CRITERIAN 2

COURSE OUTCOMES AND PROGRAM OUTCOMES

Establish the correlation between the courses and the Program Outcomes (POs) and Program Specific Outcomes (PSOs)

(Program Outcomes as mentioned in Annexure I and Program Specific Outcomes as defined by the Program)

Program Outcomes (POs):

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

PO2: Problem analysis: Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences

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.

PO4: 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.

PO5: 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.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to access social, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice

PO7: Environment and sustainability: Understand the impact of the professional engineering
Solutions in societal and environmental contexts and demonstrate the knowledge of and need forsustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics, responsibilities, andnorms of the engineering practice.

PO9: Individual and team work: Function effectively as an individual and as member or leader indiverse teams and in multidisciplinary settings

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.

PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to once own work as a member andleader in a team to manage projects and multidisciplinary environments

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

Program Specific Outcomes (PSOs):

PSO 1: To enable students to apply their knowledge and practical abilities in fields including design, thermal, manufacturing, and industrial engineering

PSO 2: Analyse, design, develop and implement the concepts of mechanical systems and processes towards product development.

PSO 3: Graduates will be proficient in the use of contemporary tools and will have a wide awareness of management concerns that are involved in the creation of infrastructure with interdisciplinary areas.

3.1.1. Course Outcomes (COs) (SAR should include course outcomes of one course from each semester of study, however, should be prepared for all courses and made available as evidence, if asked)

SAMPLE CO (PER SEM ONE SUBJECT-FROM THIRD SEM)

BATCH: 2018-2022

Course Code:	**ME8351**	**Reg-2017**		**AU Subject Code:**	**ME8351**
Course Name:	MANUFACTURING TECHNOLOGY – I				
Year:	**2**	Sem: 3	**ODD**	**Course Year:**	**2019-2020**
COURSE OBJECTIVES					
Sl. No.	**Objectives**				
1	To establish the concepts of basic manufacturing processes and fabrication techniques, such as metal casting,				
2	To identify with the different types of metal joining				
3	To illustrate the generation of metal forming type of equipment.				
4	To clarify the sheet metal processes.				
5	To illustrate the manufacturing of plastic components.				
COURSE OUTCOMES					
CO No	**Upon the successful completion of the course, students will be able to**				
C204.1	Clarify different metal casting processes, associated defects, merits and demerits.				
C204.2	Evaluate different metal joining processes.				
C204.3	Review various hot working and cold working methods of metals				
C204.4	Clarify various sheet metal making processes.				
C204.5	Distinguish various methods of manufacturing plastic components				

BATCH: 2018-2022

Course Code:	**CE8395**	**R-2017**		**AU Subject Code:**	**CE8395**
Course Name:	**STRENGTH OF MATERIALS FOR MECHANICAL ENGINEERS**				
Year:	**2**	Sem: 4	**ODD**	**Course Year:**	**2019-2020**
COURSE OBJECTIVES					
Sl.No	**Objectives**				
1	To understand the basic concepts of stress, strain, principal stresses and principal planes				
2	To study the concept of shearing force and bending moment due to external loads in determinate beams and their effect on stresses.				
3	To determine stresses and deformation in circular shafts and helical spring due to torsion.				
4	To compute slopes and deflections in determinate beams by various methods.				
5	To study the stresses and deformations induced in thin and thick shells				
COURSE OUTCOMES					
CO No	**Upon the successful completion of the course, students will be able to**				
C214.1	Illustrate the concepts of stress and strain in simple and compound bars, the importance of principal stresses and principal planes				
C214.2	Interpret the load transferring mechanism in beams and stress distribution due to shearing force and bending moment				
C214.3	Apply basic equation of simple torsion in designing of shafts and helical spring				

C214.4	Calculate the slope and deflection in beams using different methods
C214.5	Distinguish between thin and thick shells for the applied internal and external pressures

BATCH: 2018-2022

Course Code:	**ME8595**	**Reg-2017**			**AU Subject Code:**	**ME8595**
Course Name:	**THERMAL ENGINEERING – II**					
Year:	**3**		**Sem: 5**	**ODD**	**Course Year:**	**2020-2021**
COURSE OBJECTIVES						
Sl.No	Objectives					
1	To apply the thermodynamic concepts for Nozzles, Boilers, Turbines.					
2	To understand the concept of utilizing residual heat in thermal systems.					
3	To understand the concept of utilizing steam turbines and uses.					
4	To understand the concept of Heat pumps and Heat exchangers.					
5	To execute the thermodynamic concepts of refrigeration and Air Conditioning Systems					
COURSE OUTCOMES						
CO No	**Upon the successful completion of the course, students will be able to**					
C301.1	Solve problems in Steam Nozzle					
C301.2	Explain the functioning and features of different types of Boilers and auxiliaries and calculate performance parameters.					
C301.3	Explain the flow in steam turbines, draw velocity diagrams for steam turbines and solve problems.					
C301.4	Summarize the concept of Cogeneration, Working features of Heat pumps and Heat exchangers					
C301.5	Solve problems using refrigerant table / charts and psychometric charts					

BATCH: 2018-2022

Course Code:	**ME8691**	**Reg-2017**			**AU Subject Code:**	**ME8691**
Course Name:	**COMPUTER AIDED DESIGN AND MANUFACTURING**					
Year:	**3**		**Sem: 6**	**EVEN**	**Course Year:**	**2020-2021**
COURSE OBJECTIVES						
Sl. No.	**Objectives**					
1	To provide an overview of how computers are being used in mechanical component design.					
2	To understand the application of computers in various aspects of Manufacturing viz., Design, Proper planning, Manufacturing cost, Layout &					
3	To develop the Material Handling system and manufacturing systems					
4	To develop the Cellular Manufacturing systems					
5	To provide an overview of how computers are being used in mechanical component design.					
COURSE OUTCOMES						
CO No	**Upon the successful completion of the course, students will be able to**					
C310.1	Explain the 2D and 3D transformations, clipping algorithm, Manufacturing models and Metrics					
C310.2	Explain the fundamentals of parametric curves, surfaces and Solids					
C310.3	Discuss the different types of Standard systems used in CAD					
C310.4	Apply NC & CNC programming concepts to develop part programme for Lathe & Milling Machines					
C310.5	Discuss the different types of techniques used in Cellular Manufacturing and FMS					

BATCH: 2018-2022

Course Code:	ME8791	Reg-2017		AU Subject Code:	ME8791
Course Name:	MECHATRONICS				
Year:	4	Sem: 7	ODD	Course Year:	2021-2022

COURSE OBJECTIVES

Sl. No.	Objectives
1	To impart knowledge about the elements and techniques involved in Mechatronics systems
2	Which are very much essential to understand the emerging field of automation.
3	To Apply the new techniques involved in Mechatronics systems
4	To know the method of programming the microprocessor and also the design, modeling
5	analysis of basic electrical, hydraulic & pneumatic Systems which enable the students to understand the concept of mechatronics

COURSE OUTCOMES

CO No	Upon the successful completion of the course, students will be able to
C403.1	Discuss the applications of Electronics, Electrical, Mechanical and Computer Systems for the Control of Mechanical, Electronic Systems and sensor technology
C403.2	Discuss the architecture of Microprocessor and Microcontroller, Pin Diagram, Addressing Modes of Microprocessor and Microcontroller.
C403.3	Discuss Programmable Peripheral Interface, Architecture of 8255 PPI, and various Device interfacing
C403.4	Explain the architecture, programming and application of programmable logic Controllers to problems and challenges in the areas of mechatronic engineering.
C403.5	Discuss various Actuators and Mechatronics system using the knowledge and Skills acquired through the course and also from the given case studies

BATCH: 2018-2022

Course Code:	ME8791	Reg-2017		AU Subject Code:	ME8791
Course Name:	ENTREPRENEURSHIP DEVELOPMENT				
Year:	4	SEMESTER	8	EVEN	Course Year:	2021-2022

COURSE OBJECTIVES

S.No	Objectives
1	Expound The Types Of Entrepreneurships And Economic Growth
2	Importance Of Motivation And Training On The Entrepreneurship Development
3	Selecting A Good Business Opportunity and Marker Survey Research
4	Explain term loan ,importance of taxation
5	Formulate the business incubators-government policy for small scale industries

COURSE OUTCOMES

CO No	Upon the successful completion of the course, students will be able to
C212.1	Expound The Types Of Entrepreneurships And Economic Growth
C212.2	Importance Of Motivation And Training On The Entrepreneurship Development
C212.3	Selecting A Good Business Opportunity and Marker Survey Research
C212.4	Explain term loan ,importance of taxation
C212.5	Formulate the business incubators-government policy for small scale industries

3.1.2. CO-PO matrices of courses selected in (six matrices to be mentioned; one per Semester from 3rd to 8th semester)

CO-PO Mapping Matrix

Course Code:	ME8351						AU Subject Code:			ME8351		
Course Name:	MANUFACTURING TECHNOLOGY – I											
Year:	2	Sem: 3			Course Year:		2019-2020					
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C204.1	3	3	2	2	1	1	-	1	1	-	-	-
C204.2	3	3	2	2	1	1	-	1	1	-	-	-
C204.3	3	3	2	2	1	1	-	1	1	-	-	-
C204.4	3	3	2	2	1	1	-	1	1	-	-	-
C204.5	3	3	2	2	1	1	-	1	1	-	-	-
Avg	3	3	3	3	1	1	-	1	1	-	-	-

Course Code:	CE8395						AU Subject Code:			CE8395		
Course Name:	STRENGTH OF MATERIALS FOR MECHANICAL ENGINEERS											
Year:	2		Sem: 4		Course Year:		2019-2020					
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C214.1	3	3	3	-	2	1	-	-	-	-	-	1
C214.2	3	3	3	-	2	1	-	-	-	-	-	1
C214.3	3	3	3	-	2	1	-	-	-	-	-	1
C214.4	3	3	3	-	2	1	-	-	-	-	-	1
C214.5	3	3	3	-	-	1	-	-	-	-	-	1
Avg	3	3	3	-	2	1	-	-	-	-	-	1

Course Code:	ME8595						AU Subject Code:			ME8595		
Course Name:	THERMAL ENGINEERING – II											
Year:	3		Sem: 5		Course Year:		2020-2021					
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C301.1	3	3	-	2	-	1	-	1	1	1	-	-
C301.2	3	2	-	2	-	1	-	1	1	1	-	-
C301.3	3	2	-	2	-	1	-	1	1	1	-	-
C301.4	3	2	-	2	-	1	-	1	1	1	-	-
C301.5	3	1	-	2	-	1	-	1	1	1	-	-
AVG	3	2	-	2	-	1	-	1	1	1	-	-

Course Code:	ME8691						AU Subject Code:			ME8691		
Course Name:	COMPUTER AIDED DESIGN AND MANUFACTURING											
Year:	3		Sem:	6	Course Year:		2020-2021					
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C310.1	3	2	-	2	-	1	-	-	-	1	-	1
C310.2	3	2	-	2	-	1	-	-	-	1	-	1
C310.3	3	2	-	2	-	1	-	-	-	-	-	1
C310.4	3	2	-	2	-	1	-	-	-	1	-	1
C310.5	3	2	-	2	-	1	-	-	-	1	-	1
Avg	3	2	-	2	-	1	-	-	-	1	-	1

Course Code:	ME8791						AU Subject Code:			ME8791		
Course Name:	MECHATRONICS											
Year:	4		Sem:	7	Course Year:		2021-2022					
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C403.1	3	2	-	2	-	1	-	-	-	1	-	1
C403.1	3	1	-	2	-	1	-	-	-	1	-	1
C403.1	2	2	1	2	2	-	2	-	-	-	-	1
C403.1	2	2	1	2	2	-	2	-	-	-	-	1
C403.1	2	2	1	2	2	-	2	-	-	-	-	1
Avg	2	2	1	2	2	-	2	-	-	-	-	1

Course Code:	MG8091						AU Subject Code:			MG8091		
Course Name:	ENTREPRENEURSHIP DEVELOPMENT											
Year:	4		Sem:	8	Course Year:		2021-22					
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C411.1	3	2	2	-	1	1	-	-	-	-	-	1
C411.2	3	1	1	-	1	1	-	-	-	-	-	1
C411.3	3	1	1	-	1	1	-	-	-	-	-	1
C411.4	3	2	2	-	1	1	-	-	-	-	-	1
C411.5	3	1	-	-	1	1	-	-	-	-	-	1
Avg	3	1	1	-	1	1	-	-	-	-	-	1

Note: Correlation levels 1,2 or3 as defined below:

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High) If there is no correlation, put "-"

3.1.2 CO-PSO matrices of courses selected in (six matrices to be mentioned; one per semester from 3rd to 8th semester)

SEMESTER 3

Course Code:	ME8351	AU Subject Code:	ME8351
CourseName	MANUFACTURING TECHNOLOGY – I		
Year: 2	Sem : 3	Course Year	2019-2020
CO	PSO1	PSO2	PSO3
C204.1	3	2	2
C204.2	3	2	2
C204.3	3	2	2
C204.4	3	2	2
C204.5	3	2	2
AVG	3	1	2

SEMESTER 4

Course Code:	ME8395	AU Subject Code:	ME8395
CourseName:	STRENGTH OF MATERIALS FOR MECHANICAL ENGINEERS		
Year: 2	Sem : 4	Course Year: 2019-2020	
	PSO1	PSO2	PSO3
C214.1	3	2	2
C214.2	3	2	2
C214.3	3	2	2
C214.4	3	2	2
C214.5	3	2	2
AVG	3	2	2

SEMESTER 5

Course Code:	ME8595	AU Subject Code:	ME8595
Course Name:	THERMAL ENGINEERING – II		
Year: 3	Sem : 5	Course Year: 2020-2021	
	PSO1	PSO2	PSO3
C301.1	3	3	2
C301.2	3	3	2
C301.3	3	3	2
C301.4	3	3	2
C301.5	3	3	2
AVG	3	2	2

SEMESTER 6

CourseCode:	ME8691	AU Subject Code:	ME8691
CourseName:	COMPUTER AIDED DESIGN AND MANUFACTURING		
Year: 3	Sem : 6	Course Year	2020-2021
	PSO1	PSO2	PSO3
C310.1	3	2	1
C310.2	3	2	1
C310.3	3	2	2
C310.4	3	2	1
C310.5	3	2	2
AVG	3	2	1.4

SEMESTER 7

CourseCode:	ME8791	AU Subject Code:	ME8791
CourseName:	MECHATRONICS		
Year: 4	Sem : 7	Course Year	2021-2022
	PSO1	PSO2	PSO3
C403.1	3	2	2
C403.1	3	2	2
C403.1	3	2	2
C403.1	3	2	2
C403.1	3	2	2
AVG	3	2	2

SEMESTER 8

CourseCode:	MG8091	AU Subject Code:	MG8091
CourseName:	ENTREPRENEURSHIP DEVELOPMENT		
Year: 4	Sem : 7	Course Year	2021-2022
	PSO1	PSO2	PSO3
C411.1	3	2	2
C411.2	3	2	2
C411.3	3	2	2
C411.4	3	2	2
C411.5	3	2	2
AVG	3	2	2

Note: Correlation levels 1,2 or3 as defined below:

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High) If there is no correlation, put "-"

3.1.3. Program level Course-PO matrix of all courses including first year courses (10)

A-Program Level Course - PO matrices including first Year

BATCH (2018-2022)

S.No	Semester	Course Code	Course Title	Mapping With Po's											
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
1	1	HS8151	Communicative English												
2	1	MA8151	Engineering Mathematics - I												
3	1	PH8151	Engineering Physics												
4	1	CY8151	Engineering Chemistry												
5	1	GE8151	Problem Solving and Python Programming												
6	1	GE8152	Engineering Graphics	3	3	2	2	1	1		1	1			
7	1	GE8161	Problem Solving and Python Programming Laboratory												
8	1	BS8161	Physics and Chemistry Laboratory												
9	2	HS8251	Technical English												
10	2	MA8251	Engineering Mathematics - II												
11	2	PH8251	Materials Science												
12	2	BE8253	Basic Electrical, Electronicsand Instrumentation Engineering												
13	2	GE8291	Environmental Science and Engineering												
14	2	GE8292	Engineering Mechanics	3	3	2	2	1	1	-	1	1	-	-	-
15	2	GE8261	Engineering Practices Laboratory												
16	2	BE8261	Basic Electrical, Electronics and Instrumentation engineering Laboratory												
17	3	MA8353	Transforms and Partial Differential Equations	-	1.4	1.4	-	-	-	-	-	-	-	-	-

18	3	ME8391	Engineering Thermodynamics	3	2.2	1.5	-	-	1	0	0	0	0	0	1
19	3	CE8394	Fluid Mechanics and Machinery	3	1.4	1.5	-	-	1	1	0	0	0	0	1.2
20	3	ME8351	Manufacturing Technology - I	3	2	2	-	-	1	-	0	0	0	0	1
21	3	EE8353	Electrical Drives and Controls	3	2	-	-	-	1	-	-	-	-	-	1
22	3	ME8361	Manufacturing TechnologyLaboratory - I	2.4	2	2.4	-	-	1	1	-	-	-	-	1.2
23	3	ME8381	Computer Aided Machine Drawing	2.0	2.3	3.0	2.3	2.0	-	-	-	-	-	-	-
24	3	EE8361	Electrical Engineering Laboratory	3.0	2	-	-	-	-	-	1	3	-	-	1
25	3	HS8381	Interpersonal Skills / Listening & Speaking	1.7	1.5	-	1.0	2.0	2.0	1.7	1.3	3.0	2.3	-	2.0
26	4	MA8452	Statistics and Numerical Methods	2	1	1	1	-	-	-	-	-	-	1.5	-
27	4	ME8492	Kinematics of Machinery	3	1.4	1.6	-	-	1	-	-	-	-	-	1.2
28	4	ME8451	Manufacturing Technology – II	3	1.4	1.4	-	1	1	-	-	-	-	-	1
29	4	ME8491	Engineering Metallurgy	3	2	2	1	-	1	-	-	-	-	-	1
30	4	CE8395	Strength of Materials forMechanical Engineers	3	1.4	1.5	-	-	1	-	-	-	-	-	1
	4	ME8493	Thermal Engineering -I	3	2	1	-	1	-	-	-	-	-	-	1
31	4	ME8462	Manufacturing Technology Laboratory – II	3.0	2.0	2.7	2.3	1.7	1.0	-	-	1.0	-	1.0	1.0
32	4	CE8381	Strength of Materials and Fluid Mechanics and Machinery Laboratory	3.0	1.0	-	1.0	-	-	-	-	-	-	-	3.0
33	4	HS8461	Advanced Reading and Writing	2.5	2.0	-	-	2.5	2.0	3.0	3.0	1.0	2.3	-	2.5
34	5	ME8595	Thermal Engineering- II	3	3	2	2	1.8	-	-	1	-	-	-	-
35	5	ME8593	Design of Machine Elements	3	1.4	1.6	-	-	1	-	-	-	-	-	1
36	5	ME8501	Metrology and Measurements	3	1.4	1.5	-	-	1	1	-	-	-	-	1
37	5	ME8594	Dynamics of Machines	3	3	3	-	2	1	-	-	-	-	-	1
38	5	OAI553	Production Technology of Agriculture Machinery	3	1	1.2	-	2	-	-	-	-	-	-	1
39	5	ME8511	Kinematics and DynamicsLaboratory	1.7	2.3	2.5	2.3	-	2.0	2.0	-	-	2.0	-	2.0

40	5	ME8512	Thermal Engineering Laboratory	3.0	3.0	1.7	1.7	1.0	-	-	-	-	-	-	-
41	5	ME8513	Metrology and Measurements Laboratory	2.0	2.0	2.0	1.3	-	1.0	1.7	1.0	1.0	-	-	-
42	6	ME8651	Design of TransmissionSystems	3	3	2	2	-	1	-	-	-	-	-	1
43	6	ME8691	Computer Aided Design and Manufacturing	3	1.4	-	2	-	1	-	-	-	1	-	1
44	6	ME8693	Heat and Mass Transfer	3	2	-	2	-	1	-	1	1	1	-	-
45	6	ME8692	Finite Element Analysis	3	3	2	2	3	1	-	-	-	-	-	1
46	6	ME8694	Hydraulics and Pneumatics	3	2.6	2	2	1.8	-	-	-	1	-	-	-
47	6	ME8091	Automobile Engineering	3	1.4	1.5	-	-	1	-	-	-	-	-	1
48	6	ME8681	CAD / CAM Laboratory	2.0	2.3	3.0	2.3	2.0	-	-	-	-	-	-	-
49	6	ME8682	Design and Fabrication Project	3.0	3	3	1	1	2	2	2	2	3	3	3
50	6	HS8581	Professional Communication	-	-	-	-	-	-	-	2.0	2.7	2.7		3.0
51	7	ME8792	Power Plant Engineering	3	1.4	1.5	-	-	1	1	-	-	-	-	1.2
52	7	ME8793	Process Planning and Cost Estimation	3	2	1	-	1	-	-	-	1	-	-	1.4
53	7	ME8791	Mechatronics	3	1.4	-	1.4	-	1	-	-	-	1	-	1.2
54	7	OML751	Testing of Materials	3	2.4	2.2	-	-	1	-	-	-	-	-	1
55	7	ME8097	Non Destructive Testing and Evaluation	3	1.4	1.5	-	-	1	-	-	-	-	-	1
56	7	GE8077	Total Quality Management	-	-	-	-	-	2	-	3	3	2	2	1
57	7	ME8711	Simulation and Analysis Laboratory	2.3	2.3	2.0	1.7	2.0	2.0	1.0	-	1.0	1.0	1.0	-
58	7	ME8781	Mechatronics Laboratory	3.0	2.0	3.0	-	1.7	2.0	-	-	1.0	1.0	-	-
59	7	ME8712	Technical Seminar	1.7	1.5	-	1.0	2.0	2.0	1.7	1.3	3.0	2.3	-	2.0
60	8	MG8591	Principles of Management	0	0	1.67	-	1	2	-	1	3	-	3	2
61	8	MG8091	Entrepreneurship Development	3	-	-	-	-	3	1	-	3	-	-	1
62	8	ME8811	Project Work	3.0	3.0	3.0	1.0	1.0	1.8	2.0	2.1	2.3	2.8	2.8	3.0

3.1.4. Program level Course-PO matrix of all courses including first year courses (10)

A-Program Level Course - PO matrices including first Year

BATCH (2017-2021)

S.No	Semester	Course Code	Course Title	Mapping With Po's											
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
1	1	HS8151	Communicative English												
2	1	MA8151	Engineering Mathematics - I												
3	1	PH8151	Engineering Physics												
4	1	CY8151	Engineering Chemistry												
5	1	GE8151	Problem Solving and Python Programming												
6	1	GE8152	Engineering Graphics	3	3	2	2	1	1		1	1	-	-	-
7	1	GE8161	Problem Solving and Python Programming Laboratory												
8	1	BS8161	Physics and Chemistry Laboratory												
9	2	HS8251	Technical English												
10	2	MA8251	Engineering Mathematics - II												
11	2	PH8251	Materials Science												
12	2	BE8253	Basic Electrical, Electronicsand Instrumentation Engineering												
13	2	GE8291	Environmental Science and Engineering												
14	2	GE8292	Engineering Mechanics	3	3	2	2	1	1	-	1	1	-	-	-
15	2	GE8261	Engineering Practices Laboratory												
16	2	BE8261	Basic Electrical, Electronics and Instrumentation engineering												

			Laboratory												
17	3	MA8353	Transforms and Partial Differential Equations	2.4	1.4	1.4	-	-	-	-	-	-	-	-	-
18	3	ME8391	Engineering Thermodynamics	3	2.2	1.5	-	-	1	0	0	0	1	1	1
19	3	CE8394	Fluid Mechanics and Machinery	3	1.4	1.5	-	-	1	-	-	-	-	-	1.2
20	3	ME8351	Manufacturing Technology - I	3	3	2	2	1	1	-	1	1	-	-	-
21	3	EE8353	Electrical Drives and Controls	2	1	1	1	-	-	-	-	-	-	1.5	-
22	3	ME8361	Manufacturing TechnologyLaboratory - I	2.4	2	2.4	-	-	1	1	-	-	-	-	1.2
23	3	ME8381	Computer Aided Machine Drawing	2.0	2.3	3.0	2.3	2.0	-	-	-	-	-	-	-
24	3	EE8361	Electrical Engineering Laboratory	3.0	2	-	-	-	-	-	1	3	-	-	1
25	3	HS8381	Interpersonal Skills / Listening & Speaking	1.7	1.5	-	1.0	2.0	2.0	1.7	1.3	3.0	2.3	-	2.0
26	4	MA8452	Statistics and Numerical Methods	2	1	1	1	-	-	-	-	-	-	1.5	-
27	4	ME8492	Kinematics of Machinery	3	1.4	1.5	-	-	1	-	-	-	-	-	1.2
28	4	ME8451	Manufacturing Technology – II	3	1.4	1.4	-	1	1	-	-	-	-	-	1
29	4	ME8491	Engineering Metallurgy	3	2	2	1	-	1	-	-	-	-	-	1
30	4	CE8395	Strength of Materials forMechanical Engineers	3	1.4	1.5	-	-	1	-	-	-	-	-	1
31	4	ME8493	Thermal Engineering- I	3	2	1	-	1	-	-	-	-	-	-	1
32	4	ME8462	Manufacturing Technology Laboratory – II	3.0	2.0	2.7	2.3	1.7	1.0	-	-	1.0	-	1.0	1.0
33	4	CE8381	Strength of Materials and Fluid Mechanics and Machinery Laboratory	3.0	1.0	-	1.0	-	-	-	-	-	-	-	3.0
34	4	HS8461	Advanced Reading and Writing	2.5	2.0	-	-	2.5	2.0	3.0	3.0	1.0	2.3	-	2.5
35	5	ME8595	Thermal Engineering- II	3	3	2	2	1.8	-	-	1	-	-	-	-
36	5	ME8593	Design of Machine Elements	3	1.4	1.6	-	-	1	-	-	-	-	-	1
37	5	ME8501	Metrology and Measurements	3	1.4	1.5	-	-	1	1	-	-	-	-	1
38	5	ME8594	Dynamics of Machines	3	3	3	-	2	1	-	-	-	-	-	1
39	5	OR0551	Renewable Energy Sources	3	1	1.2	-	2	-	-	-	-	-	-	1

40	5	ME8511	Kinematics and DynamicsLaboratory	1.7	2.3	2.5	2.3	-	2.0	2.0	-	-	2.0	-	2.0
41	5	ME8512	Thermal Engineering Laboratory	3.0	3.0	1.7	1.7	1.0	-	-	-	-	-		-
42	5	ME8513	Metrology and Measurements Laboratory	2.0	2.0	2.0	1.3	-	1.0	1.7	1.0	1.0	-	-	-
43	6	ME8651	Design of TransmissionSystems	3	3	2	2	-	1	-	-	-	-	-	1
44	6	ME8691	Computer Aided Design and Manufacturing	3	2.2	2	1.4	-	1	-	-	-	1	-	1.2
45	6	ME8693	Heat and Mass Transfer	3	2		2		1		1	1	1	-	-
46	6	ME8692	Finite Element Analysis	3	3	2	2	3	1	-	-	-	-	-	1
47	6	ME8694	Hydraulics and Pneumatics	3	2.6	2	2	1.8	-	-	-	1	-	-	-
48	6	ME8091	Automobile Engineering	3	1.4	1.5	-	-	1	-	-	-	-	-	1
49	6	ME8681	CAD / CAM Laboratory	2.0	2.3	3.0	2.3	2.0	-	-	-	-	-	-	-
50	6	ME8682	Design and Fabrication Project	3.0	3	3	1	1	2	2	2	2	3	3	3
51	6	HS8581	Professional Communication	-	-	-	-	-	-	-	2.0	2.7	2.7	-	3.0
52	7	ME8792	Power Plant Engineering	3	1.4	1.5	-	0	5	1	-	-	-	-	1.2
53	7	ME8793	Process Planning and Cost Estimation	3	2	1.25	-	1	-	-	-	1	-	1	1.4
54	7	ME8791	Mechatronics	3	1.4	-	1.4	-	1	-	-	-	1	-	1.2
55	7	OML751	Testing of Materials	3	2.4	2.2	-	-	1	-	-	-	-	-	1
56	7	ME8095	Design of Jigs, Fixtures and Press Tools	3	1.4	1.5	-	-	1	-	-	-	-	-	1
57	7	GE8077	Total Quality Management	0	0	0	0	0	2	0	3	3	2	2	1
58	7	ME8711	Simulation and Analysis Laboratory	2.3	2.3	2.0	1.7	2.0	2.0	1.0	-	1.0	1.0	1.0	-
59	7	ME8781	Mechatronics Laboratory	3.0	2.0	3.0	-	1.7	2.0	-	-	1.0	1.0	-	-
60	7	ME8712	Technical Seminar	1.7	1.5	-	1.0	2.0	2.0	1.7	1.3	3.0	2.3	-	2.0
61	8	MG8591	Principles of Management	0	0	1.67	-	1	2	-	1	3	-	3	2
62	8	MG8091	Entrepreneurship Development	3	-	-	-	-	3	1	-	3	-	-	1
63	8	ME8811	Project Work	3.0	3.0	3.0	1.0	1.0	1.8	2.0	2.1	2.3	2.8	2.8	3.0

B-Program Level Course Outcomes - PSO matrices including first Year

BATCH (2018-2022)

S.NO	Course Code	Course Name	Mapping With Pso's		
1	HS8151	Communicative English	PSO1	PSO2	PSO3
2	MA8151	Engineering Mathematics - I			
3	PH8151	Engineering Physics			
4	CY8151	Engineering Chemistry			
5	GE8151	Problem Solving and PythonProgramming			
6	GE8152	Engineering Graphics			
7	GE8161	Problem Solving and PythonProgramming Laboratory			
8	BS8161	Physics and ChemistryLaboratory			
9	HS8251	Technical English			
10	MA8251	Engineering Mathematics - II			
11	PH8251	Materials Science			
12	BE8253	Basic Electrical, Electronicsand Instrumentation Engineering			
13	GE8291	Environmental Science andEngineering			
14	GE8292	Engineering Mechanics			
15	GE8261	Engineering Practices Laboratory			
16	BE8261	Basic Electrical, Electronics and Instrumentation engineering Laboratory			
17	MA8353	Transforms and Partial DifferentialEquations			
18	ME8391	Engineering Thermodynamics	3	2.6	1
19	CE8394	Fluid Mechanics and Machinery	3	3	2
20	ME8351	Manufacturing Technology - I	3	2	2
21	EE8353	Electrical Drives and Controls	3	1	1
22	ME8361	Manufacturing TechnologyLaboratory - I	1.3	2.2	
23	ME8381	Computer Aided Machine Drawing	3.0	1.3	
24	EE8361	Electrical Engineering Laboratory	-	-	
25	HS8381	Interpersonal Skills / Listening &Speaking	1.0	2.0	
26	MA8452	Statistics and Numerical Methods	2	2.0	3.0
27	ME8492	Kinematics of Machinery	3	3	2
28	ME8451	Manufacturing Technology – II	3	3	2
29	ME8491	Engineering Metallurgy	3	2	2
30	CE8395	Strength of Materials forMechanical Engineers			

31	ME8493	Thermal Engineering -I	3	2	1
32	ME8462	Manufacturing Technology Laboratory – II	2.0	3.0	
33	CE8381	Strength of Materials and FluidMechanics and Machinery Laboratory	3	3	1.8
34	HS8461	Advanced Reading and Writing	1.0	2.0	
35	ME8595	Thermal Engineering- II	3	3	1
36	ME8593	Design of Machine Elements	3	3	2
37	ME8501	Metrology and Measurements	3	2	2
38	ME8594	Dynamics of Machines	3	3	1.8
39	OR0551	Renewable Energy Sources	2	1	2
40	ME8511	Kinematics and DynamicsLaboratory	3.0	1.7	
41	ME8512	Thermal Engineering Laboratory	2.7	1.0	
42	ME8513	Metrology and MeasurementsLaboratory	1.3	1.0	
43	ME8651	Design of TransmissionSystems	3	1	1
44	ME8691	Computer Aided Design andManufacturing	3	2	1.4
45	ME8693	Heat and Mass Transfer	3	2	2
46	ME8692	Finite Element Analysis	2	1	2
47	ME8694	Hydraulics and Pneumatics	3	2	1
48	ME8091	Automobile Engineering	3	3	2
49	ME8681	CAD / CAM Laboratory	3.0	1.3	-
50	ME8682	Design and Fabrication Project	2	2	-
51	HS8581	Professional Communication	-	-	-
52	ME8792	Power Plant Engineering	3	3	2
53	ME8793	Process Planning and CostEstimation	3	2	3
54	ME8791	Mechatronics	3	2	1.4
55	OML751	Testing of Materials	3	3	1.8
56	ME8095	Design of Jigs, Fixtures and Press Tools	3	3	2
57	GE8077	Total Quality Management	1.2		1
58	ME8711	Simulation and AnalysisLaboratory	3.0	1.3	
59	ME8781	Mechatronics Laboratory	3.0	2.0	
60	ME8712	Technical Seminar	1.0	2.0	
61	MG8591	Principles of Management	3	2	3
62	MG8091	Entrepreneurship Development	3	2	3
63	ME8811	Project Work	1.8	1.8	

B-Program Level Course Outcomes - PSO matrices including first Year

BATCH (2017-2021)

S.NO	Course Code	Course Name	Mapping With Pso's		
1	HS8151	Communicative English	PSO1	PSO2	PSO3
2	MA8151	Engineering Mathematics - I			
3	PH8151	Engineering Physics			
4	CY8151	Engineering Chemistry			
5	GE8151	Problem Solving and PythonProgramming			
6	GE8152	Engineering Graphics	3	2	2
7	GE8161	Problem Solving and PythonProgramming Laboratory			
8	BS8161	Physics and ChemistryLaboratory			
9	HS8251	Technical English			
10	MA8251	Engineering Mathematics - II			
11	PH8251	Materials Science			
12	BE8253	Basic Electrical, Electronicsand Instrumentation Engineering			
13	GE8291	Environmental Science andEngineering			
14	GE8292	Engineering Mechanics	3	2	2
15	GE8261	Engineering Practices Laboratory			
16	BE8261	Basic Electrical, Electronics and Instrumentation engineering Laboratory			
17	MA8353	Transforms and Partial DifferentialEquations			
18	ME8391	Engineering Thermodynamics			
19	CE8394	Fluid Mechanics and Machinery	3	3	2
20	ME8351	Manufacturing Technology - I	3	2	2
21	EE8353	Electrical Drives and Controls	3	1	1
22	ME8361	Manufacturing TechnologyLaboratory - I	1.3	2.2	-
23	ME8381	Computer Aided Machine Drawing	3.0	1.3	-
24	EE8361	Electrical Engineering Laboratory	-	-	-
25	HS8381	Interpersonal Skills / Listening &Speaking	1.0	2.0	
26	MA8452	Statistics and Numerical Methods	2	2.0	3.0
27	ME8492	Kinematics of Machinery	3	3	2
28	ME8451	Manufacturing Technology – II	3	3	2
29	ME8491	Engineering Metallurgy	3	2	2
30	CE8395	Strength of Materials forMechanical Engineers			

32	CE8381	Strength of Materials and FluidMechanics and Machinery Laboratory	2.0	3.0	-
33	HS8461	Advanced Reading and Writing	3	3	1.8
34	ME8595	Thermal Engineering- II	1.0	2.0	-
35	ME8593	Design of Machine Elements	3	3	2
36	ME8501	Metrology and Measurements	3	2	2
37	ME8594	Dynamics of Machines	3	3	1.8
38	OR0551	Renewable Energy Sources	2	1	2
39	ME8511	Kinematics and DynamicsLaboratory	1.3	1.0	-
40	ME8512	Thermal Engineering Laboratory	3.0	1.7	-
41	ME8513	Metrology and MeasurementsLaboratory	2.7	1.0	-
42	ME8651	Design of TransmissionSystems	1.3	1.0	-
43	ME8691	Computer Aided Design andManufacturing	3	2	1.4
44	ME8693	Heat and Mass Transfer	2	-	3
45	ME8692	Finite Element Analysis	2	1	2
46	ME8694	Hydraulics and Pneumatics	3	2	1
47	ME8091	Automobile Engineering	3	3	2
48	ME8681	CAD / CAM Laboratory	3	3	2
49	ME8682	Design and Fabrication Project	3.0	1.3	-
50	HS8581	Professional Communication	-	-	-
51	ME8792	Power Plant Engineering	3	3	2
52	ME8793	Process Planning and CostEstimation	3	3	2
53	ME8791	Mechatronics	3	2	1.4
54	OML751	Testing of Materials	3	3	1.4
55	ME8095	Design of Jigs, Fixtures and Press Tools	3	3	2
56	GE8077	Total Quality Management	1.2	0	1
57	ME8711	Simulation and AnalysisLaboratory	3.0	1.3	-
58	ME8781	Mechatronics Laboratory	3.0	2.0	-
59	ME8712	Technical Seminar	1.0	2.0	-
60	MG8591	Principles of Management	3	2	3
61	MG8091	Entrepreneurship Development	3	2	3
62	ME8811	Project Work	1.8	1.8	-

ATTAINMENT OF POs and PSOs

BATCH (2018-2022)

S.No	Semester	Course Code	Course Title	Mapping With Po's														
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	1	HS8151	Communicative English															
2	1	MA8151	Engineering Mathematics - I															
3	1	PH8151	Engineering Physics															
4	1	CY8151	Engineering Chemistry															
5	1	GE8151	Problem Solving and Python Programming															
6	1	GE8152	Engineering Graphics	3	1.77	2.2	2	1	1		1	1	-	-	-	3	3	2
7	1	GE8161	Problem Solving and PythonProgramming Laboratory															
8	1	BS8161	Physics and Chemistry Laboratory															
9	2	HS8251	Technical English															
10	2	MA8251	Engineering Mathematics - II															
11	2	PH8251	Materials Science															
12	2	BE8253	Basic Electrical, Electronics and Instrumentation Engineering															
13	2	GE8291	Environmental Science and Engineering															
14	2	GE8292	Engineering Mechanics	2.98	3	2	2	1.77	1.22	-	1	1.12	-	-	-	2.56	3	2
15	2	GE8261	Engineering Practices Laboratory															
16	2	BE8261	Basic Electrical, Electronics and Instrumentation engineering Laboratory															

17	3	MA8353	Transforms and Partial Differential Equations															
18	3	ME8391	Engineering Thermodynamics	2.1	1.54	1.05	-	-	0.70						0.7	2.1	1.82	0.70
19	3	CE8394	Fluid Mechanics and Machinery	2.9	1.35	1.45			0.97	0.97	-	-	-	-	1.16	2.90	2.90	1.93
20	3	ME8351	Manufacturing Technology - I	2.92	1.95	1.95	-	-	0.97	-	-	-	-	-	0.97	2.92	1.95	1.95
21	3	EE8353	Electrical Drives and Controls	2.94	1.96	-	-	-	0.98	-	-	-	-	-	0.98	2.94	0.98	0.98
22	3	ME8361	Manufacturing Technology Laboratory - I	2.92	2.92	1.95	1.95	0.97	0.97		0.973	0.97				2.92	1.95	1.95
23	3	ME8381	Computer Aided Machine Drawing	2.94	1.96	-	-	-	0.98	-	-	-	-	-	0.98	2.94	0.98	0.98
24	3	EE8361	Electrical Engineering Laboratory	3.0	2.0	3.0	-	1.7	2.0	-	-	1.0	1.0	-	-	3.0	2.0	3.0
25	3	HS8381	Interpersonal Skills / Listening & Speaking	3.0	2.0	3.0	-	1.7	2.0	-	-	1.0	1.0	-	-	3.0	2.0	3.0
26	4	MA8452	Statistics and Numerical Methods	2.92	1.36	1.168			0.97	0.97					1.17	2.92	1.95	1.95
27	4	ME8492	Kinematics of Machinery	2.88	1.34	1.54	-	-	0.96	-	-	-	-	-	1.15	2.88	2.88	1.92
28	4	ME8451	Manufacturing Technology – II	2.96	1.38	1.38	-	0.99	0.99	-	-	-	-	-	0.99	2.96	2.96	1.97
29	4	ME8491	Engineering Metallurgy	2.96	1.97	1.97	0.99	-	0.99	-	-	-	-	-	0.99	2.96	1.97	1.97
30	4	CE8395	Strength of Materials for Mechanical Engineers	2.92	2.92	2.92	-	1.95	0.97	-	-	-	-	-	0.97	2.92	2.92	1.75
31	4	ME8493	Thermal Engineering- I	2.88	1.92	0.96	-	0.96	-	-	-	-	-	-	0.96	2.88	1.92	0.96
32	4	ME8462	Manufacturing Technology Laboratory – II	3.0	2.0	3.0	-	1.7	2.0	-	-	1.0	1.0	-	-	3.0	2.0	3.0
33	4	CE8381	Strength of Materials and Fluid Mechanics and Machinery Laboratory	2.88	1.34	1.54	-	-	0.96	-	-	-	-	-	1.15	2.88	2.88	1.92
34	4	HS8461	Advanced Reading and Writing	2.92	2.92	2.92	-	1.95	0.97	-	-	-	-	-	0.97	2.92	2.92	1.75
35	5	ME8595	Thermal Engineering- II	3	3	2	2	1.8	-	-	1	-	-	-	-	3	3	1
36	5	ME8593	Design of Machine Elements	3	1.4	1.6	-	-	1	-	-	-	-	-	1	3	3	2
37	5	ME8501	Metrology and Measurements	3	1.4	1.5	-	-	1	1	-	-	-	-	1	3	2	2
38	5	ME8594	Dynamics of Machines	3	3	3	-	2	1	-	-	-	-	-	1	3	3	1.8
39	5	OR0551	Renewable Energy Sources	3	1.99	1.2	-	2	-	-	-	-	-	-	1	2	1	2
40	5	ME8511	Kinematics and Dynamics Laboratory	3.0	2.0	3.0	-	1.7	2.0	-	-	1.0	1.0	-	-	3.0	2.0	3.0
41	5	ME8512	Thermal Engineering Laboratory	2.94	2.96	1.98	-	-	0.98	-	-	-	-	-	0.98	2.94	0.98	0.98
42	5	ME8513	Metrology and Measurements Laboratory	3.0	2.0	3.0	-	1.7	2.0	-	-	1.0	1.0	-	-	3.0	2.0	3.0

43	6	ME8651	Design of TransmissionSystems	2.88	2.88	1.92	1.92	-	0.96	-	-	-	-	-	0.96	2.88	0.96	0.96
44	6	ME8691	Computer Aided Design and Manufacturing	2.9	1.35	-	1.93	-	0.97	-	-	-	0.97	-	0.97	2.9	1.93	1.35
45	6	ME8693	Heat and Mass Transfer	2.90	1.93	-	1.93	-	0.97	-	0.97	0.97	0.97	-	-	2.90	1.93	1.93
46	6	ME8692	Finite Element Analysis	2.88	2.88	1.92	1.92	2.88	0.96	-	-	-	-	-	0.96	1.92	0.96	1.92
47	6	ME8694	Hydraulics and Pneumatics	2.90	2.51	1.93	1.93	1.74	_	_	_	0.97	-	-	-	2.90	1.93	0.97
48	6	ME8091	Automobile Engineering	2.94	1.37	1.47	-	-	0.98	-	-	-	-	-	0.98	2.94	2.94	1.96
49	6	ME8681	CAD / CAM Laboratory	3.0	2.0	3.0	-	1.7	2.0	-	-	1.0	1.0	-	-	3.0	2.0	3.0
50	6	ME8682	Design and Fabrication Project	2.93	1.95	1.95	0.98		0.98						0.98	2.93	1.95	1.95
51	6	HS8581	Professional Communication	2.92	1.36	1.46			0.97	0.97					1.17	2.92	2.92	1.95
52	7	ME8792	Power Plant Engineering	2.94	1.37	1.47	-	-	0.98	0.98	-	-	-	-	1.18	2.94	2.94	1.96
53	7	ME8793	Process Planning and Cost Estimation	2.94	1.96	0.98	-	0.98	-	-	-	-	-	-	1.37	2.94	1.96	2.94
54	7	ME8791	Mechatronics	2.88	1.34	-	1.34	-	0.96	-	-	-	0.96	-	1.15	2.88	1.92	1.34
55	7	OML751	Testing of Materials	2.88	2.30	2.11	-	-	0.96	-	-	-	-	-	0.96	2.88	2.88	1.73
56	7	ME8095	Design of Jigs, Fixtures and Press Tools	2.88	1.34	1.44	-	-	0.96	-	-	-	-	-	0.96	2.88	2.88	1.92
57	7	GE8077	Total Quality Management	1.93	-	2.90	2.90	1.93	1.93	0.97	1.16	-	0.97	1.93	-	2.90	2.90	1.93
58	7	ME8711	Simulation and AnalysisLaboratory	2.3	2.3	2.0	1.7	2.0	2.0	1.0	-	1.0	1.0	1.0	-	2.3	2.3	2.0
59	7	ME8781	Mechatronics Laboratory	3.0	2.0	3.0	-	1.7	2.0	-	-	1.0	1.0	-	-	3.0	2.0	3.0
60	7	ME8712	Technical Seminar	1.7	1.5	-	1.0	2.0	2.0	1.7	1.3	3.0	2.3	-	2.0	1.7	1.5	-
61	8	MG8591	Principles of Management	-	-	1.64	-	0.99	1.97	-	0.99	2.96	-	2.96	1.97	2.96	1.97	2.96
62	8	MG8091	Entrepreneurship Development	2.94	-	-	-	-	2.94	0.98	-	2.94	-	-	0.98	2.94	1.96	2.94
63	8	ME8811	Project Work	3.0	3.0	3.0	1.0	1.0	1.8	2.0	2.1	2.3	2.8	2.8	3.0	3.0	3.0	3.0

ATTAINMENT OF POs and PSOs
BATCH (2017-2021)

S.No	Semester	Course Code	Course Title	Mapping With Po's														
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	1	HS8151	Communicative English	2.95	1.38	1.18			0.98	0.98					1.18	2.95	1.97	1.97
2	1	MA8151	Engineering Mathematics - I															
3	1	PH8151	Engineering Physics															
4	1	CY8151	Engineering Chemistry															
5	1	GE8151	Problem Solving and Python Programming															
6	1	GE8152	Engineering Graphics															
7	1	GE8161	Problem Solving and PythonProgramming Laboratory															
8	1	BS8161	Physics and ChemistryLaboratory															
9	2	HS8251	Technical English	3	1.98													
10	2	MA8251	Engineering Mathematics - II															
11	2	PH8251	Materials Science															
12	2	BE8253	Basic Electrical, Electronics and Instrumentation Engineering	2.92	1.36	1.46			0.97	0.97					1.17	2.92	2.92	1.95
13	2	GE8291	Environmental Science and Engineering															
14	2	GE8292	Engineering Mechanics	3	2.06	3	-	1.8	2	-	-	1	1	-	-	3	2	3
15	2	GE8261	Engineering Practices Laboratory															
16	2	BE8261	Basic Electrical, Electronics and Instrumentation engineering Laboratory	2.95	1.38	1.18			0.98	0.98					1.18	2.95	1.97	1.97
17	3	MA8353	Transforms and Partial Differential Equations															
18	3	ME8391	Engineering Thermodynamics															
19	3	CE8394	Fluid Mechanics and Machinery	2.88	1.34	1.44			0.96						1.15	2.88	2.88	1.92

20	3	ME8351	Manufacturing Technology - I	2.93	1.95	1.95			0.98						0.98	2.93	1.95	1.95
21	3	EE8353	Electrical Drives and Controls	2.94	1.96	-	-	-	0.98	-	-	-	-	-	0.98	2.94	0.98	0.98
22	3	ME8361	Manufacturing Technology Laboratory - I	2.92	2.92	1.95	1.95	0.97	0.97 3		0.973	0.973				2.92	1.95	1.95
23	3	ME8381	Computer Aided Machine Drawing	2.94	1.96	-	-	-	0.98	-	-	-	-	-	0.98	2.94	0.98	0.98
24	3	EE8361	Electrical Engineering Laboratory	3.0	2.0	3.0	-	1.7	2.0	-	-	1.0	1.0	-	-	3.0	2.0	3.0
25	3	HS8381	Interpersonal Skills / Listening & Speaking	3.0	2.0	3.0	-	1.7	2.0	-	-	1.0	1.0	-	-	3.0	2.0	3.0
26	4	MA8452	Statistics and Numerical Methods	2.92	1.36	1.168			0.97	0.97					1.17	2.92	1.95	1.95
27	4	ME8492	Kinematics of Machinery	2.91	1.36	1.45			0.97						1.16	2.91	2.91	1.94
28	4	ME8451	Manufacturing Technology – II	3.0	2.0	3.0	-	1.7	2.0	-	-	1.0	1.0	-	-	3.0	2.0	3.0
29	4	ME8491	Engineering Metallurgy	2.93	1.95	1.95	0.98		0.98						0.98	2.93	1.95	1.95
30	4	CE8395	Strength of Materials for Mechanical Engineers	2.95	2.95	2.95	0	1.97	0.98						0.98	2.95	2.95	1.77
31	4	ME8493	Thermal Engineering- I	2.92	2.92	1.93	1.93	1.74			0.97					2.9	2.9	0.97
32	4	ME8462	Manufacturing Technology Laboratory – II	3.0	2.0	3.0	-	1.7	2.0	-	-	1.0	1.0	-	-	3.0	2.0	3.0
33	4	CE8381	Strength of Materials and Fluid Mechanics and Machinery Laboratory	2.92	2.92	1.93	1.93	1.74			0.97					2.9	2.9	0.97
34	4	HS8461	Advanced Reading and Writing	3.0	2.0	3.0	-	1.7	2.0	-	-	1.0	1.0	-	-	3.0	2.0	3.0
35	5	ME8595	Thermal Engineering- II	2.92	2.92	1.93	1.93	1.74			0.97					2.9	2.9	0.97
36	5	ME8593	Design of Machine Elements	3	1.4	1.6	-	-	1	-	-	-	-	-	1	3	3	2
37	5	ME8501	Metrology and Measurements	2.92	1.36	1.168			0.97	0.97					1.17	2.92	1.95	1.95
38	5	ME8594	Dynamics of Machines	2.9	2.9	2.9		1.93	0.97						0.97	2.9	2.9	1.74
39	5	OR0551	Renewable Energy Sources	3	1	1.2	-	2	-	-	-	-	-	-	1	2	1	2
40	5	ME8511	Kinematics and Dynamics Laboratory	3.0	2.0	3.0	-	1.7	2.0	-	-	1.0	1.0	-	-	3.0	2.0	3.0
41	5	ME8512	Thermal Engineering Laboratory															
42	5	ME8513	Metrology and Measurements Laboratory	3.0	2.0	3.0	-	1.7	2.0	-	-	1.0	1.0	-	-	3.0	2.0	3.0
43	6	ME8651	Design of TransmissionSystems	2.88	2.88	1.92	1.92	-	0.96	-	-	-	-	-	0.96	2.88	0.96	0.96
44	6	ME8691	Computer Aided Design and Manufacturing	2.92	2.14	1.95	1.4	0	0.97	0	0	0	0.97	0	1.17	2.92	1.95	1.75

45	6	ME8693	Heat and Mass Transfer	2.6	1.7	0	1.7	0	0.87	0	0.87	0.87	0.87	0	0	1.73	0	2.6
46	6	ME8692	Finite Element Analysis	2.93	2.93	1.95	1.95	2.93	0.98	-	-	-	-	-	0.98	1.95	0.98	1.95
47	6	ME8694	Hydraulics and Pneumatics	2.95	0	2.55	0	1.97	0	1.96	1.77	0	0	0	0.98	0	0	0
48	6	ME8091	Automobile Engineering	2.96	1.38	1.48			0.99						0.99	2.96	2.96	1.97
49	6	ME8681	CAD / CAM Laboratory	3.0	2.0	3.0	-	1.7	2.0	-	-	1.0	1.0	-	-	3.0	2.0	3.0
50	6	ME8682	Design and Fabrication Project	3.0	2.0	3.0	-	1.7	2.0	-	-	1.0	1.0	-	-	3.0	2.0	3.0
51	6	HS8581	Professional Communication	3.0	2.0	3.0	-	1.7	2.0	-	-	1.0	1.0	-	-	3.0	2.0	3.0
52	7	ME8792	Power Plant Engineering	2.94	1.37	1.47	-	-	0.98	0.98	-	-	-	-	1.18	2.94	2.94	1.96
53	7	ME8793	Process Planning and Cost Estimation	2.94	1.96	0.98	-	0.98	-	-	-	-	-	-	1.37	2.94	1.96	2.94
54	7	ME8791	Mechatronics	2.88	1.34	-	1.34	-	0.96	-	-	-	0.96	-	1.15	2.88	1.92	1.34
55	7	OML751	Testing of Materials	2.88	2.30	2.11	-	-	0.96	-	-	-	-	-	0.96	2.88	2.88	1.73
56	7	ME8095	Design of Jigs, Fixtures and Press Tools	2.88	1.34	1.44	-	-	0.96	-	-	-	-	-	0.96	2.88	2.88	1.92
57	7	GE8077	Total Quality Management	1.93	-	2.90	2.90	1.93	1.93	0.97	1.16	-	0.97	1.93	-	2.90	2.90	1.93
58	7	ME8711	Simulation and AnalysisLaboratory	2.3	2.3	2.0	1.7	2.0	2.0	1.0	-	1.0	1.0	1.0	-	2.3	2.3	2.0
59	7	ME8781	Mechatronics Laboratory	3.0	2.0	3.0	-	1.7	2.0	-	-	1.0	1.0	-	-	3.0	2.0	3.0
60	7	ME8712	Technical Seminar	1.7	1.5	-	1.0	2.0	2.0	1.7	1.3	3.0	2.3	-	2.0	1.7	1.5	-
61	8	MG8591	Principles of Management	0	0	1.62	0	0.97	1.95	0	0.97	2.92	0	2.92	1.95	1.95	0.00	2.92
62	8	MG8091	Entrepreneurship Development	2.94	-	-	-	-	2.94	0.98	-	2.94	-	-	0.98	2.94	1.96	2.94
63	8	ME8811	Project Work	3.0	3.0	3.0	1.0	1.0	1.8	2.0	2.1	2.3	2.8	2.8	3.0	3.0	3.0	3.0

ATTAINMENT OF CO'S
BATCH (2018-2022)

S.No	Semester	Course Code	Course Title	Mapping With Po's														
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	1	HS8151	Communicative English															
2	1	MA8151	Engineering Mathematics - I															
3	1	PH8151	Engineering Physics	2.95	1.38	1.18	-	-	0.98	0.98	-	-	-	-	1.18	2.95	1.97	1.97
4	1	CY8151	Engineering Chemistry															
5	1	GE8151	Problem Solving and Python Programming															
6	1	GE8152	Engineering Graphics															
7	1	GE8161	Problem Solving and PythonProgramming Laboratory															
8	1	BS8161	Physics and ChemistryLaboratory															
9	2	HS8251	Technical English															
10	2	MA8251	Engineering Mathematics - II															
11	2	PH8251	Materials Science	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-
12	2	BE8253	Basic Electrical, Electronics and Instrumentation Engineering															
13	2	GE8291	Environmental Science and Engineering															
14	2	GE8292	Engineering Mechanics	2.92	1.36	1.46	-	-	0.97	0.97	-	-	-	-	1.17	2.92	2.92	1.95
15	2	GE8261	Engineering Practices Laboratory															
16	2	BE8261	Basic Electrical, Electronics and Instrumentation engineering Laboratory	3	2	3	-	1.8	2	-	-	1	1	-	-	3	2	3
17	3	MA8353	Transforms and Partial Differential Equations															

18	3	ME8391	Engineering Thermodynamics	2.13	1.56	1.07	-	-	0.71	-	-	-	-	-	0.71	2.13	1.85	0.71
19	3	CE8394	Fluid Mechanics and Machinery	2.93	1.37	1.47	-	-	0.98	0.98	-	-	-	-	1.17	2.93	2.93	1.95
20	3	ME8351	Manufacturing Technology - I	2.93	1.95	1.95	-	-	0.98	-	-	-	-	-	0.98	2.93	1.95	1.95
21	3	EE8353	Electrical Drives and Controls	2.93	1.95	-	-	-	0.98	-	-	-	-	-	0.98	2.93	0.98	0.98
22	3	ME8361	Manufacturing Technology Laboratory - I	2.92	2.92	1.95	1.95	0.97	0.97 3	-	0.973	0.97 3	-	-	-	2.92	1.95	1.95
23	3	ME8381	Computer Aided Machine Drawing	2.92	1.36	1.46	-	-	0.97	0.97	-	-	-	-	1.17	2.92	2.92	1.95
24	3	EE8361	Electrical Engineering Laboratory	2.92	2.92	1.95	1.95	0.97	0.97 3	-	0.973	0.97 3	-	-	-	2.92	1.95	1.95
25	3	HS8381	Interpersonal Skills / Listening & Speaking	2.92	2.92	1.95	1.95	0.97	0.97 3	-	0.973	0.97 3	-	-	-	2.92	1.95	1.95
26	4	MA8452	Statistics and Numerical Methods	2.92	1.36	1.46	-	-	0.97	0.97	-	-	-	-	1.17	2.92	2.92	1.95
27	4	ME8492	Kinematics of Machinery	2.93	1.37	1.56	-	-	0.98	-	-	-	-	-	1.17	2.93	2.93	1.95
28	4	ME8451	Manufacturing Technology – II	2.93	1.37	1.37	-	0.98	0.98	-	-	-	-	-	0.98	2.93	2.93	1.95
29	4	ME8491	Engineering Metallurgy	2.93	1.95	1.95	0.98	-	0.98		-	-	-	-	0.98	2.93	1.95	1.95
30	4	CE8395	Strength of Materials for Mechanical Engineers	2.95	2.95	2.95	-	1.97	0.98	-	-	-	-	-	0.98	2.95	2.95	1.77
31	4	ME8493	Thermal Engineering- I	2.93	1.95	0.98	-	0.98	-	-	-	-	-	-	0.98	2.93	1.95	0.98
32	4	ME8462	Manufacturing Technology Laboratory – II	3.0	2.0	3.0	-	1.7	2.0	-	-	1.0	1.0	-	-	3.0	2.0	3.0
33	4	CE8381	Strength of Materials and Fluid Mechanics and Machinery Laboratory	2.92	2.92	1.95	1.95	0.97	0.97 3		0.973	0.97 3	-	-	-	2.92	1.95	1.95
34	4	HS8461	Advanced Reading and Writing	3	2	3	-	1.8	2	-	-	1	1	-	-	3	2	3
35	5	ME8595	Thermal Engineering- II	3	3	2	2	1.8	-	-	1	-	-	-	_	3	3	1
36	5	ME8593	Design of Machine Elements	3	1.4	1.6	-	-	1	-	-	-	-	-	1	3	3	2
37	5	ME8501	Metrology and Measurements	3	1.4	1.5	-	-	1	1	-	-	-	-	1	3	2	2
38	5	ME8594	Dynamics of Machines	3	3	3	-	2	1	-	-	-	-	-	1	3	3	1.8
39	5	OR0551	Renewable Energy Sources	3	1	1.2	-	2	-	-	-	-	-	-	1	2	1	2
40	5	ME8511	Kinematics and Dynamics Laboratory	3.0	2.0	3.0	-	1.7	2.0	-	-	1.0	1.0	-	-	3.0	2.0	3.0
41	5	ME8512	Thermal Engineering Laboratory	2.92	2.92	1.95	1.95	0.97	0.973	-	0.973	0.973	-	-	-	2.92	1.95	1.95
42	5	ME8513	Metrology and Measurements Laboratory	3.0	2.0	3.0	-	1.7	2.0	-	-	1.0	1.0	-	-	3.0	2.0	3.0
43	6	ME8651	Design of TransmissionSystems	2.93	2.93	1.95	1.95	-	0.98	-	-	-	-	-	0.98	2.93	0.98	0.98

44	6	ME8691	Computer Aided Design and Manufacturing	2.93	1.37	-	1.95	-	0.98	-	-	-	0.98	-	0.98	2.93	1.95	1.37
45	6	ME8693	Heat and Mass Transfer	2.94	1.96	-	1.96	-	0.98	-	0.98	0.98	0.98	-	-	2.94	1.96	1.96
46	6	ME8692	Finite Element Analysis	2.93	2.93	1.95	1.95	2.93	0.98	-	-	-	-	-	0.98	1.95	0.98	1.95
47	6	ME8694	Hydraulics and Pneumatics	2.94	2.55	1.96	1.96	1.76	-	-	-	0.98	-	-	-	2.94	1.96	0.98
48	6	ME8091	Automobile Engineering	2.96	1.38	1.48	-	-	0.99	-	-	-	-	-	0.99	2.96	2.96	1.97
49	6	ME8681	CAD / CAM Laboratory	3	2	3	-	1.8	2	-	-	1	1	-	-	3	2	3
50	6	ME8682	Design and Fabrication Project	3	2	3	-	1.8	2	-	-	1.4	1.6	-	-	3	2	3
51	6	HS8581	Professional Communication	3.0	3.0	3.0	1.2	1.4	1.8	2.0	2.1	2.3	2.8	2.8	3.0	3.0	3.0	3.0
52	7	ME8792	Power Plant Engineering	3	1.4	1.5	_	0	5.0	0.97	_	_	_	_	1.2	3	3	2.14
53	7	ME8793	Process Planning and Cost Estimation	3	2	1.25	_	1	_	_	_	1	_	1	1.4	3	3	2
54	7	ME8791	Mechatronics	3	1.4	_	1.4	_	1.2	_	_	_	_	_	1.2	3	2.88	1.4
55	7	OML751	Testing of Materials	2.96	2.4	2.2	_	_	1.2	_	_	_	_	_	1.7	3	3	2
56	7	ME8095	Design of Jigs, Fixtures and Press Tools	3	1.4	1.5	-	-	1.4	-	-	-	-	-	1.6	3	3	2.12
57	7	GE8077	Total Quality Management	-	-	-	-	-	2	-	3	3	2	2	1	1.2	-	-
58	7	ME8711	Simulation and AnalysisLaboratory	3	3	2	2	2.0	2.0	1.0	-	1.0	1.0	1.0	-	2.3	2.3	2.0
59	7	ME8781	Mechatronics Laboratory	3.0	2.0	3.0	-	1.7	2.0	-	-	1.0	1.0	-	-	3.0	2.0	3.0
60	7	ME8712	Technical Seminar	3	3	2	1.0	2.0	2.0	1.7	1.3	3.0	2.3	-	2.0	2.6	1.5	-
61	8	MG8591	Principles of Management	-	-	1.64	-	0.99	1.97	-	0.99	2.96	-	2.96	1.97	2.96	1.97	2.96
62	8	MG8091	Entrepreneurship Development	2.94	-	-	-	-	2.94	0.98	-	2.94	-	-	0.98	2.94	1.96	2.94
63	8	ME8811	Project Work	3.0	3.0	3.0	1.0	1.0	1.8	2.0	2.1	2.3	2.8	2.8	3.0	3.0	3.0	3.0

ATTAINMENT OF CO'S
BATCH (2017-2021)

S.No	Semester	Course Code	Course Title	Mapping With Po's														
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	1	HS8151	Communicative English															
2	1	MA8151	Engineering Mathematics - I															
3	1	PH8151	Engineering Physics	2.9	1.35	1.45	-	-	-	-	-	-	-	-	-	-	-	-
4	1	CY8151	Engineering Chemistry															
5	1	GE8151	Problem Solving and Python Programming															
6	1	GE8152	Engineering Graphics															
7	1	GE8161	Problem Solving and PythonProgramming Laboratory															
8	1	BS8161	Physics and ChemistryLaboratory															
9	2	HS8251	Technical English															
10	2	MA8251	Engineering Mathematics - II															
11	2	PH8251	Materials Science	3	2.00	-	-	-	-	-	-	-	-	-	-	-	-	-
12	2	BE8253	Basic Electrical, Electronics and Instrumentation Engineering															
13	2	GE8291	Environmental Science and Engineering															
14	2	GE8292	Engineering Mechanics	2.92	1.36	1.46	-	-	0.97	0.97	-	-	-	-	1.17	2.92	2.92	1.95
15	2	GE8261	Engineering Practices Laboratory															
16	2	BE8261	Basic Electrical, Electronics and Instrumentation engineering Laboratory															
17	3	MA8353	Transforms and Partial Differential Equations															

18	3	ME8391	Engineering Thermodynamics	2.95	2.95	0.98	-	-	0.98	-	-	-	-	-	0.98	2.95	2.95	1.38
19	3	CE8394	Fluid Mechanics and Machinery	2.92	1.36	1.46	-	-	0.97	0.97	-	-	-	-	1.17	2.92	2.92	1.95
20	3	ME8351	Manufacturing Technology - I	2.95	2.95	1.97	1.97	0.98	0.98		0.98	0.98	-	-	-	2.95	1.97	1.97
21	3	EE8353	Electrical Drives and Controls	2.95	2.95	0.98	-	-	0.98	-	-	-	-	-	0.98	2.95	2.95	1.38
22	3	ME8361	Manufacturing Technology Laboratory - I	3	2	3	-	1.8	2	-	-	1	1	-	-	3	2	3
23	3	ME8381	Computer Aided Machine Drawing	2.92	1.36	1.46	-	-	0.97	0.97	-	-	-	-	1.17	2.92	2.92	1.95
24	3	EE8361	Electrical Engineering Laboratory	2.92	2.92	1.95	1.95	0.97	0.973	-	0.973	0.973	-	-	-	2.92	1.95	1.95
25	3	HS8381	Interpersonal Skills / Listening & Speaking	2.92	2.92	1.95	1.95	1.97	0.97	-	2.97	1.97	-	-	-	2.98	2.90	2.95
26	4	MA8452	Statistics and Numerical Methods	2.92	1.36	1.46	-	-	0.97	0.97	-	-	-	-	1.17	2.92	2.92	1.95
27	4	ME8492	Kinematics of Machinery	2.89	1.35	1.45	-	-	0.96	-	-	-	-	-	1.16	2.89	2.89	1.93
28	4	ME8451	Manufacturing Technology – II	2.94	1.37	1.47	-	0.98	0.98	-	-	-	-	-	0.98	2.94	2.94	1.96
29	4	ME8491	Engineering Metallurgy	2.97	1.98	1.98	0.99	-	0.99	-	-	-	-	-	0.99	2.97	1.98	1.98
30	4	CE8395	Strength of Materials for Mechanical Engineers	3.0	2.0	3.0	-	1.92	2.0	-	-	1.98	1.20	-	-	3.0	2.0	3.0
31	4	ME8493	Thermal Engineering- I	2.92	1.95	0.97	-	0.97	-	-	-	-	-	-	0.97	2.92	2.92	1.95
32	4	ME8462	Manufacturing Technology Laboratory – II	3.0	2.0	3.0	-	1.7	2.0	-	-	1.0	1.0	-	-	3.0	2.0	3.0
33	4	CE8381	Strength of Materials and Fluid Mechanics and Machinery Laboratory	2.92	2.92	2.92	-	1.95	0.97	-	-	-	-	-	0.97	2.92	2.92	1.75
34	4	HS8461	Advanced Reading and Writing	3	2	3	-	1.90	2	-	-	2.12	1.92	-	-	3	2	3
35	5	ME8595	Thermal Engineering- II	2.92	2.92	1.93	1.93	1.74	-	-	0.97	-	-	-	-	2.90	2.90	0.97
36	5	ME8593	Design of Machine Elements	2.9	1.35	1.45	_	_	0.97	_	_	_	_	_	0.97	2.9	2.9	1.93
37	5	ME8501	Metrology and Measurements	2.95	1.38	1.18	-	-	0.98	0.98	-	-	-	-	1.18	2.95	1.97	1.97
38	5	ME8594	Dynamics of Machines	2.94	2.94	2.94	-	1.96	0.98	-	-	-	-	-	0.98	2.94	2.94	1.76
39	5	OR0551	Renewable Energy Sources	3	2.15	2.13	-	2	-	-	-	-	-	-	1	2	1	2
40	5	ME8511	Kinematics and Dynamics Laboratory	2.96	2	2.92	1.7	2	2	1	-	1.29	1.87	1.86	-	2	2.3	2
41	5	ME8512	Thermal Engineering Laboratory	3	2	3	-	1.7	2	-	-	1.98	1.92	-	-	3	2	3

42	5	ME8513	Metrology and Measurements Laboratory	2.95	1.38	1.18	-	-	0.98	0.98	-	-	-	-	1.18	2.95	1.97	1.97
43	6	ME8651	Design of TransmissionSystems	2.92	2.92	1.95	1.95	-	0.97	-	-	-	-	-	0.97	2.92	0.97	0.97
44	6	ME8691	Computer Aided Design and Manufacturing	2.95	2.16	1.97	1.38	-	0.98	-	-	-	0.98	-	1.18	2.95	1.97	1.77
45	6	ME8693	Heat and Mass Transfer	2.93	1.95	-	1.95	-	0.98	-	0.98	0.98	0.98	-	-	1.95	-	2.93
46	6	ME8692	Finite Element Analysis	2.93	2.93	1.95	1.95	2.93	0.98	-	-	-	-	-	0.98	1.95	0.98	1.95
47	6	ME8694	Hydraulics and Pneumatics	2.95	2.56	1.97	1.97	1.77	-	-	-	0.98	-	-	-	2.95	1.97	0.98
48	6	ME8091	Automobile Engineering	2.96	1.38	1.48	-	-	0.99	-	-	-	-	-	0.99	2.96	2.96	1.97
49	6	ME8681	CAD / CAM Laboratory	3	2	3	-	1.7	2	-	-	1	1	-	-	3	2	3
50	6	ME8682	Design and Fabrication Project	3	2	3	-	1.7	2	-	-	1	1	-	-	3	2	3
51	6	HS8581	Professional Communication	3.0	3.0	3.0	1.0	1.0	1.8	2.0	2.1	2.3	2.8	2.8	3.0	3.0	3.0	3.0
52	7	ME8792	Power Plant Engineering	3	1.4	1.5	_	-	5.0	0.97	_	_	_	_	1.2	3	3	2
53	7	ME8793	Process Planning and Cost Estimation	3	2	1.25	_	1	-	-	-	1	-	1	1.4	3	3	2
54	7	ME8791	Mechatronics	3	1.4	2.12	1.4	_	1	_	_	_	_	_	1.2	3	2	1.4
55	7	OML751	Testing of Materials	3	2.4	2.2	1.89	_	1	_	_	_	_	_	1	3	3	2
56	7	ME8095	Design of Jigs, Fixtures and Press Tools	3	1.4	1.5	-	-	2.12	-	-	-	-	-	1	3	3	2
57	7	GE8077	Total Quality Management	-	-	-	-	-	2	-	3	3	2	2	1	1.2	-	-
58	7	ME8711	Simulation and AnalysisLaboratory	3	2	2	1.7	2	2	1	-	1	1	1	-	2	2.3	2
59	7	ME8781	Mechatronics Laboratory	3	2	3	-	1.7	2	-	-	1	1	-	-	3	2	3
60	7	ME8712	Technical Seminar	1.7	1.5	-	1	2	2	1.7	1.3	3.0	2.3	-	2	1.7	1.5	-
61	8	MG8591	Principles of Management	-	-	1.64	-	0.99	1.97	-	0.99	2.96	-	2.96	1.97	2.96	1.97	2.96
62	8	MG8091	Entrepreneurship Development	2.94	-	-	-	-	2.94	0.98	-	2.94	-	-	0.98	2.94	1.96	2.94
63	8	ME8811	Project Work	3.0	3.0	3.0	1.0	1.0	1.8	2.0	2.1	2.3	2.8	2.8	3.0	3.0	3.0	3.0

3.2. Attainment of Course Outcomes (50)

3.2.1. Describe the assessment processes used to gather the data upon which the evaluation of Course Outcome is based.

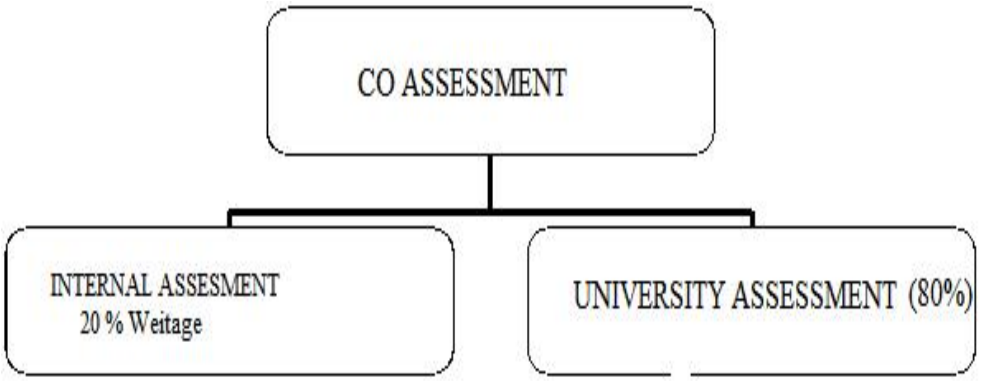


Fig3.1.CO Assessment Rubrics

(i) CO Assessment Rubrics:

Course Outcome is evaluated based on the performance of students in internal assessments and in university examination of a course. The direct Assessment contributes 20% and University Assessment contributes 80% to the aggregate attainment of a CO and the same is presented above in the Fig.3.1.

	COURSE TYPE	ASSESSMENT TOOLS	MINIMUM FREQUENCY
INTERNAL	THEORY	IAT I	1Per Semester
		IAT II	1Per Semester
		IAT III	1Per Semester
		Assignments	3 Per Semester
		University Exam	1 Per Semester
	PRACTICAL	Day to Day Lab	Every Day Session
		Model Lab Exam	1 Per Semester
		University Lab Exam	1 Per Semester
UNIVERSITY	THEORY	University Examination	1 Per Semester
	PRACTICAL	University Lab	1 Per Semester
INTERNAL	PROJECT	Zeroth Review	1 Per Semester
		First Review	1 Per Semester
		Second Review	1 Per Semester
		Third Review	1 Per Semester
		Model Review	1 Per Semester
UNIVERSITY		University Assessment VIVA VOCE EXTERNAL REVIEW	1 Per Semester

(ii)Theory:

Evaluation	Exam	Maximum Marks	Frequency	Duration
Internal	IAT I	100	Once per semester	3 Hours
	IAT II	100	Once per semester	3 Hours
	IAT III	100	Once per semester	3 Hours
	Assignment	10	3 Per Semester	-
External	University Exam	100	Once per semester	3 Hours

Internal Exams: Three Internal Assessment tests (IAT) are conducted every semester to evaluate the student performance. Each test is of 3 hours duration and is evaluated for 100 marks. Questions for these internal exams have been prepared according to Blooms Taxonomy format and two sets of question papers are prepared by the corresponding course faculty. Assessment of each question is done based on the course outcomes of the subject and the Evaluated papers are verified by a team of faculty.

IAT I: It is conducted for 100 marks with 3 hours duration. This exam covers 40% of syllabus in course outcome 1 and 2 of the corresponding subject.

IAT II: It is conducted for 100 marks with 3 hours duration. This exam covers 40% of the syllabus in course outcome 3 and 4 of the corresponding subject.

IAT III: It covers all course outcomes and it is conducted for 3 hours duration and is evaluated for 100 marks.

Assignments: It Covers all the course Outcomes and it is given to the students as Assignment I (Co1, Co2), Assignment II (Co2, Co3), Assignment III (Co4, Co5) and it is evaluated for 10 marks each.

University Examinations: The final-semester examinations are of 3-hour duration and cover the entire syllabus of the course.

(iii)Practical:

Evaluation	Mode of Evaluation	Maximum Marks
Internal	Day to Day performance	10
	Record Work	10
	Model Exam (Practical)	100
External	University Exam	100

Performance: Lab courses provide hands-on experience to the students with course concepts to explore technology used in their discipline. Every student is regular and learns the practical aspects of the lab and develops their skills to become Engineering professionals. To inculcate interaction among the students and to develop team spirit, the students are expected to carry out experiments in groups. Performance assessment is based on the ability of the student to actively participate in the successful conduct of prescribed practical work. The student submits a record of practical work as soon as he completes the experiment.

Model lab Exam: A model lab exam of 3 hours duration is conducted to assess the ability of a student to perform a given task by integrating the knowledge gained from related theory course and regular lab sessions and cover the entire syllabus of the course.

University Examination: The end-semester practical examinations are 3 hour duration and cover the entire syllabus of the course.

(iv)Project:

S.NO	TIME	ACTIVITY
1	1st week of 8th semester	Formation of Project Batches and Guide Allotment
2	2nd week of 8th semester	Finalization of Project Title
3	3th week of 8th semester	Abstract Submission
4	5th week of 8th semester	Zeroth Review
5	6th week of 8th semester	First Review
6	8th week of 8th semester	Second Review
7	10th week of 8th semester	Third Review and Demonstration
8	11th week of 8th semester	Submission of Project report draft(Thesis)
9	As per university Schedule	Submission of main Project report(Thesis)
10		External review/examination

Project is intended to be a challenge to intellectual and innovative abilities and to give students the opportunity to synthesize and apply the knowledge and analytical skills learnt by different disciplines. Continuous suggestions and guidance is provided by the guide to their respective students of their project group. Performance of individual student is continuously assessed and evaluated by the project guide. Members of a project group shall prepare and submit separate reports. The report shall record all aspects of the work and is evaluated by project guide.

Zeroth Review: In zeroth review the Abstract and Domain Introduction of the proposed work is evaluated.

First Review: In first review the design part of the proposed work is evaluated. The student's communication skill and depth of knowledge in designing is assessed based on presentation and response to questions asked by the review panel.

Second Review: In second review, percentage of work completed, difficulties they faced and how they tackled them are analyzed to evaluate project progress. The individual involvement in project work is assessed based on response to questions asked by the panel.

Third review and Demonstration: Final review and demonstration is conducted at the end of semester to evaluate the completeness and perfection of work done. The assessment panel, constituted by Internal and External panel members asks questions related to various stages of the project. The effectiveness of the individual student response to these queries is assessed.

University Viva – Voce:

Viva – Voce is conducted at the end of 8th semester as a part of assessing students' knowledge in engineering courses. An internal and an External examiner is appointed by the Anna University for conducting the viva voce examination.

Evaluation : As per the university norms, evaluation of the project is done through internal and external evaluations for 100 marks respectively. Individual student performance is evaluated in all the reviews and external examinations based contribution, presentation skills, and application and analysis abilities of the student. The technical quality of the project and its progress is enhanced by continuous monitoring of the student work by respective guides through their suggestions. The writing abilities of the students are also evaluated and updated through review/guide suggestions. The details of complete evaluation process are illustrated in the table below.

Evaluation	Review	Maximum Marks	Mode of evaluation
Internal	Zeroth	10	Abstract and Domain Introduction
	First	10	Literature Survey and Issues Finding
	Second	20	Work Progress and Module presentation
	Third	20	Demonstrate project and submit project report
External	Final (University Exam)	100	Demonstrate project, viva voce and submit final project report

- **Quality Assessment:** The following are the initiatives taken by the department for ensuring quality of the projects

a) The Project evaluation committee together with project guide will analyze the nature of the project and contribution of each member in the project group.

b) The project selected could be an application oriented/product/research work.

c) The projects are classified into different areas and their relevance to PO's and PSO's are identified to ensure its quality.

3.2.2 Record the attainment of Course Outcomes of all courses with respect to set attainment levels

(i) Attainment Levels:The Performance of a candidate for each course is assessed for 100 marks and further converted into grade points as per guidelines of Anna University.

Table 3.1. Set Attainment Levels of Cos (2018-2022)

Assessment Methods	Attainment Levels	
University/Internal Assessment	Level 1	Less than 50% of Students Scoring in University Pass Percentage Marks
	Level 2	Between 51% - 59% of students scoring in university Pass Percentage Marks
	Level 3	70% and More than 70% of Students Scoring in University pass Percentage Marks

(ii) Co Attainment Calculation of a Course:

Table 3.2. Co Attainment for ---------- C313

C313	C313.1	C313.2	C313.3	C313.4	C313.5
IAT I					
IAT II					
IAT III					
Assignment 1					

Assignment 2					
Assignment 3					
Internal Attainment					
External Attainment					
Total attainment					

Total Attainment =20% Internal Attainment + 80% University Attainment

Table 3.2.

Shows the sample CO attainment of ---------- (C313). Internal Assessment test1 addresses the COs C313.1, and C313.2 whereas Internal Assessment test2 addresses C313.3, C313.4 , Internal Assessment test III addresses C313.1, C313.2 , C313.3, C313.4, C313.5 and University exam covers the entire syllabus of a course and hence it is useful to measure the attainment of all COs related to a course. The total attainment is the sum of 20% of internal attainment and 80% of university attainment. In this same manner CO attainment of all courses in a program are evaluated and recorded using related assessment tools.

The Corrective actions to be followed for CO attainments are,

1. Extra Practical Classes and assignments based on basic engineering are taken.
2. More programming classes to be taught in tutorial classes.
3. More design based activities and competitions need to be taken
4. Practical example need to be given to students to develop their relating skills.
5. Software implementation is taught with the help of NPTEL video presentation.
6. Conduction of Science Fest and motivating students to prepare/built software models
7. Innovative method of teaching need to implement to involve the students especially in management based subjects.
8. Internships and industrial oriented training made frequent for understanding current affairs.
9. Repetition and revision of topics in classes to catch up with students calibre.
10. Motivating the students to attend add on certificate courses and seminars etc.

(iii) CO Attainment of all Courses:

CO attainment of all courses for the Batch 2018-22

COURSE CODE	COURSE NAME	CO1	CO2	CO3	CO4	C05	AVG

All Semesters

3.3 Attainment of Program Outcomes and Program Specific Outcomes **(50)**

3.3.1 Describe the assessment tools and processes used for measuring the attainment of each of The program Outcomes and Program Specific Outcomes (10)

(i) **PO and PSO Assessment Rubrics**

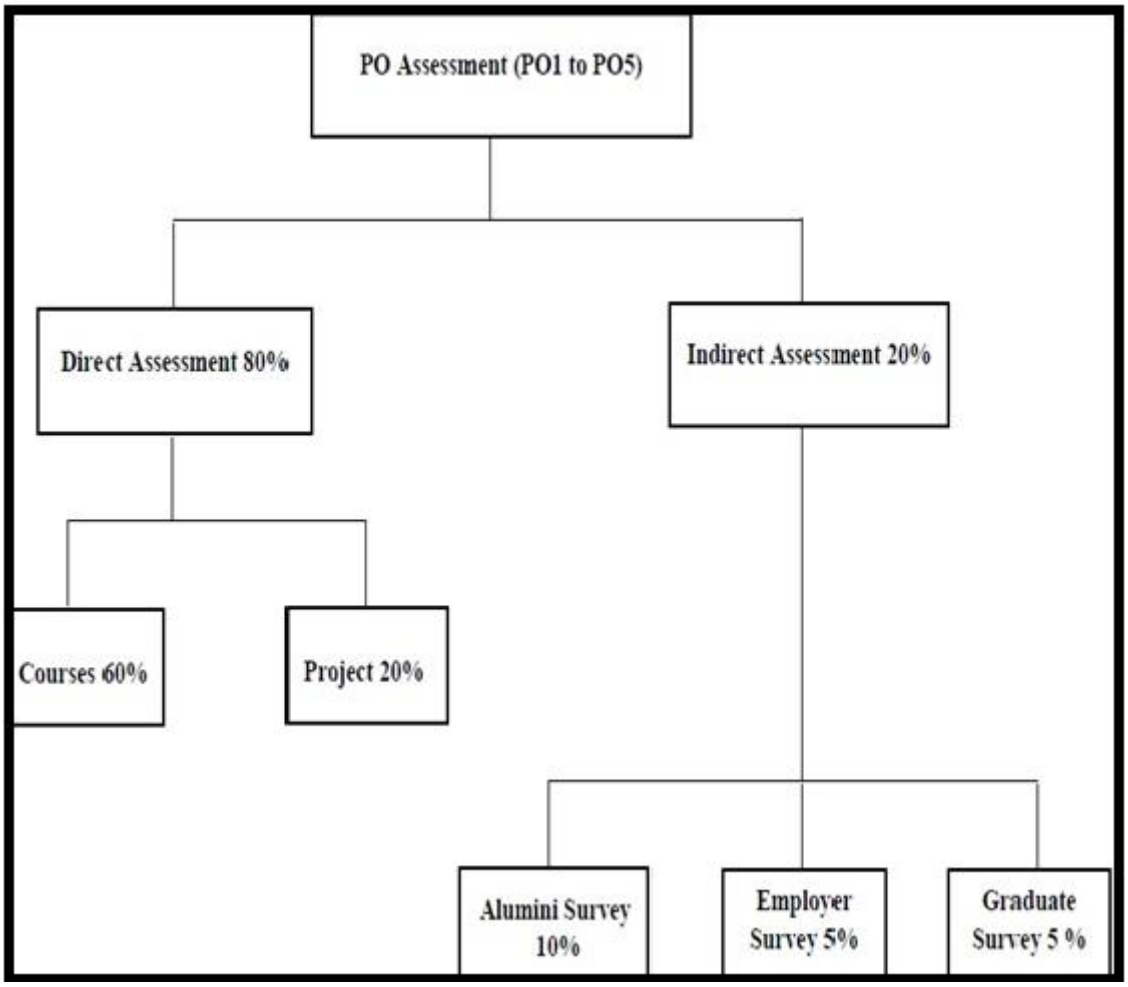
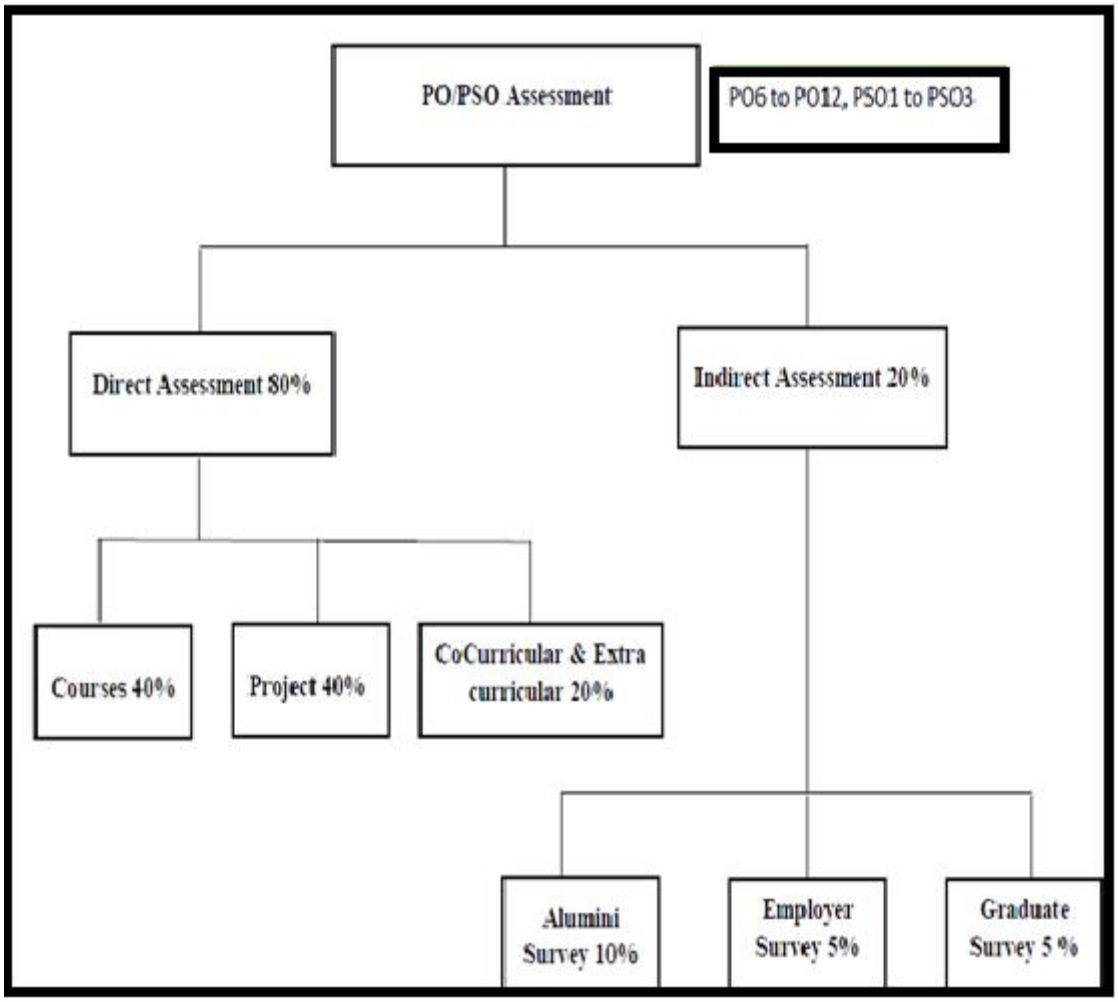


Fig.

Assessment tools and processes for PO1 to PO5

PO assessment for PO1 to PO5 is done by giving 80% weightage to direct assessment and 20% weightage to indirect assessment. Direct assessment is based on COURSES and PROJECT attainment where 60% weightage is given to attainment through Courses and 20% weightage is given to attainment through Projects. Indirect assessment is done through program graduate survey, alumni survey and employer survey where program graduate survey and employer survey are given a weightage of 5% each and alumni survey is given a weightage of 10%.



PO/PSO assessment for PO6 to PO12, PSO1 and PSO2 is done by giving 80% weightage to direct assessment and 20% weightage to indirect assessment. Direct assessment is based on COURSES, PROJECT and CO0Curricular & Extra CO-Curricular attainment where 40% weightage is given to attainment through Courses, 20% weightage is given to attainment through Projects and 20% weightage is given to attainment through co-curricular & extra co-curricular activities. Indirect assessment is done through program graduate survey, alumni survey and employer survey where program graduate survey and employer survey are given a weightage of 5% each and alumni survey is given a weightage of 10%.

***(ii)* PO and PSO Assessment Tools:** The various direct and indirect assessment tools used to evaluate POs & PSOs and the frequency with which the assessment processes are carried out are listed in Table

PO,PSO,ASSESSMENT TOOLS AND PROCESS				
		COURSE TYPE	**ASSESSMENT TOOLS**	**MINIMUM FREQUENCY**
DIRECT(80% WEIGHTAGE)	**CO ASSESSMENT**	**THEORY**	IAT- 1	Once Per Semester
			IAT-2	Once Per Semester
			IAT -3	Once Per Semester
			Assignments	Three Per Semester
			University Exam	Once Per Semester
		PRACTICAL	Model Lab Exam	Once Per Semester
			University Lab Exam	Once Per Semester

		PROJECT	Zeroth Review	Once Per Semester
			First Review	Once Per Semester
			Second Review	Once Per Semester
			Third Review	Once Per Semester
			Model Review	Once Per Semester
		VIVA VOCE	University Assessment	Once Per Semester
Direct Assessment		**Co-Curricular and Extra Curricular Activities**		
INDIRECT ASSESSMENT		**SURVEYS**	Alumini survey	Once Per year
			Graduate Survey	Once Per year
			Employer Survey	Once Per Year

(iii) Direct Assessment Tools: Direct assessment tools described in section 3.3.1 (a) are used for the direct assessment of POs and PSOs.

I. **Courses:** It involves theory and practical for direct assessment of POs and PSOs which are described in section 3.2.1.

II. **Project:** The assessment process for project is described in section 3.2.1.

III. **Extra / Co0Curricular Activities:** The various Co / Extracurricular activities considered for assessment is described in table.

Assessment of Co/Extra-Curricular Activities and Students Participation.

S.No	Activity	Poor (1)	Satisfactory (2)	Good (3)
1.	Guest Lecturers (Co-Curricular)	Organized 1-2 Guest Lecturers	Organized 3-4 Guest Lecturers	Organized 5 or more Guest Lecturers
2.	Add-on Courses (Co-Curricular)	Organized 1 Add-on Program	Organized 2 Add-on Programs	Organized 3 or more Add-on Programs
3.	Projects Exhibition (Co-Curricular)	Once in a Year	Twice in a Year	More than 3 in a Year
4.	Paper Presentations (Co-Curricular)	0-10 Papers Presented	11-19 Papers Presented	More than 20 Papers Presented
5.	NSS Activities (Extra-Curricular)	Less than 25 Students Participated	26-50 Students Participated	More than 50 Students Participated
6.	Ethical Practices -Yoga (Extra0Curricular)	0-1 Program	2 Programs	More than 2 Programs
7.	Library, Internet Hours (Co-Curricular)	Nil	Library or Internet	Both
8.	Students' Seminar & English Communication	Nil	Either Seminar or English	Both

	Hours (Co-Curricular)		Communication	
9.	Entrepreneurships – Lecturers (Co-Curricular)	0-1 Program	2 Programs	More than 2 Programs
10.	Students' Qualification in English Communication Certification (Co-Curricular)	Less than 10	15 or above	Less than 10
11.	Students' Participation in Cultural Events, Activities	10 - 25%	26% - 50%	51% or above
12.	Industry Internship	Less than 10 students participated	10-15 students participated	Above 15 students Participated
13.	Industry visits/tours	Less than 10 students participated	10-15 students participated	Above 15 students Participated
14.	R& D Projects	10 Project Developed	2-3 Projects Developed	More than 3 Projects Developed

Indirect Assessment Tools

Some of the Indirect assessment tools used for indirect attainment are described as follows.

Graduate Survey:

The attainment of PO and PSO is evaluated by feedback collected from final year (8^{th} semester) students which is valuated for 5 marks out of 100.

Graduate Survey Form

Name of the Student: **Sem/Year:** **Date:**

Rate the following based on program of your studies (3: Excellent, 2: Good, 1: Fair)		
1	Technical knowledge acquired through the program. (PO1)	
2	Analyzing a general problem in your domain of engineering. (PO2)	
3	Design & develop subsystems and systems in your domain. (PO3)	
4	Solving complex engineering problems in your domain. (PO4)	
5	Usage of modern tools and technologies relevant to your engineering domain. (PO5)	
6	Arrive right solutions for social context in your domain. (PO6)	
7	Practice domain engineering in compliance with environmental standards. (PO7)	
8	Following ethical code of conduct for professional transactions and responsibility towards society. (PO8)	
9	Ability to work in group to solve problems in your domain.(PO9)	
10	Able to communicate effectively. (PO10)	
11	Work effectively in project as a member in a team and leader. (PO11)	
12.	Attitude to learn throughout your life. (PO12)	
13	Ability to PSO1)	
14	Ability to PSO2)	

15	Ability to.(PSO3)	

Signature of the student

Graduate Survey form (Indirect Assessment)

Name of the student:

Reg.No.:

Alumini Survey**:**

The attainment of PO and PSO is evaluated by feedback collected from Alumini students every year which is valuated for 5 marks out of 100.

ALUMINI SURVEY

Name of the Alumini: **Date:**

1	Your professional expertise support to our students. (PEO1)
	1. High (3)
	2. Moderate (2)
	3. Low (1)
2	What is your Present carrier position? (PEO2)
	I am employed right now (3)
	I am an entrepreneur and own a business (3)
	I am studying / completed my higher education (3)
	I am looking for better carrier (1)
	Please give employment/entrepreneurship details. *
	Please indicate your higher education details. *
3	Are you able to continue updating your knowledge & Skills? (PEO3)
	Yes, I am able to continuously update (3)
	I try to update, but feel difficult (2)
	I am unable to update (1)
Rate the following in your profession/ higher education	
1	Ability to apply knowledge to carry out tasks. (PO1)
2	Ability to analysis complex operational problems. (PO2)
3	Ability to design & develop subsystems and systems in your domain. (PO3)
4	Ability to solve complex engineering problems. (PO4)
5	Ability to use techniques/ modern tools/ technologies relevant to your domain. (PO5)
6	Ability to arrive right solutions for problems of social context. (PO6)
7	Ability to practice domain engineering in compliance with environmental standards. (PO7)

8	Ability to understand and follow ethical practices and social responsibilities. (PO8)
9	Achieve personal excellence and ability to work in group. (PO9)
10	Ability to communicate effectively. (PO10)
11	Ability to work effectively to manage the assigned task. (PO11)
12.	Ability to learn continuously. (PO12)
13.	Ability to use and learned programming skills in software development . (PSO1)
14.	Ability to implement IOT and Machine Learning Techniques . (PSO2)
15.	Ability to implement Analytical Skills in the future . (PSO3)

Signature of the Alumini

Fig.3.5. Alumini Survey form (Indirect Assessment)

Employer Survey:

The attainment of PO and PSO is evaluated by feedback collected from Employers who have recruited our students which is valuated for 10 marks out of 100.

Rate the following in your profession/ higher education (3: Excellent, 2: Good, 1: Fair)		
1	Ability to apply knowledge to carry out tasks. (PO1)	
2	Ability to analysis complex operational problems. (PO2)	
3.	Ability to design & develop subsystems and systems in your domain. (PO3)	
4.	Ability to solve complex engineering problems. (PO4)	
5.	Ability to use techniques/ modern tools/ technologies relevant to your domain. (PO5)	
6.	Ability to arrive right solutions for problems of social context. (PO6)	
7	Ability to practice domain engineering in compliance with environmental standards. (PO7)	
8.	Ability to understand and follow ethical practices and social responsibilities. (PO8)	
9.	Achieve personal excellence and ability to work in group. (PO9)	
10.	Ability to communicate effectively. (PO10)	
11.	Ability to work effectively to manage the assigned task. (PO11)	
12.	Ability to learn continuously. (PO12)	

13.	Ability to apply knowledge in software development. (PSO1)	
14.	Ability to use latest technology in software development. (PSO2)	
15.	Ability to use analytical and programming skills. (PSO3)	

Signature of Employee

Designation:

Organization Details:

Impact Analysis

Students get benefited in improving their skill set by availing the activities carried out in the department. These Activities are planned based on the above Surveys and can be implemented effectively.

3.3.2. Results of evaluation of each PO & PSO (40)

S. No.	Ass ess men t	Courses /Activities Contributing to PO	PO 1	PO 2	PO 3	PO 4	PO 5
1	D	Courses					
2	D	Project					
3	D	Co-Curricular					
4	ID	Graduate Survey					
5	ID	Alumni Survey					
6	ID	Employer Survey					

S. No.	Ass ess men t	Courses /Activities Contributing to PO	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	*PS 0 3*
1	D	Courses										
2	D	Project										

3	D	Co-Curricular										
4	ID	Graduate Survey										
5	ID	Alumni Survey										
6	ID	Employer Survey										

PO (1-5) Attainment:

S.No.	Assessment	Courses /Activities Contributing to PO	Assessment Weightage	PO 1	PO 2	PO 3	PO 4	PO 5
1	D	Courses	60%					
2	D	Project/	20%					
3	ID	Graduate Survey	5%					
4	ID	Alumni Survey	10%					
5	ID	Employer Survey	5%					
Overall PO Attainment (On a scale of 3)								

PO (6-12) / PSO (1-2) Attainment:

S.No.	Assess - ment	Courses /Activities Contributing to PO	Assessment Weightage	PO6	PO7	PO8	PO9	PO 10	PO11	PO 12	PSO 1	PSO 2	PSO 3
1	D	Courses	40%										
2	D	Project	20%										
3	D	Co-Curricular	20%										
4	ID	Graduate Survey	5%										
5	ID	Alumni Survey	10%										
6	ID	Employer Survey	5%										
Overall PO Attainment (On a scale of 3)													

Final PO Attainment:

PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3