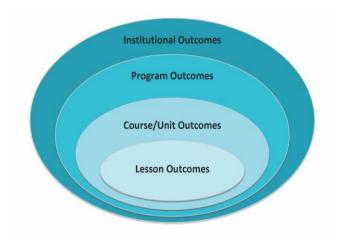






2.6.1. PROGRAMME AND COURSE OUTCOME FOR ALL PROGRAMMES

CONTENT	PAGE NUMBER
CIVIL ENGINEERING	1-19
COMPUTER SCIENCE AND ENGINEERING	20-42
ELECTRONICS AND COMMUNICATION ENGINEERING	43-62
ELECTRICAL AND ELECTRONICS ENGINEERING	63-100
MECHANICAL ENGINEERING	101-118







DEPARTMENT OF CIVIL ENGINEERING

2017 REGULATIONS

CO-PO-PSO MAPPING
PO-COMPETANCY PERFORMANCE INDICATORS
PROGRAMME ARTICULATION MATRIX (SEMESTERWISE)







DEPARTMENT OF CIVIL ENGINEERING ANNA UNIVERSITY – 2017 REGULATIONS 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.
- 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.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO1: Graduates will possess an ability to analyze, design, estimate, cost evaluation, management and execution of all kinds of Civil Engineering projects.

PSO2: Graduates will have an ability to create and rehabilitate a civil engineering works in multi disciplinary task.

PSO3: Graduates will have a technical solidarity, idea knowledge and wide spread exposure in Civil Engineering.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs) & PROGRAMME OUTCOMES (POs) MAPPING

PEO's					PO	's				
	P01	PO2	PO3	P04	PO5	P06	P07	PO 8	P09	PO 10
I	✓	✓		√	✓					
II		✓	✓							
Ш				✓			✓			
IV	√				√					
v						✓		√	✓	✓

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		PO1	P02	PO3	P04	PO5	P06	PO7	PO8	P09	
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1	Engineering Mathematics - II				V		ļ		/		
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	Basic Electrical and Electronics		-	V	- ·		V				
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SEM 2			 								-
	Engineering							/		1	
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	Engineering Practices Laboratory	1	V					+	+		-
	Computer Aided Building Drawing										+
	-	PO1	PO2	P03	P04	PO5	P06	P07	P08	P09	P01
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COURSE OUTCOMES (COs) & PROGRAMME OUTCOMES (POs) MAPPING

		Interpersonal Skills / Listening and Speaking										
		Numerical Methods										1
		Construction Techniques and Practices		1			1					
		Strength of Materials II	1	1	1	1	1					
		Applied Hydraulic Engineering	1	1		V			1	1	1	1
	SEM 4	Concrete Technology	1	/		1			1	_ /	~	
		Soil Mechanics	1	1					1	1	1	1
		Strength of Materials Laboratory	1	1	1	1	1					/
		Hydraulic Engineering Laboratory	1		1		1	/	1	1	/	
		Advanced Reading and Writing								- to the same of t		ļ
			P01	PO2	PO3	P04	P05	P06	P07	P08	P09	P010
		Design of Reinforced Cement Concrete Elements	/	/	/	1	1					·
		Foundation Engineering		1		1			1		1	/
		Structural Analysis I	1	1	1	1	1	1			1	1
		Water Supply Engineering			1	1	1	1			1	
	SEM 5	Open Elective- I*										
		Professional Elective I										
YEAR 3		Water and Waste Water Analysis Laboratory		~		✓			1			~
ΥE		Soil Mechanics Laboratory			✓		1	1				
*		Survey Camp (2 weeks-During V Semester)			✓	✓					1	
		Design of Steel Structural Elements	1	1	1	1	1					/
	CENT	Structural Analysis II	1	1	1	/	1	-			1	1
	SEM 6	Irrigation Engineering	1	1		1				-		
		Wastewater Engineering	1	1		1				-		

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		Highway Engineering		1	1	1	1			/		
		Professional Elective II				8				ļ		
		Highway Engineering Laboratory								/		
		Irrigation and Environmental Engineering Drawing										
	\	Professional Communication								200	DOG	DO16
			PO1	PO2	PO3	P04	P05	P06	P07	P08	P09	PO10
		Estimation, Costing and Valuation Engineering	✓	~				✓	· •			1
		Railways, Airports, Docks and Harbour Engineering		1		~			✓		✓	~
		Structural Design and Drawing	✓	✓	✓	✓		✓				✓
	SEM 7	Professional Elective III										
4		Open Elective II*										
YEAR		Creative and Innovative Project (Activity Based - Subject Related)		1		✓			✓	,		✓
		Industrial Training (4 weeks During VI semester-Summer)				1			✓	✓		✓
		Professional Elective IV										
	SEM 8	Professional Elective V										
		Project Work		/		✓			✓			√

COMPETENCY - PERFORMANCE INDICATOR TABLE

PO 1: Engineering knowledge: Apply	y the knowledge of mathematics, science, engineering
fundamentals, and an engineering specialisa	ation for the solution of complex engineering problems.
Competency	Indicators
1.1 Demonstrate competence in	1.1.1 Apply mathematical techniques such as calculus,
mathematical modelling	linear algebra, and statistics to solve problems
	1.1.2 Apply advanced mathematical techniques to model
	and solve mechanical engineering problems
1.2 Demonstrate competence in basic	1.2.1 Apply laws of natural science to an engineering
sciences	problem
1.3 Demonstrate competence in	1.3.1 Apply fundamental engineering concepts to solve
engineering fundamentals	engineering problems
1.4 Demonstrate competence in	1.4.1 Apply CIVIL engineering concepts to solve
specialized engineering knowledge to the	engineering problems.
program	
PO 2: Problem analysis: Identify, formula	late, research literature, and analyse complex engineering
problems reaching substantiated conclusion	is using first principles of mathematics, natural sciences, and
engineering sciences.	
Competency	Indicators
2.1 Demonstrate an ability to identify and	2.1.1 Articulate problem statements and identify
formulate complex engineering problem	objectives
,	2.1.2 Identify engineering systems, variables, and
	parameters to solve the problems
	2.1.3 Identify the mathematical, engineering and other
2.2Downstate 1.11	relevant knowledge that applies to a given problem
2.2Demonstrate an ability to formulate a	2.2.1 Reframe complex problems into interconnected sub-
solution plan and methodology for an	problems
engineering problem	2.2.2 Identify, assemble and evaluate information and
	resources.
	2.2.3 Identify existing processes/solution methods for
	solving the problem, including forming justified
	approximations and assumptions
	2.2.4 Compare and contrast alternative solution processes
2.2 Domonton	to select the best process.
2.3 Demonstrate an ability to formulate	2.3.1 Combine scientific principles and engineering
and interpret a model	concepts to formulate model/s (mathematical or
	otherwise) of a system or process that is appropriate in
	terms of applicability and required accuracy.
	2.3.2 Identify assumptions (mathematical and physical)
	necessary to allow modeling of a system at the level of
	accuracy required.
A STATE OF THE PROPERTY OF THE	decurred required.

2.4 Demonstrate an ability to execute a solution process and analyze results	2.4.1 Apply engineering mathematics and computations to solve mathematical models 2.4.2 Produce and validate results through skilful use of contemporary engineering tools and models 2.4.3 Identify sources of error in the solution process, and limitations of the solution. 2.4.4 Extract desired understanding and conclusions consistent with objectives and limitations of the analysis
PO 3: Conduct investigations of comple	x problems: Use research-based knowledge and research
methods including design of experiments, information to provide valid conclusions.	analysis and interpretation of data, and synthesis of the
Competency	Indicators
3.1 Demonstrate an ability to conduct investigations of technical issues consistent with their level of knowledge and understanding	3.1.1 Define a problem, its scope and importance for purposes of investigation 3.1.2 Examine the relevant methods, tools and techniques of experiment design, system calibration, data acquisition, analysis and presentation 3.1.3 Apply appropriate instrumentation and/or software tools to make measurements of physical quantities 3.1.4 Establish a relationship between measured data and underlying physical principles.
3.2Demonstrate an ability to design experiments to solve open-ended problems	3.2.1 Design and develop an experimental approach, specify appropriate equipment and procedures 3.2.2 Understand the importance of the statistical design of experiments and choose an appropriate experimental design plan based on the study objectives
3.3 Demonstrate an ability to analyze data and reach a valid conclusion	3.3.1 Use appropriate procedures, tools and techniques to conduct experiments and collect data 3.3.2 Analyze data for trends and correlations, stating possible errors and limitations 3.3.3 Represent data (in tabular and/or graphical forms) so as to facilitate analysis and explanation of the data, and drawing of conclusions 3.3.4 Synthesize information and knowledge about the problem from the raw data to reach appropriate conclusions
PO 4: Design/Development of Solutions: De	sign solutions for complex engineering problems and design
system components or processes that meet the health and safety, and cultural, societal, and en	ie specified needs with appropriate consideration for public
Competency	Indicators
4.1 Demonstrate an ability to define a complex/ open-ended problem in engineering terms	4.1.1 Recognize that need analysis is key to good problem definition4.1.2 Elicit and document, engineering requirements from stakeholders4.1.3 Synthesize engineering requirements from a review

of the state-of-the-art

4.1.4 Extract engineering requirements from relevant

engineering Codes and Standards such as ASME. A BIS, ISO and ASHRAE. 4.1.5 Explore and synthesize engineering requirer considering health, safety risks, environmental, cu and societal issues 4.1.6 Determine design objectives, funct requirements and arrive at specifications 4.2 Demonstrate an ability to generate a 4.2.1 Apply formal idea generation tools to de	nents
4.1.5 Explore and synthesize engineering requirer considering health, safety risks, environmental, cu and societal issues 4.1.6 Determine design objectives, functive at specifications	nents Itural
considering health, safety risks, environmental, cu and societal issues 4.1.6 Determine design objectives, func- requirements and arrive at specifications	nents. Itural
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4.2 Demonstrate an ability to generate a 4.2.1 Apply formal idea generation tools to de	
to benefit a ferreit a training to benefit a	velop
diverse set of alternative design solutions multiple engineering design solutions	
4.2.2 Build models/prototypes to develop a diverse	set of
design solutions	
4.2.3 Identify suitable criteria for the evaluation	n of
4.3 Demonstrate an ability to select an 4.3.1 Apply formal decision-making tools to select op	
antimul 1 t	
development development	
13.2 Consult with domain experts and stakeholde	
select candidate engineering design solution for fu	rther
development development	
4.4.1 Refine a conceptual design into a detailed d	esign
engineering design to defined end state within the existing constraints (of the resources)	
4.4.2 Generate information through appropriate tes	sts to
improve or revise the design	
PO 5: Multidisciplinary tasks: Ability to visualize and work on laboratory and multidisciplinary tasks	sks
Competency	
5.1 Demonstrate an ability to take up any 5.1.1 Skills in facing and solving the field problems	The same of the sa
challenging practical problems and find 5.1.2 Concepts of developments and implementation of	
solution by formulating proper techniques	new
methodology.	
5.2.1 Testing of different materials under the action of	
5.2 Demonstrate an ability to test on various forces and determination of their characteristic	
materials and components of structural experimentally.	CS .
in the state of th	
knowledge on handling basic instruments have adequate knowledge to carryout the laboratory w	ork
PO 6. Modern tool	
PO 6: Modern tool usage: Create, select, and apply appropriate techniques, resources, and mo	dern
engineering and 11 tools including prediction and modelling to complex engineering activities with	th an
understanding of the limitations.	
Competency Indicators	
6.1 Demonstrate an ability to identify/ 6.1.1 Identify modern engineering tools such	20
create modern engineering tools computer sided described	
techniques and resources techniques and resources for engineering activities	lysis;
and resources for engineering activities	
6.1.2 Create/adapt/modify/extend tools and techni	ques
to solve engineering problems 6.2 Demonstrate an ability to select and 6.2.1 Identify the strengths and limitations of tools for	
annie d'air l'air l'air la	or (i)
- d modeling and simulating	, (iii)
and resources	ating
and resources monitoring system performance, and (iv) cre engineering designs.	acing

	6.2.2 Demonstrate proficiency in using discipline-specific
	tools
6.3 Demonstrate an ability to evaluate the	6.3.1 Discuss limitations and validate tools, techniques
suitability and limitations of tools used to solve an engineering problem	and resources 6.3.2 Verify the credibility of results from tool use with reference to the accuracy and limitations, and the assumptions inherent in their use.

PO 7: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

Competency	Indicators
7.1 Demonstrate an ability to recognize ethical dilemmas 7.2 Demonstrate an ability to apply the Code of Ethics	7.1.1 Identify situations of unethical professional conduct and propose ethical alternatives 7.2.1 Identify tenets of the ASME professional code of ethics 7.2.2 Examine and apply moral & ethical principles to known case studies
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PO 8: Communication: Communicate effectively on complex engineering activities with the engineering community and with the 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.

and design documentation, make effective p	Indicators
Competency	
8.1 Demonstrate an ability to comprehend	8.1.1 Read, understand and interpret technical and non-
technical literature and document project	technical information
	8.1.2 Produce clear, well-constructed, and well-supported
work	written engineering documents
	8.1.3 Create flow in a document or presentation - a logical
	progression of ideas so that the main point is clear
8.2 Demonstrate competence in listening,	8.2.1 Listen to and comprehend information, instructions,
	and viewpoints of others
speaking, and presentation	8.2.2 Deliver effective oral presentations to technical and
*	non-technical audiences
and the ability to integrate	8.3.1 Create engineering-standard figures, reports and
8.3 Demonstrate the ability to integrate	drawings to complement writing and presentations
different modes of communication	and a second complement with a second convey a
	8.3.2 Use a variety of media effectively to convey a
	message in a document or a presentation

PO 9: 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.

professional engineering practice.	- 11
Competency	Indicators
9.1 Demonstrate an ability to describe engineering roles in a broader context, e.g. pertaining to the environment, health, safety, legal and public welfare	9.1.1 Identify and describe various engineering roles; particularly as pertains to protection of the public and public interest at the global, regional and local level
9.2 Demonstrate an understanding of professional engineering regulations, legislation and standards	9.2.1 Interpret legislation, regulations, codes, and standards relevant to your discipline and explain its contribution to the protection of the public

PO 10: Life-long learning: Recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Competency	Indicators
10.1 Demonstrate an ability to identify gaps in knowledge and a strategy to close these gaps	10.1.1 Describe the rationale for the requirement for continuing professional development 10.1.2 Identify deficiencies or gaps in knowledge and demonstrate an ability to source information to close this gap
10.2 Demonstrate an ability to identify changing trends in engineering knowledge and practice	10.2.1 Identify historic points of technological advance in engineering that required practitioners to seek education in order to stay current 10.2.2 Recognize the need and be able to clearly explain why it is vitally important to keep current regarding new developments in your field
10.3 Demonstrate an ability to identify and access sources for new information	10.3.1 Source and comprehend technical literature and other credible sources of information 10.3.2 Analyze sourced technical and popular information for feasibility, viability, sustainability, etc.

HoD/CIVIL

PRINCIPAL







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DEPARTMENT OF CIVIL ENGINEERING ACADEMIC YEAR 2020-21 (ODD SEM) PROGRAMME ARTICULATION MATRIX

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							РО						PSO	
SUB	со	P01	P02	P03	P04	P05	P06	P07	P08	P09	PO10	PSO1	PSO2	PSO3
	CO1	•	-	-	3	-	-	-	3	-	-	-	-	2
HS8151	CO2	-		-	1	-	-	-	1	-		2	-	-
CE	CO3	-	-	-	1	-	-	-	-	-	-	-	-	1
	CO4	-	-	-	3	-	-	-	2	-	-	-	2	-
	CO1	1	-	-	-	-	-	-	-	-	-	-	-	-
	CO2	1	•	-	-	-	-	-	-	-	-	1	-	-
MA8151	CO3	1	-	-	-	-	-	-	-	-	-	-	-	-
EM-I	CO4	1	-	-	-	-	-	-	-	-	-	1	-	-
2	CO5	1	-	-	-	-	-	-	-	-	-	-	-	-
	C06	1	-	-	-	-	-	-	-	-	-	-	-	-
	C07	1	-	-	-	-	-	-	-	-	-	-	-	-
	CO1	2	2	2	2	2	2	-	-	-	-	2	1	1
PH8151	CO2	2	2	2	2	2	2	-	-	-	-	1	1	1
EP	CO3	2	2	2	2	2	2	-	-	•	-	1	1	1
	CO4	2	1	1	1	1	1	-	-	-	-	1	-	-
	CO5	2	2	2	1	2	1	-	-	•	-	1	1	1
CY8151	CO1	2	1	1	•	1	1	1	-	-	-	1	-	-
EC	CO2	-	-	-	-	-	-	-	-	-	-	-	-	-
	CO1	1	2	-	-	1	1	1	-	-	-	2	2	1
	CO2	1	1		-	1	2	-	-	•		2	2	1
GE8151	CO3	1	2	-	-	2	2	1	-	•	-	1	1	1
PSPP	CO4	1	2	-	-	1	2	1	-	-	-	2	2	1
	CO5	1	2	-	-	1	2	1	-	-	-	2	2	1
	C06	1	2	-	-	1	-	-	-	-	-	-	-	-
	CO1	2	2	3	-	3	2	3	-	2	3	1	-	-
GE8152	CO2	1	3	2	-	3	2	2	-	2	3		2	-
EG	CO3	2	1	3	-	3	2	1	-	3	2	-	-	-
	CO4	3	3	3	•	3	2	2	-	2	3	1	-	-
	CO5	3	2	2		2	1	2	-	2	3	-	2	-
	CO1	1	2	-	-	1	1	1	-	-	-	2	2	1
GE8161	CO2	1	1	-	-	1	2		-	-	-	2	2	-
PSPP	CO3	1	2	-	-	2	2	1	-	-	-	1	1	1
LAB	CO4	1	2	-	-	1	2	1	-	-	-	2	2	1
	CO5	1	2	-	-	1	2	1	-	-	-	2	2	1
BS8161 P&C	CO1	2	1	-	-	1	2	1	-	-	-	1	1	-
LAB	CO2	2	1	-	-	1	2	1	-	-	-	1	1	-

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	CO1	-	-	-	1	-	-	-	2	-	-	1	1	-
HS8251	CO2	-	-	-	1	-	-	-	2	-		-	-	-
CE	CO3	-	-	-	1	-	-	-	3	-	-	1	1	-
	CO4	-	-	-	1	-	-	-	3	-	-	1	1	-
	CO1	1	-	-	-	-	-	-	-	-	-	-	1	-
	CO2	2	-	-	-	-	-	-	-	•	-	-	1	-
MA8251	CO3	1	-	-	-	-		-	-	-	-	-	1	-
EM II	CO4	1	-	-	-	-	-	-	-	-	-	-	1	-
9	CO5	2	-	-	-	-	-	-	-	-	-	-	1	-
	CO1	2	1	2	2	2	1	-	-	-	-	1	-	1
	CO2	2	2	2	2	2	2	-	-	-	•	1	1	1
PH8201	CO3	2	1	1	1	1	2	-	-	-	•	-	1	-
P-CE BE8251	CO4	2	1	1	2	2	1	-	-	-	-	1	-	-
	CO5	2	2	2	1	2	1	-	-	•	-	1	1	1
RF8251	CO1	3	3	2	-	-	2	-	-	-	-	3	2	1
BEE	CO2	3	3	2	-	-	2	-	-	-	-	3	2	1
DEE	CO1	-	-	-	-	-	-	2	1	-	-	2	1	
GE8291	CO2	-	-	-	-	-	-	1	-	-	-	1	1	
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	CO1	2	1	2	-	1	1	1	-	1	-	1	-	1
	CO2	2	2	1	-	1	1	-	-	-	1	1	1	1
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CE8491	CO3	1	1	-	-	-	-	1	2	1	2	1	-	1
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	CO1	3	3	2	1	1		-	-	1	1	1	-	1
CE8502	CO2	3	3	2	1	1	-	-	-	1	1	1	-	1
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GI1084	CO2	-	-	1	1	-	1	-		-	1	1	2	1
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CE8511 SM LAB	CO1	-	•	2	-	2	3	-	-	-	-	-	-	-
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	CO2	1	2	2	1	1	-	-	-	-	1	2	1	1
CE8601	CO3	1	2	2	1	1	-	-	-	-	1	2	1	1
DSS	CO4	1	2	2	1	1	-	-	-	-	1	2	1	1
	CO5	1	2	2	1	1	-	-	-	-	1	2	1	1
	CO1	3	3	1	1	1	-	-	-	1	1	1	-	1
	CO2	3	3	1	1	1	-	-	-	1	1	1	-	1
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CE8701 ECVE	CO2	1	2	-	-	-	1	1	-	-	1	1	2	1
CE8702 RADHE	CO3	1	1	-	-	-	1	1	-	-	1	1	1	1
	CO4	1	1	-	-	-	1	1	-	-	1	1	1	1
	CO5	1	2	-	-	-	1	1	-	-	1	1	2	1
	CO1	-	-	-	-	-	-	-	-	2	1	2	1	1
CE8703 SDD CE8011 DPCS C	CO2	-	1	1	-	-	2	-	-	-	-	1	1	1
	CO3	-	1	1	1	-	1	-	-	-		2	2	1
	CO4	-	1	-	1	-	1	-	-	-	•	1	2	1
	CO5	-	-	-	1	-	-	-	-	-		1	1	1
	CO1	1	1	2	2	-	1	-		-		1	-	1
	CO2	1	1	2	2	-	1	-	-	-	2	1		2
	CO3	1	1	2	2	-	1	-	-	-	1	1	_	2
	CO4	1	1	2	2	-	1	-	-	-	-	1	1	1
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	CO3	1	-	2	1	-	-	-		-	-	1	2	1
GBD	CO4	1	-	-	2	1			-		-	2	2	1
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GE8076	CO1	1	-	-	1	1	-	-	-	-	1	1	1	1
PEE	CO2	1	-	-	-	1	-	-	-	1	1	1	1	-
CE8022	CO1	1	-	1	1	-	-	-	-	-	1	1	1	1
PS	CO2	1	-	1	-	1	-	-	-	1	1	1	1	-
CE8811 PW	CO1	-	2	-	2	-	-	2	-	-	2	1	2	2







DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

REGULATIONS 2017

CO-PO-PSO-PEO MAPPING

PO-COMPETENCY-PERFORMANCE INDICATORS

OBE IMPLEMENTATION – PROCESS REPORT

SEMESTERWISE PROGRAMME ARTICULATION MATRIX

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:

- 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)

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

7.	Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.	2	1
8.	Ethics : Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.	3	1
9.	Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.	3	2
10	Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.	3	2
11.	Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.	2	2
12	Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.	1	3

PS	60s		
	Analyze, design and develop computing solutions by applying foundational concepts of computer science and engineering.	3	1
	Apply software engineering principles and practices for developing quality software for scientific and business applications.	3	ļ '
3.	Adapt to emerging information and communication technologies (ICT) to innovate ideas and solutions to existing/novel problems.	1	3

MAPPING OF COURSE OUTCOMES WITH PROGRAMME OUTCOMES

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

	Course Title					Pro	gramn	ne O	utcom	e (PC))		
		1	2	3	4	5	6	7	8	9	10	11	12
	Communicative English								$\sqrt{}$	1	V		$\sqrt{}$
	Engineering Mathematics - I	$\sqrt{}$	1	$\sqrt{}$						V			
	Engineering Physics	$\sqrt{}$	$\sqrt{}$	$\sqrt{}$									
_	Engineering Chemistry	$\sqrt{}$	1	1									
SEMESTER	Problem Solving and Python Programming	V	1	V									
SEM	Engineering Graphics	$\sqrt{}$	1	1		$\sqrt{}$			√	$\sqrt{}$	1		$\sqrt{}$
	Problem Solving and Python Programming Laboratory	√	√	√		√			√	√	√		$\sqrt{}$
	Physics and Chemistry Laboratory	1	V	V					1	V	1		
	Technical English	,	,	ļ.,					1	1	V		√
	Engineering Mathematics II	$\sqrt{}$	1	1						√			
	Physics for Information Science	1	V	1									
EMESTER II	Basic Electrical, Electronics and Measurement Engineering	1	1	1									
SEME	Environmental Science and Engineering	1	V	V				1	V	1	√		V
	Programming in C												$\sqrt{}$
	Engineering Practices Laboratory	1		1	V	V	V		V	V	V		V
	C Programming Laboratory	V	√	√					√	√	√		V

				PI	ROGI	RAMI	ΛΕ Ο	UTC	ЭМЕ	(PO)				
		COURSE TITLE	1	2	3	4	5	6	7	8	9	10	11	12
		Discrete Mathematics	V	V	V						V			
		Digital Principles and Design	V	√	√									
		Data Structures	$\sqrt{}$		V									
	R ≡	Object Oriented Programming	V	V	V									
	SEMESTER III	Communication Engineering	V	V	V									
	SEN	Data Structures Laboratory	V	V	√					V	V	√		$\sqrt{}$
		Object Oriented Programming Laboratory	V	√	√					V	$\sqrt{}$	V		V
		Digital Systems Laboratory	V	V	V			V		V	V	√		√
YEAR II		Interpersonal Skills/Listening &Speaking								V	V	V		V
EA						1			1	1				
>		Probability and Queueing Theory	V	√	V						V	V		V
		Computer Architecture	√	1	V									
		Database Management Systems	1	1	1									
	TER IV	Design and Analysis of Algorithms	V	1	1						√	V		V
	SEMESTER	Operating Systems	√	V	1									
	SE	Software Engineering	V	V	V		√	V		V	V	√		V
		Database Management Systems Laboratory	V	√	√					√	$\sqrt{}$	$\sqrt{}$		V
		Operating Systems Laboratory	V	V	V					V	V	√		V
		Advanced Reading and Writing								√	V	√		1

	1	1			1			1						1
		Algebra and												
		Number Theory	,	'	'						'			
		Computer		V	V									
		Networks	٧	٧	٧									
		Microprocessors												
		and												
		Microcontrollers												
		Theory of	,	1	1									
		Computation												
	>	Object Oriented												
	#	Analysis and		V	V			V						
I≡	ΙË		V	V	V			V						
YEAR III	SEMESTER V	Design												
ĕ	∑	Open Elective I												
🗲	SE	Microprocessors												
		and												$\sqrt{}$
		Microcontrollers	, i	,	,					,	,	,		,
1		Laboratory												
		Object Oriented												
		Analysis and		V	V							$\sqrt{}$		$\sqrt{}$
		Design	V	V	V		V	V		· v	V	V		V
		Laboratory												
		Networks	V	V	V					V	1	√		$\sqrt{}$
		Laboratory	V	V	V					V	V	V		V
		<u>, </u>		I	1			1	I	I	I			
		Internet	,	1	1					,	,	ı		,
		Programming												
1		Artificial	,	,	,									
		Intelligence												
		Mobile	 			 	 							
		Computing												
	_		1	V	V	-	-			√	√	√		√
	SEMESTER VI	Compiler Design	-γ	-V	.V	-	-			·V	.V	.V		-V
	道	Distributed												
	ST	Systems												
1	ľ	Professional												
		Elective I												
	S	Internet	,	,	,		,			,	,	,		,
		Programming												$\sqrt{}$
		Laboratory												
		Mobile												
		Application		V	V			V				$\sqrt{}$		$\sqrt{}$
		Development	\ \	V	V		\ \	l v		٧	٧	V		٧
		Laboratory												
		Mini Project	$\sqrt{}$	V	V		$\sqrt{}$	V	V	V	V	V	V	$\sqrt{}$
		Professional						1				ı		V
		Communication										$\sqrt{}$,
	1	1	1	1	1	1	1	1	1	1	1			
	I _	Principles of	,	,	,								,	
		Management												
≥	24	Cryptography	1			 	 							
∝	l Ľ	and Network												
YEAR IV	S	Security	\ \	V	V									
%		LISECULITY	1				1	Ī		ĺ				
_	Ē		. 1											
	SEMESTER VII	Cloud Computing Open Elective II	V	V	V									

	Professional Elective II												
	Professional Elective III												
	Cloud Computing Laboratory	V	V	V		V			V	V	V		V
	Security Laboratory	√	$\sqrt{}$	$\sqrt{}$		V			V	$\sqrt{}$	√		\checkmark
:R	Professional Elective IV												
ESTE /III	Professional Elective V												
SEMESTER VIII	Project Work	√	√	V	1	√	1	1	√	√	√	√	√

PROFESSIONAL ELECTIVES

SEM	COURSE TITLE	PROGRAMME OUTCOME (PO)													
		1	2	3	4	5	6	7	8	9	10	11	12		
VI	Data Warehousing and Data	.1	. 1	. 1											
	Mining	V	V	1											
	Software Testing		$\sqrt{}$												
	Embedded Systems	$\sqrt{}$	$\sqrt{}$												
	Agile Methodologies	$\sqrt{}$	$\sqrt{}$												
	Graph Theory and Applications-														
	Intellectual Property Rights														
	Digital Signal Processing														
VII	Big Data Analytics														
	Machine Learning Techniques		$\sqrt{}$												
	Computer Graphics and	V		ا											
	Multimedia	-V		1											
	Software Project Management	V	√												
	Internet of Things	$\sqrt{}$	$\sqrt{}$												
	Service Oriented Architecture	V	$\sqrt{}$												
	Total Quality Management														
	Multi-core Architectures	V	-1	اء											
	and Programming	-V	V	1											
	Human Computer Interaction	$\sqrt{}$	$\sqrt{}$												
	C# and .Net Programming	V													
	Wireless Adhoc and Sensor	ما		ا											
	Networks														
	Advanced Topics on Databases	V	√						\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \						
	Foundation Skills in Integrated	V	V	V											
	Product Development	V	V	V											
	Human Rights														
	Disaster Management	V	√												
VIII	Digital Image Processing	V	√												
	Social Network Analysis														
	Information Security	V													
	Software Defined Networks	V													
	Cyber Forensics	V	√												
	Soft Computing	V	√												
	Professional Ethics in						./	.1	١	. /	-1		V		
	Engineering						·V	-V	١٠٧	٠,٧	-V		-V		
	Information Retrieval Techniques	V	√												
	Green Computing														
	GPU Architecture and	V	√	V											
	Programming	v	V	_ v					L						
	Natural Language Processing	V													
	Parallel Algorithms	V	$\sqrt{}$												
	Speech Processing	V	$\sqrt{}$	$\sqrt{}$											
	Fundamentals of Nanoscience	V	$\sqrt{}$	$\sqrt{}$											







DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING REGULATIONS 2017 PO - COMPETENCY-PERFORMANCE INDICATORS

	ERFORMANCE INDIGITIONS
PO 1: Engineering knowledge: Apply the knowled and an engineering specialisation for the solution of	edge of mathematics, science, engineering fundamentals, fcomplex engineering problems.
Competency	Indicators
1.1 Demonstrate competence in mathematical modelling	1.1.1 Apply the knowledge of discrete structures, linear algebra, statistics and numerical techniques to solve problems
	1.1.2 Apply the concepts of probability, statistics and queuing theory in modeling of computer-based system, data and network protocols.
1.2 Demonstrate competence in basic sciences	1.2.1 Apply laws of natural science to an engineering problem
1.3 Demonstrate competence in engineering fundamentals	1.3.1 Apply engineering fundamentals
1.4 Demonstrate competence in specialized engineering knowledge to the program	1.4.1 Apply theory and principles of computer science and engineering to solve an engineering problem
PO 2: Problem analysis: Identify, formulate, problems reaching substantiated conclusions usi engineering sciences.	research literature, and analyse complex engineering ng first principles of mathematics, natural sciences, and
Competency	Indicators
2.1 Demonstrate an ability to identify and formulate complex engineering problem	2.1.1 Evaluate problem statements and identifies objectives 2.1.2 Identify processes/modules/algorithms of a computer-based system and parameters to solve a problem
No.	2.1.3 Identify mathematical algorithmic knowledge that applies to a given problem
2.2 Demonstrate an ability to formulate a solution plan and methodology for an engineering problem	2.2.1 Reframe the computer-based system into interconnected subsystems 2.2.2 Identify functionalities and computing resources. 2.2.3 Identify existing solution/methods to solve the problem, including forming justified approximations and assumptions
	2.2.4 Compare and contrast alternative solution/methods to select the best methods 2.2.5 Compare and contrast alternative solution processes to select the best process.
2.3 Demonstrate an ability to formulate and interpret a model	2.3.1 Able to apply computer engineering principles to formulate modules of a system with required applicability and performance.2.3.2 Identify design constraints for required performance criteria.
2.4 Demonstrate an ability to execute a solution process and analyze results	 2.4.1 Applies engineering mathematics to implement the solution. 2.4.2 Analyze and interpret the results using contemporary tools. 2.4.3 Identify the limitations of the solution and sources/causes. 2.4.4 Arrive at conclusions with respect to the
	2.4.3 Identify the limitations of the sources/causes.

3: Design/Development of Solutions: Design system components or processes that meet the shealth and safety, and cultural, societal, and envir	solutions for complex engineering problems and design specified needs with appropriate consideration for public onmental considerations.
Competency	Indicators
3.1 Demonstrate an ability to define a	3.1.1 Able to define a precise problem statement with
complex/ open-ended problem in engineering	objectives and scope.
terms	3.1.2 Able to identify and document system
terms	requirements from stake- holders.
	3.1.3 Able to review state-of-the-art literature to
	synthesize system requirements.
	3.1.4 Able to choose appropriate quality attributes as defined by ISO/IEC/IEEE standard.
	3.1.5 Explore and synthesize system requirements from larger social and professional concerns.
	3.1.6 Able to develop software requirement specifications (SRS).
3.2 Demonstrate an ability to generate a	3.2.1 Able to explore design alternatives.
diverse set of alternative design solutions	3.2.2 Able to produce a variety of potential design
diverse set of diterment a design services.	solutions suited to meet functional requirements.
	3.2.3 Identify suitable non-functional requirements for
	evaluation of alternate design solutions.
2.2. D	3.3.1 Able to perform systematic evaluation of the
3.3 Demonstrate an ability to select optimal design scheme for further development	degree to which several design concepts meet the criteria.
	3.3.2 Consult with domain experts and stakeholders to
\ \frac{1}{2}	select candidate engineering design solution for further
	development
3.4 Demonstrate an ability to advance an	3.4.1 Able to refine architecture design into a detailed
engineering design to defined end state	design within the existing constraints.
engineering design to defined one state	3.4.2 Able to implement and integrate the modules.
	3.4.3 Able to verify the functionalities and validate the
	design.
no 4 Candrat investigations of compley	problems: Use research-based knowledge and research
PO 4: Conduct investigations of complex	nalysis and interpretation of data, and synthesis of the
information to provide valid conclusions.	larysis and interpretation of anis, seem sy
Competency	Indicators
4.1 Demonstrate an ability to conduct	4.1.1 Define a problem for purposes of investigation, its
investigations of technical issues consistent	NOT 100
with their level of knowledge and	4.1.2 Able to choose appropriate procedure/algorithm,
understanding	dataset and test cases.
understanding	4.1.3 Able to choose appropriate hardware/software
** 1	tools to conduct the experiment.
4.2 Demonstrate an ability to design	4.2.1 Design and develop appropriate
experiments to solve open-ended problems	procedures/methodologies based on the study objectives
4.3 Demonstrate an ability to analyze data and	4.3.1 Use appropriate procedures, tools and techniques
reach a valid conclusion	to collect and analyze data
1000.00	4.3.2 Critically analyze data for trends and correlations,
	4.5.2 Critically analyze data for trends and correlations,
4	stating possible errors and limitations
	stating possible errors and limitations
	stating possible errors and limitations 4.3.3 Represent data (in tabular and/or graphical forms) so as to facilitate analysis and explanation of the
	stating possible errors and limitations 4.3.3 Represent data (in tabular and/or graphical forms) so as to facilitate analysis and explanation of the data, and drawing of conclusions
	stating possible errors and limitations 4.3.3 Represent data (in tabular and/or graphical forms) so as to facilitate analysis and explanation of the data, and drawing of conclusions 4.3.4 Synthesize information and knowledge about the

	and modern engineering
and IT tools including prediction and modelling t	ppropriate techniques, resources, and modern engineering to complex engineering activities with an understanding of
the limitations. Competency	Indicators
5.1 Demonstrate an ability to identify/create modern engineering tools, techniques and	5.3.1 Identify modern engineering tools, techniques and resources for engineering activities
resources	5.3.2 Create/adapt/modify/extend tools and techniques to solve engineering problems
5.2 Demonstrate an ability to select and apply discipline-specific tools, techniques and resources	5.2.1 Identify the strengths and limitations of tools for (i) acquiring information, (ii) modeling and simulating, (iii) monitoring system performance, and (iv) creating engineering designs. 5.2.2 Demonstrate proficiency in using discipline-specific tools
5.3 Demonstrate an ability to evaluate the suitability and limitations of tools used to solve an engineering problem	5.3.1 Discuss limitations and validate tools, techniques and resources 5.3.2 Verify the credibility of results from tool use with reference to the accuracy and limitations, and the assumptions inherent in their use.
PO 6: The engineer and society: Apply reasoning health, safety, legal, and cultural issues and the engineering practice.	ng informed by the contextual knowledge to assess societal, e consequent responsibilities relevant to the professional
Competency	Indicators
6.1 Demonstrate an ability to describe engineering roles in a broader context, e.g. pertaining to the environment, health, safety, legal and public welfare	6.1.1 Identify and describe various engineering roles; particularly as pertains to protection of the public and public interest at the global, regional and local level
6.2 Demonstrate an understanding of professional engineering regulations, legislation	6.2.1 Interpret legislation, regulations, codes, and standards relevant to your discipline and explain its contribution to the protection of the public
societal and environmental contexts, and demo	and the impact of the professional engineering solutions in onstrate the knowledge of, and the need for sustainable
development.	Indicators
7.1 Demonstrate an understanding of the impact of engineering and industrial practices on social, environmental and in economic contexts	7.1.1 Identify risks/impacts in the life-cycle of an engineering product or activity 7.1.2 Understand the relationship between the technical, socio-economic and environmental dimensions of sustainability
7.2 Demonstrate an ability to apply principles of sustainable design and development	7.2.1 Describe management techniques for sustainable development 7.2.2 Apply principles of preventive engineering and sustainable development to an engineering activity or product relevant to the discipline
PO 8: Ethics: Apply ethical principles and community the engineering practice.	nit to professional ethics and responsibilities and norms of
Competency	Indicators
8.1 Demonstrate an ability to recognize ethical dilemmas	8.1.1 Identify situations of unethical professional conduct and propose ethical alternatives
8.2 Demonstrate an ability to apply the Code of Ethics	8.2.1 Identify tenets of the ASME professional code of ethics 8.2.2 Examine and apply moral & ethical principles to known case studies
PO 9: Individual and team work: Function efficients, and in multidisciplinary settings.	ectively as an individual, and as a member or leader in di

Compaton	Indicators
9.1 Demonstrate an ability to form a team and	9.1.1 Recognize a variety of working and learning
define a role for each member	preferences; appreciate the value of diversity on a team
define a role for each member	9.1.2 Implement the norms of practice (e.g. rules, roles,
	charters, agendas, etc.) of effective team work, to
	accomplish a goal.
9.2 Demonstrate effective individual and team	9.2.1 Demonstrate effective communication, problem-
	solving, conflict resolution and leadership skills
operations communication, problem-solving, conflict resolution and leadership skills	
connect resolution and leadership skins	9.2.2 Treat other team members respectfully
	9.2.3 Listen to other members
	9.2.4 Maintain composure in difficult situations
9.3 Demonstrate success in a team-	9.3.1 Present results as a team, with smooth
based project	integration of contributions from all individual efforts
	ively on complex engineering activities with the enginee
community and with the society at large, such	as being able to comprehend and write effective reports
design documentation, make effective presentati	ons, and give and receive clear instructions
Competency	Indicators
10.1 Demonstrate an ability to	10.1.1 Read, understand and interpret technical and
comprehend technical literature and document	
project work	10.1.2 Produce clear, well-constructed, and well-
project work	supported written engineering documents
	10.1.3 Create flow in a document or presentation - a
	logical progression of ideas so that the main point is
	clear
10.2 Demonstrate competence in listening	
speaking, and presentation	instructions, and viewpoints of others
speaking, and presentation	10.2.2 Deliver effective oral presentations to technical
	and non-technical audiences
10.3 Demonstrate the ability to integrate	10.3.1 Create engineering-standard figures, reports
different modes of communication	and drawings to complement writing and
unierent modes of communication	presentations
	10.6.2 Use a variety of media effectively to convey a
	message in a document or a presentation
70.44 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
PO 11: Project management and finance: Del	monstrate knowledge and understanding of the engineering
in multidisciplinary environments.	work, as a member and leader in a team, to manage projects
Competency	Indicators
11.1 Demonstrate an ability to evaluate	11.1.1 Describe various economic and financial
economic and financial performance of	
engineering activity	11.1.2 Analyze different forms of financial statements
engineering activity	to evaluate the financial status of an engineering
	project
44.0.0	
11.2 Demonstrate an ability to compare and contrast the costs/benefits of alternate	
	proposal based on economic and financial considerations.
proposals for an engineering activity	
11.3 Demonstrate an ability to plan/manage an	
engineering activity within time and budget	
constraints	complete the tasks.
	11.3.2 Use project management tools to schedule an
	engineering project, so it is completed on time and on
	budget.

PO 12: Life-long learning: Recognise the need independent and life-long learning in the broades	for, and have the preparation and ability to engage in technological change.
Competency	Indicators
12.1 Demonstrate an ability to identify gaps in knowledge and a strategy to close these gaps	12.1.1 Describe the rationale for the requirement for continuing professional development 12.1.2 Identify deficiencies or gaps in knowledge and demonstrate an ability to source information to close this gap
12.2 Demonstrate an ability to identify changing trends in engineering knowledge and practice	in engineering that required practitioners to seek education in order to stay current 12.2.2 Recognize the need and be able to clearly explain why it is vitally important to keep current regarding new developments in your field
12.3 Demonstrate an ability to identify and access sources for new information	12.3.1 Source and comprehend technical literature and other credible sources of information 12.3.2 Analyze sourced technical and popular information for feasibility

HOD/CSE GUI LODA

PRINCIPAL







DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING PROGRAM ARTICULATION MATRIX REGULATION 2017

Year		СО]	Progr	amn	ie Oi	ıtcon	ne (Po	0)				
/ Sem	Subject Name		1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2	PSO 3
	1100151	CO1	-	-	-	-	-	-	-	-	1	2	-	3	-	-	3
	HS8151 - Communicative	CO2	-	-	-	-	-	-	-	-	2	2	_	2	_	_	2
	English	CO3	-	-	•	-	-	-	-	-	2	1	-	-	-	-	-
		CO4	-		-	,	-	•	-	-	1	3	-	1	-	-	2
		CO1	2	2	1	-	-	•	-	-	-	-	-	-	2	2	-
	11	CO2	1	1	1	-	-	-	-	-	-	-	-	-	1	1	-
	MA8151 -	CO3	2	1	2	-	ı	-	-	-	-	-	-	-	2	2	-
	Engineering Mathematics - I	CO4	2	2	1	-	-	-	-	-	-	-	-	_	1	2	_
	Maulelliaucs - I	C05	2	1	2	-	-	-	-	-	-	-	-	-	1	2	-
		C06	1	2	1	-	-	-	-	-	-	-	-	-	1	2	-
-		C07	2	2	1	-	-	-	-	-	-	-	-	-	1	2	-
		CO1	1	1	1	-	· -	-	-	-	-	-	-	-	1	-	-
	PH8151 -	CO2	1	1	1	-	-	-	-	-	-	-	-	-	1	-	-
	Engineering	CO3	1	1	1	-	-	-	-	-	-	-	-	-	1	-	-
	Physics	CO4	1	1	1	-	-	-	-	-	-	-	-	-	1	-	-
		CO5	1	1	1	-	-	-	-	-	-	-	-	-	1	-	
I/I	CY8151 - Engineering Chemistry	CO1	2	1	2	-	-	-	-	-	-	-	-	-	1	1	-
1 / 1		CO1	1	2	1	-	-		-	-	-	-	_	-	2	2	1
	GE8151 -	CO2	1	1	1	-	-	-	-	-	-	-	_	-	2	2	
	Problem Solving &	CO3	1	2	1	-	-	-	-	-	_	-	_	-	1	-	-
	Python	C04	1	2	2	-	-	-	-	_	_	-	_	-	2	1	1
	Programming	CO5	1	2	2	-	-	-	-	_	_	_	-		-	2	1
		C06	1	2	1	-	-	-	_	-	_	_	-	-	2	2	1
		CO1	2	2	3	-	2	-	_	3	2			-	1	1	-
	GE8152 -	C02	1	3	2	_	2	_		2	2	3	-	2	1	-	2
	Engineering	CO3	2	1	3	_	2	-	-	1	3	3	-	2	-	-	3
	Graphics	CO4	3	3	3	-	2	-	-	2		2	-	3	-	-	-
		C05	3	2	2	-	1	_	-	2	2	3	-	3	1	-	-
		CO1	3	2	1	-	2	-	-	3	_	3	-	2	-	-	2
	GROAGA ===	CO2	2	2	2	-	1	-		2	3	1	-	1	2	2	2
	GE8161 - PSPP LAB	CO3	2	2	2	-	1	-	-	2	2	1	-	1	2	2	1
	DI ID	CO4	2	2	1	-	1	-	-	2	1	1	-	1	2	2	1
		CO5	1	1	1	-	1	-		1	1	1	-	1	2	1	1
	BS8161 -	CO1	2	1	-	-	-	-	-	1	1	1	-	1	2	1	1
	Physics & Chemistry Lab	CO2	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-
		L	L				<u>,</u>						-	-	-	-,	-

HS8251 - Technical English CO1 - - - - - - - - -	PSO PSO 1 2	PSO 3 1 2 1 1
HS8251 - Technical English CO2 - - - - - - - - 2 1 2 - 3		1 2 1 1 - -
HS8251 - Technical English CO2		2 1 1
Technical English	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	1 1
English	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	1 - - - -
MA8251 - CO2	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	
MA8251 - Engineering Mathematics - II	1 - 1 - 1 - 1 - 1 - 1 - 1 -	
Engineering Mathematics - II	1 - 1 - 1 - 1 - 1 - 1 -	
Mathematics - II	1 - 1 - 1 - 1 - 1 -	-
II	1 - 1 - 1 - 1 -	-
CO1	1 - 1 - 1 -	-
PH8252 - Physics for Information Science	1 - 1 -	+
Physics for Information Science	1 -	<u> </u>
Information Science		1 1
Science CO4 2 2 1 - - - - - - - -	1 -	-
BE8255 - Basic CO1 3 3 3 - - - - - - -	_ I _	† <u>-</u> †
Electrical, CO2 3 3 3 - - - - - - -	1 -	1-
Electronics and Measurement CO2 3 3 3 - - - - - - -	3 2	2
I/II Measurement Engineering CO3 3 3 3	3 2	2
I/II Engineering CO4 3 3 3	3 2	2
(01 2 2 - - - 2 1 - - 1	3 2	2
	2 1	-
	1 1	-
Science & CO3 - 2 1	1 1	-
Engineering CO4 2	1 1	-
CO1 1 2 1 1 1	1 2	1
CS8251 - CO2 1 2 1 1 1 1	2 2	2
Programming CO3 1 2 1 1 1 1	2 2	2
in C CO4 2 2 1 1	1 2	2
CO5 1 2 1 1	2 2	2
CO1 3 3 2 3 2 2 - 2 2	3 2	1
CO2 3 3 2 2 2 2 - 2 1 1 - 2	3 2	1
GE8261 - CO3 3 3 2 2 2 2 - 1 1 1 - 2	3 2	1
Engineering CO4 3 3 2 2 2 1 - 2 2 1 - 2	3 2	1
Practices CO5 3 3 2 2 1 1 - 1 1 1 - 2	3 2	1
Laboratory CO6 3 3 2 2 1 1 - 1 2 1 - 2	3 2	1
CO7 3 3 2 2 1 2 - 2 1 1 - 2	3 2	1
CO8 3 3 2 2 2 2 - 2 3 1 - 2	3 2	1
CS8261 - C CO1 2 2 1 1 1 1 1	1 2	$\frac{1}{1}$
Programming CO2 1 2 2 1 1 1 1	2 2	1
Laboratory CO3 1 2 2 1 1 1	1 4 1 /	

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Year /	Subject Name		1	2	3	4	5	6	7	8	9	10	11	12	PSO	PSO	PSO
Sem	oubject mans	_				,			g ag all					p. 12	1	2	3
		CO1	1	2	2	-	-	-	-	-	1	-	-	-	2	-	1
	MA8351-	CO2	1	1	-	-	-	-	-	-	1	-	-	-	1	2	
	Discrete	CO3	2	1	-	-	-	-	-	-	1	-	-	-	1	-	-
	Mathematics	CO4	2	2	1	-	-	-	-	-	-	-	-	-	1	1	-
		CO5	1	1	-	-	-	-	-	-	-	-	-	-	1	-	-
		CO1	3	3	2	-	-	-	-	-	-	-	-	-	2	-	-
	CS8351- Digital	CO2	3	3	3	-	-	-	-	-	-	-	-	-	3	-	-
	Principles and System Design	CO3	2	2	3	-	-	-	-	-	-	-	-	-	2	-	-
	System Design	CO4	1	2	1	-	-	-	-	-	-	-	-	-	1	-	3
		CO1	1	2	1	-	-	-	-	-	-	-	-	-	2	2	1
	CS8391- Data	CO2	2	3	1	-	-	-	-	-	-	-	-	-	2	2	2
	Structures	CO3	2	3	1		_	_	_	_	_	-	_	_	2	2	1
				- 3				-							3	1	1
		CO1	1		1	-	-	-	-	-	-	-	-	-	2	2	1
	CS8392- Object	CO2	1	3	2	-	-	-	-	-	-	-	-	-	2	2	
	Oriented	CO3	1	3	2	-	-	-	-	-	-	-	-	-			1
	Programming	CO4	1	3	2	-	-	-	-	-	-	-	-	-	2	2	1
		CO5	1	3	2	-	-	-	-	-	-	-	-	-	2	2	1
II / III	EC8395-	CO1	3	2	2		-			<u> </u>	<u>.</u> .	-	-	-	2	2	3
11 / 111	Communication	CO2	3	3	3	-		- L	-	-		-	-	-	3	2	3
	Engineering	CO3	3	3	3	-	-	-	-	-	-	-	-	-	3	2	3
		CO4	3	3	3	-	ļ -	-	•	-	-	-	-	-	3	2	3
		CO1	3	3	1	-	, -	-	-		-	-	-	-	3	1	1
	CS8381- Data	CO2	3	3	1	-	-	-	-	-	-		-	-	3	2	1
	Structures Lab	CO3	3	3	1	-	-	-	-	-	-	-	-	-	3	3	1
		CO4	3	3	1	-	-	-	-	_	_	-	-	_	3	-	-
		CO1	3	2	2	-	-	-	_	3	2	2		2		1	1
	CS8383- 00P	CO2	3	3	3	-	-	 		2	2	2	-	_	3	1	1
	Lab	CO3	3	2	2	-	-	-	<u> </u>	2	2	2		2	3	2	1
		CO1	2	2	1	-	-	-					-	2	3	3	2
¥	CC0202 Digital	CO2	1	2	1	-	-	ļ-	-	-	-	-	-	-	2	-	-
	CS8382-Digital Systems Lab	CO3	1	2	1	-	-	-	-	-	-	-	•	-	2	-	-
	by stellis Eab	CO4	1	-	1	-		2	-		-	-	-	-	2	-	-
		CO1		 		<u> </u>	-		-	-	-	-	J. J.	-	1	-	2
	HS8381-	CO2	<u> </u>	-	-	-	-	-	-		1	1	-	2	-	-	
	Interpersonal skills/listening		-	<u> </u>	-	-	-	-	-	2	3	2	-		-	-	2
	& speaking	CO3	-	<u> </u>	-	-	-	-	-		2	1	-	1	-	-	2
	a speaking	CO4	-	-	-	-	-	-	-	1	1	2	-	1	-	-	1
	MA8402 -	C01	2	1	1	-	-	-	-	-	-	1	-	-	1	-	-
	Probability &	CO2	2	1	1	-	-	-	-	-	-	1	-	-	1	-	-
	Queueing	CO3	2	1	1	-	-	-	-	-	-	1	-	1	1	1	-
	Theory	C04	2	1	1	-	-	-	-	-	-	2	-	2	1	1	-
II / IV		CO5	2	1	1	-	-	-	-	-	-	2	-	2	1		-
,		CO1	1	2	2	-	-	-	-	-		_	-			1	-
	CS8491 -	CO2	1	2	1	-	-	+-		-	-	-	-	ļ <u>-</u>	2	-	-
	Computer	CO3	1	2	2	<u> </u>		<u> </u>	-	-	-	-	-	<u> </u>	2	-	-
	Architecture	CO4	1	2	2	-	-		-	-	-	-	-	-	2	-	-
		CO5	1	2	2	<u> </u>	+	-	-	-	-	-	-	-	2	-	-
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		CO1	1	2	2	_	-	-	-		-	-	-	-	-	2	-	-
	CS8492 -	CO2	1	2	1	_	-	-	-		-	-	-	-	-	2	-	-
	Database	CO3	1	2	2	_	-	-	-		-	-	-	-	-	2	-	-
	Management Systems	CO4	1	2	2	-	-	-	T -		-	-	-	-	-	2	-	-
		CO5	1	2	2	-	-	-	١.	-	-	-	-	-	-	2	-	-
	CCOAF1	CO1	2	1	1	-	-	-	١.	-	-	1	1	-	1	2	2	-
	CS8451 - Design &	CO2	2	1	1	-	-	-	١.	-	-	2	2	-	2	2	2	-
	Analysis of	CO3	2	2	1	-	-	-	1	-	-	2	1	-	1	2	2	-
	Algorithm	CO4	3	2	2	-	-	-		-	-	1	2	-	1	2	2	-
		CO1	2	1	2	-	-	-		-	-	-	-	-	-	2	2	-
		CO2	2	1	2	-	-	-		-	-	-	-	-		2	2	-
	CS8493 - Operating	CO3	1	1	1	-	-	-		-	-	-	-	-	-	2	2	-
	System	CO4	1	1	1	-	-	-		-	-	-	-	-	-	1	1	-
		CO5	1	1	1	-	-	-		-	-	-	-	-	-	1	1	-
		C06	1	1	1	-	-	-		-	-	-	-	-	-	1	1	-
		CO1	1	2	1	-	1	1		-		1	1	-		1	2	-
	CS8494 -	CO2	_	2	-	-	1			-	-		1	1-		1	2	-
	Software	CO3		2	-	-	1	_	4	-	1		1	-	1	1	2	
	Engineering	C04	_	2	2	+-	1	_	_	-		1	2	-	-		2	1
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	CS8481 -	CO3	3	2	2	 -	+	-	_		-		+-	+-	+	-		2 .
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	CS8461 - OS	CO	3 3	2	2	<u> </u>		_	_	_	2	$\frac{2}{2}$				_		2
	Lab	CO	4 3	2	2	<u> </u>		_	-		$\frac{2}{2}$	$\frac{2}{2}$	_		_	_	3	2
		CO	5 3	2			-	-	-		$\frac{2}{2}$	$\frac{2}{1}$	_		_		3	2
		CO	6 3	2	2		_	-	_	-	$\frac{2}{2}$	2	_			1	3	2
	HS8461 -	CO	1 -	-	-	_	_	_	-	_	$\frac{2}{2}$	_		_	_	1	3	2
	Advanced	CO	2 -	-	<u> </u>		-	-	_		$\frac{2}{1}$	$\frac{1}{1}$			-	2	-	-
	Reading &	CO	3 -	-			-	-	_	_	$\frac{1}{3}$				-	1	-	-
	Writing	CO	4 -	-			-	_		-		_			-	2	-	-
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		СО						Pr	ograr	nme (Outco	me (F	(0)				
Year / Sem	Subject Name		1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2	PSO 3
		CO1	2	1	1	-	-	-	-	-	1	-	-	-	1	-	1
	MA8551-	CO2	2	1	1	-	-	-	-	-	1	-	-	-	1	-	-
	Algebra and	CO3	2	2	2	-	-	-	-	-	2	-	-	-	1	-	2
	Number Theory	CO4	2	1	2	-	-	-	-	-	1	-	-	-	1	1	2
		CO5	2	2	1	-	-	-	-	-	1	-	-	-	1	1	2
		CO1	2	1	-	-	-	-	-	-	-	-	-	-	2	-	,-
		CO2	2	2	-	-	-	-	-	-	-	-	-	-	2	-	-
	CS8591-	CO3	1	1	-	-	-	-	-	-	-	-	-	-	2	-	-
	Computer Networks	CO4	2	3	1	-	-	-	-	-	-	-	-	-	2	1	1
		CO5	2	3	1	-	-	-	-	-	-	-	-	-	2	1	1
		C06	1	2	1	-	-	-	-	-	-	-	-	-	2	-	-
	EC8691-	CO1	2	2	2	-	-	-	-	-	•	-	-	-	2	2	-
	Microprocessor	CO2	2	2	2	-	-	-	-	-	•	-	-	-	2	2	-
	and	CO3	2	2	2	-	-	-	-	-	-	-	-	-	2	2	-
	Microcontroller	CO4	2	2	2	-	-	-	-	-	-	-	-	-	2	2	1
		CO1	1	2	2	-	-	-	-	-	-	-	-	-	2	1	1
		CO2	1	2	1	·	-	-	-	-	-	-	-	-	2	1	1
	CS8501-Theory of Computation	CO3	1	1	1	-	-	-	-	-	-	-	-	-	2	1	1
	or comparation	CO4	1	2	1	-	-	-	-	-	-	-	-	-	2	1	1
111 / 17		CO5	1	1	1	-	-	-	-	-	-	-	-	-	2	1	1
III / V		CO1	1	3	3	-	1	-	-	•	-	-	-	-	1	2	-
	CS8592-Object Oriented	CO2	1	3	3	-	1	-	-	-	-	-	-	- 1	3	3	- '
	Analysis and	CO3	1	2	2	-	-	-	-	-	-		-	-	2	2	-
	Design	CO4	1	3	3	-	1	-	•	1	-		-	-	3	3	-
	0) (2)	CO5	1	3	1	-	1	-	-		-	-	-	-	2	2	-
	OMF551-Product Design and Development	CO1	1	2	2	-	-	-	1	•	2	-	1	-	2	-	1
		CO1	2	2	2	-	-	-	-	-	3	-	-	-	3	-	3
	500004	CO2	2	2	2	-	-	-	-	-	3	-	-	-	2	-	2
	EC8681- MPMC Lab	CO3	2	2	2	-	-	-	-	1	3	3	-	2	2	2	2
		CO4	2	2	2	-	-	-	-	,	3	3	-	2	2	2	2
		CO5	2	2	2	•	-	-	-	-	3	3	-	2	2	2	2
		CO1	3	2	2	-	3	-	-	-	-	-	-	-	1	3	-
	CS8582 -	CO2	2	1	1	-	2	•	-	-	-	-	-	-	3	2	-
	00AD Lab	CO3	3	2	2	-	3	-	-	-	-	-	-	-	2	2	-
		CO4	3	2	3	-	1		-	-	-	-	-	-	1	1	-
		CO2	3	2		-		-	-	-	-	2	-	-	3	-	-
	CS8581 -	CO3	3	2	-		-	-	-	-	-	-	-	-	-	-	3
	Networks Lab	CO4	3	2	-	-	-	-	-	-	-	-	-	2	-	-	3
÷		CO5	3		2	-	-	-	-		1	-	-	-	-	-	3
		CO3	3			-	-	-	-	2		-	-		3	<u>-</u>	

		CO						Prog	ram	me O	utco	me (P	0)			Alabaga	77
Year / Sem	Subject Name		1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2	PSO 3
		CO1	2	1	2	-	-	-	· -	-	-	-	-	-	2	2	- 2
-	00000	CO2	3	2	2		-	-	-	-	-	-	-	-	1	1	-
g	CS8651 - Internet	CO3	2	1	1	_	_	-	_	_	-	_	-	-	2	2	-
	Programming		2	1	1	_	_	_	_	_	_	_		_	2	2	
		CO4	2	2	2	_			_	_	_	_	_	_	2	2	
		CO5									-				2	4	1
		CO1	1	2	1	-		-	-	-	-	-	-	-		12	
	CS8691 -	CO2	1	1	1	-	-	-	-	-	-	-	-	-	2		1
	Artificial Intelligence	CO3	1	2	1	-	-	-	-	-	-	-	-	-	2		1
	intenigence	CO4	1	2	2	-	-	-	-	-	-	-	-	-	2		1
		CO5	1	2	2	-	-	-	-	-	-	-	-	-	2		1
		CO1	2	1	1	-	-	-	-	-	-	-	-	-	1	-	-
		CO2	2	1	1	-	-	-	-	-	ļ -	-	-	-	1	-	-
	CS8601- Mobile	CO3	2	1	1	-	-	-	<u> </u>	<u> </u>	ļ-	-	-	<u> </u>	1	<u> </u>	-
	Computing	CO4 CO5	2	1	1	-	-	<u> </u>	 -	-	<u> </u>	-	-	ļ <u>-</u>	1	+-	-
		C06	3	2	2	-	-	-	<u>-</u>	 -	-	-	-	-	1	+-	 -
		CO1	1	2	1	+-	-	+-	+-	1	1	1	-	1	2	1	1
		CO2	1	2	2	-	+-	+-	+-	1	1	1	-	1	2	2	1
	CS8602 -	CO3	1	2	2	+-	<u> </u>	-	-	1	1	1	-	1	2	2	1
	Compiler Design	CO4	1	2	2	<u> </u>	-	-	+-	$\frac{1}{1}$	1	1	_	1	2	1	1
	Design	CO5	1	2	2	_		-	-	1	1	1	-	1	2	$\frac{1}{1}$	1
		C06	1	2	2	-	-	-	+-	1	1	1	+-	2	2	2	1
III / VI		C01	1	2	2	_	-	-	1 -	 	-	-	-	-	2		-
	CS8603-	CO2	1	2	1	† <u>-</u>	-	+-	-	 -	+-	 	 -	_	2	+-	-
	Distributed	CO3	1	2	2	+-	+-	+-	+-	-	<u> </u>	 			_	-	+-
	System	CO4	1	2	2	+-	<u> </u>	+-		-	+		 -	 -	2	-	
		CO5	1	2	-	+	-	+-	+-	+-	+-	-	-	-	2	-	-
		C01	1	$\frac{2}{1}$	1	├ -	-	 -	+-	<u> </u>	+-	-	-	<u> </u>	2	-	-
		CO2	1	$\frac{1}{1}$	$\frac{1}{1}$	-	1 1	+-	-	-	1	2	-	<u> </u>	1	-	-
	IT8076 -	CO3	1	1	$\frac{1}{1}$	+-	1	+-	+-	ļ ,-	$\frac{1}{1}$	2	-	+-	1	-	-
	Software Testing	C04	1	1	1	+-	1	-	+-		$\frac{1}{1}$	3	-	+-	1	+-	-
	resting	CO5	1	1	1	-	2	† -	 -	_	1	- 3	+-	-	1	-	-
		C06		1	1	-	1	-	-	-	1	2	 -	-	1	+-	1 -
	CS8661 -	CO1	3	2	_	-	-	-	-	-	-	-	-	-	2	2	+-
	Internet	CO2		2		-	-	-	-	-	-	-	-	-	2	2	_
	Programming	CO3		2		-	-	-	_ -	-	-	-	-	-	2	2	_
	Lab	CO4		2	_	<u> </u> -	-		-	_	-	-	-	-	2	3	-
		CO5		2		-		-	-		-	-	-	-	2	2	-
	CS8662- Mobile	CO2		$\frac{2}{1}$		+-			-	_	-	_	-	-	1	1	-
	Application	CO3	_	$\frac{1}{2}$			$\frac{2}{2}$				_		-	<u> </u>	1	1	-
	Development Lab	CO4		$\frac{2}{2}$					_		_		+-	 -	1	1	-
1		CO5		$\frac{2}{2}$									+-	-	1	1	-
	CS8681 - Mini	C01						<u> </u>		 		╅	-	1	1	1	1
	Project		2	3	2	3	1	2	2	2 1	2	2	1	1	2	2	2

		СО						Prog	gram	me (Outco	ome (PO)	-10			
	Subject Name		1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2	PSO 3
- 1		CO1	_	_	_	_	-	2	-	-	-	2	-	2	-	-	1
	HS8581-	CO2	_		_		_	1	_	_	-	2	-	1	-	-	1
	Professional	CO3	_	_	_	_	_	3	_	_	_	1		2	-	-	2
	Communication			_	_	_	_	2		_	_	2		1	_	-	1
	MC0T01	CO4	-	_	-									1			•
	MG8591 - Principles of Management	CO1	2	2	1	-	-	-	-	-	-	-	2	-	-	1	1
	000703	CO1	3	2	1	-	-	-	-	-	-	-	-	-	3	2	-
	CS8792 - Cryptography	CO2	3	2	1	-	-	-	-	-	-	-	-	-	2	3	-
	and Network	CO3	3	2	1	_1	-	-	-	-	-	-	, -	-	2	3	-
	Security	CO4	3	3	2	-	-	-	-	-	-	-	-	-	2	2	-
}		CO5	3 2	2	3	-	-		-	-	-				3	-	1
						-	-				_				3	-	1
		CO2	1	2	3	-	-	-	-	-	-	-	-	-			
	CS8791 - Cloud	CO3	1	2	3	-	-	-	-	-	-	-	-	-	2	-	1
	Computing	CO4	-	-	3	-	-	-	-	-	-	1	-	-	2	-	1
		CO5	1	2	3	-	-	-	-	-	-	-	-	-	2	-	1
		C06	-	1	2	-	-	-	-	-	-	-	-	-	3	-	-
l	OME752 -	CO1	_	_	1	-	-	2	-	-	-	-	-	-	1	-	-
	Supply Chain	CO2	_	2	-	_	-	2	_	1	_	_	1	-	1	-	1-
	Management	CO3		1	2		-	2	2		2	-	2	-	2	2	2
IV / VII		CO1	2	2	2	-	-	3	-	2	1	1	1	2	1	-	-
	IT8075-	CO2	1	3	2	-	-	2	-	1	2	2	2	2	1	-	-
	Software	CO3	2	3	2	-	-	2	-	-	1	1	1	1	1	-	-
	Project Management	CO4	1	3	1	-	-	-	-	1	1	1	1	1	-	-	-
	Management	CO5	1	3	2	-	-	-	-	-	2	2	2	1	-	-	-
	CS8088 -	C01	2	2	1	-	-	-	-	-	-	-	-	-	2	-	-
	Wireless Adhoc & Sensor	C02	2	3	1	j-1	-	-	-	-	-	-	-	-	2	-	1
	Network	CO3	1	2	1	-	-	-	-	-	-	-	-	-	-	1	-
		C01	1	1	1	-	2	-	-	-	-	2		1	2	2	2
	CC0711 Cloud	CO2	1	2	2	-	3	-	-	-	-	2		1	2	2	2
я.	CS8711- Cloud Computing Lab	CO3	1	2	1	-	3	-	-	-	-	2		1	2	2	2
	companing 200	CO4	1	2	1	-	3	-	-	2	1	2		1	2	2	2
		CO5	1	1	1	-	2	-	-	2	1	2		1	2	2	2
		CO1	2	2	2	-	1	-	-	2	1	1	-	2	2	3	-
	IT8761 -	CO2	2	2	2	-	1	-	-	2	1	1	-	1	2	3	-
	Security Lab	CO4	2	2	2	-	2	-	<u> </u>	1	2	1	-	1	2	3	-
		CO5	2	1	1	-	2	-	-	2	1	2	-	2	2	3	-
	GE8076 - Professional Ethics in Engineering	CO1	-	-	-	-	-	3	3	3	3	1	,-	1	-	2	
177 / 77111		CO1	1	2	1	-	-	-	-	-	-	-	-	-	2	2	1
IV / VIII	CS8078 - Green	CO2	1	1	1	-	-	-	-	-	-	-	-	-	2	2	-
1										+	-		-	+	+	+	+
	Computing	CO3	1	2	1	-	-	-	-	-	-	-	-	-	1	1	1

		СО						Prog	ramm	e Out	come	(PO)					
	Subject Name		1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2	PSO 3
IV / VIII	CS8811 - Project Work	CO1	2	3	2	3	1	2	2	1	2	2	1	1	2	2	2

HOD/CSE 25 1 21

PRINCIPAL





DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

REGULATION 2017

CO-PO-PSO-PEO MAPPING

PO-COMPETENCY- PERFORMANCE INDICATORS

OBE IMPLEMENTATION - PROCESS REPORT

PROGRAMME ARTICULATION MATRIX- SEMESTER WISE







DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

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:

PO:1.Engineering knowledge:

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

PO: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.

PO: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.

PO: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.

PO: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.

PO: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.

PO: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.

PO:8.Ethics:

Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO:9.Individual and team work:

Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO: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.

PO: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.

PO: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)

- **PSO:1.** To analyze, design and develop solutions by applying foundational concepts of electronics and communication engineering.
- **PSO:2.** To apply design principles and best practices for developing quality Products for scientific and business applications.
- **PSO: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

MAPPING OF PROGRAMME EDUCATIONAL OBJECTIVES WITH PROGRAMME OUTCOMES

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

PROGRAMME EDUCATIONAL					PROG	RAMMI	E OUTC	OMES		C - n n		
OBJECTIVES	A	В	С	D	E	F	G	Н	I	J	K	L
1	3	3	2	. 3	2	1	1	2	1	1	3	1
2	3	3	3	3	3	1	1	1	1	1	1	2
3	3	3	3	3	3	2	2	3	1	2	2	2

MAPPING OF PROGRAM SPECIFIC OBJECTIVES WITH PROGRAMME OUTCOMES

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

PROGRAM SPECIFIC					PROG	RAMM	E OUTC	OMES				ļ
OBJECTIVES	A	В	С	D	Е	F	G	Н	I	J	K	L
. 1	3	3	2	3	2	1	1	1	1	1	1	2
2	3	3	3	3	3	2	2	3	1	3	3	3
3	3	3	3	3	3	3	3	2	1	1	1	3

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				PR	OGR	AMM	E OU	TCO	MES			
Sem	Course Name	a	b	С	d	е	f	g	h	i	j	k	1
	Communicative English						1	1	1	1	V	1	
	Engineering Mathematics-I	1	1	1	1							1	1
	Engineering Physics	1	1	1	1							1	1
	Engineering Chemistry	1	1	1	1							1	1
I	Problem Solving and Python Programming	1	1	1	1	1						1	1
	Engineering Graphics	1		e de la							1	1	1
	Problem Solving and Python	1	1	1	1	1						1	1
	Programming Laboratory									a gala a			
	Physics and Chemistry Laboratory	1	1	1	1							1	1
											1	-	
	Technical English					1	1	1	1	1	1	1	1
	Engineering Mathematics-II	1	√	\forall	√							1	1
	Physics for Electronics Engineering	1	√	1	1				100			1	1
	Basic Electrical and Instrumentation	1	1	1	1	1	1					1	1
II	Engineering												1
	Circuit Analysis	1	1	1	1	1	1					1	1
	Electronic Devices	1	1	1	1	1	1			1	1	1	1
	Circuits and Devices Laboratory	1	1	1	1	1				1	<u> </u>	V	1
	Engineering Practices Laboratory	1	1	1	1	1						1	V

em	Course Name	a	b	C.	d	е	f	g	h	i	j	k	l
	Ellical Tilgebra and Tar	1	1	1	1	1	7					1	1
	Equations	1	-1	1	,	ļ.,-	,			-	+	1	1.1
	Fundamentals of Data Structures In C		1	1	1	1	1				-	1	1
	Electronic Circuits- I	1	1	1	1	1	1					1	1
	Signals and Systems	1	1	1	1	1	1					1	1
III	Digital Electronics	1	1	1	1	1	1					11	1
	Control Systems Engineering	1	1	1	1	1	1					1	1
	Fundamentals of Data Structures in C Laboratory	1	1	1	1	1	1					1	1
	Analog and Digital Circuits Laboratory	1	1	1	1	1	1					1	1
	Interpersonal Skills/Listening &Speaking			(1		1		1	1	1	1	1
												1.	
	Probability and Random Processes	1	1	11	1	V	1,			-		11	1
	Electronic Circuits II	1	1	1	1	1	1			_		1	11
	Communication Theory	1	1	1	1	1	1					1	1
IV	Electromagnetic Fields	1	1	1	1	1	1					1	1
īŅ	Linear Integrated Circuits	1	1	1	1	1	1					1	1
	Environmental Science and Engineering	1	√		1		1	√	1			1	1
	Circuits Design and Simulation Laboratory	1	1	1	1	1	1					1	1
	Linear Integrated Circuits Laboratory	1	1	1	1	1	1					1	1
	Digital Communication	1	1	11	1	1	1	T		Т	T	1	11
	Discrete-Time Signal Processing	1	1	1	1	1	1		1	1	1	1	1
	Computer Architecture and Organization	1	1	1	1	+-	1	+	+	+-	+	1	1
	Communication Networks	1	1	1	1	1	1	1	+	+	+	1	1
V	Medical Electronics –PE-1	+ `	÷	÷	÷	÷	+-	+	+-	+	+-	+	+
٧	Renewable Energy Source -OE-1	+	+	+-	+	-	+	+-	+-	+	+-	+	+
	Digital Signal Processing Laboratory	1	1	1	1	1	1	+	+	+-	+	1	-
	Communication Systems Laboratory	1	1	1	1	1	1	+-	-	+-	+-	1	+
	Networks Laboratory	1	1	1	1	1	1	-	+-	+-	_	1	+
	Networks Laboratory	JV	IV	V		V							
10 m	Microprocessors and Microcontrollers	1	1	1	1	1	1			I	\perp	1	<u></u>
	VLSI Design	1	1	1	1	1	1					1	1
	Wireless Communication	1	1	1	1	1	1	1.	1.			1	1
	Principles of Management	1.		٠,	٠.	1	1	1	1		1	1	1
	Transmission Lines and RF Systems	1	1	1	1	1	1					1	1
V	Multimedia Compression and Communication –PE-2										1		
	Microprocessors and Microcontrollers Laboratory	1	1	1	1	1	1					1	1
	VLSI Design Laboratory	1	1	1	1	1	1					1	1
	Technical Seminar		1		1	1	1		1	1	1	1	+
	Technical Seminar	- 1	1 1										

Sem	Course Name	a	b	C	d	е	f	g	h	i	j	k	l
	Antennas & microwave Engineering	1	1	1	1	1	1					1	1
	Optical communication	1	1	1	1		1					1	1
	Embedded and real time Systems	1	1	1	1	1	1					1	1
X7XX	Ad-hoc and wireless sensor networks	1	1	1	1	1	1					1	1
VII	Advanced Wireless communication -PE-3												
	Transducer Engineering – OE-2												
	Embedded Laboratory	1	1	1	1	1	1					1	1
	Advanced Communication Laboratory	1	1	1	1	1	1					1	1
												•	
	Electro Magnetic Interference and		18										
VIII	Compatibility -PE-4	1											<u> </u>
	Satellite Communication -PE-5												
	Project Work	1	1	1	1	1	1		1	1	1	1	1

PROGRAM OUTCOMES- COMPETENCIES -PERFORMANCE INDICATORS.

PO1: Engineering Knowledge: apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.

	Competency	Performance Indicators		
1.1	Demonstrate competence in mathematical modeling	1.1.1	Apply mathematical techniques such as linear algebra, differential calculus, differential equations and integral calculus to solve problems	
		1.1.2	Apply concepts of Complex Variable, probability, linear algebra, vector integration and transformation techniques to model and solve electronics engineering problems.	
1.2	Demonstrate competence in basic sciences	1.2.1	Apply laws of natural science to an engineering problem	
1.3	Demonstrate competence in engineering fundamentals	1.3.1	Apply engineering fundamentals	
1.4	Demonstrate competence in specialized engineering knowledge to the program	1.4.1	Apply electronics engineering concepts to solve engineering problems	

PO2: 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.

	Competency		Performance Indicators
2.1	Demonstrate an ability to identify and formulate complex	2.1.1	Articulate problem statements and identify objectives.
	engineering problem	2.1.2	Identify engineering systems, variables, and parameters to solve a problem
		2.1.3	Identify the mathematical, engineering and other relevant knowledge that applies to a given problem
2.2	2.2 Demonstrate an ability to formulate a solution plan and methodology for an engineering problem	2.2.1	Reframe complex problems into interconnected sub-problems.
		2.2.2	Identify, assemble and evaluate information and resources
		2.2.3	Identify existing solution/methods for solving the problem, including forming justified approximations and assumptions
		2.2.4	Compare and contrast alternative solution/methods to select the best methods.

2.3	Demonstrate an ability to formulate and interpret a model	2.3.1	Combine scientific principles and engineering concepts to formulate model/s (mathematical or otherwise) of a system or process that is appropriate in terms of applicability and required accuracy.
,		2.3.2	Identify assumptions (mathematical and physical) necessary to allow modeling of a system at the level of accuracy required.
2.4	solution process and analyze	2.4.1	Apply engineering mathematics to implement solution
	results	2.4.2	Analyze and interpret the results using contemporary tools.
		2.4.3	Identify the limitations of the solution and sources/causes of error.
		2.4.4	Arrive at conclusions with respect to the objectives.

PO3: 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.

	Competency		Performance Indicators
3.1	Demonstrate an ability to define a complex/open-ended problem in	3.1.1	Recognize that need analysis is key to good problem definition
	Demonstrate an ability to define a complex/open-ended problem in engineering terms Demonstrate an ability to generate a diverse set of alternative design solutions	3.1.2	Able to identify and document system requirements from stakeholders.
		3.1.3	Ability to review state of the art literature to synthesize requirements.
		3.1.4	Extract engineering requirements from relevant engineering codes and standards defined by ISO/IEC/IEEE.
		3.1.5	Explore and synthesize engineering requirements considering health, safety, risks, environment, cultural and societal issues
		3.1.6	Determine design, objectives, functional requirements and arrive at specifications
3.2		3.2.1	Ability to explore design alternatives.
		3.2.2	Build models/prototypes to develop diverse set of design solutions
		3.2.3	Identify suitable criteria for evaluation of alternate design solutions
3.3	optimal design scheme for further	3.3.1	Ability to perform systematic evaluation of the degree to which several design concepts meet the criteria.
		3.3.2	Consult with domain experts and stakeholders to select candidate engineering design solution for further development

3.4	Demonstrate an ability to advance an engineering design to defined end state	3.4.1	Refine a conceptual design into a detailed design within the existing constraints (of the resources)
		3.4.2	Generate information through appropriate tests to improve or revise design

PO4: Conduct Investigation of Complex Problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.

	Competency		Performance Indicators
4.1	Demonstrate an ability to conduct investigations of technical issues	4.1.1	Define a problem for purpose of investigation, its scope and importance
	consistent with their level of knowledge and understanding	4.1.2	Choose appropriate methods, algorithms, hardware/software tools and techniques of experiment design, system calibration, data acquisition, analysis and presentation
		4.1.3	Apply appropriate hardware/software tools to conduct the experiment
		4.1.4	Establish a relationship between measured data and underlying physical principles
4.2	Demonstrate an ability to design experiments to solve open ended problems	4.2.1	Design and develop experimental approach, specify appropriate equipment and procedures
		4.2.2	Understand the importance of statistical design of experiments and choose an appropriate experimental design plan based on the study objectives
4.3	Demonstrate an ability to analyze data and reach a valid conclusion	4.3.1	Use appropriate procedures, tools and techniques to collect and analyze data
		4.3.2	Critically analyze data for trends and correlations, stating possible errors and limitations
, ,		4.3.3	Represent data (in tabular and/or graphical forms) so as to facilitate analysis and explanation of the data, and drawing of conclusions
		4.3.4	Synthesize information and knowledge about the problem from the raw data to reach appropriate conclusions

PO5: Modern Tools 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.

Competency		Performance Indicators	
5.1	identify/create modern engineering tools, techniques and	5.1.1	Identify modern engineering tools techniques and resources for engineering activities
	resources	5.1.2	Create/adapt/modify/extend tools and techniques to solve engineering problems

5.2	Demonstrate an ability to select and apply discipline specific tools, techniques and resources	5.2.1	Identify the strengths and limitations of tools for (i) acquiring information (ii) modeling and simulating (iii) monitoring system performance, and (iv) creating engineering designs
		5.2.2	Demonstrate proficiency in using discipline specific tools
5.3	Demonstrate an ability to evaluate the suitability and limitations of	5.3.1	Discuss limitations and validate tools, techniques and resources
	tools used to solve an engineering problem	5.3.2	Verify the credibility of results from tool use with reference to the accuracy and limitations, and the assumptions inherent in their use.

PO6: 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.

6.1	D		
0.1	Demonstrate an ability to describe engineering roles in a broader context, e.g. pertaining to the environment, health, safety, legal and public welfare	6.1.1	Identify and describe various engineering roles; particularly as pertains to protection of the public and public interest at global, regional and local level.
6.2	Demonstrate an understanding of professional engineering regulations, legislation and standards	6.2.1	Interpret legislation, regulations, codes, and standards relevant to professional engineering practice and explain its contribution to the protection of the public.

PO7: Environment & Sustainability: understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

	Competency		Performance Indicators
7.1	Demonstrate an understanding of the impact of engineering and	7.1.1	Identify risks/impacts in the life-cycle of an engineering product or activity
	industrial practices on social, environmental and in economic contexts	7.1.2	Understand the relationship between the technical, socioeconomic and environmental dimensions of sustainability
7.2 Demonstrate an ability to apply principles of sustainable design	7.2.1	Describe management techniques for sustainable development	
	and development	7.2.2	Apply principles of preventive engineering and sustainable development to an engineering activity or product relevant to the discipline

PO8: Ethics: apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.

	Competency		Performance Indicators	
8.1	Demonstrate an ability to recognize ethical dilemmas	8.1.1	Identify situations of unethical professional conduct and propose ethical alternatives	
8.2	Demonstrate an ability to apply the code of ethics	8.2.1	Identify tenets of code of ethics given by the professional bodies like IEEE.	
		8.2.2	Examine and apply moral & ethical principles to known case studies	

PO9: Individual & Team work: function effectively as an individual and as a member or leader in	n
diverse teams, and in multidisciplinary settings.	

	Competency		Performance Indicators
9.1	Demonstrate an ability to form a team and define a role for each member	9.1.1	Recognize a variety of working and learning preferences; appreciate the value of diversity on a team
		9.1.2	Implement the norms of practice (e.g. rules, roles, charters, agendas etc.) of effective team work, to accomplish a goal
9.2	Demonstrate effective individual and team operations communication, problem solving,	9.2.1	Demonstrate effective communication, problem solving, conflict resolution and leadership skills
	conflict resolution and leadership	9.2.2	Treat other team members respectfully
1	skills	9.2.3	Listen to other members
		9.2.4	Maintain composure in difficult situations
9.3	Demonstrate success in a team based project	9.3.1	Present results as a team, with smooth integration of contributions from all individual efforts

PO10: 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.

	Competency		Performance Indicators
10.1	Demonstrate an ability to comprehend technical literature	10.1.1	Read, understand and interpret technical and non-technical information
	and document project work	10.1.2	Produce clear, well-constructed, and well-supported written engineering documents
		10.1.3	Create flow in a document or presentation- a logical progression of ideas so that the main point is clear
10.2	Demonstrate competence in listening, speaking and presentation	10.2.1	Listen to and comprehend information, instructions, and viewpoints of others
		10.2.2	Deliver effective oral presentations to technical and nontechnical audiences
10.3	3 Demonstrate the ability to integrate different modes of communication	10.3.1	Create engineering-standard figures, reports and drawings to complement writing and presentations
		10.3.2	Use a variety of media effectively to convey a message in a document or a presentation

PO11: Project management & 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.

Competency		Performance Indicators
11.1 Demonstrate an ability to evaluate the economic and financial performance of an engineering activity	11.1.1	Describe various economic and financial costs/benefits of an engineering activity Analyze different forms of financial statements to evaluate the financial status of an engineering project

11.2	Demonstrate an ability to compare and contrast the costs/benefits of alternate proposals for an engineering activity	11.2.1	Analyze and select the most appropriate proposal based on economic and financial considerations
11.3	Demonstrate an ability to plan/manage an engineering activity within time and budget	11.3.1	Identify the tasks required to complete an engineering activity and the resources required to complete the tasks
	constraints	11.3.2	Use project management tools to schedule an engineering project so it is completed on time and on budget

PO12: 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.

	Competency		Performance Indicators
12.1	Demonstrate an ability to identify gaps in knowledge and a strategy	12.1.1	Describe the rationale for requirement for continuing professional development
	to close these gaps	12.1.2	Identify deficiencies or gaps in knowledge and demonstrate an ability to source information to close this gap
12.2		12.2.1	Identify historic points of technological advance in engineering that required
	Demonstrate an ability to identify changing trends in engineering		practitioners to seek education in order to stay current
	knowledge and practice	12.2.2	Recognize the need and be able to clearly explain why it is vitally important to keep current regarding new developments in your field.
12.3	Demonstrate an ability to identify and access sources for new information	12.3.1	Source and comprehend technical literature and other credible sources of information
		12.32	Analyze sourced technical and popular information for feasibility, viability, sustainability etc.

IGAC Member

HOD | ECE

PRINCIPAL

PROGRAMME ARTICULATION MATRIX

SEM	COURSE	,				PR	OGRA	M OUT	гсом	Es - (F	os)					PSOs	
		COs	PO -1	PO -2	PO -3	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
			•	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12	-1	-2	-3
		CO:1	•	-	-	-		1	2	 .	2	2	1	-	2		2
	HS8151	CO:2	-	-	-	-	-	2	2	-	-	2	3	-	2		3
		CO:3	•	-	-	-	-	2	1	-	3	1	2	-	-	1	2
		CO:4	-	-	-	-	-	3	2	-	1	1	3	-	3	2	-
	11	CO:1	1	1	-	-	-	-	-	-	-	-	-	1	1	•	-
		CO:2	2	2	1	1	-	-	-	-	-	-	1	2	1		
	MA8151	CO:3	2	2	1	2	-	-	-	-	-	-	1	2	1	1	-
	MAOISI	CO:4	2	2	1	1	-	-	-	-	-	-	<u> </u>	2	1	1	1
	7	CO:5	2	1	-	1	-	-	-	 	-	-	-	2	1	1	1
		CO:6	2	2	1	2	·	-	-	-	-	-	-	1	1	-	
		CO:7	2	2	2	1	-	-	-	-	-	-	1	2	2	1	1
		CO:1	2	1	1	1	١.	-	-	-	-	-	1	1	1	1	-
	DUOTE	CO:2	2	2	2	2	-	١.	-	-	-	-	1	1	2	2	
	LU9121	CO:3	2	2	2	2	-	-	-	-	-	-	1	1	2	2	•
		CO:4	1	1		 	-	-	-	-	-	-	-	-	-	-	•
I		CO:5	2	1	1	1	١.	-	-	-	-	-	1	1	1	1	-
SEM	CY8151	CO:1	2	2	1	1	١.	-	-	-	-	-	1	1	1	-	•
		CO:2	-	-	-	-	-		-	-	-	-	-	-	-	-	-
		CO:1	1	2	1	1	١.	-		-	-	-	-	1	2	2	1
		CO:2	1	1	1	1	-	<u> </u>	-	-	-	-	-	1	2	2	-
	GE8151	CO:3	1	2	1	1	-	١.	<u> </u>	-	-	-	-	1	1	1	1
		CO:4	1	2	2	1	1	١.	-	-	-	-		1	2	2	1
	1.46	CO:5	1	2	2	1	1		-	-	-	-		1	2	2	1
		CO:6	1	2	1	1	1	-	-	-	-	-	-	1	1	1	-
		CO:1	2	-	-	-	-	-	-	-	-	3	2	-	1	-	1
	070470	CO:2	1	-	-	-	-			-		3	2	-	-	2	1
	GE8152	CO:3	2	-	-	-	-	-	-	-	-	2	3	-	-	-	1
		CO:4	3	-	-	-		-	-	-	-	3	2	-	1	-	1
		CO:5	3	-	-	-	-	-	† -	-	١.	3	2	-	-	2	1
		CO:1	3	2	1	1	2	-	-	-	-	<u> </u>	-	1	2	2	1
	Loan	CO:2	2	2	2	1	1	1 -	-	<u>├</u>	 	١.	-	1	2	2	1
	GE8161	CO:3	2	2	2	1	1		-	-	١.	-	-	1	1	1	1
		CO:4	2	2	1	1	1	١.	•	-	١.	<u> </u>	-	1	2	2	1
		CO:5	1	1	1	1	1		-	-	-	-	-	1	2	2	1
	BS8161	CO:1	2	1	1	1	-	† -	<u> </u>	-	-	<u> </u>	1	1	1	1	-
	200101	CO:2	2	1	1	1	-	-	-	-	-	-	1	1	1	1	
	L									1			1	1 1	1	1	-

SEM	COURSE					PRO	OGRA	M OUT	гсомі	Es - (P	os)					PSOs	
		COs	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
			-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12	-1	-2	-3
		CO:1	-	•				2	2	-	2	2	1	-	2	-	2
	HS8251	CO:2	-		-			2	2	-	-	2	3	-	2	-	3
	1	CO:3	-	-	-			2	1	-	3	1	2	-	-	1	2
		CO:4	-	-	-	-	-	3	2	-	1	1	3	-	3	2	•
		CO:1	1	1	1	1	-	-	-	-	-	-	1	1	1	1	•
	N4400E4	CO:2	1	1	1		-	-		-		-		1	1	-	-
	MA8251	CO:3	1	1	1		-	-	-	-	 -	١.	1	1	1	1	
		CO:4	2	2	1		-	-	١.	-	-	-	-	1	1		-
		CO:5	1	1	1		-	-	-		-	-	1	1	1	1	
		CO:1	2	1	-		-	-	-		-	-	-	-	-	-	-
	РН8253	CO:2	2	1	-	-		-	-	-	-	-	-	-	-		
		CO:3	2	2	1	1	١.	-	-	† -	-	-	-	-	1	1	-
		CO:4	2	1	-	-	-	-	١.	-	-	-	-	-	1	1	
		CO:5	2	1	3 -	-	-	 -	١.	-	-	-	-	-	1	1	-
	DE0254	CO:1	3	3	2	1	2	2	-	-	 -	-	1	1	2	2	1
II	BE8254	CO:2	3	3	2	1	2	2	1 -	 -	 -	-	1	1	2	2	1
SEM		CO:3	3	3	2	1	2	2	-	-	-	-	1	1	2	2	1
	EC8251	CO:1	3	3	3	2	2	2	1 -	1.	-		2	2	3	2	3
		CO:2	3	3	3	2	2	2	-	-	-		2	2	3	2	3
	ECO2E2	CO:1	2	2	2	2	2	2	-	-	-	-	-	-	2	2	1
	EC8252	CO:2	2	3	3	2	2	2	-	٠.	-	-	-	-	2	2	-
		CO:3	2	2	2	2	2	1	-	-	-	-	-	-	2	2	-
		CO:1	2	2	2	2	3	2	-	-	-	-	٠.	-	2	2	1
	EC02.64	CO:2	2	3	3	2	2	2	-	-	-	-	-	•	2	3	-
	EC8261	CO:3	2	3	3	3	2	1	-	-	-	-	-	-	2	2	-
		CO:1	3	3	2	3	2	-	-	-	-	-	1	1	3	2	1
	CE0044	CO:2	3	3	2	3	2	-	-	-	1 -	-	1	1	3	2	1
	GE8261	CO:3	3	3	2	3	2	-	-	-		-	1	1	3	2	1
		CO:4	3	3	2	3	2	-	-	-	1 -	-	1	1	3	2	1

SEM	COURSE					PR	OGRA	M OUT	гсомі	Es - (P	Os)					PSOs	
		COs	PO -1	PO -2	PO	PO	PO	PO	РО	PO	PO	PO	PO	РО	PSO	PSO	PSO
				-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12	-1	-2	-3
		CO:1	2	2	1	•			-	-	-	-	-	1	1	-	-
	MA8352	CO:2	2	2	1	-			-	-	-	-	-	1	1	-	-
		CO:3	2	3	1	1	1	-	· -	-	-	-	1	2	2	1	-
		CO:4	2	3	2	1	-	-	-	-	-	-	1	2	2	2	•
	1	CO:1	1	3	1	2	1	2	-	-	-	-	1	1	1	2	2
	EC8393	CO:2	1	3	2	2	1	2	-	-	-	-	1	1	1	2	2
	200373	CO:3	1	3	1	2	1	2	١.	-	-	-	1	1	1	2	2
	, 14	CO:4	1	3	. 2	2	3	2	-	-	-	-	1	1	2	2	2
		CO:5	1	2	1	2	1	2	١.	-	-	-	1	1	2	2	2
		CO:1	3	3	2	2	١.	·	 	-	-	-	-	† -	3	-	-
	EC8351	CO:2	3	3	3	2	-	-	<u> </u>	-	-	-	-	-	3	-	-
		CO:3	2	2	3	3	-	-	 -	-	-	-	-	-	2	-	+
		CO:4	1	2	1	2	3	-	-	-	-	-	-	-	3	3	3
		CO:1	3	3	1	1	2	 -	-		-	-	-	-	3	-	1
III	EC8352	CO:2	3	3	1	1	2	-	 -	-	-	-	-	-	3	-	1
SEM		CO:3	3	3	1	2	2	2	-	-	-	-	1	-	3	-	1
02		CO:4	3	3	1	2	2	2	-		-	-	1	1	3	<u> </u>	
	EC8392	CO:1	2	2	1	1	+-	2	-	-	-	-	-	-	2	-	1
		CO:2	2	2	2	2	1	2	-	-		<u> </u>	-	-	2		-
		CO:3	2	2	2	2	1	2	-	-	-	<u> </u>	-	-	2	2	-
		CO:4	2	2	2	2	2	2	-	-	<u> </u>	-	2	2		2	-
		CO:5	2	2	2	2	2	2	-		-	<u> </u>	2	2	2	2	2
		CO:1	3	3	2	2	2	1	-	<u> </u>	<u> </u>	<u> </u>	1		2	2	2
		CO:2	3	3	3	3	3	2	<u> </u>	-	<u> </u>	-		1	3	3	-
	EC8391	CO:3	3	3	3	3	3	2	-	<u> </u>	<u> </u>	-	1	1	3	3	-
	A	CO:4	3	3	3	3	3	2	-	-	<u>-</u>		1	1	3	3	-
	1	CO:5	3	3	3	3	2	2	-	<u> </u>	<u> </u>	<u> </u>	1	1	3	3	-
	EC8381	CO:1	1	1	1	2	1	2	-	<u> </u>	-	<u> </u>	1	1	3	3	2
		CO:2	1	2	1	2	1	2	-	-	-	-	1	1	1	2	2
		CO:3	1	2	1	2	1	2	-		-	-	1	1	1	2	2
		CO:4	1	2	2	2	1	2		<u> </u>	-	-	1	1	1	2	2
	EC8361	CO:1	3	3	2	 -	3	-	-	<u> </u>	<u> </u>	-	-	-	3	2	2
		CO:2	3	3	2	-	3	-	-		-	-	-	-	3	3	3
		CO:3	3	3	3	 	3	-	-		-	-	-			•	•
		CO:4	3	3	3	-	3	-	-	· .	-			-	3	•	•
		CO:5	3	3	2	+-	3	-	 	÷	-	-	-	-	3	-	•
	13	CO:6	3	3	2	3	3	-	+ -	-		-	-	-	-	•	-
		CO:7	3	3	2	2	3	<u> </u>		-	-	-	-	-	3	2	-
	HS 8381	CO:7	-	-	-	-	-		•	-	-	-	-	-	3	-	3
	U2 029T							1	•	1	2	2	1	2	2	1	2
		CO:2	-	-	ļ <u>-</u>	-	<u> </u>	2	-	-	2	2	3	1	2	•	3
	. No. 1	CO:3	•	-	-	•	ļ <u>.</u>	3	-	-	1	1	2	3	•	2	2
		CO:4	<u> </u>	-	_	-	•	3	-	1	2	1	2	2	2	2	-

SEM	COURSE					PR	OGRA	M OUT	ГСОМ	Es - (F	os)					PSOs	
	in the second	COs	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
			-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12	-1	-2	-3
		CO:1	1	1	1	1		-	-	-	-	-	-	-	1	-	
	MADA 54	CO:2	1	1	1	-	-	-	-	-	-	-	-	-	1	-	
	MA8451	CO:3	1	1	1	-	-	-	-	-	-	-	-	-	1	1	-
		CO:4	2	2	1	-	† -	┼-	-	-	 -	-	-	1	1	1	-
		CO:5	1	1	1		+ -	-	-	-	-	-	-	1	1	1	-
		CO:1	3	3	3	3	3	3	-	-	-	-	3	3	3	3	3
		CO:2	3	3	3	3	3	3	-	-	-	-	3	3	3	3	3
	EC8452	CO:3	3	3	3	3	3	3	-	-		-	3	3	3	3	3
		CO:4	3	3	3	3	3	3	-	-	-	-	3	3	3	3	3
		CO:5	3	3	3	3	3	3	-	-	-	-	3	3	3	3	3
	7/4	CO:1	2	3	1	1	-	-	-	-	-	-	-	-	2	-	
		CO:2	2	2	1	2	1	2	 	<u> </u>	-	-	2	1	2	-	1
	EC8491	CO:3	2	2	1	2	1	2	-	-	-		2	1	2	2	2
		CO:4	2	2	1	2	1	2	-	 	<u> </u>	<u> </u>	2	1	2	-	1
		CO:5	2	2	1	2	1	2	 	 	<u> </u>	<u>-</u>	2	1	2	-	2
IV		CO:1	2	2	1	2	1	2	-	<u> </u>	-	 	2	1	2	-	2
SEM	EC8451	CO:2	3	3	1	2	2	2	-	<u> </u>	<u> </u>	·	-	 	2	2	-
SEM	200101	CO:3	3	3	3	1	3	2	-	-	-	-	-	-	2	2	<u> </u>
		CO:4	2	1	1	+-	-	1	-	-	-	-	-	 .	2	2	<u> </u>
		CO:1	2	2	2	1	-	<u> </u>	-	-	-	-	-	-	3	3	1
		CO:2	2	2	2	1	+-	<u> </u>	-	-	-	-	<u> </u>	-	2	2	-
	EC8453	CO:3	2	2	2	1	١.	 -	-	 -	-		-	-	2	3	-
		CO:4	2	2	2	+-	-	-	-	١.	-	-	-	-	2	2	-
		CO:5	2	2	2	١.	١.	 .	-	-	-		-	-	2	2	<u> </u>
		CO:1	2	2	 -	2	-	1	3	2	<u> </u>	-	1	1	1	2	1
	CE0201	CO:2	2	2	١.	3	+-	1	3	2	<u> </u>	-	1	1	1	2	1
	GE8291	CO:3	2	2	-	3	+-	1	3	2	-	-	1	1	2	1	2
		CO:4	1	2	-	2	 -	1	3	2	-	-	1	1	1	1	2
		CO:1	2	3	1	1	-	 -	-	-	-	-	-	<u> </u>	2	-	-
	176.	CO:2	2	2	1	2	1	2	-	-	-	-	2	1	2	-	1
	EC8461	CO:3	2	2	1	2	1	2	-	-	 -	-	2	1	2	2	2
		CO:1	2	1	2	1	2	1	-	 	-	-	1	1	2	2	1
		CO:2	2	1	2	1	2	1	-	-	١.	-	1	1	2	2	1
	EC8462	CO:2	2	1	2	1	1	2	-	<u>-</u>	<u>-</u>	-	1	1	2	2	1
					2	1	1	2	-	 	+-	+ -	1	1	2	2	1
		CO:4	2	1			-	2		-		<u>-</u>	1	1	2	2	1
		CO:5	2	1	2	1	1		_	-	•		1	1			1

SEM	COURSE					PRO	GRAN	A OUT	COME	s - (P	Os)					PSOs	
		COs								- (•						
			PO -1	PO -2	PO -3	PO -4	PO -5	PO -6	PO -7	PO -8	PO -9	PO -10	PO -11	PO -12	PSO -1	PSO -2	PSO -3
		CO:1	2	1	1	2	2	-	-	-	-	-	-	-	3	-	-
		CO:2	2	2	1	2	1	-	-	-	-	-	-	-	3	•	-
	EC8501	CO:3	2	1	1	2	2	-	-	-	-	-	-	•	2	•	-
		CO:4	2	1	2	2	2	-	-	-	-	-	-	-	3	-	3
		CO:5	2	1	2	2	2	2	-	-	-	-	2	1	3	-	-
		Ç0:1	2	2	2	2	2		-	-	-	-	-	-	3	2	-
		CO:2	2	2	2	2	2	 .	-	-	-	-	-	-	3	3	-
	EC8553	CO:3	2	2	2	2	2	<u> </u>	-	-	-	-	-	-	2	1	-
		CO:4	2	1	1	1	2	2	-	-	-	-	2	2	1	•	3
		CO:5	2	1	1	1	2	2	-	-	<u> </u>	-	2	2	1	-	3
		CO:1	2	1	1	2	+-	2	١.	-	-	<u> </u>	-	2	2	2	-
		CO:2	2	2	1	2	+-	 -	+-	١.	+-	+-	+-		3	3	3
	EC8552	CO:3	2	1	1	2	-	+ -	+-	+-	-	+-	1	2	3	2	-
		CO:4	2	1	1	2	١.	+-	+-	+-	-	-	1	2	2	+-	 -
		CO:5	1	1	1	2	+-	+-	+-	+-	-	+-	 	+-	2	-	-
		CO:1	2	1	1	1	+-	+-	-	+-	+-	-	-	-	3	2	-
	EC8551	CO:2	+-		+-	1	1	+-	+-	+-	+-	+-	-	+-	3	2	-
	EC0351	CO:3	_	1	+-	 	1	+-	+ -	+-	+-	-	+-	+-	+ -	2	3
		CO:4	-	+ -	+-	+-	1	+-	+-	-	+-	-	+-	1	+-	3	3
		CO:1	1	+-	+-	+-	2	+-	+-	2	+-	+-	2	2	3	2	3
17	1	CO:2	+:	2	2	+-	2	2	2	+-	+-	+-	2	2	3	2	3
V SEM	EC8073	CO:3	1	+-	+-	2	+-	2	2	2	+-	2	2	2	1	2	3
SEM		CO:4	1	+-	+-	+-	+-	2	2	2	+-	2	2	2	1	2	3
		CO:5	1	2	2	+-	-	2	2	+-	+-	2	2	2	1	2	3
		CO:1	3	3	+-	+-	+-	2	1	+-	+-	-	+-	+-	1	+	-
	1 7.	CO:2	2	2	1	+-	+-	-	+-	+-	+-	+-	+-	+-	+-	2	+-
	OR0551	CO:3		-	+-	3		+-	+-	-	-	-	+-	+-	-	-	2
		CO:4	3	+-	2	+ -	+ -	2	3	+-	+-	-	-	-	2	-	+-
		CO:5	3	2	2	+-	+-	2	3	+-	+-	+-	+-	+-	+-	-	2
	EC8562	CO:1	3	3	2	+-	2	_	+-	-	+-	+-	2	2	3	3	+-
	EC0302	CO:2	3	3	2		2		+-	+-	+-	-	2	2	3	3	+ -
		CO:3	3				2		-	+-	+-	-	2	2	3	2	2
		CO:4	3	100	2	_	_		-	+-	+-	+-	2	2	3	2	 -
		CO:5	3	_	2		_			+-	+-	-	2	2		2	+-
1.50	EC8561	CO:3	3		_					-	+-	 -	2			2	2
	EC9201	CO:2	3							+-	-	+-	2			2	2
			3							+-	+-	+-	2			2	$\frac{2}{2}$
		CO:3								+-	+-	_	-			2	2
	7227 12	CO:4	3	_		_					_	_	-			1	1
	EC8563	CO:1	1			_				-						1	1
	7.49	CO:2	1							-			_				2
		CO:3	1					_		_	_				_	1	1
		CO:4					_			_	_	_				1	
		CO:5	1	2	2	1	1	1		.			1	1	. 2	1	1

SEM	COURSE					PRO	OGRAN	TUO N	COMI	Es - (P	os)					PSOs	
		COs	PO -1	PO -2	PO -3	PO -4	PO -5	PO -6	PO -7	PO -8	PO -9	PO -10	PO -11	PO -12	PSO -1	PSO -2	PSO -3
-		CO:1	3	2	2	2	2	1		-	-	-	1	1	3	2	1
		CO:2	3	2	2	2			-	-	-	-	1	1	3	2	1
	EC8691	CO:3	3	2	2	2	2	1	+-	-	-	-	1	1	3	2	1
		CO:4	3	2	2	2	2	1	-	-	-	-	1	1	3	2	1
		CO:1	2	1	1	1	1	1	 .	-		-	-	-	2	. 1	1
		CO:2	1	1	2	1	1	1	-	-	-	-	-	-	2	1	1
	EC8095	CO:3	1	1	2	1	1	1	-	-	-	-	-	-	2	1	1
		CO:4	2	1	1	2	1	1	-	 	-	1 -	-	-	2	1	1
		CO:5	1	1	1	2	1	1	1	-	-	1.	-	-	2	1	2
		CO:1	2	1	1	-	-	+-	<u> </u>	+-	-	-	-	-	2	2	2
	EC8652	CO:2	1	1	1	+-	-	+-	١.	١.		-	-	-	3	3	3
		CO:3	2	1	1	+-	-	-	-	-	-	-	-	-	3	2	3
		CO:1	+-	+-	1	-	—	2	2	3	 -	2	2	2	1	2	2
		CO:2	+-	+-	١.	 	-	2	2	3	-	2	3	2	1	2	2
	MG8591	CO:3	-	١.	+-	+-	 -	2	2	3	 -	1	3	2	1	2	2
		CO:4	-	1.	+-	+-	+-	2	2	3	│	1	3	2	1	2	2
		CO:5	-		+-	+-	+-	2	2	3	+-	1	3	2	1	2	2
		CO:1	3	3	3	3	3	3	-	1-	1-	-	3	3	3	3	3
VI		CO:2	2	3	2	2	2	2	-	 -	-	-	2	2	2	2	2
SEM	EC8651	CO:3	3	3	3	3	3	2	-	-	-	-	3	3	2	2	3
JLM		CO:4	3	3	3	3	3	2	-	-	-	-	2	3	3	3	3
		CO:5	2	2	2	2	3	2	-	-	-	-	2	2	2	2	2
		CO:1	3	2	3	-	-	-	-	-	-	-		-	3	1	
	EC8002	CO:2	3	3	3	3	3	-	-	-	-	-	-	-	2	3	-
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		CO:1	3	2	2	2	3	2	-	-		-	2	2	2	2	2
	EC8701	CO:2	3	3	2	3	3	2	-	-	-	-	2	2	3	2	2
		CO:3	3	3	2	3	3	2	-	-	-	-	2	2	3	2	2
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	EC8711	CO:3	1	-	2	1	-	1	-	-	-	-	-	-	3	3	3
		CO:4	1	1	1	1	-	-	-	-	-	-	-	-	3	3	3
		CO:5	1	1	1	1	1	1	-	-	-	-	-	-	3	3	3
	4	CO:6	1	1	1	1	1	1	-	-	-	-	1	1	3	3	3
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		CO:3	2	3	1		-	-	2	-		-	1	2		-	-
		CO:4	2	-	-	-	2	3	2	-	-	-	-	2	-	-	
	EC8811	CO:1	2	2	3	2	3	2	2	2	2	2	3	3	2	2	2

IQAC Member

22/01/2021 HOD/ECE

J. PRINCIPAL

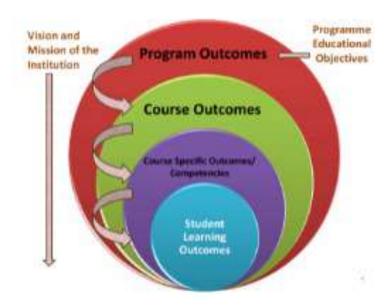






Department of Electrical and Electronics Engineering

2.6.1 - Program Outcome and Course Outcome



Index

SNo	Description	Page number
1	Anna University Regulations (B.E – EEE) – PEO, PO	1
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Department of Electrical & Electronics Engineering

AU-REGULATIONS

PEO

- 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.

PO

The graduates will have the ability to

- 1. Apply the Mathematical knowledge and the basics of Science and Engineering to solve the problems pertaining to Electrical and Electronics Engineering.
- 2. 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.
- 3. 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.
- 4. 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.
- 5. 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.
- 6. 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.
- 7. Be aware of the impact of professional Engineering solutions in societal and environmental contexts and exhibit the knowledge and the need for Sustainable Development.
- 8. Apply the principles of Professional Ethics to adhere to the norms of the engineering practice and to discharge ethical responsibilities.
- 9. Function actively and efficiently as an individual or a member/leader of different teams and multidisciplinary projects.
- 10. 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.

- 11. 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.
- 12. Recognize the need for self and life-long learning, keeping pace with technological challenges in the broadest sense

PSO

- 1. To analyze, design and develop prototype models by applying foundational concepts of Electrical and Electronics Engineering.
- 2. To apply Electrical circuit principles and Electronics design practices for developing quality products for scientific and commercial applications.
- 3. To adapt to emerging Information and Communication Technologies (ICT) to innovate ideas and solutions to existing/novel problems.

PO WITH PEO MAPPING

PEO/PO	1	2	3	4	5	6	7	8	9	10	11	12
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PSO WITH PEO MAPPING

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	Engineering Physics	V	J	17	 	Ť		7					\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
	Engineering Chemistry	V	V	Ī		Ż							<u>v</u> ,
Semester- I	Problem Solving and Python Programming	√	√	√	V	V							<u>√</u>
	Engineering Graphics			1	V								
	Problem Solving and Python Programming Laboratory		,======	V	√	√	√				√		√
	Physics and Chemistry Laboratory	√	√										

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	Technical English								-	-	J	7		1/
	Engineering Mathematics - II	V	V	V		1	1			†	 			7
	Physics For Electronics Engineering	V	V	V		,	/		V					
Semester-	Basic Civil and Mechanical Engineering				V									
,,,	Circuit Theory	$\sqrt{}$	V	V	V	V								√
	Environmental Science and Engineering	√	V			V	v		V	1				√
	Engineering Practices Laboratory			V	V.	V	V					√		

	Electric Circuits Lab		V	•	V	V	V	I	Ī		V		٧
	Course	1	2	3	4	5	6	17	8	9	10	111	12
	Transforms and Partial Differential Equations	V	1				1	-		1			V
	Digital Logic Circuits				-	17	+	-	-	-	-	1	-
	Electromagnetic Theory	V	V	V	V	V	1	11000	1-	1	IV	1	v
Semester-	Electrical Machines - I	V	V	V	V	V	1	1	1	1	V		
111	Electron Devices and Circuits	V	V	V	V	V							V
	Power Plant Engineering			V	V	V	110	V	V	V			
	Electronics Laboratory				V	V						V	V
	Electrical Machines Laboratory - I				V	V						V	V
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	Numerical Methods	J	V	V	Ť	1	1						V
	Electrical Machines - II	1	V	V	1	V	1	V	1				V
	Transmission and		V	V	1	V		1					V
	Distribution Measurements and		+				-	-	-		-		,
	Instrumentation	√ 	V	√	V	V	-						V
	Linear Integrated Circuits and Applications			\checkmark		√							
Semester-	Control Systems	1	V		1	V							V
IV	Electrical Machines Lab II	V	V	$\sqrt{}$		V							
	Linear and Digital Integrated Circuits Laboratory	\checkmark			√						√	√	\checkmark
	Technical Seminar										$\sqrt{}$	$\sqrt{}$	
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	Course Power System Analysis	-	7	7	1	7	0	1	0	-	10	-11	1 2
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	Microcontrollers	-	-		,				V	V		V	V
	Power Electronics	V		$\sqrt{}$	V	√		√					
	Digital Signal Processing	V	-	$\sqrt{}$	$\sqrt{}$	V		$\sqrt{}$					V
	Object Oriented Programming				$\sqrt{}$	$\sqrt{}$						and the same of	$\sqrt{}$
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V	Instrumentation Control and									,		+	
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	Соттипісафоп									V	V	· ·	
	Object Oriented Programming Laboratory			$\sqrt{}$	$\sqrt{}$	$\sqrt{}$							V
	Course	1	2	3	4	5	6	7	8	9	10	11	12
	Solid State Drives	7	V	V	V	7		V			1		
	Protection and Switchgear	V	1	V	V	V	1	V	1			-	V
	Embedded Systems	-										-	
Semester-	Design of Electrical	V		V	V	V		V					
VI	Apparatus Special Electrical Machines	7	-	V	V	7	-		V				
	Power Electronics and	V	1	1	1	-	1	1	1	-	V	V	V
	Drives Laboratory	V		v	*						•	•	•

Microprocessors and Microcontrollers Laboratory Mini Project	√	V	V			V	√	√	7
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	High Voltage Engineering	1	1	17	14	1 5	6	7	8	9	10	11	12
	Power System Operation		V	\V_	V	V		V					V
	and Control		√		√ .	√							1
	Renewable Energy Systems		V	1	1	1	-	1		 			-
Semester- VII	Introduction to C Programming		Ì		1	V		V					V
• • • •	Disaster management			V		J	7					-7	-
	Power System Transient		7		V	1	-					V	_ v
	Power System Simulation Laboratory	√			√	_					√	V	1
	Renewable Energy Systems Laboratory	$\sqrt{}$	_	√	V				-		1	√	√ √

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Semester-	Electric Energy Generation, Utilization and Conservation	√	V	√	√	V		V			10	11	12
VIII	Microcontroller Based System Design		√	√					√	√			√
	Project Work	$\sqrt{}$	1	V	V	J							

COMPETENCY - PERFORMANCE INDICATOR TABLE

PO1: Engineering Knowledge: Apply the Mathematical knowledge and the basics of Science and Engineering to solve the problems pertaining to Electrical and Electronics Engineering.

EII	gineering to solve the problems pertaini	ng to Elec	trical and Electronics Engineering.
	Competency		Performance Indicators
1.1	Demonstrate competence in mathematical modeling	1.1.1	Apply mathematical techniques such as linear algebra, differential calculus, differential equations and integral calculus to solve problems
		1.1.2	Apply concepts of Complex Variable, probability, linear algebra, vector integration and transformation techniques to model and solve electronics engineering problems.
1.2	Demonstrate competence in basic sciences	1.2.1	Apply laws of natural science to an engineering problem
1.3	Demonstrate competence in engineering fundamentals	1.3.1	Apply engineering fundamentals
1.4	Demonstrate competence in specialized engineering knowledge to the program	1.4.1	Apply electrical engineering concepts to solve engineering problems

PO2: Problem Analysis: 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

	Competency		Performance Indicators
2.1	Demonstrate an ability to identify	2.1.1	Articulate problem statements and identify
	and formulate complex		objectives.

	engineering problem	2.1.2	Identify engineering systems, variables, and parameters to solve a problem
		2.1.3	Identify the mathematical, engineering and other relevant knowledge that applies to a given problem
2.2	formulate a solution plan and	2.2.1	Reframe complex problems into interconnected sub-problems.
methodology for an engineering problem	problem	2.2.2	Identify, assemble and evaluate information and resources
		2.2.3	Identify existing solution/methods for solving the problem, including forming justified approximations and assumptions
	2.2.4	Compare and contrast alternative solution/methods to select the best methods.	

2.3	2.3 Demonstrate an ability to formulate and interpret a model	2.3.1	Combine scientific principles and engineering concepts to formulate model/s (mathematical or otherwise) of a system or process that is appropriate in terms of applicability and required accuracy.
		2.3.2	Identify assumptions (mathematical and physical) necessary to allow modeling of a system at the level of accuracy required.
2.4	Demonstrate an ability to execute a solution process and analyze results	2.4.1	Apply engineering mathematics to implement solution
		2.4.2	Analyze and interpret the results using contemporary tools.
		2.4,3	Identify the limitations of the solution and sources/causes of error.
		2.4.4	Arrive at conclusions with respect to the objectives.

PO3: 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.

Competency		Performance Indicators	
3.1	Demonstrate an ability to define a complex/open-ended problem in	3.1.1	Recognize that need analysis is key to good problem definition
	engineering terms	3.1.2	Able to identify and document system requirements from stakeholders.
		3.1.3	Ability to review state of the art literature to synthesize requirements.
		3.1.4	Extract engineering requirements from relevant engineering codes and standards defined by ISO/IEC/IEEE.

		3.1.5	Explore and synthesize engineering requirements considering health, safety, risks, environment, cultural and societal issues
3.2		3.1.6	Determine design, objectives, functional requirements and arrive at specifications
3.2	Demonstrate an ability to generate a diverse set of	3.2.1	Ability to explore design alternatives.
	alternative design solutions	3.2.2	Build models/prototypes to develop diverse set of design solutions
2.2	D	3.2.3	Identify suitable criteria for evaluation of alternate design solutions
3.3	Demonstrate an ability to select optimal design scheme for further development	3.3.1	Ability to perform systematic evaluation of the degree to which several design concepts meet the criteria.
		3.3.2	Consult with domain experts and stakeholders to select candidate engineering design solution for further development
3.4	Demonstrate an ability to advance an engineering design to defined end state	3.4.1	Refine a conceptual design into a detailed design within the existing constraints (of the resources)
		3.4.2	Generate information through appropriate tests to improve or revise design

PO4: Conduct Investigation of Complex Problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.

	Competency		Performance Indicators
4.1	Demonstrate an ability to conduct investigations of technical issues consistent with their level of	4.1.1	Define a problem for purpose of investigation, its scope and importance
	knowledge and understanding	4.1.2	Choose appropriate methods, algorithms, hardware/software tools and techniques of experiment design, system calibration, data acquisition, analysis and presentation
		4.1.3	Apply appropriate hardware/software tools to conduct the experiment
		4.1.4	Establish a relationship between measured data and underlying physical principles
4.2	Demonstrate an ability to design experiments to solve open ended problems	4.2.1	Design and develop experimental approach, specify appropriate equipment and procedures
7		4.2.2	Understand the importance of statistical design of experiments and choose an appropriate experimental design plan based on the study objectives
4.3	Demonstrate an ability to analyze data and reach a valid conclusion	4.3.1	Use appropriate procedures, toolsand techniques to collect and analyzedata

4.3.2	Critically analyze data for trends and correlations, stating possible errors and limitations
4.3.3	Represent data (in tabular and/or graphical forms) so as to facilitate analysis and explanation of the data, and drawing of conclusions
4.3.4	Synthesize information and knowledge about the problem from the raw data to reach appropriate conclusions

PO5: Modern Tools 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.

	Competency	Performance Indicators	
5.1	Demonstrate an ability to identify/create modern	5.1.1	Identify modern engineering tools techniques and resources for engineering activities
	engineering tools, techniques and resources	5.1.2	Create/adapt/modify/extend tools and techniques to solve engineering problems
5.2	Demonstrate an ability to select and apply discipline specific tools, techniques and resources	5.2.1	Identify the strengths and limitations of tools for (i) acquiring information (ii) modeling and simulating (iii) monitoring system performance, and (iv) creating engineering designs
		5.2.2	Demonstrate proficiency in using discipline specific tools
5.3	Demonstrate an ability to evaluate the suitability and limitations of	5.3.1	Discuss limitations and validate tools, techniques and resources
	tools used to solve an engineering problem	5.3.2	Verify the credibility of results from tool use with reference to the accuracy and limitations, and the assumptions inherent in their use.

PO6: 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.

	Competency		Performance Indicators	
6.1	Demonstrate an ability to describe engineering roles in a broader context, e.g. pertaining to the environment, health, safety, legal and public welfare	6.1.1	Identify and describe various engineering roles; particularly as pertains to protection of the public and public interest at global, regional and local level.	
6.2	Demonstrate an understanding of professional engineering regulations, legislation and standards	6.2.1	Interpret legislation, regulations, codes, and standards relevant to professional engineering practice and explain its contribution to the protection of the public.	

PO7: Environment & Sustainability: understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

	Competency		Performance Indicators	
7.1 Demonstrate an understanding of the impact of engineering and	7.1.1	Identify risks/impacts in the life-cycle of an engineering product or activity		
	industrial practices on social, environmental and in economic contexts	7.1.2	Understand the relationship between the technical, socioeconomic and environmental dimensions of sustainability	
7.2	7.2 Demonstrate an ability toapply principles of sustainable design anddevelopment	7.2.1	Describe management techniques for sustainable development	
		7.2.2	Apply principles of preventive engineering and sustainable development to an engineering activity or product relevant to the discipline	

PO8: Ethics: apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.

Competency			Performance Indicators	
8.1	Demonstrate an ability to recognize ethical dilemmas	8.1.1	Identify situations of unethical professional conduct and propose ethical alternatives	
8.2	8.2 Demonstrate an ability to apply the code of ethics	8.2.1	Identify tenets of code of ethics given by the professional bodies like IEEE.	
		8.2.2	Examine and apply moral & ethical principles to known case studies	

PO9: Individual & Team work: function effectively as an individual and as a member or leader in diverse teams, and in multidisciplinary settings.

	Competency		Performance Indicators	
9.1	Demonstrate an ability to form a team and define a role for each member	9.1.1	Recognize a variety of working and learning preferences; appreciate the value of diversity on a team	
		9.1.2	Implement the norms of practice (e.g. rules, roles, charters, agendas etc.) of effective team work, to accomplish a goal	
9.2	Demonstrate effective individual and team operations communication, problem solving, conflict resolution and leadership skills	9.2.1	Demonstrate effective communication, problem solving, conflict resolution and leadership skills	
		9.2.2	Treat other team members respectfully	
		9.2.3	Listen to other members	
		9.2.4	Maintain composure in difficult situations	
9.3	Demonstrate success in a team based project	9.3.1	Present results as a team, with smooth integration of contributions from all individual efforts	

PO10: 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.

	Competency	9	Performance Indicators
10.1	Demonstrate an ability to comprehend technical literature	10.1.1	Read, understand and interpret technical and non-technical information
	and document project work	10.1.2	Produce clear, well-constructed, and well- supported written engineering documents
		10.1.3	Create flow in a document or presentation- a logical progression of ideas so that the main point is clear
10.2	Demonstrate competence in listening, speaking and presentation	10.2.1	Listen to and comprehend information, instructions, and viewpoints of others
		10.2.2	Deliver effective oral presentations to technical and nontechnical audiences
10.3	Demonstrate the ability to integrate different modes of communication	10.3.1	Create engineering-standard figures, reports and drawings to complement writing and presentations
		10.3.2	Use a variety of media effectively to convey a message in a document or a presentation

PO11: Project management & 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.

	Competency		Performance Indicators				
11.1	the economic and financial	11.1.1	Describe various economic and financial costs/benefits of an engineering activity				
	performance of an engineering activity	11.1.2	Analyze different forms of financial statements to evaluate the financial status of an engineering project				
11.2	Demonstrate an ability to compare and contrast the costs/benefits of alternate proposals for an engineering activity	11.2.1	Analyze and select the most appropriate proposal based on economic and financial considerations				
11.3	Demonstrate an ability to plan/manage an engineering activity within time and budget	11.3.1	Identify the tasks required to complete an engineering activity and the resources required to complete the tasks				
The second secon	constraints	11.3.2	Use project management tools to schedule engineering project so it is completed on ti and on budget				

PO12: 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.

Competency	Performance Indicators
12.1 Demonstrate an ability to identify gaps in knowledge and a strategy	Describe the rationale for requirement for continuing professional development

12.2	to close these gaps	12.1.2	Identify deficiencies or gaps in knowledge and demonstrate an ability to source information to close this gap
	Demonstrate an ability to identify	12.2.1	Identify historic points of technological advance in engineering that required
	changing trends in engineering knowledge and practice		practitioners to seek education in order to stay current
		12.2.2	Recognize the need and be able to clearly explain why it is vitally important to keep current regarding new developments in your field.
12.3	Demonstrate an ability to identify and access sources for new information	12.3.1	Source and comprehend technical literature and other credible sources of information
	ARTICULATION MATRIX	12.32	Analyze sourced technical and popular information for feasibility, viability, sustainability etc.

SEMESTER-I

HS8151 - Communicative English

				PRO	OGRAN	1 OUT	COMES	- (PO	's)					PSOs	
COs	PO- 1	P0- 2	PO- 3	P0-	PO- 5	P0-	P0-	PO-	PO- 9	PO- 10	PO- 11	PO- 12	PSO-	PSO-	PSO-
C0:1	-	-	-	-	-	-	-	-	2	1	-	2	_	_	1
C0:2	-	-	-	-	-	-	-	-	1	2	-	1	-	-	1
C0:3	-	-	-	-	-	-	-		2	2	-	2	-		
C0:4	-	-	-	-	-	-	-	-	1	1	-	1	-	-	1

MA8151 - Engineering Mathematics-I

				PRO	OGRAM	1 OUT	COMES	- (PO	s)				PSOs			
COs	P0- 1	P0- 2	P0- 3	P0- 4	PO- 5	P0- 6	PO- 7	P0-	P0- 9	PO- 10	P0- 11	PO- 12	PSO-	PSO-	PSO-	
C0:1	1	1	1	-	-	-	-	-	-			7:	1	-		
C0:2	1	2	1	-	-	-	-	-	-	-	-//	-	1	-		
C0:3	1	2	1	-	-	-	-	-	-	-	1		1	-	•.	
C0:4	1	2	1	-	-	-	-	-	-	-	1	-	1			
CO:5	1	1	1	-	-	-	-		-	-	F	-	1	-	•	

PH8151 - Engineering Physics

				PRO	GRAM	OUTC	OMEs	- (PO	s)					PSOs	
COs	PO- 1	P0- 2	PO-	P0-	P0- 5	PO-	PO-	PO-	P0- 9	PO- 10	PO- 11	PO- 12	PSO-	PSO-	PSO-
C0:1	2	1	1	-	-	-	-	-	-	-	-				
C0:2	2	1	1		-		-		-	-	-		-	-	-
C0:3	2	1	1	-		-	-	-	-	-		-	2		-
C0:4	2	1	1	-	-		- '			-	-	-	2		
CO:5	2	1	1	-	-	-	-	-	-	-		-	2	-	

CY8151 - Engineering Chemistry

				PRO	GRAM	OUTO	OMEs	- (b0,	s)				PSOs		
COs	P0- 1	PO- 2	PO- 3	PO-	PO- 5	P0-	PO- 7	PO-	PO- 9	PO- 10	PO- 11	PO- 12	PSO-	PSO- 2	PSO-
C0:1	2	1		-	2	2	1	2		-	-	2	1	1	-
C0:2	1	1	-	-	1	1	1	1	-	-	-	1	1	1	-
C0:3	1	1	-		1	1	1	1		-		1	1	1	-
C0:4	1	1	-		1	1	1	1	-		-	1	1	1	-

GE8151 - Problem Solving and Python Programming

				PRO	GRAM	OUTO	OMEs	- (PO	s)				PSOs		
COs	P0-	PO- 2	PO-	PO-	PO- 5	P0- 6	PO- 7	PO- 8	PO- 9	PO- 10	PO- 11	P0- 12	PSO-	PSO- 2	PSO-
C0:1	2	1	-	1	2							1	-		1
C0:2	1	1	-	1	1							1	1		1
C0:3	1	1	»•	1	1							1	-		1
C0:4	1	1	-	1	1							1	-		1
C0:5	2	1	1	1	1							1	1		1
C0:6	2	1	1	1	-							1	1		1

GE8152 - Engineering Graphics

	1			PRO	GRAM	OUTO	OMES	- (PO'	s)					PSOs	
COs	P0- 1	PO- 2	PO- 3	PO- 4	PO- 5	PO- 6	PO- 7	PO-	PO- 9	PO- 10	PO- 11	PO- 12	PSO- 1	PSO- 2	PSO-
C0:1			1	1			•								
C0:2			1	1											
C0:3			1	1											
C0:4			1	1											
C0:5			1	1											

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GE8161 - Problem Solving and Python Programming Laboratory

				PRO	DGRAM	OUTO	OMES	- (PO	s)				PSOs			
COs	PO- 1	P0- 2	PO- 3	P0-	PO- 5	P 0-6	PO -	PO-	P0- 9	PO- 10	PO-	PO-	PSO-	PSO-	PSO-	
C0:1	2	1	1	1	1	,										
C0:2	2		1	1	1							1			1	
C0:3	1	1	1	1	1							1			1	
C0:4	2	1	1	1	1							1			-	
C0:5	1	2	1	1	1	1						1				

BS8161 - Physics and Chemistry Laboratory

				PSOs											
COs	PO- 1	P0- 2	P0-	P0-	P0- 5	P0- 6	P0-	P0-	P0-	PO- 10	PO- 11	PO- 12	PSO-	PSO-	PSO-
C0:1	1	2													
C0:2	1	1											1	1	1
C0:3	1	1											1	1	1

SEMESTER-II

HS8251 - Technical English

		ileal E	- B-201.		OGRAN	OUTO	COMES	- (PO	's)				T	PSOs	
COs	P0- 1	P0- 2	P0-	P0-	P0- 5	P0-	P0-	P0-	P0-	PO- 10	PO-	PO- 12	PSO-	PSO- 2	PSO-
C0:1	-	-	-	-	-	-	-	-	2	1		2		_	
C0:2	-	-	-	-	-	-	-	_	1	2	•	2	•	-	1
C0:3	-	-	-	_		_	_		2		-	1	-	-	1
C0:4					1	1		-	2	2	-	2	-	•	2
	-	-	-	-	-	-	-	-	1	1	-	1	-	-	1

MA8251 - Engineering Mathematics-II

			PRO	GRAM	OUTO	OMES	- (PO	s)					PSO ₅	
P0- 1	P0- 2	P0- 3	P0- 4	P0- 5	P0-	P0- 7	PO-	P0- 9	PO- 10	PO- 11	PO- 12	PSO-	PSO-	PSO-
1	1	1	-	-	-	-	-	-	-		-	1		-
1	2	1	-	-	-						-	1		
1	2	1	-	-	-	-	-					1	_	
1	2	1	-		-	-	-	-		-	-	1	-	
1	1	1	-	-	-	-	-	-		-	-	1	-	
		1 2 1 1 1 2 1 2	1 2 3 1 1 1 1 2 1 1 2 1	PO-1 PO-2 PO-3 PO-4 1 1 1 - 1 2 1 - 1 2 1 -	PO-1 PO-2 PO-3 PO-4 PO-5 1 1 1 - - 1 2 1 - - 1 2 1 - -	PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 1 1 1 - - - 1 2 1 - - - 1 2 1 - - -	PO-1 PO-2 PO-3 PO-5 PO-6 PO-7 PO-7 <th< td=""><td>PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 1 1 1 -<td>1 2 3 4 5 6 7 8 9 1 1 1 - - - - - 1 2 1 - - - - - 1 2 1 - - - - -</td><td>PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-7 PO-8 PO-9 PO-9 PO-10 PO-10</td><td>PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-7 PO-8 PO-9 PO-9 PO-8 PO-9 <th< td=""><td>PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 PO-90-10 PO-11 PO-12 1 1 1 -</td><td>PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 PO-9 PO-9 PO-10 PO-11 PO-12 PO-11 PO-12 PO-11 PO-12 PO-12 PO-13 PO-14 PO-15 PO-16 PO-17 PO-16 PO-17 PO-17</td></th<><td>PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 PO-9 PO-9 PO-10 PO-11 PO-11 PO-12 PSO-12 PSO-12<</td></td></td></th<>	PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 1 1 1 - <td>1 2 3 4 5 6 7 8 9 1 1 1 - - - - - 1 2 1 - - - - - 1 2 1 - - - - -</td> <td>PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-7 PO-8 PO-9 PO-9 PO-10 PO-10</td> <td>PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-7 PO-8 PO-9 PO-9 PO-8 PO-9 <th< td=""><td>PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 PO-90-10 PO-11 PO-12 1 1 1 -</td><td>PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 PO-9 PO-9 PO-10 PO-11 PO-12 PO-11 PO-12 PO-11 PO-12 PO-12 PO-13 PO-14 PO-15 PO-16 PO-17 PO-16 PO-17 PO-17</td></th<><td>PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 PO-9 PO-9 PO-10 PO-11 PO-11 PO-12 PSO-12 PSO-12<</td></td>	1 2 3 4 5 6 7 8 9 1 1 1 - - - - - 1 2 1 - - - - - 1 2 1 - - - - -	PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-7 PO-8 PO-9 PO-9 PO-10 PO-10	PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-7 PO-8 PO-9 PO-9 PO-8 PO-9 PO-9 <th< td=""><td>PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 PO-90-10 PO-11 PO-12 1 1 1 -</td><td>PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 PO-9 PO-9 PO-10 PO-11 PO-12 PO-11 PO-12 PO-11 PO-12 PO-12 PO-13 PO-14 PO-15 PO-16 PO-17 PO-16 PO-17 PO-17</td></th<> <td>PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 PO-9 PO-9 PO-10 PO-11 PO-11 PO-12 PSO-12 PSO-12<</td>	PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 PO-90-10 PO-11 PO-12 1 1 1 -	PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 PO-9 PO-9 PO-10 PO-11 PO-12 PO-11 PO-12 PO-11 PO-12 PO-12 PO-13 PO-14 PO-15 PO-16 PO-17 PO-16 PO-17 PO-17	PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 PO-9 PO-9 PO-10 PO-11 PO-11 PO-12 PSO-12 PSO-12<

10220 37

PH8253 - Physics for Electronics Engineering

	A CONTRACTOR OF THE CONTRACTOR			PRO	KRAN	OUTY	OWE	- (70	4)					PSON	
CO ₅	PO-	PO- 2	PO-	PO-		PO-	PO-	PO-	PO	PO- 10	PO-	PO-	PSO-	P'90-	PSO:
CO:1	2	1	1	de estadad				A		*				K	
CO:2	2	1	1		An experient		• 144	•	********	A-121	4			ė	
C0:3	2	1	1	•						Kana manad		b	2		
C0:4	2	1	1				,						j		hora ga
CO:5	2	1	1	B	•	,							2		lie wester

BEB252 - Basic Civil and Mechanical Engineering

				PRO	GRAM	outo	OMES	- {PO	s)					PSO _N	
COs	PO- 1	PO- 2	PO- 3	PO-	PO- 5	PO- 6	PO- 7	PO-	PO- 9	PO- 10	PO- 11	PO- 12	PSO-	P50-	P50
C0:1		,		3		2					e construction and		1	ero en ros	2
CO:2	1			3		2			,						1
C0:3		.1		3		2	,			,	,				
CO:4			,	3		2							1		
CO:5				2		1				,	,				

EE8251 - Circuit Theory

				PRO	GRAM	OUTO	OMES	- (PO	s)					P5O ₂	
COs	PO- 1	PO- 2	PO-	PO-	PO- 5	PO-	PO- 7	PO-	PO- 9	PO- 10	PO- 11	PO- 12	P50- 1	PSO- 2	P50
C0:1	2	2	2	1	I	1	1	•			1	1	2	1	. 1
CO:2	2	2	1	1	1	1	1				1	1	2	1	1
C0:3	1	2	2	1	1	1	1	-	-	-	ī	1	1	1	1

GFR291 - Environmental Science and Engineering

	1			PRO	GRAM	outo	OMES	- (PO	5}					P50%	
COs	PO-	PO- 2	PO-		PO- 5		PO- 7		PO- 9	PO- 10	PO- 11	PO- 12	P50-	P50- 2	P50-
CO:1	2	1	-		2	2	1	2				2	š.	1	
C0:2	1	1	-		1	1	I	1		,		1	1		
C0:3	1	1	-	-	1	1	1	1		-		1	1		
CO:4	1	1			1	1	1	1	-		-	1	2	1	

GE8261 - Engineering Practices

				PRO	GRAN	OUTO	COMES	- (PO	s)				T	PSOs	
COs	PO- 1	PO- 2	PO-	PO- 4	PO- 5	PO- 6	P0-	PO-	PO- 9	PO- 10	PO-	P0-	PSO-	PSO-	PSO-
C0:1	2	1	-	-	2	2	1	2			-	2	1	1	-
C0:2	1	1	-		1	1	1	1				1	1	1	-
C0:3	1	1	-	-	1	1	1	1	_	-		1	1	1	-
C0:4	1	1	-	-	1	1	1	1	-	-		1	1	1	

EE8261 - Electric Circuits Laboratory

				PRO	GRAN	OUT	COMES	- (PO	s)				T	PSOs	
COs	PO- 1	PO- 2	PO- 3	PO-	PO- 5	P0-	PO- 7	PO-	PO- 9	PO- 10	PO- 11	PO- 12	PSO-	PSO-	PSO-
C0:1	2		1	1	2	2	1	2	-	1		2	1	1	
C0:2	1		1	1	1	1	1 .	1	-	1	-	1	1	1	-
C0:3	1		1	1	1	1	1	1	-	1	-	1	1	1	

SEMESTER-III

MA8353 - Transforms and Partial Differential Equations

				PRO	OGRAM	1 OUT	COMES	- (PO	s)					PSOs	
COs	PO- 1	P0- 2	PO- 3	PO- 4	PO- 5	P0-	PO- 7	PO-	PO- 9	PO- 10	PO- 11	PO- 12	PSO-	PSO-	PSO-
C0:1	2	1			-							-	1	1	-
C0:2	2	1			1							-	1	1	-
C0:3	2	1			1								1	1	1
C0:4	2	1			1							-	1	2	1
C0:5	2	1			1							1	-	1	2

EE8351 - Digital Logic Circuits

				PR	OGRAN	1 OUT	COMES	- (PO	's)					PSOs	
COs	PO- 1	PO- 2	PO- 3	PO- 4	PO- 5	PO- 6	PO- 7	PO-	PO- 9	PO- 10	PO- 11	PO- 12	PSO-	PSO-	PSO-
CO:1	1	3	3	2	-	-	•		-	-	-	-	3	2	-
C0:2	1	-	-	-	3	-	-	-	-	-		-	2	-	3
C0:3	3	2	1	-	-	-	•	-		-	-	-	3	-	-
C0:4	3	3	3	2	-	-	-	-	-		-	-	2	3	-
C0:5	3	3	3	2	-	-	-	-		-	-	-	3	1	2
C0:6	-	-	2	-	3	-	-	-	-	-	-	-	2	2	3

EE8391 - Electromagnetic Theory

				PF	ROGRA	M OUT	гсомі	Es - (P	os)					PSOs	
COs	PO-	PO-	РО-	PO-	РО-	PO-	PO-	PO-	PO-	PO-	PO-	PO-	PSO-	PSO-	PSO-
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO:1	2	2	1	2	1					1		1	2	1	2
CO:2	2	2	2	2	2					1		1	2	2	1
CO:3	2	2	2	2	2					1		1	2	2	1
CO:4	2	2	1	2	1					1		1	2	2	1
CO:5	2	2	1	2	2					1		1	2	2	1
CO:6	2	2	2	1	2					1		1	2	2	1

EE8301 - Electrical Machines - I

				PR	OGRA	M OU	гсомі	Es - (P	os)					PSOs	
COs	PO-	PO-	PO-	РО-	PO-	PO-	РО-	PO-	PO-	PO-	PO-	Р0-	PSO-	PSO-	PSO-
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	2	2	1	1	1					2			3	3	2
CO 2	1	2	1	2	1					2			3	1	2
CO 3	2	2	2	2	1					2			3	1	2
CO 4	2	1	1	1	1					2			3	2	1
CO 5	2	1	1	1	1					2			3	2	1

EC8353 - Electron Devices and Circuits

				PRO	GRAM	OUT	COMES	- (Po	s)					PSOs	
COs	PO-	PO-	PO-	PO-	PO-	PO-	PO-	РО-	PO-	PO-	PO-	Р0-	PSO-	PSO-	PSO-
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO 1	2	2											2		
CO 2	2	2	1	1									2	2	
CO 3	1	2	2	2									2	2	
CO 4	1	2	2	2									2	2	
CO 5	1	1	2	2									1	2	

ME8792 - Power Plant Engineering

COs				PR	OGRA	M OU	ГСОМ	Es - (P	os)				1		
cos	PO-	PO-	PO-	P0-	PO-	PO-	P0-	7						PSOs	
	1	2	3	4				PO-	PO-	PO-	PO-	PO-	PSO-	PSO-	PSO
CO 1					5	6	7	8	9	10	11	12	1	2	3
CO 1			2	2	1		1	1	1				2		
CO 2			2	2					Ì				2	1	1
CO 2	1	The state of the s	2	2	1	-	1	2	1				2	1	-
CO 3		-	2	2						1			-	1	1
		1	2	2	1	1	1	1	1		1	-	2	1	1
CO 4			2	1	2		-					ì	-	1	1
CO 1				1	2	ĺ	2	2	1				2	1	1
CO 5			2	1	2		-						1	-	•
4	I	1		•	2		2	2	1				2	1	1
8311 - Elect	ronics	Labo	mton					i						-	•

COs	PO-	DO.	DO					Es - (P						PSOs	
CO 1	1	P0- 2	3	PO- 4	PO- 5	PO-	PO-	PO-	PO- 9	PO- 10	PO-	PO- 12	PSO-	PSO-	PSO-
E8311 - Elect	rical	Machi	nes L	abora	itory -	- I					1	1	1	1	1

CO _s	-			PR	OGRA	M OU	ГСОМ	Es - (P	os)					PSOs .	
	PO- 1	PO- 2	PO-	PO- 4	PO- 5	P0- 6	PO- 7	PO-	PO- 9	PO- 10	PO- 11	P0-	PSO-	PSO-	PSO-
CO:1	1			1	1						1	1			
CO:2	2			1	1						1		1	1	1
CO:3	1	1	1	2	.		-				1	1	1	1	1
	•			2	1					1	1	1	1	1	1

SEMESTER -IV MA8491- Numerical Methods

ĺ			PF	ROGRA	M OU	TCOM	Es - (P	os)					PSOc	
PO- 1	PO- 2	PO- 3	PO- 4	PO- 5	PO- 6	PO- 7		,	PO- 10	PO- 11	PO- 12	PSO-	PSO- 2	PSO-
2	2	1									1			1
1	2	1									1			
1	1	1					-				1			
2	1	1							1		1			1
1	2	1				1				-	,			1
	1 2 1 1	1 2 2 2 1 2 1 1 2 1	1 2 3 2 2 1 1 2 1 1 1 1 2 1 1	PO-1 PO-2 PO-3 PO-4 2 2 1 1 2 1 1 1 1 2 1 1	PO-1 PO-2 PO-3 PO-4 PO-5 2 2 1 1 1 2 1 1 1 1 1 1 2 1 1 1	PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 2 2 1	PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 2 2 1	PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 PO-8 <th< td=""><td>PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 PO-9 2 2 1</td><td>PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 PO-8 PO-9 PO-10 PO-8 PO-10 PO-8 PO-10 PO-10</td><td>PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 PO-9 PO-9 PO-9 PO-9 PO-9 PO-10 PO-11 PO-11</td><td>PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 PO-9 PO-9 PO-9 PO-9 PO-9 PO-9 PO-10 PO-11 PO-11 PO-12 PO-12</td><td>1 2 3 4 5 6 7 8 9 PO- PO- PO- PO- 11 PO- PO- PO- 12 1 2 2 1 1 1 1 1 1 2 1 1 1 1 1 1 1 1 1 2 1 1 1 1 2 1 1 1 1</td><td>PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 PO-9 PO-9 PO-9 PO-10 PO-11 PO-12 PSO-12 PSO-12<!--</td--></td></th<>	PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 PO-9 2 2 1	PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 PO-8 PO-9 PO-10 PO-8 PO-10 PO-8 PO-10 PO-10	PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 PO-9 PO-9 PO-9 PO-9 PO-9 PO-10 PO-11 PO-11	PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 PO-9 PO-9 PO-9 PO-9 PO-9 PO-9 PO-10 PO-11 PO-11 PO-12 PO-12	1 2 3 4 5 6 7 8 9 PO- PO- PO- PO- 11 PO- PO- PO- 12 1 2 2 1 1 1 1 1 1 2 1 1 1 1 1 1 1 1 1 2 1 1 1 1 2 1 1 1 1	PO-1 PO-2 PO-3 PO-4 PO-5 PO-6 PO-7 PO-8 PO-9 PO-9 PO-9 PO-10 PO-11 PO-12 PSO-12 PSO-12 </td

EE8401 - Electrical Machines - II

				PR	OGRA	M OU	ТСОМ	Es - (P	os)					PSOs	
COs	PO-	PO- 2	PO-	PO- 4	PO- 5	PO-	PO- 7	PO-	PO- 9	PO- 10	PO- 11	PO-	PSO-	PSO-	PSO-
CO:1	1	2	1	1	1		2					1	1		1
CO:2	1	2	1	1	1		1					1	1	1	1
CO:3	1	1	1	1	1		1					1	1	1	1
CO:4	1	1	1	1	1		1					1	1	1	1
CO:5	1	1	1	1	1		1					1	1	1	
CO:6	1	2	2	1	1		1			-		1	1	1	1

EE8402 - Transmission and Distribution

				PF	ROGRA	M OU'	ГСОМ	Es – (P	os)					PSOs	
COs	P0-	PO- 2	PO- 3	PO- 4	PO- 5	PO-	PO- 7	PO-	PO- 9	PO- 10	PO- 11	PO- 12	PSO-	PSO-	PSO-
CO:1	1	1	2	2	2	-	1	-	-	-	-	2	1	1	1
CO:2	2	1	1	2	2	-	1	-	-	-	-	1	1	1	1
CO:3	2	2	2	2	1	-	1	-	-	-	-	2	1	1	1
CO:4	1	2	1	1	1	-	1	-	-	-	-	1	1	1	1
CO:5	1	2	1	1	1	-	1	-	-	-	-	1	1	1	1
CO:6	1	2	2	2	1	-	2	-	-	-	-	1	1	1	1

EE8403 - Measurements and Instrumentation

COs				PF	ROGRA	M OU'	ГСОМ	Es – (P	os)					PSOs	
cos	PO- 1	PO- 2	PO- 3	PO- 4	PO- 5	PO- 6	PO- 7	PO-	PO- 9	PO- 10	PO- 11	PO- 12	PSO-	PSO-	PSO-
CO:1	1	1	2	2	2	-	-	-	-	-	-	2	1	1	1
CO:2	2	1	1	2	2	-	-	-	-		:	1	1	1	1
CO:3	2	2	2	2	1	-	-	-	-	-	-	2	1	1	1
CO:4	1	2	1	1	1	-	-	-	-	-	-	1	1	1	1
CO:5	1	2	1	1	1	-	-	-	-	-		1	1	1	1
CO:6	1	2	2	2	1	-	-	-	-	-		1	1	1	- <u>-</u>

EE8451 - Linear Integrated Circuits and Applications

			8.44	nn	Cuits	and A	pplic	ation	S						
COs	PO-	PO-	PO-	PH	OGRA	M OU	ГСОМІ	Es - (P	os)					PSOs.	and the second second
	1	2	3	PO- 4	PO- 5	PO-	PO- 7	8 PO-	PO-	PO- 10	PO-	PO-	PSO-	PSO-	PSO
CO:1	1	1	1		1							12	1	2	3
CO:2	1	1	2									2	1		1
	-	-	2		1							1	,		
CO:3	1	1	1		1							-	1		1
CO:4	2	1	1		1							2	1		1
CO:5	1	1			-			_				1	1		1
	-	1	1		1			1				1	1		
CO:6	1	1	1		1				-+		-	-	1		1
IC8451 -	Cont	rol Sy	stems									1	1		1

Os	-			PR	OGRA	M OU	ГСОМІ	Es - (P	os)				Υ	PSOs	
	PO- 1	PO- 2	PO- 3	PO- 4	PO- 5	PO- 6	PO-	PO-	PO- 9	PO- 10	PO-	PO-	PSO-	PSO-	PSO-
CO:1	1	1	1	1	1										3
CO:2	1	1	2	1	1							2	1	1	1
CO:3	1	1	1	1	1			-				1	1	1	1
CO:4	2	1		1								2	1	1	1
CO =	-	1	1	1	1							1	1	1	1
CO:5	1	1	1	1	1							1	1	1	
CO:6	1	1	1	1	1		1		-		-	-	1	1	1
			i									1	1	1	1

EE8411 - Electrical Machines Laboratory - II

COs				PR	OGRA	M OU'	ГСОМІ	Es - (P	os)					PSOs	
	PO- 1	PO- 2	PO- 3	PO- 4	PO- 5	PO- 6	PO- 7	PO-	PO- 9	PO- 10	PO- 11	PO- 12	PSO-	PSO- 2	PSO 3
CO:1	2	1	1	1	1							2	1	1	
CO:2	1	2	2	1	1								1	1	1
CO:3	1	2	1	1	1							1	1	1	1
CO:4	2	1	1	1	1							2	1	1	1
CO:5	1	1	1	1	1						-	1	1	1	1
								- 1	- 1	- 1	- 1	1	1	1	1

EE8461 - Linear and Digital Integrated Circuits Laboratory

				PR	OGRA	M OU		Es - (P	os)					PSO ₅	-
COs	PO- 1	PO- 2	PO-	PO- 4	PO- 5	PO-	PO- 7	PO-	PO-	PO- 10	PO- 11	PO- 12	PSO-	PSO-	P\$0 3
CO:1	2		1	1						1	1	2	1	1	1
CO:2	1		2	1						1	1	1	1	1	1
CO:3	1		1	1						1	1	2	1	1	1
CO:4	2		1	1					-	1	1	1	1	1	1
CO:5	1		1	1						1	1	1	1	1	1

EE8412 - Technical Seminar

				PR	OGRA	M OUT	гсомі	Es - (P	os)					PSOs	
COs	PO- 1	PO- 2	PO- 3	PO-	PO- 5	P0-	PO- 7	PO-	PO- 9	PO- 10	PO- 11	PO- 12	PSO-	PSO- 2	PSO-
CO:1									1	1	1		1		1
CO:2									1	1	1		1		1
CO:3									1	1	1		1	and a second	1

SEMESTER -V EE8501 - Power System Analysis

				PR	OGRA	M OU'	гсомі	Es - (P	os)					PSOs	
COs	PO-	PO-	PO-	PO-	РО-	Р0-	PO-	PO-	PO-	PO-	PO-	PO-	PSO-	PSO-	PSO-
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO:1	3	3	2	2	1		1					1	2	1	
CO:2	3	3	3	2	1	1	1					2	2	2	
CO:3	3	3	3	2	1	1	1					2	2	1	1
CO:4	3	3	3	2	1	1	1					2	3	1	1
CO:5	3	3	2	2	1	1	2					1	2	1	

EE8551 - Microprocessors and Microcontrollers

				PR	OGRA	M OUT	гсомі	Es - (P	os)					PSOs	
COs	P0-	PO- 2	PO- 3	PO- 4	PO- 5	PO- 6	PO -	PO-	PO- 9	PO- 10	PO- 11	PO- 12	PSO- 1	PSO- 2	PSO-
CO:1	2		2		2				1			1	1	1	1
CO:2	1		1		1				1				1	1	1
CO:3	1		1		1				1				1	1	1
CO:4	1		1		1				1				1	1	1
CO:5	2		2		2				1				1	1	1
CO:6	1		2		2				2			1	1	2	1

EE8552 - Power Electronics

PO- 2 2	PO- 3	PO- 4	PO- 5	PO- 6	PO- 7	PO-	PO- 9	PO- 10	PO- 11	PO- 12	PSO- 1	PSO- 2	PSO-
	1	1	2		1								
2	-									4		<i>(</i> - 1	
4	1	1 1	2		1						2	1	1
2	1	1	2		1						2	1	1
2	1	1	2		1						2	1	1
2	1	1	2		1						2	1	1
_	2	2 1 2 1	2 1 1 2 1 1	2 1 1 2 2 1 1 2	2 1 1 2 2 1 1 2	2 1 1 2 1 2 1 1 2 1 2 1 1 2 1	2 1 1 2 1 2 1 1 2 1	2 1 1 2 1 2 1 1 2 1 2 1 1 2 1	2 1 1 2 1 2 1 1 2 1	2 1 1 2 1 2 1 1 2 1 2 1 1 2 1	2 1 1 2 1 2 1 1 2 1 2 1 1 2 1	2 1 1 2 1 2 2 2 1 1 2 2 1 2 2	2 1 1 2 1 2 1 1 2 1 2 1 1 2 1

EE8591 - Digital Signal Processing

COs				PI	ROGRA	M OU	ГСОМІ	Es - (P	os)				T	PSOs	
	PO- 1	PO- 2	PO-	PO- 4	PO- 5	PO-	PO-	PO-	PO-	PO- 10	PO- 11	PO- 12	PSO-	PSO-	PSO-
C0:1	2	2	2	1					,	10	11	12	1	1	3
C0:2	2	1	2	2									1		1
C0:3	2	2	1	1									1	1	1
C0:4	1	1	1	1									1	1	1
C0:5	2	1	1	1									1	1	1
C0:6			2	2	-								1	1	1
			2	4	2								1	1	1

CS8392 - Object Oriented Programming

PO- 2	РО-	PO-					os)				1	PSOs	
	3	4	PO- 5	PO- 6	PO- 7	PO-	PO- 9	PO- 10	PO- 11	PO- 12	PSO1	PSO2	PSO3
	2	2	1							1			
	2	2	1							1			
	2	1	1							1			
	2	2	1							1			
	2	2	1							1			
		2	2 1 2 2 2 2	2 1 1 2 2 1 2 2 1 2 2 1	2 1 1 1 2 2 1 1 2 2 1 1 1 1 1 1 1 1 1 1	2 1 1 1 2 2 1 1 2 2 1 1 1 1 1 1 1 1 1 1	2 1 1 1 2 2 1 1 2 2 1 1 1 1 1 1 1 1 1 1	2 1 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 2 1 2 2 2 1 2 2 2 2 1 2 2 2 2 1 2 2 2 2 1 2	2 1 1 2 2 1	2 1 1 2 2 1	2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	

OMD551 - Basics of Biomedical Instrumentation

				PR	OGRAM	1 OUT	COME	s - (Po	s)				T	PSOs	
COs	PO- 1	PO- 2	PO- 3	PO -4	PO- 5	PO -6	PO -7	PO -8	PO -9	PO -10	PO -11	PO- 12	PSO -1	PSO- 2	PSO-
CO:1				2		1							2	1	
CO:2				2		2	·			-			2	1	1
CO:3	1	1	1	2	2	2				-			2	1	1
CO:4			1	1	1	2		-	-				2	1	
CO:5	++		2	1	1	2				ļ				1	1
CO.3				1	1								2	1	1

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EE8511 - Control and Instrumentation Laboratory

				PR	OGRA	M OU		_	Pos)					PSOs	
COs	P0 -1	P0 -2	PO -3	PO -4	P0 -5	PO -6	PO -7	P0 -8	P0 -9	PO -10	P0 -11	P0 -12	PSO -1	PSO -2	PSO -3
CO:1			2			1			1	1			2	2	1
CO:2			1			2			1	1			2	2	1
CO:3				2	1	1			1	1			2	2	1
CO:4				1	2	1			1	1			1	2	1
CO:5			1		1	2			1	1			1	2	1
CO:6			1	1	1	2			1	1			1	2	1

HS8581 - Professional Communication

CO-				PR	OGRAN	1 OUT	COME	s – (Po	s)					PSOs	
COs	PO-	PO-	Р0-	PO	PO-	PO	PO	PO	PO	PO	PO	PO-	PSO	PSO-	PSO-
	1	2	3	-4	5	-6	-7	-8	-9	-10	-11	12	-1	2	3
CO:1									1	1	1				1
CO:2									1	1	1				1
CO:3									1	1	1				1
CO:4									1	1	1				1

CS8383 - Object Oriented Programming Laboratory

				PR	OGRAM	OUT	COMES	s (Po	s)					PSOs	
COs	PO-	P0- 2	PO- 3	PO -4	PO- 5	PO -6	PO -7	PO -8	PO -9	PO -10	P0 -11	PO- 12	PS0 -1	PSO- 2	PSO-
CO:1			2	2	3							1	2	1	1
CO:2			2	2	3							1	2	1	1
CO:3			2	3	3							1	2	1	1

SEMESTER VI

EE8601 - Solid State Drives

EE860					OGRA	M OU	TCOM	Es - (Pos)					PSOs	
COs	P0 -1	PO -2	PO -3	PO -4	PO -5	PO -6	PO -7	PO -8	P0 -9	P0 -10	P0 -11	P0 -12	PSO -1	PSO -2	PSO -3
CO:1	1	1	1	1	1		1						1	1	
CO:2	2	1	2	1	1		2						1	1	
CO:3	1	1	1	1	1		1						1	1	
CO:4	1	1	1	1	1		2						1	1	
CO:5	1	1	1	1	1		1					,	1	1	
CO:6	1	1	1	1	2	1	1						1	1	

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EE8602 - Protection and Switchgear

		,		PR	OGRA	M OU	TCOM	IEs - (Pos)				T	PSOs	
COs	P0 -1	PO -2	PO -3	P0 -4	P0 -5	P0 -6	P0 -7	P0 -8	P0 -9	PO -10	P0 -11	P0	PSO -1	PSO -2	PSO
CO:1	1	1	1	1	1		1		-	-					
CO:2	2	1	2	1								1	1	1	1
No. Months			۷	1	1		2					1	1	1	1
CO:3	1	1	1	1	1		1								1
CO:4	1	1	1	1	1		2					1	1	1	1
CO. F	1	-					2		İ		1	1	1	1	1
CO:5	1	1	1	1	1		1		1	_		1	1		
CO:6	1	1	1	1	2		-					1	1	1	1
				-	-	1	1	- 1	-	1		1	1	1	1

EE8691 - Embedded Systems

	0			PR	ROGRA	M OU	TCOM	IEs - (Pos)					PSOs	
COs	P0 -1	P0 -2	P0 -3	PO -4	P0 -5	P0 -6	P0 -7	P0 -8	P0 -9	PO -10	P0 -11	P0 -12	PS0 -1	PSO -2	PSO
CO:1	1	1	1	1						-		-			
CO:2	1	1	1	1								1	1	1	1
												1	1	1	1
CO:3	1	1	1	1								1			
CO:4	1	1	1	1					-			1	1	1	1
		1						ĺ				1	1	1	1
CO:5	1	1	1	1						1		1			
CO:6	1	1	1	1								1	1	1	1
EE8002	-		1	1	1	1	1	1	1	İ		1	1	1	1

Grand Control of the				PF	ROGRA	M OU	TCOM	IEs - (Pos)				T	PSOs	/
COs	P0 -1	P0 -2	P0 -3	P0 -4	PO -5	P0 -6	PO -7	P0 -8	P0 -9	P0 -10	P0 -11	P0 -12	PS0 -1	PSO -2	PSO
CO:1	1		1	1	2		1						1	/	-
CO:2	1		1	1	1		1				1		1/	1	1
CO:3	1	1	1	1	1		1						1	1	1
CO:4	1		1	1	1		1	-					/1	1	1
		-	-		1		1						1	1	1
CO:5	1	1	1	1	1	William and	1					1	1	1	1
CO:6	1		1	1	1	-	1		1		1		-	- 1	

EE8005 - Special Electrical Machines

				PR	OGRA	M OU	TCOM	Es - (Pos)				-	PSO ₅	transfer company Total
COs	PO -1	PO -2	PO -3	PO -4	PO -5	P0 -6	P0 -7	P0 -8	P0	PO -10	PO -11	PO -12	PS0 -1	PS0 -2	PS0
CO:1	1		1	1	1			1				-	1	1	1
CO:2	1		1	1	1	-		1	-			-	1	1	i
CO:3	1		1	2	1			1		-			1	1	1
CO:4	1		1	1	1			1					1	1	1
CO:5	1		1	1	2			1					1	1	1
CO:6	1		1	1	1			1					1	1	1
CO:7	1		1	1	1			1					1		1

EE8661 - Power Electronics and Drives Laboratory

				PR	OGRA	M OU	TCOM	IEs - (Pos)					PSOs	
COs	P0 -1	PO -2	PO -3	PO -4	PO -5	P0 -6	PO -7	PO -8	P0 -9	PO -10	PO -11	PO -12	PSO -1	PS0 -2	PSO -3
CO:1	1		1							1	1	1	1	1	1
CO:2	1		1							1	1	1	1	1	1
CO:3	1		1							1	2	1	1	1	1
CO:4	1		1							1	1	1	1	1	1
CO:5	1		1							1	1	2	1	1	1
CO:6	1		1							1	1	1	1	1	1

EE8681 - Microprocessors and Microcontrollers Laboratory

				PR	OGRA	M OU	TCOM	IEs - (Pos)					PSOs	
COs	PO -1	P0 -2	PO -3	P0 -4	P0 -5	P0 -6	PO -7	PO -8	PO -9	PO -10	P0 -11	P0 -12	PS0 -1	PSO -2	PSO -3
CO:1	1		1							1	1	1	1	1	1
CO:2	1		1							1	1	1	1	1	1
CO:3	1		1							1	1	1	1	1	1
CO:4	1		1							1	1	1	1	1	1
CO:5	1		1							1	1	1	1	1	1
CO:6	1		1							1	1	1	1	1	1

EE8611 - Mini Project

			PR	OGRA	M OU	TCOM	Es - (Pos)					PSOs	
P0 -1	PO -2	PO -3	PO -4	PO -5	PO -6	PO -7	PO -8	PO -9	PO -10	P0 -11	PO -12	PSO -1	PSO -2	PSO -3
1		1			ļ				1	1	1			
1		2							1	1	1	1	1	1
1		1							1	2	1	1	1	1
	P0 -1 1 1 1 1		-1 -2 -3 1 1	PO PO PO PO -1 -2 -3 -4	PO PO PO PO PO -1 -2 -3 -4 -5	PO PO<	PO PO<	PO PO<	-1 -2 -3 -4 -5 -6 -7 -8 -9 -9 -9 -9 -9 -9 -9	PO PO<	PO PO<	PO PO <th< td=""><td>PO PO PO<</td><td>PO PO PSO PSO 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</td></th<>	PO PO<	PO PSO PSO 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

SEMESTER VII

EE8701 - High Voltage Engineering

COs	DO.	DO	T 20	PR	OGRA	M OUT	ГСОМЕ	s - (Pc	os)				T	PSOs	
	PO- 1	PO -2	PO- 3	PO- 4	PO- 5	PO -6	PO- 7	PO -8	PO -9	PO -10	PO -11	PO- 12	PSO	PSO	PSO
CO:1	2	2	1	2	1		1			-10	-11	2	-1	-2	-3
CO:2	1	2	2	2	1		2			-		1			
CO:3	1	2	2	1	2		1							2	
CO:4	2	1	1	2	2		1					2	2		
CO:5	2	2	1	2	2		1					2	2	2	
				~	-		1		1			1	2	2	

EE8702 - Power System Operation and Control

COs		T = -		PF	ROGRA	M OUT	ГСОМЕ	s - (Po	os)				T	PSOs	
	PO- 1	PO- 2	PO- 3	PO- 4	PO- 5	PO-	PO- 7	PO-	PO- 9	PO- 10	PO- 11	PO- 12	PSO-	PSO-	PSO-
CO:1	2				1		1					1	1	2	3
CO:2	3	3	2	2	1		2					2		1	
CO:3	1				2							2	2	1	2
							1					1	-	1	2
CO:4	2	2	1	1	2		1					1	1	1	2
CO:5	1	1	1	1	2		1								
										-		1	1	1	2
CO:6			1		2		2					2	1	1	3

EE8703 - Renewable Energy Systems

		,		PR	OGRA	M OU	TCOM	Es - (Pos)					PSOs	
COs	P0 -1	PO -2	PO -3	PO -4	PO -5	PO -6	PO -7	PO -8	PO -9	PO -10	PO -11	PO -12	PSO -1	PSO -2	PSO -3
CO:	1	1	1	1	2		2					2		1	1
CO:	1	1	1	1	2		2					2		1	1
CO:	1	1	1	1	2		1					1		<u>-</u>	1
CO:	1	1	1	1	2		2					1		1	1
CO:	1	1	1	1	2		2					2			
CO:	1	1	1	1	2		2					2			

OCS752 - Introduction to C Programming

	-	grand and all the	9	P	ROGR	AM O	UTCO	MEs -	(Pos)						
COs	P0 -1	-2	PO -3	P0 -4	-5	PO- 6	PO -7	P0 -8	PO-	PO- 10	PO-	PO- 12	P50	P50 - 2	P50
CO:1	2	2	1				*	1	2	2	4				. ,
CO:2	2	2	1					2	2	- 2	-			* *	£ ,
CO:3	2	Z	1				-	1	2						*
CO:4	2	2	1					2	2	- ;		·	*	4	4
CO:5	2	2	1										. d	3	1

GE8071 - Disaster management

	The second secon			PR	OGRA	M OU	TCOM	Es - (Pos)		-	garine sale professional de professione espe	-	Dr.o.	to the tracting of the
COs	PO -1	PO -2	PO -3	PO -4	P0 -5	P0 -6	P0 -7	PO -8	PO	PO -10	PO -11	PO -12	PS0 -1	PSO ₅ PSO -2	P\$0
CO:1			3	-		2		-		-					
CO:2			1			2						1	3		2
CO:3			1			1						-		1	

EE8010 - Power System Transient

		•		PR	OGRA	M OU	TCOM	Es - (Pos)				1	PSOs	
COs	PO -1	PO -2	-3	PO -4	PO -5	P0 -6	P0 -7	-8	P0 -9	PO -10	PO -11	PO -12	PSO -1	PSO -2	PSO
CO:1		2		1	1				-			-	1	1	-
CO:2		2		1	1			-	-	-			1	1	
CO:3		2		1	1		-	-	-				1	1	
CO:4		2		1	1					-			1	1	
CO:5		2		1	1								1	1	
CO:6	-	2		1	1								1	1	

EE8711 - Power System Simulation Laboratory

				PR	OGRA	M OUT	COMI	Es - (P	os)					PSO ₅	
COs	PO-	PO- 2	3 9	PO- 4	PO -	PO- 6	PO- 7	PO-	PO- 9	PO- 10	PO- 11	PO- 12	PSO- 1	PSO- 2	PSO-
CO:1	2		2	2						2	2	2	2	2	2
CO:2	2		2	2						2	2	2	2	2	1
CO:3	1		1	1						1	1	1	2	2	2
CO:4	1		1	1						1	1	1	2	2	2
CO:5	1		1	1						1	1	1	2	2	1
CO:6	1		1	1						1	1	1	2	2	1

EE8712 - Renewable Energy Systems Laboratory

COs	-			PF	ROGRA	M OU	ТСОМ	Es - (P	os)				T	DOO	
	P0-	P0- 2	PO-	PO-	PO- 5	P0-	P0-	PO-	PO-	1 - 0	Р0-	P0-	PSO-	PSOs	PSO-
CO:1	1		2	2			-	-	9	10	11	12	1	2	3
CO:2	2		2	2						1	2	2	1	2	1
CO:3	2		2	2						2	2	2	2	2	1
CO:4	2		2	2						2	1	2	2	2	2
CO:5	1		1	2						2	2	1	2	2	2
CO:6	2		1	2	_					2	2	2	2	1	1
SEMEST				-					1	1	2	1	2	2	1

EE8015 - Electric Energy Generation, Utilization and Conservation

	T		пете	y Ger	eratio	on, Ut	ilizati	ion an	d Con	serva	ition				
COs				P	ROGRA	M OU	ТСОМ	Es - (P	os)				T	PSOs	
	P0-	P0-	PO-	PO-	PO-	PO-	PO-	PO-	РО-	PO-	PO-	PO-	PSO-	PSO-	PSO-
CO:1	1	1	2	2	1	-	<u> </u>	8	9	10	11	12	1	2	3
CO:2	2	1	2	2	1							2	1	2	1
CO:3	2	1	2	2	1							2	2	2	1
CO:4	2	1	2	2	1							2	2	2	2
CO:5	1	1	1	2	1							1	2	2	2
CO:6	2	1	1	2	1							2	2	1	1
EE8018	- Micr	ocont	rolle	r Base	d Syci	om D						1	2	2	1
1					u Syst	em D	esign								

	LO - IVII			PR	ROGRA	M OU	TCOM	Fe_(I	200)						
COs	P0-	- 0	1	P0-	PO-	P0-	PO-		PO-	PO-	PO-	DO		PSOs	
CO:1	2	2	3	4	5	6	7	8	9	10	11	PO- 12	PSO-	PSO-	PSO
CO:2	1	1	2					1	1			1	1	1	3
CO:3	1	1	1					1	1				1	1	2
	2	1	1					1	1			-	1	1	1
CO:4		1	1					1	1				1	1	
CO:5	2	1	1					1.	1		-	1	1	1	1
CO:6	1	1	1		1		-	1	1			1	1	1	1
									1				1	1	1

EE8811- Project Work

COs	-	T	,	PF	ROGRA	M OU	тсом	Es - (F	os)				T	PSOs	
	P0-	PO- 2	PO-	PO- 4		PO- 6	PO-	PO-		ı	PO-		PSO-		PSO
CO:1	1	1	1	1	1	1	1	1	-	10	11	12	1	2	3
CO:2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CO:3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
						1	1	1	1	1	1	1	1	1	1

Program Articulation Matrix

SEM	COURSE	COs				PRO	OGRAI	M OU	гсом	Es - (F	os)	**********			PS	Os	
	HS8151		PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
		CO:1	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12	-1	-2	-3
		CO:2	-	-		-	-	-	-	-	2	1	-	2	-	-	1
		CO:3	- -		-	-	-		-	-	1	2	-	1	-		1
		CO:4	-	-	-	-	-	-	-	-	2	2	-	2	-	-	2
	MA8151	CO:1	1	1	1	-	-	-	-	-	1	1	-	1	1	•	1
		CO:2	1	2	1	-	_	-	-	-	-	-	-	-	1		-
		CO:3	1	2	1	-	-	-	-	-	-	-	-		1	-	-
		CO:4	1	2	1	-		-		-	-	-	-	-	1		-
		CO:5	1	1	1	-	-	_	-	_	-		-	-	1	-	-
	PH8151	CO:1	2	1		-		-	_	-	-		-		-+	-	-
		CO:2	2	1	1	-	-	-	-		-	-	-	-	-	-	-
		CO:3	2	1	1	-	-	-	-	-	-	-	-	-	-		
		CO:4	2	1	1	-	-	-	-	-			-		2	-	
		CO:5	2	1	1	-	-	-	-	-	-	-	-	-	2	-	-
I	CY8151	CO:1	2	1			2	2	1	2				-	2		
		CO:2	1	1	-	-	1	1 .	1	1	-	-	-	2	1	1	-
		CO:3	1	1	_	_	1	1	1	1	-	-		1	1	1	-
		CO:4	1	1		_	1	1	1	1		-	-	1	1	1	-
	GE8151	CO:1	2	1		1	2	_		-		-		1	1	1	-
		CO:2	1	1	-	1	1							1	1		1
		CO:3	1	1		1	1							1	1		1
		CO:4	1	1		1	1							1	-		1
		CO:5	2	1	1	1	1								-		1
		CO:6	2	1	1	1	-							1	1		1
	GE8152	CO:1	_	-	1	1						-		1	1		1
		CO:2			1	1									-		
		CO:3			1	1						-					
		CO:4			1	1											
		CO:5			1	1											
l D	10 s. a seminara y m	40.5			1	1											

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GE8161	CO:1	2	1	1	1	1	Γ	T	T	1	T-	T-				-
	CO:2	2		1	1	1	-	+-	+	+-	-	-	1	-		1
	CO:3	1	1	1	1	1			-			-	1			1
	CO:4	2	1	1	1	1		-		-	-		1			-
	CO:5	1	2	1	1	1			-		-		1	-	-	-
	CO:1	1	2							-	-		1	-		1
BS8161	CO:2	1	1					-	-	-				1	1	1
	CO:3	1	1											1	1	1
							•							-	1	1

SEM		E COs				P	ROGRA	AM OU	TCOM	MEs -	(Pos)				P	SOs	
	HS8251		P0	P0 -2	P0			PO	PO	PO	PO	PC	1	1	PSO		PSC
		CO:1		-	-3	-4	-5	-6	-7	-8	-9	-1	0 -1		2 -1	-2	-3
		CO:2	+-	-	 	+-	-	-	+-	-	2	1	-	2	-	-	1
		CO:3	+	-	-	-	+-	+	-	-	1	2	-	1	-	-	1
		CO:4	-	-		+	-	-	-	-	2	2	1-	2	-	-	2
	MA8251	CO:1	1	1	1	+-	-	1-	-	-	1	1	-	1	-	-	1
			1	2	1			-	-	-	-	-		-	1	-	-
		CO:2				-		-	-	-	-	-	-	-	1	-	-
		CO:3	1	2	1	-	-	-	-	-	-	-	-	-	1		-
		CO:4	1	2	1	-	-		-	-	-	-	-	1-	1	-	-
		CO:5	1	1	1	-	-	-	-	-	-	-	-	+-	1	-	-
II	PH8253	C0:1	2	1	1	-	-	-	-	-	-	-	-	+-	-	-	
		C0:2	2	1	1	-	-	-	-	-	-	-	-	-	-	-	-
		C0:3	2	1	1	-	-	-	-	-	-	-	-	-	-		-
		C0:4	2	1	1	-	-	-	-	-	-	-	-	-	2	-	
		CO:5	2	1	1	-	-	-	-		-	-	-	-	2		-
	BE8252	C0:1	-	-	-	3	_	2	-					-	2	-	-
		C0:2		-	_	3				-	-	•	-	-	1	-	2
	-	C0:3			\rightarrow		-	2	-	-	-	-	-	-	-	-	3
	-	C0:4		-	-	3	-	2	-	-	•	-	-	-	-	-	-
	<u> </u>		-	-	-	3	-	2	-	-	-	•	-	-	1	-	-
		CO:5	-	-	-	2	-	1 .	-	-	-	-	-	-	-	-	2
ľ	-		2	2	2	1	1	1	1	-			1	1	2	1	1
		C 0:2	2	2	1	1	1	1	1	-	-		1	1	2		1

	C0:3	1	2	2	1	1	1	1			,	1	1	1	1	
GK8291	C0:1	2	1			2	2	1	2	**********	c contract to		2	1	1	
	C0:2	1	1		Renamed 1974 pr	1	1	1	1				1	1	1	
	C0:3	1	1	Section Section Con-	a contractor	1	1	1	1	A 10 MAY 11 1	in the rise		1	t	1	
	C0:4	1	1		A STATE OF THE PARTY OF THE PAR	1	1	1	1			- 3 300	1	1	1	
GE8261	C0:1	2	1			2	2	1	and transfer	nte sanense			2	1	1	
	C0:2	1	1			1	Total Strong	1	l l	stantastanni.	e e e e e e e e e e e e e e e e e e e	e.	1	1	1	
	C0:3	1	1	6		Annicating to	l	1	anna oceazonez	A STATE OF THE STA	A NORTH AND A NORTH AND A NORTH AND A NORTH AND A NORTH AND A NORTH AND A NORTH AND A NORTH AND A NORTH AND A	all services and second	1	1	1	
	C0:4	1	1	-	e	1	in the second se	1	1	,			1	1	1	
EE8261	C0:1	2		1	1	2	2	l	2	gaman, carpe pe		entro-entro-entro	2	1	1	
	C0:2	l	and the contract of the contra	1	l	tia tena angkasaban na	an ocean last consoci	l l	The state of the state of	entantal-catacità	t energia en espe	g general en en en	1	1	1	
	C0:3	1		1	1	l l	1		1	AN OLD STREET, DO	e Steat of Steat Fertile,	n n	1	Page Scientiscon Study	1	1

SEM	COURSE	COs	- Adjorna ca ya	BERN COLUMN COL	- West III had a resident	PR	OGRA	M OU'I	COM	Es - (1	os)	bilo e la especia politica	National many	Notes to separate	PS	Os	
	MA8353		PO -1	PO -2	PO -3	PO -4	PO -5	PO .	PO -7	-8	PO -9	PO -10	PO -11	PO -12	PSO -1	PSO -2	PSO
		CO:1	2	1			Not considerate		America section	-	and the matter than	a thronound	the entitlement	*	1	nt nomination and	
		CO:2	2	1	Car Sanghith was look 21	1. 100 to 100 to 100 to 100	1	and Contract Processing	e-eng gentini des gh	New or tribut control	the successive section of the sectio	OR 610 812 5 ~ 212 5	e-ery englagmen	With the second second second	1	1	K Marie or in the
		CO:3	2	1	iki ganada, kabana, etti saliga, tilipita di		1	Separation 5	Barrier House Start 17.	Marie 11 11 11 11 11	Andrew Co. 1000		Carron region	a sance when the	1	1	1
		CO:4	2	1			1		Policies Companies Com		Married Street, and 199	A STATE OF THE PARTY OF THE PAR			1	2	1
		CO:5	2	1			1	Ann Pinners Co	Parent Argues	D S MRIBLE IN ADVICE	Market Special Con-	Applied Spinister & Mort of	Parent Color of Pri	1	Programme from the	1	2
	EE8351	CO:1	1	3	3	2		- 5000 E 01 000		AND THE PARTY OF THE CO. A.) sjaning-root or y ead	Balling - MA Sana A C. A. P.	Philips of Loading		3	2	*
		CO:2	1				3	6 400 FV0 July 1-3 EU		A 613 CH. DIT SULL	Box keer side sare saar	A State vine proving 174 of	Kan parent - \$0.10	A SEA ASSESSED SAFE SAFE	2	N EN OF COLOR	3
ш		CO:3	3	2	1		- COLUMN 12 COLUMN	gapes		Alle and the same agent		10.120.00	Mr. o. o. d. perfección de	Europe in the mouse and	3	-det tractic is as	-
		CO:4	3	3	3	2				Mitted galling Community	\$0000000000000000000000000000000000000	Proposit Physique vite mess vi	Addison (1985) (C. Lukelyy)	Mill salah senagaan ay	2	3	Person on the latest
		CO:5	3	3	3	2		,	**************************************	history (mrs.)	and the same of the same of	S-lithel A HRHIDLING	dia teoditani swebi	A CONCURSION TO LINE OF	3	I I	2
		CQ:6			2		3		all the winds	No. 301. V - No dedu	ASSESSED TO SERVICE		Marioton 115	e er deugneru	2	2	3
	EE8391	CO:1	2	2	1	2	1		ends has over 21.10	Ave now you feel the	Pro-Basis of Basis - In Stranger	1	NEORINE A SALE SALES	1	2	1	2
		CO:2	$\sqrt{2}$	2	2	2	2			personal business on	Payar nu official	1	Pilia di Aliquan erra q	1	2	2	1
		CO:3	2	2	2	2	2				Antinopeur y Co-greene Lug	1	rollwerk (Percent) or next of	1	2	2	1
		CO:4	2	3	1	2	1		manda new egit ma	5.7 (2/8/8) 1-(2/8/9) 1-(the state of the s	l	en and and waste	1	2	2	1
		CO:5	2	2	7	2	2	walk out Lo		ette te sauch gaber Sinis, die 4	and the second second	1	SPA CO. B. APP TO TO COLUMN TO A	I.	2	20	1
		CO:6	2	2	2	1	2				power strategy of the	1	and resident control	1	2	2	1

EE83	01 CO:	1		-				-											
	-	-	2	2	1	1	1		The same of				2		-		7		er eller
	CO:	2 1		2	1	2	1		_	-		-	-	-	-	3	1		2
	CO:.	3 2		2	2	2	1	-			-		2			3	1		2
	CO:	2	1		1	1	1		-	-			2			3	1		2
	CO:S	2	1	-	-	-		-		-			2		- Long-	3	2		1
EC83	1				-	1	1	1					2			3	2		1
	CO:2	-		-										1		2		-	
	-	-				1										2	2		
	CO:3	-	2	2		2							+		+	2	2		
	CO:4	1	2	2	2	:			1	1	+	-	+-	-	-		reconstitute de la constitute de la cons		-
	CO:5	1	1	2	2	+			+	+	+		+		-	2	2		1
ME879	² CO:1		+	2	2	+	1		+-	-	-	_	-			1	2	-	
	CO:2	-	+	2	+	+			1	1	1					2	1	1	
	CO:3	-	-	+	2	\perp	1		1	2	1				2	2	1	1	
	-			2	2		1		1	1	1				2		1	1	1
	CO:4			2	1] :	2		2	2	1		1		2		1	1	1
	CO:5			2	1	2	2		2	2	1	1		-	2	-	1	1	1
EC8311	CO:1	1			1	1	1				+	-	1	1	1	+			-
EE8311	CO:1	2	1	1	1	2	2					1	<u> </u>		-	+	1	1	
	CO:2	2	1	1	1	1	+					 			1	-	1		
	CO:3	2	2	1	1	-	-	\dashv				1			1		1		
					1	1						1			1		1		

SEM	COURS	E COs				PR	OGRA	M OU	ТСОМ	Es - (1	Pos)				PS	SOs	
	MA8491		P0 -1	P0 -2	P0 -3	P0 -4	P0 -5	P0 -6	P0 -7	P0 -8	P0 -9	PO -10	P0 -11	P0 -12	PSO -1	PSO -2	PSO -3
		CO:1	2	2	1									1			1
		CO:2	1	2	1									1			1
		CO:3	1	1	1									1			1
		CO:4	2	1	1									1			1
IV		CO:5	1	2	1									1	1		1
	EE8401	CO:1	1	2	1	1	1		2					1/	1		1
		CO:2	1	2	1	1	1		1					ń	1	1	1
		CO:3	1	1	1	1	1		1				/	1	1	1	1
		CO:4	1	1	1	1	1		1			1		1	1	1	1
		CO:5	1	1	1	1	1		1			11		1	1	1	1

	CO	6	1	2	2	1	1			•	1					_			
EE840	co:			1	2	2				1	+	-	-	_		1	1		
	CO:			1	1	2			-	1	ļ ·		-	-	-	2	1	1	
	CO:			2	2	+	2	-		1	-	+		-	-	1	1	1	
	CO:		-	2		2	1			1	-	<u> </u>	-	-	•	2	1	1	\perp
	CO:	_	_	2	1	1	1	+		1	-	<u> </u>	_	-	-	1	1	1	
	CO:6		-	2	1	1	1	-	-	1	-	-	1	-	•	1	1	1	
EE8403					2	2	1	-	_	2	-	-	<u> </u>		-	1	1	1	
	CO:2	-		-	2	2	2	-	\perp	-	-	-	-		-	2	1	1	
	CO:3	_	_	-	1	2	2	-	1	-	-	-	-	\perp	-	1	1	1	
					2	2	1	-	-	-	-	<u> </u>	-	_	-	2	1	1	
	CO:4		-	-	1	1	1	+-	-	-	-	-	-	_	-	1	1	1	
	CO:5		-	-	1	1	1	<u> </u>	\perp	-	•	-	-		-	1	1	1	
EE8451	CO:6		2	-	2	2	1	-	+	-	-	-	-	_	-	1	1	1	
	CO:1	_	1	-	1		1	-	\perp			_		\perp		2	1	ì	
	CO:2	1	1		2		1	-	+	_			-			1	1		
	CO:3	1	1		1		1	-	-				-	_		2	1		
	CO:4	2	1	+	1		1	-	\perp	_				\perp		1	1		
	CO:5	1	1	+	1		1		\perp	_			_	1		1	1		
IC8451	CO:6	1	1		1		1		1	_						1	1		
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	CO:2	1	1	2		1	1		_							1	1	1	T
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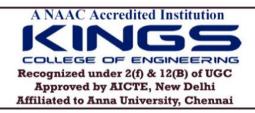
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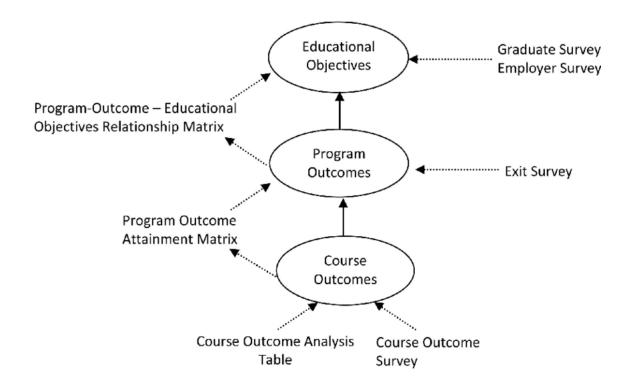




Department of Mechanical Engineering

2.6.1 - Program Outcome and Course Outcome

Sno	Description	Page number
1	Department guidelines	2
2	Anna University Syllabus and CO PO mapping	3
3	Programme Indicators derived by the	6
	Department	
4	Programme Articulation Matrix	11









Department of Mechanical Engineering

PROGRAMME EDUCATIONAL OBJECTIVES (PEO):

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 (PO):

- 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.

PROGRAM SPECIFIC OBJECTIVES (PSO):

- 1. To analyze, design and develop solutions by applying foundational concepts of Mechanical Engineering.
- 2. To apply design principles and best practices for developing quality products for real life mechanical engineering problems.
- 3. To adapt to emerging Information and Communication Technologies (ICT) to innovate ideas and solutions to existing/novel mechanical problems.

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

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PROGRAMME OUTCOMES

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- 2. An ability to identify, formulates, and solve complex engineering problems. with high degree of competence.
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- 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.

PFO / PO Mapping

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		Basic Electrical, Electronics and Instrumentation Engineering			>						
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PO 1: Engineering knowledge: Apply fundamentals, and an engineering sperproblems.	the knowledge of mathematics, science, engineering ecialisation for the solution of complex engineering
Competency	Indicators
1.1 Demonstrate competence in mathematical modelling	1.1.1 Apply mathematical techniques such as calculus, linear algebra, and statistics to solve problems 1.1.2 Apply advanced mathematical techniques to model and solve mechanical engineering problems
1.2 Demonstrate competence in basic sciences	1.2.1 Apply laws of natural science to an engineering problem
1.3 Demonstrate competence in engineering fundamentals	1.3.1 Apply fundamental engineering concepts to solve engineering problems
1.4 Demonstrate competence in specialized engineering knowledge to the program	1.4.1 Apply Mechanical engineering concepts to solve engineering problems.
engineering problems reaching substant natural sciences, and engineering science	
Competency	Indicators
2.1 Demonstrate an ability to identify and formulate complex engineering problem	 2.1.1 Articulate problem statements and identify objectives 2.1.2 Identify engineering systems, variables, and parameters to solve the problems 2.1.3 Identify the mathematical, engineering and other relevant knowledge that applies to a given problem
2.2Demonstrate an ability to formulate a solution plan and methodology for an engineering problem	2.2.1 Reframe complex problems into interconnected sub-problems2.2.2 Identify, assemble and evaluate information
	and resources. 2.2.3 Identify existing processes/solution methods for solving the problem, including forming justified approximations and assumptions 2.2.4 Compare and contrast alternative solution processes to select the best process.
2.3 Demonstrate an ability to formulate and interpret a model	 2.3.1 Combine scientific principles and engineering concepts to formulate model/s (mathematical or otherwise) of a system or process that is appropriate in terms of applicability and required accuracy. 2.3.2 Identify assumptions (mathematical and physical) necessary to allow modeling of a system at the level of accuracy required.
2.4 Demonstrate an ability to execute a solution process and analyze results	2.4.1 Apply engineering mathematics and computations to solve mathematical models 2.4.2 Produce and validate results through skilful use of contemporary engineering tools and models

	2.4.3 Identify sources of error in the solution
	process, and limitations of the solution.
	2.4.4 Extract desired understanding and conclusions
,	consistent with objectives and limitations of the
· .	analysis
	Live of the research-based knowledge and research
PO 3: Conduct investigations of comple	x problems: Use research-based knowledge and research analysis and interpretation of data, and synthesis of the
methods including design of experiments,	analysis and interpretation of
information to provide valid conclusions.	Indicators
Competency ability to conduct	3.1.1 Define a problem, its scope and importance for
3.1 Demonstrate an ability to conduct investigations of technical issues	nurnoses of investigation
investigations of technical issues consistent with their level of knowledge	at a Francisco the relevant methods, tools and
and understanding	techniques of experiment design, system calibration, data
and understanding	acquisition analysis and presentation
	software tools to make measurements of physical
	quantities data
	3.1.4 Establish a relationship between measured data
	and underlying physical principles.
3.2Demonstrate an ability to design	3.2.1 Design and develop an experimental approach,
experiments to solve open-ended	specify appropriate equipment and procedures
problems	3.2.2 Understand the importance of the statistical design of experiments and choose an appropriate experimental
	of experiments and choose all appropriate experiments
,	design plan based on the study objectives 3.3.1 Use appropriate procedures, tools and techniques
3.3 Demonstrate an ability to analyze data	3.3.1 Use appropriate procedures, worst and collect data
and reach a valid conclusion	to conduct experiments and collect data 3.3.2 Analyze data for trends and correlations, stating
	3.3.2 Analyze data for trends and correlations, status
,	possible errors and limitations 3.3.3 Represent data (in tabular and/or graphical forms)
	so as to facilitate analysis and explanation of the data,
	and drawing of conclusions
	3.3.4 Synthesize information and knowledge about the
	problem from the raw data to reach appropriate
	conclusions
	esign solutions for complex engineering problems and design
PO 4: Design/Development of Solutions: D	the specified needs with appropriate consideration for public
system components or processes that meet	nvironmental considerations.
health and safety, and cultural, societal, and e	
Competency	4.1.1 Recognize that need analysis is key to good problem
4.1 Demonstrate an ability to define a complex/ open-ended problem in	1 0 11
complete, -	4.1.2 Elicit and document, engineering requirements from
engineering terms	stakeholders
	4.1.3 Synthesize engineering requirements from a review
	of the state-of-the-art
	4.1.4 Extract engineering requirements from relevant
	engineering Codes and Standards such as ASME, ASTM,
	BIS, ISO and ASHRAE.
	4.1.5 Explore and synthesize engineering requirements
	considering health, safety risks, environmental, cultural
	and societal issues
	hingtives functional
	4.1.6 Determine design objectives, functional

	·
	requirements and arrive at specifications
	4.2.1 Apply formal idea generation tools to
4.2 Demonstrate an ability to generate a	
diverse set of alternative design solutions	4.2.2 Build models/prototypes to develop a diverse set of
	and the standard stan
	design solutions 4.2.3 Identify suitable criteria for the evaluation of
	La Jacian collifions
	docision-making tools to select optimal
4.3 Demonstrate an ability to select an	engineering design solutions for further development
optimal design scheme for further	4.3.2 Consult with domain experts and stakeholders to
development	4.3.2 Consult with domain experts and obtained select candidate engineering design solution for further
•	select candidate engineering design solution
	development
4.4 Demonstrate an ability to advance an	4.4.1 Refine a conceptual design into a detailed design
engineering design to defined end state	within the existing constraints (of the resources)
eligilieering design to demies	4.4.2 Generate information through appropriate tests to
	improve or revise the design
15 Description and understanding of the	45.1 Identify risks/impacts in the life-cycle of an
4.5 Demonstrate an understanding of the	anging product or activity
impact of engineering and industrial	4.5.2 Understand the relationship between the technical,
practices on social, environmental and in	socio-economic and environmental dimensions of
economic contexts	guetainahility
	4.6.1 Describe management techniques for sustainable
4.6 Demonstrate an ability to apply	4.0.1 Describe management
principles of sustainable design and	development 4.6.2 Apply principles of preventive engineering and
development	sustainable development to an engineering activity or
	sustainable development to an engineering
	product relevant to the discipline
engineering and IT tools including predicti	and apply appropriate techniques, resources, and modern on and modeling to complex engineering activities with an
understanding of the limitations.	Indicators
Competency	
5.1 Demonstrate an ability to identify/	5.1.1 Identity modern engineering
create modern engineering tools,	(i) iii) utel-alucu ararenigi
techniques and resources	l . I
	techniques and resources for engineering activities
	5.1.2 Create/adapt/modify/extend tools and technique
	5.1.2 Create/adapt/modify/extend tools and technique to solve engineering problems
5.2 Demonstrate an ability to select and	5.1.2 Create/adapt/modify/extend tools and technique to solve engineering problems 5.2.1 Identify the strengths and limitations of tools for (i
5.2 Demonstrate an ability to select and apply discipline-specific tools, techniques	5.1.2 Create/adapt/modify/extend tools and technique to solve engineering problems 5.2.1 Identify the strengths and limitations of tools for (in acquiring information, (ii) modeling and simulating, (iii)
apply discipline-specific tools, techniques	5.1.2 Create/adapt/modify/extend tools and technique to solve engineering problems 5.2.1 Identify the strengths and limitations of tools for (i acquiring information, (ii) modeling and simulating, (iii monitoring system performance, and (iv) creating
5.2 Demonstrate an ability to select and apply discipline-specific tools, techniques and resources	5.1.2 Create/adapt/modify/extend tools and technique to solve engineering problems 5.2.1 Identify the strengths and limitations of tools for (i acquiring information, (ii) modeling and simulating, (iii monitoring system performance, and (iv) creatine engineering designs.
apply discipline-specific tools, techniques	5.1.2 Create/adapt/modify/extend tools and technique to solve engineering problems 5.2.1 Identify the strengths and limitations of tools for (i acquiring information, (ii) modeling and simulating, (iii monitoring system performance, and (iv) creatine engineering designs.
apply discipline-specific tools, techniques	5.1.2 Create/adapt/modify/extend tools and technique to solve engineering problems 5.2.1 Identify the strengths and limitations of tools for (i acquiring information, (ii) modeling and simulating, (iii monitoring system performance, and (iv) creatine engineering designs.
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apply discipline-specific tools, techniques and resources 5.3 Demonstrate an ability to evaluate the suitability and limitations of tools used to solve an engineering problem PO 6: The engineer and society: Apply societal, health, safety, legal, and cultural	 5.1.2 Create/adapt/modify/extend tools and technique to solve engineering problems 5.2.1 Identify the strengths and limitations of tools for (i acquiring information, (ii) modeling and simulating, (iii monitoring system performance, and (iv) creatin engineering designs. 5.2.2 Demonstrate proficiency in using discipline-specifit tools 5.3.1 Discuss limitations and validate tools, technique and resources 5.3.2 Verify the credibility of results from tool use with reference to the accuracy and limitations, and the assumptions inherent in their use. reasoning informed by the contextual knowledge to assessissues and the consequent responsibilities relevant to the
apply discipline-specific tools, techniques and resources 5.3 Demonstrate an ability to evaluate the suitability and limitations of tools used to solve an engineering problem	5.1.2 Create/adapt/modify/extend tools and technique to solve engineering problems 5.2.1 Identify the strengths and limitations of tools for (i acquiring information, (ii) modeling and simulating, (iii monitoring system performance, and (iv) creatinengineering designs. 5.2.2 Demonstrate proficiency in using discipline-specifitools 5.3.1 Discuss limitations and validate tools, technique and resources 5.3.2 Verify the credibility of results from tool use with reference to the accuracy and limitations, and the assumptions inherent in their use.

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6.1 Demonstrate an ability to describe	
engineering roles in a broader context, e.g.	
pertaining to the environment, health,	public interest at the global, regional and local level
safety, legal and public welfare	
6.2 Demonstrate an understanding of	
professional engineering regulations,	
legislation and standards	contribution to the protection of the public
6.3 Demonstrate an ability to recognize	6.3.1 Identify situations of unethical professional conduct
ethical dilemmas	and propose ethical alternatives
6.4 Demonstrate an ability to apply the	6.4.1 Identify tenets of the ASME professional code of
Code of Ethics	ethics.
	6.4.2 Examine and apply moral & ethical principles to
	known case studies.
6.5 Demonstrate an ability to form a team	6.5.1 Recognize a variety of working and learning
and define a role for each member	preferences; appreciate the value of diversity on a team
•	6.5.2 Implement the norms of practice (e.g. rules, roles,
	charters, agendas, etc.) of effective team work, to
	accomplish a goal.
6.6 Demonstrate effective individual and	6.6.1 Demonstrate effective communication, problem-
team operations communication,	solving, conflict resolution and leadership skills
problem-solving, conflict resolution and	6.6.2 Treat other team members respectfully
leadership skills	6.6.3 Listen to other members
•	
(7. Damen at 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	6.6.4 Maintain composure in difficult situations
6.7 Demonstrate success in a team-based	9.3.1 Present results as a team, with smooth integration of
project	contributions from all individual efforts
	tively on complex engineering activities with the engineering
	uch as being able to comprehend and write effective reports
	resentations, and give and receive clear instructions
7.1 Demonstrate an ability to comprehend	Indicators
technical literature and document project	7.1.1 Read, understand and interpret technical and non- technical information
work	
WOIN	7.1.2 Produce clear, well-constructed, and well-supported
	written engineering documents
	7.1.3 Create flow in a document or presentation - a logical
70 D	progression of ideas so that the main point is clear
7.2 Demonstrate competence in listening,	7.2.1 Listen to and comprehend information, instructions,
speaking, and presentation	and viewpoints of others
	7.2.2 Deliver effective oral presentations to technical and
	non-technical audiences
7.3 Demonstrate the ability to integrate	7.3.1 Create engineering-standard figures, reports and
different modes of communication	drawings to complement writing and presentations
	7.3.2 Use a variety of media effectively to convey a
	message in a document or a presentation
PO 8: Project management and finance: De	monstrate knowledge and understanding of the engineering
and management principles and apply these t	o one's work, as a member and leader in a team, to manage
projects and in multidisciplinary environments	5.
Competency	Indicators
8.1 Demonstrate an ability to evaluate the	8.1.1 Describe various economic and financial
economic and financial performance of an	costs/benefits of an engineering activity
engineering activity	8.1.2 Analyze different forms of financial statements to
	y and the second of the second

	evaluate the financial status of an engineering project
8.2 Demonstrate an ability to compare and contrast the costs/benefits of alternate proposals for an engineering activity	8.2.1 Analyze and select the most appropriate proposal based on economic and financial considerations.
8.3 Demonstrate an ability to plan/manage an engineering activity within time and budget constraints	8.3.1 Identify the tasks required to complete an engineering activity, and the resources required to complete the tasks.
	8.3.2 Use project management tools to schedule an engineering project, so it is completed on time and on budget.
PO 9: Life-long learning: Recognise the r	need for, and have the preparation and ability to engage in
independent and life-long learning in the bro	oadest context of technological change.
Competency	Indicators
9.1 Demonstrate an ability to identify gaps	9.1.1 Describe the rationale for the requirement for
in knowledge and a strategy to close these	continuing professional development
gaps	9.1.2 Identify deficiencies or gaps in knowledge and demonstrate an ability to source information to close this gap
9.2 Demonstrate an ability to identify changing trends in engineering knowledge and practice	9.2.1 Identify historic points of technological advance in engineering that required practitioners to seek education in order to stay current
	9.2.2 Recognize the need and be able to clearly explain why it is vitally important to keep current regarding new developments in your field
9.3 Demonstrate an ability to identify and access sources for new information	9.3.1 Source and comprehend technical literature and other credible sources of information
	9.3.2 Analyze sourced technical and popular information for feasibility, viability, sustainability, etc.

Dept IQAC member

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Principal

KINGS COLLEGE OF ENGINEERING DEPARTMENT OF MECHANICAL ENGINEERING PROGRAMME ARTICULATION MATRIX COURSE: BE (MECHANICAL ENGG)

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	CO:4	1	2	3	-	-		2	2	-	-	1	-
	CO:5	2	1	1		-	-	3	1	-	-	1	1
	CO:1	_	_	1	1	1	2	-	_	1	_	2	
	CO:2	-	-	2	2	1	1	-	1	1	1	2	<u> </u>
ME8361	CO:3	_		2	2	1	1	_	1	1	1	2	-
	CO:4	-	-	2	2	1	1	-	1	1	1	2	_
····	CO:5		-	2	2	1	1		1	1	1	2	
	CO:1	-	<u> </u>	3		-	-	-	_]	-	1	1
EE8361	CO:2	-	-	2		_	<u> </u>	-	_	-	1	1	1
	CO:3	-	-	1	_	_	-	_	_	-	2	1	1
ME8381	CO:1	-		2	2	2	1	-	1	1	2	2	-
1.150301	CO:2	-	_	1	2	2	1	_	1	1	2	1	_
	CO:1		-	1	1	_ 1	2	-	-	1	-	2	
HS8381	CO:2		-	2	2	1	1	-	1	1	1	2	_
1100501	CO:3		-	2	2	1	1	_	1	1	1	2	_
<u></u>	CO:4	-	-	2	2	1	1	-	1	1	1	2	_
	CO:1	-	-	1	1	1	2	-	-	1	-	2	-
	CO:2		-	2	2	1	1	-	1	1	1	2	-
MA8452	CO:3	-		2	2	11	1	•	1	1	1	2	-
	CO:4		-	2	2	1	1		1	1	1	2	-
	CO:5	-	-	2	2	1	1	-	1	1	1	2	_
	CO:1	3 .	1	2	-	2	-	-	-	-	3	1	
	CO:2	3	1	2	_	1	_	-	-	-	3	1	_
ME8492	CO:3	3	11	3		3	_	-	-	-	2	3	_
	CO:4	2	3	1		2			-	-	2	3	_
	CO:5	3	1	3		3	-		-		2	2	_
	CO:1	2	-	1	2	2		_	1	1	1	1	
į	CO:2	2		1	2	2	_	_	1	1	1	1	
ME8451	CO:3	2	-	1	2	2	-		1	1	1	1	
	CO:4	2	-	1	2	2	-	-	1	1	1	1	_
	CO:5	2	-	2	2	2	-	_	1	1	1	1	

							- - Ţ	_	2	_	-	1	2	-
-	ļ	CO:1							2		_	2	2	
		CO:2						-	2	_	- 1	1	1	-
	ME8491	CO:3					· -		2	_	-	3	2	-
	ļ	CO:4	-						2		_	3	2	-
157		CO:5				-			<u>-</u>	_		2	-	-
IV		CO:1	1	2	3	2		-				1	-	2
,		CO:2	_1	2	3	3	-			_	_	. 1	1	1
	CE8395	CO:3	_1	2	1	<u> </u>		-		_	_	_	1	
		CO:4	_1	2	3	2				_	_		1	1
		CO:5	2	11	1	11	-				-	-	2	_
		CO:1	1	1	-		1	 	<u> </u>			1	2	-
		CO:2	2	2	-		1			\ <u>-</u>		1	2	-
	ME8493	CO:3	2	2	-		1		-			1	2	-
]		CO:4	2	2	-		1	<u> </u>	<u> </u>			1	2	_
		CO:5	2	2			11		<u> </u>	 		-	1	1
		CO:1	_	-	3	-	 -	<u> </u>	 - -	- /		-	1	1
		CO:2			2		 - -		 	-			1	1
'	ME8462	CO:3	-		1	-		<u> </u>	-			 	1	1
1		CO:4	-		2	-	 - -		 	-	 	 	1	1
1	Ì	CO:5	_	-	11	<u> </u>		<u> </u>	 - -	 -	 	 	2	-
	CE8381	CO:1		-	2	 -	 -	-	 		1	1	1	1
1		CO:1			<u> </u>	-	 	1 1	 -		1	1 1	2	1
1	1,100461	CO:2	-	-	<u> </u>			2	 -	 	2	1 2	2	1
ļ	HS8461	CO:3			<u> </u>	-		$\frac{1}{2}$	-		2	$\frac{1}{1}$	$\frac{1}{1}$	1
1		CO:4		<u> </u>	<u> </u>		<u> </u>	2	-		2	1 2	2	
		CO:5	<u> </u>	3		2	<u> </u>	 	1 1	1 1	2	2	2	
		CO:2	-	3		2	 - -	 	1 1	1 1	2	2	2	_
	ME8593	CO:3	- <u>-</u>	3		2			1	1 1	2	2	2	_
1		CO:4	-	3		2	<u> </u>	 -	1 1	1 1		2	2	
		CO:5	-	3_	<u> </u>	2			1_1_	1_1_	2	2	1	
		CO:1	2	2	_	1 1	-		 -	- -		$\frac{2}{2}$	$\frac{1}{1}$	
	1	CO:2	2	2	-	1_1_					1 1	2	2	
-	OAT 552	CO:3	2	2		1	-			- -	 -	$\frac{2}{2}$	$\frac{2}{2}$	
	J 332	CO:4	1	2	_	1				- -	$\frac{1}{2}$	2	2	2
İ		CO:5	1	2		2	-				2		<u> </u>	<u> </u>

														
	•	CO:1	2		3	2	-	-	3	1	-	2	2	1
j		CO:2	. 3	<u>-</u>	2	1	-	-	2	2	<u>-</u>	1	1	<u>-</u>
. 1	ME8501	CO:3	2	-	3	2	-	-	3	3	-	1	-	-
[CO:4	1		2	2	-	•	2	2	-	2	1	1
		CO:5	2	_	3	3	-	-	2	3	-	3	2	2
i		CO:1	2	3	3	-	2	-	3	-	3	2	-	-
v		CO:2	2	3	3		3	-	1	-	3	2	2	-
ľ	ME8594	CO:3	2	3	3	-	1	-	1	-	3	2	-	-
		CO:4	2	3	3	-	1	_	2	-	3	2	-	-
		CO:5	2	3	3	-	3	-	2	-	3	2	2	-
		CO:1	3	1	-	-	1	-	-	1	-	2	2	-
		CO:2	2	1		ı	2		_	1	- '	2	2	-
	ME8595	CO:3	2	1		-	2	-	_	1	-	2	2	-
		CO:4	2	2	-	-	2	-	_	1	-	2	2	-
		CO:5	3	1	-	-	1	-	-	1	-	2	2	-
	ME8511	CO:1	3	2	3	1	-	-	-	-	_	1	2	
		CO:2	3	2	2	1	_	-	-	-	_	1	2	_
	ME8512	CO:1	3	1	-	-	1	-	· -	1	_	2	2	
		CO:2	2	1	-		2	-	-	1	_	2	2	-
		CO:3	2	1	-	-	2	-	_	1	-	2	2	
		CO:4	2	2	-	4	2	-	-	1	_	2	2	_
		CO:5	3	1		-	1	-	-	1	-	2	2	-
ļ	ME8513	CO:1	3	2	3	1	-	-	1		-	1	2	-
	MEOSIS	CO:2	3	2	2	1	-		1	-	-	1	2	_
		CO:1	ı	3	-	2	1	-	1	-	2	2	2	_
		CO:2		3	-	2		-	1	-	2	2	2	
	ME8651	CO:3	. 1	3	-	2	_	-	1	-	2	2	2	_
		CO:4	-	3	-	2	-	~	1	_	2	2	2	_
]		CO:5	-	3	-	2	-	-	1	-	2	2	2	_
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	1	CO:2	-	2	2	-	1	+	-	-	-	2	1	_
	ME8691	CO:3	4	2	2	-	1	**	-	-	_	2	2	-
		CO:4	-	2	1	-	1	-	-	-	-	2	2	_
]		CO:5_	-	2	1	-	2	-	_	-	-	2	2	2

Γ		CO:1	2	2	3	2	-	_	<u>.</u>	1	33	2	2	1
		CO:2	3	1	2	1	-	-	_	2	2	1	1	-
	ME8693	CO:3	2	2	3	2	-	-	-	3	3	1	-	-
		CO:4	1	2	2	2	-	-	-	2	2	2	1	1
}		CO:5	2	3	3	3	-	_	-	3	2	3	2	2
Ī		CO:1	2	3	-	3	-	<u></u>	-	-	3	2	_	
		CO:2	2	3	-	3	-	-	-	-	3	2	2	-
	ME8692	CO:3	2	3	-	3		<u>-</u>		-	3	2		
5.77		CO:4	2	3	•	3	_	-	-	-	3	2	-	-
VI		CO:5	2	3	•	3	-	_		-	3	2	2	-
		CO:1	3	1	-	1	-	•	-	1	•	2	2	-
		CO:2	2	1	-	2	-	.		1	-	2	2	-
	ME8694	CO:3	2	1	-	2	-	•	1	1		2	2	-
		CO:4	2	2	-	2	-		_	1		2	2	-
		CO:5	3	1	-	1		-	-	1	-	2	2	-
		CO:1	1	1	1	1	1	-	-	_	1	2	-	1
]	ME8091	CO:2	2	1	2	1	-	_	-	-	1	2	1	2
-		CO:3	2	1	1	1	-	-	-	-	-	1	-	1
		CO:4	1	1	2	2	_	_	<u>-</u>	-		2	-	1
İ		CO:5	2	2	2	1	-	-		-	2	2	1	2
	ME8681	CO:1	_	2	2	_	_	2	-	-	-	2	1	
	MEGOOT	CO:2	-	2	2	-	-	2	-	-	-	2	1	
1	ME8682	CO:1	_		-	-	<u>-</u>	3	11		1	11	2	
]	MEOOOZ	CO:2	•	-	-	-	-	2	1	-	1	1	2	-
		CO:1		-		1	2	1	2	-	1	2	-	11
İ	HS8581	CO:2	•	-		2	2	1	2	-	11	2	-	11
	H20201	CO:3		-		1	2	1	11	-	1	1	-	11
		CO:4	-	_	-	2	3	1	2		1	1	11	2
		CO:1	2	1	2	1	-		_	1	-	2	-	1
1		CO:2	2	1	2	2	-	-	-	1	-	2	-	1
	ME8792	CO:3	2	1	11	11		-	-	1	-	1	-	11
		CO:4	3	1	2	2		-	Pr-	1	-	11	1	2
		CO:5	3	2	2	11	-	-		1	-	2	1	2

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1		CO:1	-	2	_	2		_		.	-	3	-	3
		CO:2	<u>-</u>	2	-	2	-	-	-	-	-	_	2	-
1	ME8793	CO:3	-	3	-	2	-	_	-	-	-	2	1	-
ŀ		CO:4	-	3	-	2	-	+		-	-	2	-	2
		CO:5	-	2		2		-	_	_	_	2	2	_
		CO:1	2	2	2	-	1	-	_	1	1	2	1	-
		CO:2	11	2	2	_	2	-	_	1	1	-	2	-
	ME8791	CO:3	1	2	2	_	2	-	-	1	1	2	1	_
		CO:4	2	2	3	-	2	-	-	2	1	3	3	2
		CO:5	2	11	3	-	1	-	_	2	2	3	3	2
VII		CO:1	2	1	2	1	-	_	-	1	-	2	-	1
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		CO:2	2	1	2	2	-	-	_	1	_	2	_	1
	OIE751	CO:3	2	1	1	1	-	-	_	1		1	_	1
		CO:4	3	1	2	2	-	-	-	1	_	1	1	2
		CO:5	3	2	2	1	-	_	-	1		2	1	2
	ME8097	CO:1	2	2	3	2	-	-	-	1	3	2	2	1
		CO:2	3	1	2	1	_	_	-	2	2	1	1	
		CO:3	2	2	3	2	_	-		3	3	1	_	
		CO:4	1	2	2	2	-	_	_	2	2	2	1	1
		CO:5	2	3	3	3	_	-	_	3	2	3	2	2
	GE8077 TQM	CO:1	-		-	3	2	3	_	1		-	1	3
1		CO:1	3	•	-	_	3	_	_	-		3	3	2
	ME8711	CO:2	2	-	-	-	2	-	-	-	-	1	1	2
		CO:3	1			-	3	-	-	-	-	2	2	1
	ME8781	CO:1	2	2	2	-	3	-		1	2	3	3	1
	WE0701	CO:2	3	3	2	1	3	-	-	1	2	3	3	1
	ME8712	CO:1	-	-	-		-	3	_	-	0	3	3	1
		CO:1	_	1	2	-	1	-	-	_		1	2	1
		CO:2	_	1	1	-	2	_	_	_	_	2	1	$\frac{1}{1}$
	MG8591	CO:3	-	2	1	_	2	_	_	-		1	1	2
VIII		CO:4	-	1	2		2	_	_		-	1	2	1
		CO:5	-	1	2	-	1	_	-	-		2	2	1
	ME8094	CO:1	2	2	2	_	1	_		1	1	2	1	
1	ME8811	CO:1	2	1	2	-		1	1		<u> </u>	2	<u>.</u> .	1

DENT IQAC MEMBER

T. Pm/my HOD 2/1/20 PRINCIPAL PRINCIPAL