programming			+						V		$\checkmark$	$\overline{\mathbf{v}}$		N
M	Engineering		V	V			$\checkmark$								1
E	Graphics				+										N
	Problem Solving						,			.	.	1	1		
	and Python	V	$\checkmark$	1							N	Ň			
	Programming														
	Laboratory		T	17	+					V		V	N N		
	Physics and	Ň	Ň	1											
	Chemistry														
<u>i</u> 5	Laboratory		_		_				_					-	V
9.00	English									N		V	- V		
	Technical English	-1	J	1								$\checkmark$			
	Engineering		1												
	Mathematics II	J	T	1											
100	Physics for	×													
а ж. т	Information												+	1	
	Science Desig Electrical	V	V	N											
16 al	= Basic Electrical,														
<u>e</u>															
ļļ	Engineering														$\checkmark$
	Environmental	V	V		/				V		$\checkmark$	$\checkmark$	$\checkmark$		
	Science and														
	Sendineering		_	_	1						$\checkmark$	$\checkmark$	V		N
4	Programming in	С	N	N						1		$\checkmark$	V		N N
	Engineering	N				$\checkmark$	$\checkmark$	$\vee$							
1	Practices														J
74.14	Laboratory										$\checkmark$	$\checkmark$	$\checkmark$		'
Ser. 6	C Programming		$\checkmark$	$\checkmark$	$\checkmark$										
	Laboratory												ん	S	/
and the	100												$\mathcal{O}^{-}$	/	

				PI	ROG	RAM	AE O	UTCO	OME	(PO)				
			1	2	3	4	5	6	7	8	9	10	11	12
		Discrete Mathematics	V	V	V						V			
		Digital Principles and Design	V	V	V									
		Data Structures	$\checkmark$	$\checkmark$	V									
	ER III	Object Oriented Programming	$\checkmark$	1	V									
	IEST	Communication Engineering	$\checkmark$	V	V									
	SEN	Data Structures Laboratory	$\checkmark$	V	$\checkmark$					1	V	V		√
R II		Object Oriented Programming Laboratory	$\checkmark$	$\checkmark$	$\checkmark$					1	V	$\checkmark$		V
		Digital Systems Laboratory	$\checkmark$	$\checkmark$	1			V		V	V	$\checkmark$		$\checkmark$
		Interpersonal Skills/Listening &Speaking								V	V	V		$\checkmark$
ΥE		Probability and Queueing Theory	$\checkmark$	√	√						V	V		$\checkmark$
		Computer	~	√	√									
		Database Management Systems	$\checkmark$	1	V									
	TER IV	Design and Analysis of Algorithms	$\checkmark$	$\checkmark$	V						V	$\checkmark$		V
	MES.	Operating Systems	$\checkmark$	$\checkmark$	$\checkmark$									
	SE	Software Engineering	$\checkmark$	√	√		V	V		√	√	~		~
		Database Management Systems	$\checkmark$	$\checkmark$	1					~	V	V		<b>v</b>
		Operating Systems Laboratory	1	$\checkmark$	V					V	√	V		V
		Advanced Reading and Writing								V	V	×	1	V

Algebra and Number Theory     V     V       Computer     V     V       Networks     V     V		
Computer $\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{$		
Microprocessors		
and $\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{$		
Theory of $\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{$		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		
Image: Comparison of the sector of the se		
S Microprocessors		
and $\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{$	~	√
Object Oriented		
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	V	$\checkmark$
Networks		
	$\checkmark$	$\checkmark$
$\begin{bmatrix} \text{Internet} & \sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt$	1	$\checkmark$
		_
S Compiler Design V V V	V	V
C Distributed		
Systems V V V		
Professional		
ο Internet		
Laboratory		
Mobile		
Application		
Development	Ň	Ň
Laboratory	ļ,	
Mini Project         V <t< td=""><td>N</td><td>N N</td></t<>	N	N N
Professional	V	N
- Principles of		7
Management		N
≥ <sup>6</sup> Cryptography		
$\vee$ and Network $\vee$ $\vee$		
Security		
Cloud Computing V V V	-	
Open Elective II	pict	

PRINCIPAL MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGE 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-600 024

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		Professional Elective II												
-		Professional Elective III												
		Cloud Computing Laboratory	1	V	V		V			V	V	V		V
		Security Laboratory	V	V	$\checkmark$		V			V	V	V		V
		Professional												
	R	Elective IV												
	ESTE /III	Professional Elective V												
	SEMI	Project Work	V	V	V	V	V	V	V	V	V	V	V	1

# PROFESSIONAL ELECTIVES

SEM		PROGRAMME OUTCOME (PO)											T
SEIVI		1	2	3	4	5	6	7	8	9	10	11	12
1/1	Data Warehousing and Data			1									
VI	Mining	N	N	V									
	Software Testing	$\checkmark$	V	$\checkmark$		$\checkmark$				$\vee$	$\checkmark$		
	Soliware resting	V	$\checkmark$										
	A rile Methodologies	V	V										
	Aglie Methodologies	J	V	V									
	Graph Theory and Applications			<u> </u>				V		$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
		V	1										
	Digital Signal Processing		j	J						$\checkmark$	$\checkmark$		
VII	Big Data Analytics		J	j		V				$\checkmark$	V		
	Machine Learning Techniques	v		$\vdash$									-
	Computer Graphics and	$\checkmark$	√	√									
	Multimedia			J					$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
	Software Project Management			J									
	Internet of Things	N		J									
	Service Oriented Architecture	N		J								$\checkmark$	
	Total Quality Management	N	<u>v</u>	V									
	Multi-core Architectures	√	$\checkmark$	√									
	and Programming			J									
	Human Computer Interaction	N		1		V	-				$\checkmark$		
	C# and .Net Programming	N	V	V		-							
	Wireless Adhoc and Sensor	√	√	√									
	Networks					-	-						
	Advanced Topics on Databases	N N	N N			-							
	Foundation Skills in Integrated	√	√	√							_		
	Product Development			J									
	Human Rights			J				V					
	Disaster Management		1 J	J									
VIII	Digital Image Processing		J	ţ									
	Social Network Analysis		J	Ĵ					$\checkmark$				
	Information Security		J	J									
	Software Defined Networks		1 J	j					V				
	Cyber Forensics		1 J	J									
	Soft Computing	N N	· ·	+-			,	-1	.1	1			
	Professional Ethics in						N	N	N	N	v		'
	Engineering		V	V									
	Information Retrieval Techniques		Ĵ	1									
	Green Computing	× .	<u>,</u>	<u>,</u>									
	GPU Architecture and	V	V	V									
	Programming	V	V	V									
	Natural Language Processing	J	j	V									
	Parallel Algorithms	J	, V	V									
	Speech Processing	Ţ	V	V									
	Fundamentals of Nanoscience		,										

# ANNA UNIVERSITY, CHENNAI AFFILIATED INSTITUTIONS B.E. COMPUTER SCIENCE AND ENGINEERING REGULATIONS – 2017 CHOICE BASED CREDIT SYSTEM I - VIII SEMESTERS CURRICULA AND SYLLABI

#### SEMESTER I

SI. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	P	С
THEC	DRY	1						
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
PRAC	TICALS					r		
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
1			TOTAL	31	19	0	12	25

#### SEMESTER II

SI.No	COURSE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Р	С
THEOF	RY CODE						-	
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	HS	3	3	0	0	3
6	CS8251	Programming in C	PC	3	3	0	0	3
PRACT	ICALS							
7.	GE8261	Engineering Practices	ES	4	0	0	4	2
8.	CS8261	C Programming	PC	4	0	0	4	2
		Laboratory	TOTAL	28	20	0	8	24
					Ju	A	2	

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

#### SEMESTER IV

SI. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	Т	Р	С
THE	ORY							
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
PRA	ACTICALS							
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	EEC	2	0	0	2	1
			TOTAL	29	19	0	10	24

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SI. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	Т	Р	С					
THE	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					
PR/	ACTICALS	1											
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 V

# SEMESTER VI

SI. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Р	с				
THE	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				
PR/	ACTICALS											
7.	CS8661	Internet Programming Laboratory	PC	4	0	0	4	2				
8.	CS8662	Mobile Application Development Laboratory	PC	4	0	0	4	2				
9.	CS8611	Mini Project	EEC	2	0	0	2	1				
10	HS8581	Professional Communication	EEC	2	0	0	2	1				
			TOTAL	32	18	0	14	25				

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# SEMESTER VII

SI. No	COURSE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	Т	Ρ	С
THE	ORY			and the state of the				
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
PRA	ACTICALS							
7.	CS8711	Cloud Computing Laboratory	PC	4	0	0	4	2
8.	IT8761	Security Laboratory	PC	4	0	0	4	2
	TOTAL 26 18 0 8 22							

# SEMESTER VIII

SI. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Ρ	С		
THE	THEORY									
1.		Professional Elective IV	PE	3	3	0	0	3		
2.		Professional Elective V	PE	3	3	0	0	3		
PR/	ACTICALS									
3.	CS8811	Project Work	EEC	20	0	0	20	10		
			TOTAL	26	6	0	20	16		

# TOTAL NO. OF CREDITS: 185

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# HUMANITIES AND SOCIAL SCIENCES (HS)

SI.	COURSE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Ρ	С
1	HS8151	Communicative English	HS	4	4	0	0	4
	HS8251	Technical English	HS	4	4	0	0	4
<u>2</u> . 3.	GE8291	Environmental Science	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	Т	Р	С
1.	MA8151	Engineering Mathematics I	BS	4	4	0	0	4
2.	PH8151	Engineering Physics	BS	3	3	0	0	3
3.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
4.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
5.	MA8251	Engineering Mathematics II	BS	4	4	0	0	4
6.	PH8252	Physics for Information Science	BS	3	3	0	0	3
7.	MA8351	Discrete Mathematics	BS	4	4	0	0	4
8.	MA8402	Probability and Queueing Theory	BS	4	4	0	0	4
9.	MA8551	Algebra and Number Theory	BS	4	4	0	0	4

# **ENGINEERING SCIENCES (ES)**

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

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	PROFESSIONAL CORE (PC)									
SI. NO	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS	L	1	Р	U		
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		4	0	0	1	2		
0.	000000	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	DC	2	2	0	0	3		
		Microcontrollers	PC	5	5	0	0	<u> </u>		
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	PC	4	0	0	4	2		
28	. CS8792	Cryptography and Network	PC	3	3	0	0	3		
20	CS8701	Cloud Computing	PC	3	3		0	3		
30	. CS8711	Cloud Computing	PC	4	0		) 4	2		
	170704		- PC					2		
1 31	. 118/01	Security Laboratory	FU	-1			·			

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# **PROFESSIONAL ELECTIVES (PE)**

# SEMESTER VI ELECTIVE - I

SI. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Р	С
1.	CS8075	Data Warehousing and	55				-	
		Data Mining	PE	3	3	0	0	3
2.	1T8076	Software Testing	PE	2				
3.	IT8072	Embedded Systems		3	3	0	0	3
4.	CS8072	Agile Methodologias	PE	3	3	0	0	3
5	C\$8077	Croph The	PE	3	3	0	0	3
	170071	Applications-	PE	3	3	0	0	3
0.	118071	Digital Signal Processing	PE	2	0			
7.	GE8075	Intellectual Property	· L	3	3	0	0	3
		Rights	PE	3	3	0	0	3
								1

# SEMESTER VII ELECTIVE - II

SI	COUPSE	ELE	CTIVE - II					
No	CODE	COURSE TITLE	CATEGORY	CONTACT	I	т	D	C
1,	CS8091	Big Data Analytics	DE	PERIODS				
2.	CS8082	Machine Learning	PE	3	3	0	0	3
		Techniques	PE	3	3	0	0	2
3.	CS8092	Computer Graphics and				Ū	0	5
		Multimedia	PE	3	З		0	0
4.	IT8075	Software Project		-	5	0	0	3
		Management	PE	3	3	0	0	2
5.	CS8081	Internet of Things			0	0	0	3
e	ITOOTA	ge	PE	3	3	0	0	2
Ο.	118074	Service Oriented			-	0	0	3
	142.	Architecture	PE	3	3		0	2
1.	GE8077	Total Quality Management	DE		0	0	0	3
	"Pa	, managoment		3	3	0	0	3
								-

#### SEMESTER VII ELECTIVE - III

SI.	COURSE	ELE	CTIVE - III					
No	CODE	COURSE TITLE	CATEGORY		L	Т	P	C
1.	C28083	Multi-core Architectures and	DE	I LKIUDS				C
2.	CS8079	Human Computer	PE	3	3	0	0	3
<u>14</u>		Interaction	PE	3	3	0	-	
3.	CS8073	C# and .Net Programming	PE	0	5	0	0	3
4.	CS8088	Wireless Adhoc and Sensor		3	3	0	0	3
5	CC9074	Networks	PE	3	3	0	0	3
	C360/1	Advanced Topics on Databases	PE	2			-	5
6.	GE8072	Foundation Skills in		3	3	0	0	3
		Integrated Product Development	PE	3	3	0	0	3
1.	GE8074	Human Rights	PE					
8.	GE8071	Disaster Management	PE	3	3	0	0	3
KAN T		A State ( to be a state of the		3	3	0	101	3
Long Barry						(	NUT	

# SEMESTER VIII ELECTIVE - IV

SI.	COURSE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	τ	Р	С
1	EC8093	Digital Image Processing	PE	3	3	0	0	3
2	CS8085	Social Network Analysis	PE	3	3	0	0	3
3	IT8073	Information Security	PE	3	3	0	0	3
4	CS8087	Software Defined Networks	PE	3	3	0	0	3
5.	CS8074	Cyber Forensics	PE	3	3	0	0	3
6.	CS8086	Soft Computing	PE	3	3	0	0	3
7.	GE8076	Professional Ethics in Engineering	PE	3	3	0	0	3

#### SEMESTER VIII ELECTIVE - V

SI. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Р	С
1.	CS8080	Information Retrieval Techniques	PE	3	3	0	0	3
2.	CS8078	Green Computing	PE	3	3	0	0	3
3.	CS8076	GPU Architecture and Programming	PE	3	3	0	0	3
4.	CS8084	Natural Language Processing	PE	3	3	0	0	3
5.	CS8001	Parallel Algorithms	PE	3	3	0	0	3
6.	IT8077	Speech Processing	PE	3	3	0	0	3
7.	GE8073	Fundamentals of Nanoscience	PE	3	3	0	0	3

# EMPLOYABILITY ENHANCEMENT COURSES (EEC)

SI. NO	COURSE CODE	COURSE TITLE	CATEGORY		L	T	Р	С
1.	HS8381	Interpersonal Skills/Listening		T ERIODS				
		& Speaking	EEC	2	0	0	2	1
2.	HS8461	Advanced Reading and						
		Writing	EEC	2	0	0	2	1
3.	CS8611	Mini Project	550				-	1
4.	HS8581	Professional Communication	EEC	2	0	0	2	1
5	CS8811	Project West	EEC	2	0	0	2	1
	000011	r roject work	EEC	20	0	0	20	10
					5	0	20	10

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# SUMMARY

S.NO.	SUBJECT AREA	C	RED	DITS	AS F	PER	CREDITS TOTAL	Percentage			
		I	11	Ш	IV	v	VI	VII	VIII		
1.	HS	4	7					3		14	7.60%
2.	BS	12	7	4	4	4				31	16.8%
3.	ES	9	5	9						23	12.5%
4.	PC		5	10	19	18	20	10		82	44.5%
5.	PE						3	6	6	15	8.15%
6.	OE					3		3		6	3.3%
7.	EEC			1	1		2	,	10	14	7.65%
	Total	25	24	24	24	25	25	22	16	185	
8.	Non Credit / Mandatory										

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

# PROGRAMME EDUCATIONAL OBJECTIVES:

- PEO1: To enable graduates to pursue research, or have a successful career in academia or industries associated with Electronics and Communication Engineering, or as entrepreneurs.
- PEO2: To provide students with strong foundational concepts and also advanced techniques and tools in order to enable them to build solutions or systems of varying complexity.
- PEO3: To prepare students to critically analyze existing literature in an area of specialization and ethically develop innovative and research oriented methodologies to solve the problems identified.

#### PROGRAMME OUTCOMES:

Engineering Graduates will be able to:

- 1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- 2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- 3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- 4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- 5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- 6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- 7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

- 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				F	PROGR		оотис	MES				
EDUCATIONAL	Α	В	С	D	E	F	G	н	I	J	ĸ	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		PROGRAMME OUTCOMES														
SPECIFIC OBJECTIVES	A	В	С	D	E	F	G	Н	I	J	К	L				
1	3	3	2	3	2	1	1	1	1	1	1	2				
2	3	3	3	3	3	2	2	3	1	3	3	3				
3	3	3	3	3	3	3	3	2	1	1	1	3				

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# ANNA UNIVERSITY, CHENNAI AFFILIATED INSTITUTIONS B.E. ELECTRONICS AND COMMUNICATION ENGINEERING REGULATIONS – 2017 CHOICE BASED CREDIT SYSTEM

# 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	а	b	С	d	е	f	g	h	i	j	k	١
I	Communicative English						$\checkmark$	$\checkmark$			$\checkmark$	$\checkmark$	
	Engineering Mathematics – I	$\checkmark$											V
	Engineering Physics	$\checkmark$	$\checkmark$	$\checkmark$									
	Engineering Chemistry	$\checkmark$	$\checkmark$										
	Problem Solving and Python Programming							1					
	Engineering Graphics										$\checkmark$		
	Problem Solving and Python Programming Laboratory	$\checkmark$	$\checkmark$			$\checkmark$						V	
	Physics and Chemistry Laboratory	$\checkmark$		$\checkmark$								$\checkmark$	$\checkmark$
	Technical English					$\checkmark$			$\checkmark$	$\checkmark$		$\checkmark$	$\checkmark$
	Engineering Mathematics – II	$\checkmark$		$\checkmark$	$\checkmark$							$\checkmark$	$\checkmark$
	Physics for Electronics Engineering			$\checkmark$	$\checkmark$								$\checkmark$
п	Basic Electrical and Instrumentation Engineering	$\checkmark$				$\checkmark$	$\checkmark$						
	Circuit Analysis	$\checkmark$			$\checkmark$	$\checkmark$	$\checkmark$					$\checkmark$	$\checkmark$
	Electronic Devices				$\checkmark$	$\checkmark$	$\checkmark$					$\checkmark$	$\checkmark$
	Circuits and Devices Laboratory				$\checkmark$	$\checkmark$						$\checkmark$	$\checkmark$
	Engineering Practices Laboratory		$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$						$\checkmark$	$\checkmark$
	Linear Algebra and Partial Differential Equations	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$								$\checkmark$
	Fundamentals of Data Structures In C		$\checkmark$			$\checkmark$	$\checkmark$						$\checkmark$
	Electronic Circuits- I	$\checkmark$		$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$					$\checkmark$	$\checkmark$
	Signals and Systems	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$							$\checkmark$
	Digital Electronics			$\checkmark$	$\checkmark$	$\checkmark$							
	Control System Engineering			$\checkmark$	$\checkmark$	$\checkmark$							$\checkmark$
	Fundamentals of Data Structures in C Laboratory	$\checkmark$	V	V	V	V	V					V	V
	Analog and Digital Circuits Laboratory		$\checkmark$		$\checkmark$							$^{\vee}$	
	Interpersonal Skills/Listening &Speaking						$\checkmark$			$\checkmark$		$^{\vee}$	
			,	1	1								1
	Probability and Random Processes	V	V	N	V	N	1					N	N
		N	N	N	N	N	N					N	N
IV	Communication Theory	N	N	N	N	N	N					N	N
		N	N	N	N	N	N			2		V	V
	Environmental Science and Engineering	N	V	N	V	Y	V			1		À	V
	Environmental Science and Engineering	V	N N	1	1	1	1	,		-6		- '	

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	COURSE OUTCOMES	PROGRAMME OUTCOMES											
Sem	Course Name	a	b	С	d	0	f	a	h	1	1	k	1
	Circuits Design and Simulation Laboratory	V	$\checkmark$	V	V	V	V			• • •	1	Ĵ	j.
	Linear Integrated Circuits Laboratory	V	V	V	V	V	V			-		1	j
	Digital Communication	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	V					V	V
	Discrete-Time Signal Processing	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	V	V					V	V
	Computer Architecture and Organization	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$		V					V	V
	Communication Networks	$\checkmark$	$\checkmark$	V	$\checkmark$	V	V				1	V	V
V	Professional Elective I												
	Open Elective I												
	Digital Signal Processing Laboratory	V	$\checkmark$	$\checkmark$	$\checkmark$	V	V					V	V
	Communication Systems Laboratory	V	V	V	$\checkmark$	$\checkmark$	V					V	V
	Networks Laboratory	V	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	V					V	V
													-
	Microprocessors and Microcontrollers	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	V	V					V	V
	VLSI Design	$\checkmark$				V	V					V	V
	Wireless Communication	V	$\checkmark$	V		V	V					V	V
	Principles of Management							$\checkmark$	V	-	V	V	V
VI	Transmission Lines and RF Systems	V	$\checkmark$	V	$\checkmark$		V				-	V	V
	Professional Elective -II											· ·	
	Microprocessors and Microcontrollers	1		./	.1							1	1
	Laboratory	V	V	V	V	N	N					N	V
	VLSI Design Laboratory	$\checkmark$	$\overline{\mathbf{v}}$		$\overline{\mathbf{v}}$	$\sim$	$\sim$					V	V
	Technical Seminar				$\overline{\mathbf{v}}$	V	$\checkmark$		$\checkmark$	V	$\checkmark$	$\checkmark$	V
	Professional Communication						$\overline{\mathbf{v}}$				V		V
	Antennas and Microwave Engineering	N	N	N			2						
	Optical Communication	N	V	V	N	V	N					N	V
	Embedded and Real Time Systems	V	V	V	V	1	N					N	V
	Ad hoc and Wireless Sensor Networks	V	V	V	N	N	N					N	N
VII	Professional Elective -III	v	v	Y	Y	V	V	-			-	V	N
	Open Elective - II			-									
	Embedded Laboratory	V	V	V	V	V	V						J
	Advanced Communication Laboratory	V	V	V	V	V	V					V	V
	Professional Elective - IV												
VIII	Professional Elective - V												
	Project Work	$\checkmark$	$\sim$	$\vee$	N	$\checkmark$	V		$\checkmark$	V	V	V	V

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## ANNA UNIVERSITY, CHENNAI AFFILIATED INSTITUTIONS B.E. ELECTRONICS AND COMMUNICATION ENGINEERING REGULATIONS – 2017 CHOICE BASED CREDIT SYSTEM I - VIII SEMESTERS CURRICULA AND SYLLABI

SI. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Ρ	С		
THE	HEORY									
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		
PRA	ACTICALS									
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 I

#### SEMESTER II

SI. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Ρ	С
THE	DRY		11					
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
PRA	CTICALS							
7.	EC8261	Circuits and Devices Laboratory	PC	4	0	0	4	2
8.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
			TOTAL	29	21	0	8	25

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### SEMESTER III

SI. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Ρ	С
THEC	DRY							
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
PRAC	CTICALS							
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

SI. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	Т	Ρ	С
THE	EORY							
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
PR/	ACTICALS							
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

SI. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Ρ	С
THE	ORY							
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
PRA	ACTICALS							
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

SI. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	Т	Ρ	С
THE	ORY							
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
PRA	CTICALS							
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

SI.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Ρ	С
THEO	RY							
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
PRAC	TICALS							
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

SI. No	COURSE CODE	COURSE TITLE	CATEGOR Y	CONTACT PERIODS	L	т	Ρ	С		
THEC	THEORY									
1.		Professional Elective IV	PE	3	3	0	0	3		
2.		Professional Elective V	PE	3	3	0	0	3		
PRAC	TICALS									
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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PRINCIPAL MEENAKSHI SUNDARARAJAN ENGINEERIMO CONTO 363, ARCOT ROAD, KODAMBANKOW, CHENNAI-600 024

# HUMANITIES AND SOCIALSCIENCES (HS)

SI.NO		COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Ρ	С
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	Т	Ρ	С
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	Т	Ρ	С
1.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
2.	GE8152	Engineering Graphics	ES	6	2	0	4	4
3.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
4.	BE8254	Basic Electrical and Instrumentation Engineering	ES	3	3	0	0	3
5.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
6.	EC8393	Fundamentals of Data Structures In C	ES	3	3	0	0	3
7.	EC8381	Fundamentals of Data Structures in C Laboratory	ES	4	0	0	4	2
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# PROFESSIONAL CORE (PC)

SI.NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	Т	Ρ	С
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	(C)	A	2

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

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#### PROFESSIONAL ELECTIVES (PE) SEMESTER V ELECTIVE I

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

### SEMESTER VI ELECTIVE II

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

### SEMESTER VII ELECTIVE III

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

### SEMESTER VIII ELECTIVE IV

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

#### SEMESTER VIII ELECTIVE V

SI.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Ρ	С
1.	EC8010	Video Analytics	PE	3	3	0	0	3
2.	EC8011	DSP Architecture and Programming	PE	3	3	0	0	3
3.	EC8094	Satellite Communication	PE	3	3	0	0	3
4.	CS8086	Soft Computing	PE	3	3	0	0	3
5.	IT8006	Principles of Speech Processing	PE	3	3	0	0	3
6.	GE8073	Fundamentals of Nanoscience	PE	3	3	0	0	3

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

S.NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	Т	Ρ	С
1.	HS8381	Interpersonal Skills/Listening & Speaking	EEC	2	0	0	2	1
2.	EC8611	Technical Seminar	EEC	2	0	0	2	1
3.	HS8581	Professional Communication	EEC	2	0	0	2	1
4.	EC8811	Project Work	EEC	20	0	0	20	10

## EMPLOYABILITY ENHANCEMENT COURSES (EEC)

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MEERAKSHI SOLAAN OLEAN MEERAKSHI SOLAAN ULAN ENGOMUUNG SOLEN 9700 - SOLAAN ULAN ULAN KANANAN 1700 - SOLAAN ULAN ULAN ULAN

# SUMMARY

S.NO.	SUBJECT AREA	0	RED	DITS	AS F	PER	SEM	ESTE	R	CREDITS TOTAL	Percentage
		I	n	ш	IV	v	VI	VII	VIII		
1.	HS	4	4		3		3			4.4	7.500/
2.	BS	12	7	Δ	4		5			14	7.56%
3.	FS	0	5		4					27	14.6%
4	PC	9	5	5						19	10.27%
5	FC		9	15	17	19	16	16		92	50%
<u>э</u> ,	PE					3	3	3	6	15	8.10%
6.	OE					3		3		6	3 24%
7.	EEC			1			2		10	12	5.24 /0 C 490/
	Total	25	25	25	24	25	24	22	10	13	0,48%
8.	Non Credit / Mandatory	20	2.0	20	24	20	24	22	10	186	

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

### Educational Objectives

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

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

### Programme Outcomes

The graduates will have the ability to

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

PEO \PO	а	b	с	d	е	f	g	h	i	j	k	1
1	~	~	~	√	✓	✓	~					$\checkmark$
2	~	$\checkmark$	$\checkmark$	~	~	~		$\checkmark$		~		

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1

SEMESTER	NAME OF THE SUBJECT	PROGRAM OUTCOMES												
		а	b	С	d	е	f	g	h	i	j	k	1	
	THEORY													
	Communicative English									~	~		~	
	Engineering Mathematics - I	$\checkmark$	~			~								
	Engineering Physics	$\checkmark$	1	$\checkmark$		~		~						
	Engineering Chemistry	$\checkmark$	~	~		~								
SEMI	Problem Solving and Python Programming	~	~	~	~	~								
	Engineering Graphics			$\checkmark$	~									
	PRACTICAL													
	Problem Solving and Python Programming Laboratory	~		~	~	~	~							
	Physics and Chemistry Laboratory	~	~											
	THEORY													
	Technical English									~	~		-	
	Engineering Mathematics - II	$\checkmark$	$\checkmark$	~		~							~	
	Physics For Electronics Engineering	$\checkmark$	~	~		~		~					~	
	Basic Civil and Mechanical Engineering				~		~							
SEM II	Circuit Theory	~	$\checkmark$	~	~	~							~	
	Environmental Science and Engineering	~	~			~	~	~	~					
	PRACTICALS													
	<b>Engineering Practices Laboratory</b>	~		~	~	~	~				~			
	Electric Circuits Lab	~		~	~	<ul> <li>✓</li> </ul>	~				~		~	
	THEORY													
	Transforms and Partial Differential Equations	~	~			~							~	
	Digital Logic Circuits				~	~								
SEM III	Electromagnetic Theory	~	~	~	~	~					~			
	Electrical Machines – I	~	~	~	~	~					à	to		

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	Electron Devices and Circuits	$\checkmark$	1	~	1	~							~
	Power Plant Engineering			~	~	~		~	~	~			
	PRACTICALS		K.										
	Electronics Laboratory	~			1	~						~	~
	Electrical Machines Laboratory - I	$\checkmark$			~	~						~	~
	THEORY												
	Numerical Methods	$\checkmark$	~	~									~
	Electrical Machines – II	$\checkmark$	~	~	~	~		~					~
	Transmission and Distribution	~	~	~	~	~		~					~
	Measurements and Instrumentation	~	~	~	~	~							~
SEM IV	Linear Integrated Circuits and Applications	~	~	~		~							
02	Control Systems	~	~	~	~	~							~
	PRACTICALS												
	Electrical Machines Lab II	~	1	~	$\checkmark$	~							~
	Linear and Digital Integrated Circuits Laboratory	~		~	~						~	~	~
	Technical Seminar						-			~	~	~	
	THEORY												
	Power System Analysis	~	~	~	~	~		~					~
	Microprocessors and Microcontrollers	~		~		~			~	~		~	~
	Power Electronics	~	~	1	~	~		~					
SEM V	Digital Signal Processing	~	~	~	~	~		~					~
	Object Oriented Programming			~	~	~							~
	Open Elective I												
	PRACTICALS										1	0	
	Control and Instrumentation Laboratory			~	~	~				-		DAL	-

	Professional Communication							~	~	1	
	Professional Communication		-	~	~	1					1
	Object Offented Programming										
	THEORY										
	Solid State Drives	~	1	~	~	1	~				
											1
	Protection and Switchgear	~			~						
	Embedded Systems	6									
	Professional Elective 1										
05111/4	Professional Elective II							 			
SEMIVI	PRACTICALS							 			
	Power Electronics and Drives	$\checkmark$		~	~				~	~	
	Laboratory				1			 	1	1	1
	Microprocessors and	~		-	~				•		
	Microcontrollers Laboratory			1	1				~	1	~
	THEORY										
	High Voltage Engineering	~	-	-	~						~
	Power System Operation and Control	~	~	~	~	~	~				~
	Renewable Energy Systems	~	~	~	~	~	~				~
SEM VII	Open Elective II		-								
	Professional Elective III							 			
	Professional Elective IV							 			
	PRACTICALS							 			
	Power System Simulation	~			~	2			~	~	~
	Renewable Energy Systems	~		~	~				~	~	~
SEM VIII			-								
								1	2 e		
	Professional Elective V							U	iDa y	2	
								- BUNL			

Professional Elective VI												
PRACTICALS												
Project Work	~	~	~	~	~	~	~	~	~	~	~	1
-												

#### . PROFESSIONAL ELECTIVE

SL.NO.	NAME OF THE SUBJECT	PROGRAM OUTCOMES											
		а	b	с	d	е	f	g	h	i	j	k	1
	THEORY												
	Advanced Control System		~	~					~	~			
	Visual Languages and Applications	~	~		~	~							
ELECTIVE – I	Design of Electrical Apparatus	$\checkmark$		~	~	~		~					
	Power Systems Stability				~	~							
	Modern Power Converters	$\checkmark$		~	~	~		~					
	Intellectual Property Rights								~		~		~
*	Principles of Robotics	$\checkmark$		~		~							
ELECTIVE – II	Special Electrical Machines	$\checkmark$		~	~	~			~				
	Power Quality	$\checkmark$		~	~	~	×		~				~
	EHVAC Transmission	~		~	~	~			~				~
	Communication Engineering												
									-				
	Disaster Management	$\checkmark$		~		~	~					~	~
	Human Rights			~	~	~	~						
	Operations Research	~	~	~					~	~			~
ELECTIVE – III	Probability and Statistics												
	Fibre Optics and Laser	~	1			~						$\checkmark$	-
	Instrumentation												
	Foundation Skills in Integrated Product Development									5	IPAL		

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	System Identification and Adaptive	~	$\checkmark$	~		~							
	Control												
	Computer Architecture	$\checkmark$		~		~							
ELECTIVE – IV	Control of Electrical Drives	~		~		~			1				1
	VLSI Design	~	$\checkmark$	~			~	~					
	Power Systems Transients		~		~	~							
	Total Quality Management		~			~	~	~	~	~	1		
	Flexible AC Transmission Systems	~	~	~		~					~		~
	Soft Computing Techniques	~		~		~							
	Power Systems Dynamics	$\checkmark$		1		~							
	SMPS and UPS	~		1		~							
ELECTIVE - V	Electric Energy Generation,	~	~	~	~	~		1			1		~
	Utilization and Conservation												
	Professional Ethics in Engineering	~	~		~			~				~	~
	Principals of Management					~	~			~			
	Energy Management and Auditing		~			~	~	~	~	~	~		
	Data Structures					~	~			~			
	High Voltage Direct Current	~	~	~					~	~			~
	Transmission												
ELECTIVE – VI	Microcontroller Based System	~	~	~					~	~			~
	Design												
	Smart Grid	~	~	~					1	~			~
	Biomedical Instrumentation	~		~	~	~	~						
	Fundamentals of Nano Science			-									

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# ANNA UNIVERSITY, CHENNAI AFFILIATED INSTITUTIONS B.E. ELECTRICAL AND ELECTRONICS ENGINEERING REGULATIONS – 2017 CHOICE BASED CREDIT SYSTEM I TO VIII SEMESTERS CURRICULA & SYLLABI

	1							
S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Ρ	С
THEO	RY							
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
PRAC	TICALS							
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 I

#### SEMESTER II

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Ρ	С
THEO	RY							
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
PRAC	TICALS							
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	Т	Р	с
THEC	DRY							
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
PRAC	TICALS							
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	т	Ρ	с
THEO	RY							
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
PRACT	ICALS							
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
	1		TOTAL	32	18	4	10	25

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### SEMESTER V

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Р	с
THEO	RY							
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
PRAC	TICALS							
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	Т	Р	С
THEOR	ŔΥ							
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
PRACT	ICALS							
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
	1		TOTAL	27	15	0	12	21
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PRINCIPAL MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGE 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-600 024

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# SEMESTER VII

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Р	с
THEO	RY							
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
PRACT	ICALS		II					
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	CATEG ORY	CONTACT PERIODS	L	т	Ρ	С
THEO	RY	a construction of the second second						
1.		Professional Elective V	PE	3	3	0	0	3
2.		Professional Elective VI	PE	3	3	0	0	3
PRACT	ICALS							
3.	EE8811	Project Work	EEC	20	0	0	20	10
			TOTAL	26	6	0	20	16

TOTAL NO. OF CREDITS: 180

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\*Course from the curriculum of other UG Programmes.

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT	L	Т	Ρ	С
1.	IC8651	Advanced Control System	DE	LKIODS	-			
		Visual Languages and	F L	4	2	2	0	3
2.	EE8001	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 -I (VI SEMESTER)

# 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		System Identification and	PE	3	3	0	0	3
1.	EE0000	Adaptive Control						
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
					2			

PRINCIPAL MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGF 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-600 024

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	Elective 40 F										
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	DE	2	2	0		-			
	FFAAL	, jiidiilios	FL	3	3	0	0	3			
4.	EE8014	SMPS and UPS	PE	3	3	0	0	3			
5.	EE8015	Electric Energy Generation		-							
		Licethe Energy Generation,	PE	3	3	0	0	3			
		Utilization and Conservation									
6.	050070	Professional Ethics in	DE	2	0	•	-	-			
	GE8076		PE	3	3	0	0	3			
		Engineering									
7.	MG8591	Principles of Management	PE	3	3	0	0	3			

# PROFESSIONAL ELECTIVE - V ( VIII SEMESTER)

# PROFESSIONAL ELECTIVE - VI ( VIII SEMESTER)

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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	<b>Biomedical Instrumentation</b>	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.

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# HUMANITIES AND SOCIALSCIENCES (HS)

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	Т	Ρ	С
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	Т	Ρ	С
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	Т	Р	С
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
			13			00	2	

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

# PROFESSIONAL CORE (PC)

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	Т	Р	С
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	PC	4	0	o Jr	4	2

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

# EMPLOYABILITY ENHANCEMENT COURSES (EEC)

S.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	Т	Ρ	С
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	7.01	~20	10

PRINCIPAL MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGE 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-600 024

### SUMMARY

S.NO.	SUBJECT AREA	CREDITS AS PER SEMESTER								CREDITS TOTAL
		I	11	III	IV	۷	VI	VII	VIII	
1.	HS	4	7	-	-	-	-	-		11
2.	BS	12	7	4	4	-	-	-		27
3.	ES	9	6	8	-	5	3	-		31
4.	PC	-	5	11	20	14	10	13	-	73
5.	PE						6	6	6	18
6.	OE					3	-	3		6
7.	EEC				1	1	2		10	14
	Total	25	25	23	25	23	21	22	16	180
	Non Credit / Mandatory	-	-	-	-	-	-	-	-	0

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### 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.

Brogrammo									
Educational Objectives	P01	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9
I	~	$\checkmark$	$\checkmark$	~	~	~	~	~	$\checkmark$
II	~	✓	~		~			~	
III		~		~	~	~		~	
IV					~	~	~	2	~
V		~	~	~	~	Ja-	m		~

PEO / PO Mapping

		COURSE TITLE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
		Communicative English							1		
		Engineering Mathematics I	<ul> <li>✓</li> </ul>	1	1						
		Engineering Physics	1	1	1						
	-	Engineering Chemistry				1					
	N N N	Problem Solving and Python Programming					1				
	0)	Engineering Graphics		1	~				1		
		Problem Solving and Python Programming Laboratory			~		~				
		Physics and Chemistry Laboratory			~						
-		COURSE TITLE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
R		Technical English							~		
μ		Engineering Mathematics II	1	~	~				~		~
~		Materials Science				~				1	
	M 2	Basic Electrical, Electronics and Instrumentation Engineering				~				1	
	E E	Environmental Science and Engineering				~					
		Engineering Mechanics	~	~					~	1	~
		Engineering Practices Laboratory			~						
		Basic Electrical, Electronics and Instrumentation Engineering			~						
		COURSE TITLE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
		Transforms and Partial Differential Equations	~	~	~					~	~
		Engineering Thermodynamics	1	~	~				~	~	
		Fluid Mechanics and Machinery	~	~	~						
	3	Manufacturing Technology - I			~	~	~	~		~	~
	E N N	Electrical Drives and Controls									
	S	Computer Aided Machine Drawing			V	V	V	V		~	~
2		Electrical Engineering Laboratory			×	•	v	•		•	
AR		Interpersonal Skills / Listening & Speaking			~						
H ۲		COURSE TITLE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
	4	Statistics and Numerical Methods	1	~							
	Σ	Kinematics of Machinery	~	~	~		~				
	SE	Manufacturing Technology– II	~		~	$\checkmark$	21	h		~	~
		Engineering Metallurgy					Ony	-	~		

		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						~			~
		Thermal Engineering- II	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
		Design of Machine Elements		~			~			~	
	2	Metrology and Measurements		~		~			~	~	~
	Σ	Dynamics of Machines	V		~	~			~	~	
	SI	Kinematics and Dynamics Laboratory	· ·	-	V		~		~		~
		Thermal Engineering Laboratory	v	· ·	V (	~					
e		Metrology and Measurements Laboratory		V	· ·						
R		COURSE TITLE	POI	POT		PO4	DOF	DOG		DOG	-
ЦР		Design of Transmission Systems	101	FO2	FU3	F04	PU5	P06	P07	P08	P09
~		Computer Aided Design and Manufacturing						-	~		
	6	Heat and Mass Transfer					-	-			
	Σ	Finite Element Analysis		/	/		-			•	
	SE	Hydraulics and Pneumatics		1	~	-	1				
		C.A.D. / C.A.M. Laboratory			v .	/		1.	1		-
		Design and Fabrication Project							/ .	/	1
		Professional Communication					~	~		/	1
		COURSE TITLE	PC	01 PC	02 PO	3 PO	4 PC	5 PC	6 PO	7 PO	8 PO9
		Power Plant Engineering		~	~	~	1				✓ · · · · ·
		Mechatronics		~	~	1		~			/ /
	2 2	Process Planning and Cost Estimation			~		~				
4	Ē	Simulation and Analysis Laboratory		~				~		~	
AF		Mechatronics Laboratory		~	~	~		~			× ,
l L		Technical Seminar							~		
	œ	Project Work		~	~	~			~	~	
	SEM	Principles of Management						b	~		

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

### SEMESTER I

01		JEIVIES	IERI					
SL. NO	COURSE	COURSE TITLE	CATEGORY		L	Т	Ρ	С
THE	EORY			T EINODO				
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.		Engineering Mathematics - I	BS	4	4	0	0	4
<u>J</u> .	CV8151	Engineering Physics	BS	3	3	0	0	3
5	GE9151	Engineering Chemistry	BS	3	3	0	0	3
<u> </u>	050450	Problem Solving and Python Programming	ES	3	3	0	0	3
PRA	CTICALS	Engineering Graphics	ES	6	2	0	4	4
7	GE8161	Problem Och in the state	1					
		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	т	Ρ	С
THEC	DRY							
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
PRA	CTICALS							
7.	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
8.	BE8261	Basic Electrical, Electronics and Instrumentation Engineering Laboratory	ES	4	0	0	4	2
			TOTAL	30	20	2	8	25

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### SEMESTER III

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Ρ	С
THE	ORY							
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
PRA	CTICAL							
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.	COURSE		0.75005%	CONTACT		_	_	
NO.	CODE	COURSE IIILE	CATEGORY	PERIODS	L	T	P	С
THE	ORY		I					
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.	CE8305	Strength of Materials for	ES	3	-	-	-	
	020393	Mechanical Engineers			3	0	0	3
6.	ME8493	Thermal Engineering- I	PC	3	3	0	0	3
PRA	CTICAL							
7.	ME8462	Manufacturing Technology	PC	4				
		Laboratory – II			0	0	4	2
8.	CE8381	Strength of Materials and Fluid	ES	4				
		Mechanics and Machinery			0	0	4	2
	2	Laboratory						-
9.	HS8461	Advanced Reading and Writing	EEC	2	0	0	2	1
		· · · · ·	TOTAL	29	19	0	10	24

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PRINCIPAL MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGE 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-600 024

# SEMESTER V

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT	L	Т	Р	С
THE	ORY			PERIODS				
1.	ME8595	Thermal Engineering- II	PC	2	0	•	•	•
2.	ME8593	Design of Machine Elements	PC	3	3	0	0	3
3.	ME8501	Metrology and Measurements		3	3	0	0	3
4.	ME8594	Dynamics of Machines	PC DO	3	3	0	0	3
5.		Open Elective I	PC	4	4	0	0	4
PRA	CTICAL	Open Elective I	ÛE	3	3	0	0	3
6		Kinemetice ID						
0.	ME8511	Laboratory	PC	4	0	0	4	2
7.	ME8512	Thermal Engineering Laboratory	PC.	Λ	0	0	1	2
8.	ME8513	Metrology and Measurements	PC	4		0	4	2
		Laboratory		4	0	0	4	2
			TOTAL	28	16	0	12	22

### SEMESTER VI

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT	L	т	Ρ	С
THE	ORY							
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
PRA	CTICAL			•	•	0	0	
7.	ME8681	CAD / CAM Laboratory	PC	4	0	0	Δ	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

July

PRINCIPAL MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGF 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-600 024

### SEMESTER VII

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	Т	Ρ	С
THE	ORY							
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
PRA	CTICAL							1999 - A.M. 1999
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

		SEN	AESTER VIII							
SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Р	С		
THE	THEORY									
1.	MG8591	Principles of Management	HS	3	3	0	0	3		
2.		Professional Elective- IV	PE	3	3	0	0	3		
PRAC	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

PIG CPAL MEENAKSHI SUNDANARAJAN ENGINEERING COLLEGI 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-600 024

# HUMANITIES AND SOCIAL SCIENCES (HS)

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY		L	т	Ρ	С
1.	HS8151	Communicative English	HS	4	1	0	0	1
2.	HS8251	Technical English	HS	4	4	0	0	4
3.	GE8291	Environmental Science and Engineering	HS	3	4	0	0	4
4.	MG8591	Principles of Management	HS	3	3	0	0	3

### **BASIC SCIENCE (BS)**

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

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SL. NO	COURSE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Ρ	с
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 CORE (PC)

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PRINCIPAL MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGI 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-600 024
# PROFESSIONAL ELECTIVES FOR B.E. MECHANICAL ENGINEERING

### SEMESTER VI, ELECTIVE I

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY		L	Т	Ρ	С
1.	ME8091	Automobile Engineering	PE	PERIODS	-	-		-
2.	PR8592	Welding Technology		3	3	0	0	3
2	THOUGE	weiding rechnology	PE	3	3	0	0	3
3.	ME8096	Gas Dynamics and Jet Propulsion	PE	3	3	0	0	3
4.	GE8075	Intellectual Property Rights	DE		_		_	
5	GE8072	Eurodementals (N)	FE	3	3	0	0	3
J.	GL00/3	Fundamentals of Nanoscience	PE	3	3	0	0	3

### SEMESTER VII, ELECTIVE II

	SL. NO.	COURSE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Ρ	С
	1.	ME8071	Refrigeration and Air conditioning	PF	3	3	0	0	3
L	2.	ME8072	Renewable Sources of Energy	PF	3	3	0	0	3
	3.	ME8098	Quality Control and Reliability	PE	3	3	0	0	3
	4.	ME8073	Unconventional Machining Processes	PE	3	3	0	0	3
	5.	MG8491	Operations Research	PE	2	2	0	0	2
	6.	MF8071	Additive Manufacturing			0	0	0	2
	7.	GE8077	Total Quality Management		3	3	0	0	3
-			. etal adamy management	PE	3	3	0	0	3

### SEMESTER VII, ELECTIVE III

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	Т	Ρ	С
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	B	0	0	3
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# SEMESTER VIII, ELECTIVE IV

SL		COURSE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Ρ	С
N	J.		Draduction Planning and Control	PE	3	3	0	0	3
	1.	1E8693	Floudction Flatining and Control	PE	3	3	0	0	3
	2.	MG8091	Entrepreneurship Development		3				
	3.	ME8094	Computer Integrated	PE	5	3	0	0	3
			Manufacturing Systems		0	2	0	0	3
F	٨	ME8074	Vibration and Noise Control	PE	3	3	0	0	2
F	<u>ч</u> . г	TE0001	Micro Electro Mechanical	PE	3	3	0	0	3
	Э.	EE0091	Queterre						
			Systems	DE	3	3	0	0	3
Γ	6.	GE8076	Professional Ethics in Engineering		<b></b>				

# EMPLOYABILITY ENHANCEMENT COURSES (EEC)

SL.	COURSE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Ρ	С
1	HS8381		EEC	4	0	0	4	2
		Skills/Listening &	FEC	2	0	0	2	1
2.	ME8712	Technical Seminar	EEC	20	0	0	20	12
3.	ME8811	Project Work	EEC	20	-	-	0	1
4.	HS8461	Advanced Reading and	EEC	2	0	0	2	
5	ME8682	Design and Fabrication	EEC	4	0	0	4	2
5.		Project			-	0	2	1
6.	HS8581	Professional Communication	EEC	. 2	0	0	2	

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SL.	SUBJECT		CF	REDITS	PER S	EME	STER			CREDITS TOTAL	Percentage %
NO.	AREA	I			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			4							

### SUMMARY

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MEENAKSHI SUNDARAGU GERGINATING COLLEGE 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-600 024

### ANNA UNIVERSITY, CHENNAI AFFILIATED INSTITUTIONS **B.TECH INFORMATION TECHNOLOGY REGULATIONS – 2017** CHOICE BASED CREDIT SYSTEM

## PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

- 1. To ensure graduates will be proficient in utilizing the fundamental knowledge of basic sciences, mathematics and Information Technology for the applications relevant to various streams of Engineering and Technology.
- 2. To enrich graduates with the core competencies necessary for applying knowledge of computers and telecommunications equipment to store, retrieve, transmit, manipulate and analyze data in the context of business enterprise.
- 3. To enable graduates to think logically, pursue lifelong learning and will have the capacity to understand technical issues related to computing systems and to design optimal solutions.
- 4. To enable graduates to develop hardware and software systems by understanding the importance of social, business and environmental needs in the human context.
- 5. To enable graduates to gain employment in organizations and establish themselves as professionals by applying their technical skills to solve real world problems and meet the diversified needs of industry, academia and research.

### 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.

PRINCIPAL MEENAKSHI SUNDARARAJAN ENGINEERING COLLEC 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-500 024

- 7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and nood solutions in societal and environmental contexts, and demonstrate the knowledge of, and need
- 8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and
- 9. Individual and team work: Function effectively as an individual, and as a member or leader in norms of the engineering practice.
- 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)

- To create, select, and apply appropriate techniques, resources, modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding 1. of the limitations.
- To manage complex IT projects with consideration of the human, financial, ethical and 2. environmental factors and an understanding of risk management processes, and operational and policy implications.

MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGE PRINCIPAL 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-600 024

# 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			Р	ROC	GRA	MMI	E OL	JTC	OME	ES		_
	Α	В	С	D	E	F	G	Н		J	K	L
1	3	2										
2	3	3	1	1								2
3			3			1						3
4			3		1	2	3	1				
5				3				1	1	2	2	1

### 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				F	ROGRA	AMME C	UTCON	IES				
SPECIFIC OBJECTIVES	A	В	С	D	E	F	G	н	1	J	К	L
1	3	2			3				2	2		
2				3			3	3	2	2	2	
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Contribution

1: Reasonable

2:Significant

3:Strong

PRINCIPAL MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGE 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-500 024

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					SEMES	TER VII							
SI.	COURSE TITLE	P01	P02	P03	P04	P.05	PO6	P07	PO8	P09	P010	P011	P012
	Principles of Management								2	2	ю	3	2
2	Cryptography and Network	ю	e	m	2		2						
(C)	Security Cloud Computing	7	e	e	2		2						
4	Open Elective II												
5.	Professional Elective II												
9	Professional												
5	Elective III												
2	FOSS and Cloud Computing	2	ო	ო	2	ო	7						
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MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGE 363, ARCOT ROAD, KODAMBAKKAM, CHENNAL 600 024

ROFESSIONAL ELECTIVES (P SEMESTER VI
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		P012													
		P011								3		3			
		P010								3		3			
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		COURSE TITLE	Software Testing	Granh Theony and	Applications	Digital Signal	Processing	Information Storage	and Management	Agile Methodologies	Embedded Systems	Intellectual Property	Rights		
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ELECTIVE - II

SI.	COURSE TITLE	P01	P02	P03	P04	P05	P06	P07	PO8	P09	P010	P011	P012
- - -	Web Development	2		e		m						~~~~	
5.	Machine Learning	с	ю	e	2		2						
	Techniques	c	c	c	c		~						
ю.	Formal Languages	Υ.	n	°,	5		I						
	and Automata Theory			c		c	3	ę					
4	Internet of Things	2		V		>	,			e	е	ო	
5.	Software Project	2	2	2									
i	Management						2	2					
Ö	Service Oriented	с	ო	ო									
	Architecture								ю	2	ო	ო	m
7	Total Quality							-(	~	1			
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	Humor O	Interaction	C# and .Net	Programming	Wireless Ad hoc and Sensor	Networks Foundation of	in Integrated	Product Development	Advanced Topics	Disaster	Management			TITLE	Social Network Analvsis	Soft Computing	Cyber	Forensics	Information Security	Digital Image Processing	Network Management	Professional	Ethics in Engineering	0	
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COURSE	TITLE	Information	Retrieval	Techniques	Green	Computing	Natural	Language	Processing	Speech	Processing	Web Design and	Management	Electronic	Commerce	Fundamentals of	Nanoscience
SI.	No		<del>.</del> -'		c	i.		ю.		~	ť	Ч	'n	G	o'	7	:

PRINCIPAL MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGE 363, ARCOT ROAD, KODAMIBAKKAM, CHENNAI-500 024 Sp

### ANNA UNIVERSITY, CHENNAI AFFILIATED INSTITUTIONS **B.TECH INFORMATION TECHNOLOGY** REGULATIONS – 2017 CHOICE BASED CREDIT SYSTEM I - VIII SEMESTERS CURRICULA AND SYLLABI

SI	COUDEE	SEM	ESTER I					
No	CODE	COURSE TITLE	CATEGORY	CONTACT	L	т	Р	С
IH	IEORY							
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	2	0	0	2
4.	CY8151	Engineering Chemistry	BS		2	0	0	
5.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
6.	GE8152	Engineering Graphics	EC	0				
PRA	CTICALS		E3	6	2	0	4	4
7.	GE8161	Problem Solving and Dather	50					
-	Doorer	Programming Laboratory	ES	4	0	0	4	2
δ.	858161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
			TOTAL	31	19	0	12	25

#### SEMESTER II

	COUDOF							
No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Р	С
TH	EORY							
1.	HS8251	Technical English	HS	4	Δ	0	0	1
2.	MA8251	Engineering Mathematics - II	BS	4	4	0	0	4
3.	PH8252	Physics for Information Science	BS	3	3	0	0	4
4.	BE8255	Basic Electrical, Electronics	ES	3	5	U	0	3
		and Measurement Engineering		Ũ	3	0	0	3
5.	IT8201	Information Technology	PC	3				
		Essentials		Ũ	3	0	0	3
6.	CS8251	Programming in C	PC	3	3	0	0	2
PR/	ACTICALS			U	5	0	0	3
7.	GE8261	Engineering Practices	ES	Δ				
		Laboratory	20	-4	0	0	4	2
8.	CS8261	C Programming Laboratory	PC	1	0	0		
9.	IT8211	Information Technology	PC		0	0	4	2
		Essentials Laboratory	10	2	0	0	2	1
			TOTAL	30	20	0	10	25

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PRINCIPAL MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGF 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-600 024

		SEM	ESTER III					
SI	COURSE	COURSE TITLE	CATEGORY	CONTACT	L	т	Р	с
TH	IEORY				1 month	and and a second		
1	MA8351	Discrete Mathematics	BS	4	4	0	0	4
	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
DD	EC8394	Analog and Digital Communication	PC	3	3	0	0	3
PR	ACTICALS							
<u> </u>	CS8381 CS8383	Data Structures Laboratory	PC	4	0	0	4	2
8	CS8383	Laboratory	PC	4	0	0	4	2
9	HS8381	Digital Systems Laboratory	ES	4	0	0	4	2
		& Speaking	EEC	2	0	0	2	1
			TOTAL	31	17	0	14	24

SI	SEMESTER IV										
No	CODE	COURSE TITLE	CATEGORY		L	т	P	с			
TH	EORY			FERIODS							
1.	MA8391	Probability and Statistics	BS	4		0					
2.	CS8491	Computer Architecture		4	4	0	0	4			
3.	CS8492	Database Management	PC	3	3	0	0	3			
		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	2							
6.	GE8291	Environmental Science and	10	3	3	0	0	3			
_		Engineering	HS	3	3	0	0	3			
PRA	CTICALS						Ŭ				
7.	CS8481	Database Management			T						
		Systems Laboratory	PC	4	0	0	4	2			
8.	CS8461	Operating Systems Laboratory	DC					2			
9.	HS8461	Advanced Reading and Writing	PC	4	0	0	4	2			
		reading and whiling	EEC	2	0	0	2	1			
			TOTAL	29	19	0	10	24			

PRINCIPAL MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGE 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-600 024

SI.	COURSE	SEME	STER V					
No The	CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Р	с
1.	MA8551	Algebra and Number Th						
2.	CS8591	Computer Networks	BS	4	4	0	0	4
J.	EC8691	Microprocessors and	PC	3	3	0	0	3
4.	IT8501	Microcontrollers Web Technology	PC	3	3	0	0	3
<u>5.</u> 6	CS8494	Software Engineering	PC	3	3	0	0	3
PRA	CTIONIS	Open Elective I	PC	3	3	0	0	3
7	FORME		OE	3	3	0	0	3
	EC8681	Microprocessors and						
8.	CS8581	Microcontrollers Laboratory	PC	4	0	0	4	2
9.	118511	Web Technology Laboratory	PC	4	0	0	4	2
		Laboratory	PC	4	0	0	4	2
			TOTAL	31	19	0	12	25

SI.	COURSE	SEME	ESTER VI					
No	CODE	COURSE TITLE	CATEGORY	CONTACT		-		
THE	ORY		200101	PERIODS			P	C
1.	IT8601	Computational late lit	-					
2.	CS8592	Object Oriented Area	PC	3	3	0	0	3
		Design	PC	2		_		-
3.	IT8602	Mobile Communication	10	3	3	0	0	3
4.	CS8091	Big Data Analytica	PC	3	3	0	0	3
5.	CS8092	Computer Graphics and	PC	3	3	0	0	3
		Multimedia	PC	3	2	0		
6.		Professional Electivo I	D5	0	5	0	0	3
PRA	CTICALS		PE	3	3	0	0	3
7.	CS8662	Mobile Application						
		Development Laboraton	PC	4	0	0	Δ	2
8.	CS8582	Object Oriented Analysis and			<u> </u>	Ŭ	-	2
		Design Laboratory	PC	4	0	0	4	2
9.	IT8611	Mini Project	FEC	2	-			
10.	HS8581	Professional Communication	FEC	2			2	1
				2	0		2	1
			IUTAL	30	18	0	12	1 24

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PRINCIPAL MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGE 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-600 024

		SEM	ESTER VII	and some of the second s	and a supervised state	1		
SI.No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	Т	Ρ	С
THEO	RY				and the second second second second			
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
PRAC	TICALS							
7.	IT8711	FOSS and Cloud	PC	4	0	0	4	2
8.	IT8761	Security Laboratory	PC	4	0	0	4	2
			TOTAL	26	18	0	8	22

### SEMESTER VIII

SI. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Ρ	С
THE	ORY					r		
1.		Professional Elective IV	PE	3	3	0	0	3
2.		Professional Elective V	PE	3	3	0	0	3
PRA	CTICALS	1					00	10
3.	IT8811	Project Work	EEC	20	0	0	20	10
			TOTAL	26	6	0	20	16

## TOTAL NO. OF CREDITS: 185

PRINCIPAL MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGE 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-600 024

			D COCIAL SC	IENCES (HS)				-
		HUMANITIES AN	DSUCIAL	CONTACT	L	Т	Ρ	C
SI	COURSE	COURSE TITLE	CATEGORY	PERIODS	1	0	0	4
NO	CODE		HS	4	4	0	0	4
1.	HS8151	Communicative English	HS	4		-	0	2
2.	HS8251	Technical English	US	3	3	0	0	5
3.	GE8291	Environmental Science and	H5		3	0	0	3
		Engineering	HS	3				
4.	MG8591	Principles of Management						

		BAS	IC SCIENCES	(BS)		T	P	С
	COURSE		CATEGORY	CONTACT			·	
SI.	COURSE	COOKSE IIIEE		PERIODS				
NO	CODE			1	4	0	0	4
1.	MA8251	Engineering	BS	4				2
		Mathematics I	<b>D</b> C	3	3	0	0	3
2	PH8151	Engineering Physics	BS	3	3	0	0	3
3	CV8151	Engineering Chemistry	BS	5				2
J.	DC9161	Physics and Chemistry	BS	4	0	0	4	2
4.	830101	Laboratory	55					
		Laboratory		1	4	0	0	4
5.	MA8251	Engineering Mathematics	BS	4				
					2	0	0	3
6.	PH8252	Physics for Information	BS	3	5		Ŭ	Ū
		Science		1	4	0	0	4
7	MA8351	Discrete Mathematics	BS	4	1	0	0	4
1.	MA0301	Brobability and Statistics	BS	4	4			
8.	MA8391	Flobability and Otatistice		4	4	0	0	4
9.	MA8551	Algebra and Number	BS	4	-			
		Theory						

FNGINEERING SCIENCES (ES)								
SI.	COURSE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	Т	Р	C
NO	CODE	Droblem Solving and		2	3	0	0	3
1.	GE8151	Problem Solving and	ES	3	0	-		
2.	GE8152	Engineering Graphics	ES	6	2	0	4	4
		Engineering Oraphice						
3.	GE8161	Problem Solving and Python Programming	ES	4	0	0	4	2
		Laboratory						
4.	BE8255	Basic Electrical, Electronics and Measurement	ES	3	3	0	0	3
5.	GE8261	Engineering Practices	ES	4	0	0	4	2
6.	CS8351	Digital Principles and	ES	4	4	0	0	4
7	CS8382	Digital Systems Laboratory	ES	4	0	0	4	2

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PRINCIPAL MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGE 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-600 024

<u>CI</u>	PROFESSIONAL CORE (PC)										
SI. NO	COURSE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	Р	C			
1.	IT8201	Information Technology Essentials	PC	3	3	0	0	3			
2.	IT8211	Information Technology Essentials Laboratory	PC	2	0	0	2	1			
3.	CS8251	Programming in C	PC	3	3	0	0	3			
4.	CS8261	C Programming Laboratory	PC	4	0	0	4	2			
5.	CS8391	Data Structures	PC	3	3	0	0	3			
6.	CS8392	Object Oriented Programming	PC	3	3	0	0	3			
7.	EC8394	Analog and Digital Communication	PC	3	3	0	0	3			
8.	CS8381	Data Structures Laboratory	PC	4	0	0	4	2			
9.	CS8383	Object Oriented Programming Laboratory	PC	4	0	0	4	2			
10.	CS8491	Computer Architecture	PC	3	3	0	0	3			
11.	CS8492	Database Management Systems	PC	3	3	0	0	3			
12.	CS8451	Design and Analysis of Algorithms	PC	3	3	0	0	3			
13.	CS8493	Operating Systems	PC	3	3	0	0	3			
14.	CS8481	Database Management Systems Laboratory	PC	4	0	0	4	2			
15.	CS8461	Operating Systems Laboratory	PC	4	0	0	4	2			
16	. CS8591	Computer Networks	PC	3	3	0	0	3			
17	. EC8691	Microprocessors and Microcontrollers	PC	3	3	0	0	3			
18	. IT8501	Web Technology	PC	3	3	0	0	3			
19	. CS8494	Software Engineering	PC	3	3	0	0	3			
20	EC8681	Microprocessors and Microcontrollers Laboratory	PC	4	0	0	4	2			
21	. CS8581	Networks Laboratory	PC	4	0	0	4	2			
22	. IT8511	Web Technology Laboratory	PC	4	0	0	4	2			
23	3. IT8601	Computational Intelligence	PC	3	3	0	0	3			
24	. CS8592	Object Oriented Analysis and Design	PC	3	3	0	0	3			
25	5. IT8602	Mobile Communication	PC	3	3	0	0	3			
26	6. CS8091	Big Data Analytics	PC	3	3	0	0	3			
27	7. CS8092	Computer Graphics and Multimedia	PC	3	3	0	0	3			
28	3. CS8662	Mobile Application Development Laboratory	PC	4	0	0	4	2			

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PRINCIPAL MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGE 363, ARCOT ROAD, KODAMBAKKAM, CHEMINI COD 024

29.	CS8582	Object Oriented Analysis and Design Laboratory	PC	4	0	0	4	2
30,	CS8792	Cryptography and Network Security	PC	3	3	0	0	3
31.	CS8791	Cloud Computing	PC	3	3	0	0	3
32.	IT8711	FOSS and Cloud Computing Laboratory	PC	4	0	0	4	2
33.	118761	Security Laboratory	PC	4	0	0	4	2

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PRINCIPAL MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGF 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-600 024

### PROFESSIONAL ELECTIVES (PE) SEMESTER VI FLECTIVE - I

		C		Condeside and the second s	1		1	
SI. No	COURSE	COURSE TITLE	CATEGORY	CONTACT	L	Т	Р	C
			DE	3	3	0	0	3
1.	118076	Software Testing				-	-	~
2.	CS8077	Graph Theory and	PE	3	3	0	0	3
		Applications		2	3	0	0	3
3.	IT8071	Digital Signal Processing	PE	0				
4	IT8001	Information Storage and	PE	3	3	0	0	3
		Management		3	3	0	0	3
5.	CS8072	Agile Methodologies	PE	3		10	0	2
6	IT8072	Emboddod Systems	PE	3	3	0	U	1 2
	OFOOTE	L'invenueu Systems		3	3	0	0	3
1.	GE8075	Intellectual Property Rights	PE	3		1	Accession	-

#### SEMESTER VII ELECTIVE - II

SI. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	Ρ	С
1.	IT8002	Web Development Frameworks	PE	3	3	0	0	3
2.	CS8082	Machine Learning Techniques	PE	3	3	0	0	3
З.	IT8003	Formal Languages and Automata Theory	PE	3	3	0	0	3
4.	CS8081	Internet of Things	PE	3	3	0	0	3
5.	IT8075	Software Project Management	PE	3	3	0	0	3
6.	IT8074	Service Oriented Architecture	PE	3	3	0	0	3
7.	GE8077	Total Quality Management	PE	3	3	0	0	3

### SEMESTER VII ELECTIVE - III

SI. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	Т	Ρ	С	
1	CS8079	Human Computer Interaction	PE	3	3	0	0	3	
2.	CS8073	C# and .Net Programming	PE	3	3	0	0	3	
3.	CS8088	Wireless Adhoc and Sensor Networks	PE	3	3	0	0	3	
4.	GE8072	Foundation Skills in Integrated Product Development	PE	3	3	0	0	3	
5.	CS8071	Advanced Topics on Databases	PE	3	3	0	0	3	
6.	GE8074	Human Rights	PE	3	3	0	0	3	
7.	GE8071	Disaster Management	PE	3	3	0	0	3	

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PRINCIPAL MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGF 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-600 024

### SEMESTER VIII ELECTIVE - IV

SI. No		COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Ρ	С
2	CS8085	Social Network Analysis	PE	3	3	0	0	3
3.	CS8074	Soft Computing	PE	3	3	0	0	3
4.	IT8073	Cyber Forensics	PE	3	3	0	0	3
5.	EC8093	Digital L	PE	3	3	0	0	3
6.	IT8004	Network M	PE	3	3	0	0	3
7.	GE8076	Professional Fill	PE	3	3	0	0	3
		Engineering	PE	3	3	0	0	3

### SEMESTER VIII ELECTIVE - V

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SI.No	COURSE	COURSE TITLE	CATEGORY	CONTACT	L	т	Р	С
1.	CS8080	Information Dati		PERIODS	_			
		Techniques	PE	3	3	0	0	3
2.	CS8078	Green Computing	05			-		
3.	CS8084	Natural Lan	PE	3	3	0	0	3
	000004	Processing	PE	3	3	0	0	3
4.	IT8077	Speech Processing	DE	2	-	0	-	
5.	IT8078	Web Design and	PE	3	3	0	0	3
	110070	Management	PE	3	3	0	0	3
6.	IT8005	Electronic Commerce	PF	3	3	0	0	2
7.	GE8073	Fundamentals of	1	5	3	U	U	3
		Nanoscience	PE	3	3	0	0	3

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

SI.NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	Ĺ	Т	P	С
1.	HS8381	Interpersonal Skills/ Listening & Speaking	EEC	2	0	0	2	1
2.	HS8461	Advanced Reading and Writing	EEC	2	0	0	2	1
3.	IT8611	Mini Project	EEC	2	0	0	2	1
4.	HS8581	Professional Communication	EEC	2	0	0	2	1
5.	IT8811	Project Work	EEC	20	0	0	20	10

### EMPLOYABILITY ENHANCEMENT COURSES (EEC)

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22 PRINGIPAL MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGF 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-600 024

### SUMMARY

S.NO.	SUBJECT AREA		CF	REDITS	SAS P	ER SE	MEST	TER		CREDITS TOTAL	Percentage
		1	u	111	١v	v	VI	VII	VIII		
1.	HS	4	4			the second second second					
2.	BS	10	4		3			3		14	8.6%
3.	FS	12	7	4	4	4				31	16.84%
4.	PC PC	9	5	6						20	11.41%
5.			9	13	16	18	19	10		85	45.56%
6						3	3	6	6	18	8.15%
7	UE							2		2	3 26%
1.	EEC			1	1			5		5	5.2076
	Total	25	25				2		10	14	7.0%
	Non Credit	25	25	24	24	25	24	22	16	185	
8.	/										
	Mandatory										

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PRINCIPAL MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGE 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-600 024

### ANNA UNIVERSITY, CHENNAI AFFILIATED INSTITUTIONS REGULATIONS – 2017 CHOICE BASED CREDIT SYSTEM M.E. CONSTRUCTION ENGINEERING AND MANAGEMENT

### PROGRAMME EDUCATIONAL OBJECTIVES (PEOs) :

- I. To prepare students to excel in research or to succeed in Construction Engineering and Management profession through global, rigorous post graduate education.
- II. To provide students with a solid foundation in mathematical, scientific and construction engineering fundamentals required to solve Construction Engineering and Management problems
- III. To train students with efficient and effective construction knowledge in project formulation, planning, scheduling techniques, quantitative methods, costing, quality control and assurance techniques for the existing and new construction projects.
- IV. To inculcate students in professional and ethical attitude, effective communication skills, teamwork skills, leadership quality, safety management, energy management in construction, multidisciplinary approach, and an ability to relate Construction Engineering and Management issues in broader social context.
- V. To provide student with an academic environment aware of excellence, leadership, written ethical codes and guidelines, and the lifelong learning needed for a successful professional career

#### PROGRAMME OUTCOMES (POs):

On successful completion of the programme,

- 1. Graduates will demonstrate knowledge of statistical methods and queuing theory and its applications science and construction engineering.
- 2. Graduates will demonstrate an ability to identify, formulate, plan and schedule construction engineering projects.
- 3. Graduate will demonstrate an ability to understand and structure the construction engineering activities and its management.
- 4. Graduates will demonstrate an ability to design required man, material, equipment, cost and time as per needs and specifications.
- 5. Graduates will demonstrate an ability to visualize and work on laboratory in advanced concrete technology.
- 6. Graduate will demonstrate skills to use modern construction engineering tools, software and equipment.
- 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 in self education and ability for lifelong learning.

PRINCIPAL MEENAKSHI SUNDARARAJAN ENGINEERING COLLÉGE 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-600 024

Programme				Prog	ramme	e Outco	omes			
Objectives	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10
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PRINCIPAL MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGE 363, ARCOT ROAD, KODAMBAKKAM, CHENNAI-600 024

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P01	>																															б
	Statistical Methods for Engineers	Modern Construction Materials	Construction Equipment	Construction Planning, Scheduling and Control	Professional Elective I	Professional Elective II	Advanced Construction Techniques	Contract Laws and Regulations	Computer Applications in Construction	Engineering and Planning	Economics and Finance Management in	Construction	Professional Elective III	Professional Elective IV	Advanced Construction Engineering and		Dractical Training 1 /0 wooks)	I TACICAL ITAITING I (2 WEEKS)	Quality Control and Assurance in Construction	Professional Elective V	Professional Elective VI	Practical Training II (2 weeks)	Project Work (Phase I)	Seminar	Project Work (Phase II)	Practical Training III (2 weeks)						
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Course Title	P01	P02	PO3	P04	PO5	PO6	P07	P08	P09	P010
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PRINCIPAL PRINCIPAL IMEENAKSHI SUNDARARAJAN ENGINEFRING COLLEGE 363, ARCOT ROAD

### ANNA UNIVERSITY, CHENNAI

### **AFFILIATED INSTITUTIONS**

### M.E. CONSTRUCTION ENGINEERING AND MANAGEMENT

### **REGULATIONS – 2017**

### CHOICE BASED CREDIT SYSTEM

### CURRICULA AND SYLLABI

### SEMESTER I

S.No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	Т	Ρ	С
THEO	RY							
1.	MA5165	Statistical Methods for Engineers	FC	4	4	0	0	4
2.	CN5101	Modern Construction Materials	PC	3	3	0	0	3
3.	CN5102	Construction Equipment	PC	3	3	0	0	3
4.	CN5103	Construction Planning, Scheduling and Control	PC	3	3	0	0	3
5.		Professional Elective I	PE	3	3	0	0	3
6.		Professional Elective II	PE	3	3	0	0	3
	1		TOTAL	19	19	0	0	19

### SEMESTER II

S.No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	Т	Ρ	С
THEO	RY	7.						
1.	CN5201	Advanced Construction Techniques	PC	3	3	0	0	3
2.	CN5202	Contract Laws and Regulations	PC	3	3	0	0	3
3.	CN5203	Computer Applications in Construction Engineering and Planning	PC	3	3	0	0	3
4.	CN5204	Economics and Finance Management in Construction	PC	3	3	0	0	3
5.		Professional Elective III	PE	3	3	0	0	3
6.		Professional Elective IV	PE	3	3	0	0	3
PRACI	TICAL							
7.	CN5211	Advanced Construction Engineering and Computing Techniques Laboratory	PC	4	0	0	4	2
8.	CN5212	Practical Training I (2 Weeks)	EEC	-	-	-	-	1
			TOTAL	22	18	0	4	21

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### SEMESTER III

S.No.	COURSE CODE	COURSE TITLE	CATEGORY		L	Т	Р	С
THEC	DRY							
1.	CN5301	Quality Control and Assurance in Construction	PC	3	3	0	0	3
2.		Professional Elective V	PE	3	3	0	0	3
3.		Professional Elective VI	PE	3	3	0	0	3
PRACI	FICAL							
4.	CN5311	Practical Training II (2 Weeks)	EEC	-	-	-	-	1
5.	CN5312	Seminar	EEC	2	0	0	2	1
6.	CN5313	Project Work (Phase I)	EEC	12	0	0	12	6
			TOTAL	23	9	0	14	17

### SEMESTER IV

S.No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Р	С
PRAC	TICAL		_					
1.	CN5411	Practical Training III (2 Weeks)	EEC	-	-	-	-	1
2.	CN5412	Project Work (Phase II)	EEC	24	0	0	24	12
			TOTAL	24	0	0	24	13

#### TOTAL NO. OF CREDITS: 70

### FOUNDATION COURSES (FC)

S.No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	Т	Р	С
1.	MA5165	Statistical Methods For Engineers	FC	4	4	0	0	4

### PROFESSIONAL CORE (PC)

S.No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Ρ	с
1.	CN5101	Modern Construction Materials	PC	3	3	0	0	3
2.	CN5102	Construction Equipment	PC	3	3	0	0	3
3.	CN5103	Construction Planning, Scheduling and Control	PC	3	3	0	0	3

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4.	CN5201	Advanced Construction Techniques	PC	3	3	0	0	3
5.	CN5202	Contract Laws and Regulations	PC	3	3	0	0	3
6.	CN5203	Computer Applications in Construction Engineering and Planning	PC	3	3	0	0	3
7.	CN5204	Economics and Finance Management in Construction	PC	3	3	0	0	3
8.	CN5301	Quality Control and Assurance in Construction	PC	3	3	0	0	3
9.	CN5211	Advanced Construction Engineering and Computing Techniques Laboratory	PC	4	0	0	4	2

### PROFESSIONAL ELECTIVES

### SEMESTER I ELECTIVE I & II

S.No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	P	С
1.	CN5001	Advanced Concrete	PE	3	3	0	0	3
		Technology						
2.	CN5002	Shoring, Scaffolding	PE	3	3	0	0	3
		and Formwork		-				
3.	CN5003	Quantitative	PE	3	3	0	0	3
		Techniques in						
		Management						
4.	CN5004	System Integration	PE	3	3	0	0	3
	national de la centre	in Construction						

### SEMESTER II

#### ELECTIVE III & IV

S.No.		COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Р	С
1.	CN5005	Design of Energy	PE	3	3	0	0	3
		Efficient Buildings						
2.	CN5006	Construction Project	PE	3	3	0	0	3
		Management						
3.	CN5007	Construction	PE	3	3	0	0	3
		Personnel						
		Management					~~	-
4.	CN5008	Stress Management	PE	3	3(	アワ	0	3

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#### SEMESTER III

### **ELECTIVE V & VI**

S.No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Р	С
1.	CN5009	Project Formulation and Appraisal	PE	3	3	0	0	3
2.	CN5010	Resource Management and Control in Construction	PE	3	3	0	0	3
3.	CN5011	Project Safety Management	PE	3	3	0	0	3
4.	CN5012	Management Information Systems	PE	3	3	0	0	3

### EMPLOYABILITY ENHANCEMENT COURSES (EEC)

S.No.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	т	Р	С
1.	CN5212	Practical Training I (2 Weeks)	EEC	-	-	-	-	1
2.	CN5311	Practical Training II (2 Weeks)	EEC	-	-	-	-	1
3.	CN5411	Practical Training III (2 Weeks)	EEC	-	-	-		1
4.	CN5312	Seminar	EEC	2	0	0	2	1
5.	CN5313	Project Work (Phase I)	EEC	12	0	0	12	6
6.	CN5412	Project Work (Phase II)	EEC	24	0	0	24	12

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