



Indra Ganesan

COLLEGE OF ENGINEERING

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
Accredited by NAAC with 'B+' Grade, 2(f) & 12B Status Institution by UGC

IG Valley, Madurai Main Road, Manikandam, Tiruchirappalli - 620012

NAAC DOCUMENTS

QUALITY INDICATOR FRAME WORK

CRITERION – 2

TEACHING-LEARNING AND EVALUATION

SUBMITTED BY

IQAC

INTERNAL QUALITY ASSURANCE CELL
INDRA GANESAN COLLEGE OF ENGINEERING





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COLLEGE OF ENGINEERING

Madurai Main Road (NH-45B), Manikandam, Tiruchirappalli - 620 012
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Criteria 2	Teaching-Learning and Evaluation	350
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Key Indicator-2.6 Student Performances and Learning Outcome (90)

2.6.1 Programme Outcomes (POs) and Course Outcomes (COs) for all programmes offered by the institution are stated and displayed on website

DEPARTMENT OF MECHANICAL
RG-2017

INDRA GANESAN COLLEGE OF ENGINEERING

IG Valley, Manikandam, Tiruchirappalli, Tamil Nadu – 620 012, India

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)

DEPARTMENT OF MECHANICAL ENGINEERING

2017 REGULATIONS

COURSE OUTCOMES MAPPING COs

WITH POs AND PSOs

MA6383–TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS

COURSEOUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSO
C201.1	Summarize how to solve the given standard partial differential equations.	1,2,3,4,6,10,11,12	1,2
C201.2	Solve differential equations using Fourier series analysis which plays a vital role in engineering applications.	1,2,3,4,6,10,11,12	1,2
C201.3	Appreciate the physical significance of Fourier series techniques in solving one and two dimensional heat flow problems and one dimensional wave equations	1,2,3,4,6,10,11,12	1,2
C201.4	Classify the mathematical principles on transforms and partial differential equations would provide them the ability to formulate and solve some of the physical problems of engineering.	1,2,3,4,6,10,11,12	1,2
C201.5	Apply the effective mathematical tools for the solutions of partial differential equations by using Z transform techniques for discrete time systems.	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes		
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C201.1	K3	3	2	2										2		
C201.2	K2	2	1	1										1		
C201.3	K3	3	2	2										2		
C201.4	K2	2	1	1										1		
C201.5	K2	2	1	1										1		
C201		3	2	2										2		

ME8391–ENGINEERING THERMODYNAMICS

COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C202.1	Apply the first law of thermodynamics for simple open and closed systems under steady and unsteady conditions	1,2,3,4,6,10,11,12	1,2
C202.2	Complete second law of thermodynamics to open and closed systems and calculate entropy and availability.	1,2,3,4,6,10,11,12	1,2
C202.3	Solve Rankine cycle to steam power plant and compare few cycle improvement methods	1,2,3,4,6,10,11,12	1,2
C202.4	Derive simple thermodynamic relations of ideal and real gases	1,2,3,4,6,10,11,12	1,2
C202.5	Use the properties of gas mixtures and moist air and its use in psychometric Processes	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes		
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C202.1	K2	2	1											1		
C202.2	K3	3	2		1									2		
C202.3	K3	3												2		
C202.4	K2	2	1											1		
C202.5	K3	3	2		1				2	2	2	3	2			
C202		3	2		1				2	2	2	3	2			

CE8394–FLUID MECHANICS AND MACHINERY COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C203.1	Apply mathematical knowledge to predict the properties and characteristics of a fluid	1,2,3,4,6,10,11,12	1,2
C203.2	Analyze and calculate major and minor losses associated with pipe flow in piping networks.	1,2,3,4,6,10,11,12	1,2
C203.3	Solve mathematically predict the nature of physical quantities	1,2,3,4,6,10,11,12	1,2
C203.4	Correlate critically for the performance of pumps	1,2,3,4,6,10,11,12	1,2
C203.5	Illustrate critically for the performance of turbines	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC COUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes		
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C203.1	K3	3	2											2		
C203.2	K3	3	2											1		
C203.3	K2	2	1											1		
C203.4	K2	2	1											1		
C203.5	K2	2	1											1		
C203		3	2											1		

ME8351–MANUFACTURING TECHNOLOGY–I

COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C204.1	Explain different metal casting processes, associated defects, merits and demerits	1,2,3,4,6,10,11,12	1,2
C204.2	Compare different metal joining processes.	1,2,3,4,6,10,11,12	1,2
C204.3	Summarize various hot working and cold working methods of metals	1,2,3,4,6,10,11,12	1,2
C204.4	Describe the various sheet metal making processes.	1,2,3,4,6,10,11,12	1,2
C204.5	Distinguish various methods of manufacturing plastic components.	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes		
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C204.1	K2	2									2				1	
C204.2	K2	2									2				1	
C204.3	K2	2									2				1	
C204.4	K2	2									2				1	
C204.5	K2	2									2				1	
C204		2									2				1	

EE8353–ELECTRICAL DRIVES AND CONTROL COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C205.1	Explain the various electrical drive and its power rating for different loading conditions	1,2,3,4,6,10,11,12	1,2
C205.2	Describe the characteristics of DC and AC Machines	1,2,3,4,6,10,11,12	1,2
C205.3	Compare the different braking mechanism of Electrical drives	1,2,3,4,6,10,11,12	1,2
C205.4	Identify the starting method of DC and AC Machines	1,2,3,4,6,10,11,12	1,2
C205.5	Summarize the conventional and solid states speed control of DC drives	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes		
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C205.1	K2	2	1								2			1		
C205.2	K2	2	1											1		
C205.3	K2	2	1								2			1		
C205.4	K2	2	1											1		
C205.5	K2	2									2			1		
C205		2	1								2			1		

ME8361–MANUFACTURINGTECHNOLOGYLAB–I COURSEOUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C206.1	Demonstrate the working of lathe machine	1,2,3,4,6,10,11,12	1,2
C206.2	Identify various operations performed in Lathe machines.	1,2,3,4,6,10,11,12	1,2
C206.3	Examine tool life, tool wear and forces in metal cutting	1,2,3,4,6,10,11,12	1,2
C206.4	Identify suitable manufacturing techniques to manufacture different products	1,2,3,4,6,10,11,12	1,2
C206.5	Utilize CNC Program for various machining process	1,2,3,4,6,10,11,12	1,2
C206.6	Predict the necessary operation to complete the given exercise	1,2,3,4,6,10,11,12	1,2
C206.7	Exhibit ethical principles in engineering practices	1,2,3,4,6,10,11,12	1,2
C206.8	Perform task as an individual and/or team member to manage the task in time	1,2,3,4,6,10,11,12	1,2
C206.9	Express the Engineering activities with effective presentation and report.	1,2,3,4,6,10,11,12	1,2
C206.10	Interpret the findings with appropriate technological /research citation.	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes		
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C206.1	K3	3														2
C206.2	K1	1														1
C206.3	K3	3	2		1											2
C206.4	K1	1														1
C206.5	K3	3		2	1	3										2
C206.6	K2	2			1	2										1
C206.7	A3							3								2
C206.8	A3								3			3				2
C206.9	A3									3						2
C206.10	A2											3				1
C206		2	2	2	1	3			3	3	3	3	3			2

CE8381–STREANTH OF MATERIALS FLUID MECHANICS AND MACHINERY LAB COURSEOUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C217.1	Apply Bernoulli's principle in determining the coefficient of discharge of various flow meters	1,2,3,4,6,10,11,12	1,2
C217.2	Compute the friction factor for fluid flow through set of pipes.	1,2,3,4,6,10,11,12	1,2
C217.3	Discuss the effect of change in pressure head, flow rate and the coefficient of discharge of flow meters	1,2,3,4,6,10,11,12	1,2
C217.4	Explain the working and characteristics of hydraulic pumps	1,2,3,4,6,10,11,12	1,2
C217.5	Explain the working and characteristics of hydraulic prime movers	1,2,3,4,6,10,11,12	1,2
C217.6	Demonstrate the test on various fluid machinery	1,2,3,4,6,10,11,12	1,2
C217.7	Exhibit ethical principles in engineering practices	1,2,3,4,6,10,11,12	1,2
C217.8	Perform task as an individual and/or team member to manage the task in time	1,2,3,4,6,10,11,12	1,2
C217.9	Express the Engineering activities with effective presentation and report.	1,2,3,4,6,10,11,12	1,2
C217.10	Interpret the findings with appropriate technological /research citation.	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes		
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C217.1	K3	3	2											2		
C217.2	K2	2	1											1		
C217.3	K2	2	1											1		
C217.4	K2	2												1		
C217.5	K2	2												1		
C217.6	K3	3	2		1									2		
C217.7	A3								3					2		
C217.8	A3									3		3		2		
C217.9	A3										3			2		
C217.10	A2												3	1		
C217		2	2		1				3	3	3	3	3	2		

EE8361–ELECTRICAL ENGINEERING LAB COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C208.1	Explain the performance of dc shunt and series motor	1,2,3,4,6,10,11,12	1,2
C208.2	Discuss the speed control methods for dc shunt motor	1,2,3,4,6,10,11,12	1,2
C208.3	Demonstrate the load test of DC shunt and series generator	1,2,3,4,6,10,11,12	1,2
C208.4	Demonstrate the load test of transformer	1,2,3,4,6,10,11,12	1,2
C208.5	Examine the performance of induction motor and alternator.	1,2,3,4,6,10,11,12	1,2
C208.6	Demonstrate the working of synchronous motor to draw V and inverted V curves.	1,2,3,4,6,10,11,12	1,2
C208.7	Exhibit ethical principles in engineering practices	1,2,3,4,6,10,11,12	1,2
C208.8	Perform task as an individual and/or team member to manage the task in time	1,2,3,4,6,10,11,12	1,2
C208.9	Express the Engineering activities with effective presentation and report.	1,2,3,4,6,10,11,12	1,2
C208.10	Interpret the findings with appropriate technological /research citation.	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes		
		K3	K4	K4	K5	K3,K5,K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C208.1	K2	2	1						2		2				1	
C208.2	K2	2	1						2						1	
C208.3	K3	3	2						3						2	
C208.4	K3	3	2						3		3				2	
C208.5	K3	3	2						3						2	
C208.6	K3	3	2		1				3						2	
C208.7	A3							3							2	
C208.8	A3								3		3				2	
C208.9	A3									3					2	
C208.10	A2											3			1	
C208		3	2		1				3		3				2	

ME8492-KINEMATICS OF MACHINERY COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C211.1	Define the basics of mechanism	1,2,3,4,6,10,11,12	1,2
C211.2	Solve the velocity and acceleration in simple mechanisms	1,2,3,4,6,10,11,12	1,2
C211.3	Sketch and Develop the CAM profiles	1,2,3,4,6,10,11,12	1,2
C211.4	Apply the problems on gears and gear trains	1,2,3,4,6,10,11,12	1,2
C211.5	Examine friction in machine elements	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes			
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4	
		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	
C211.1	K2	2														1	
C211.2	K2	2	1	1												1	
C211.3	K3	3	1													2	
C211.4	K2	2	1	1												1	
C211.5	K2	2	1													1	
C211		2	1	2						2	2	2	3			1	

ME8451-MANUFACTURING TECHNOLOGY-II

COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C212.1	Explain the mechanism of material removal processes.	1,2,3,4,6,10,11,12	1,2
C212.2	Describe the constructional and operational features of centre lathe and other special purpose lathes.	1,2,3,4,6,10,11,12	1,2
C212.3	Identify the constructional and operational features of shaper, planner, milling, drilling, sawing and broaching machines.	1,2,3,4,6,10,11,12	1,2
C212.4	Recognize the types of grinding and other super finishing processes apart from gear manufacturing processes	1,2,3,4,6,10,11,12	1,2
C212.5	Summarize numerical control of machine tools and write a part program	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes		
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C212.1	K3	3	2								2					2
C212.2	K2	2									2					1
C212.3	K2	2	1								2					1
C212.4	K2	2				2					2					1
C212.5	K3	3		2		3					2					2
C212		3	2	2		3				2	2	2	3			2

ME8491-ENGINEERING METALLURGY COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C213.1	Explain alloys and phase diagram, Iron-Iron carbon diagram and steel classification	1,2,3,4,6,10,11,12	1,2
C213.2	Explain isothermal transformation, continuous cooling diagrams and different heat treatment processes	1,2,3,4,6,10,11,12	1,2
C213.3	Clarify the effect of alloying elements on ferrous and non-ferrous metals	1,2,3,4,6,10,11,12	1,2
C213.4	Summarize the properties and applications of non metallic materials	1,2,3,4,6,10,11,12	1,2
C213.5	Explain the testing of mechanical properties	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes			
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4	
		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	
C213.1	K2	2									2					1	
C213.2	K3	3	2		1						2					2	
C213.3	K2	2		1							2					1	
C213.4	K2	2		1							2					1	
C213.5	K2	2				2					2					1	
C213		2	2	1	1	2					2					1	

ME8493-THERMALENGINEERING-I COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C215.1	Sketch thermodynamic concepts to different air standard cycles and solve the problems	1,2,3,4,6,10,11,12	1,2
C215.2	Solve problems in single stage and multistage air compressors	1,2,3,4,6,10,11,12	1,2
C215.3	Explain the functioning and features of IC engines, components and auxiliaries	1,2,3,4,6,10,11,12	1,2
C215.4	Correlate the performance parameters of IC Engines	1,2,3,4,6,10,11,12	1,2
C215.5	Use the flow in Gas turbines and solve the problems.	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes			
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4	
		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	
C215.1	K2	2	1												1		
C215.2	K3	3													2		
C215.3	K2	2	1	1											1		
C215.4	K2	2	1	1											1		
C215.5	K2	2	1		1										1		
C215		2	1	1	1										1		

ME8462-MANUFACTURING TECHNOLOGY LAB-II

COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C216.1	Change specific milling machine to cut contour and gear teeth on the given work piece	1,2,3,4,6,10,11,12	1,2
C216.2	Use gear generation methods to form gears	1,2,3,4,6,10,11,12	1,2
C216.3	Complete different machine tools for finishing operations	1,2,3,4,6,10,11,12	1,2
C216.4	Produce cutting edges using tool and cutter grinder	1,2,3,4,6,10,11,12	1,2
C216.5	Solve the CNC Programming for machining special contour	1,2,3,4,6,10,11,12	1,2
C216.6	Apply suitable machining sequence to plan the process in producing a component	1,2,3,4,6,10,11,12	1,2
C216.7	Exhibit ethical principles in engineering practices	1,2,3,4,6,10,11,12	1,2
C216.8	Perform task as an individual and/or team member to manage the task in time	1,2,3,4,6,10,11,12	1,2
C216.9	Express the Engineering activities with effective presentation and report.	1,2,3,4,6,10,11,12	1,2
C216.10	Interpret the findings with appropriate technological/research citation.	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes		
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C216.1	K2	2	1	1												1
C216.2	K3	3	2	2												2
C216.3	K3	3	2													2
C216.4	K3	3	2	2												2
C216.5	K3					3										2
C216.6	K3	3	2	2		3										2
C216.7	A3								3							2
C216.8	A3									3		3				2
C216.9	A3										3					2
C216.10	A2												3			1
C216		3	2	2		3			3	3	3	3	3			2

CE8381–STRENGTH OF MATERIALS AND FLUID MECHANICS AND MACHINERY LABORATORY

COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C217.1	Compute the tensile and shear properties of materials using UTM	1,2,3,4,6,10,11,12	1,2
C217.2	Compute the torsion and impact strength using respective test setup	1,2,3,4,6,10,11,12	1,2
C217.3	Compute the response of the beam by deflection method	1,2,3,4,6,10,11,12	1,2
C217.4	Calculate the deflection of springs using tensile and compression tests	1,2,3,4,6,10,11,12	1,2
C217.5	Infer the influence of heat treatment process in mechanical properties and microstructure	1,2,3,4,6,10,11,12	1,2
C217.6	Apply specific testing methods for material characterization	1,2,3,4,6,10,11,12	1,2
C217.7	Exhibit ethical principles in engineering practices	1,2,3,4,6,10,11,12	1,2
C217.8	Perform task as an individual and/or team member to manage the task in time	1,2,3,4,6,10,11,12	1,2
C217.9	Express the Engineering activities with effective presentation and report.	1,2,3,4,6,10,11,12	1,2
C217.10	Interpret the findings with appropriate technological/research citation.	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes			
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4	
		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	
C217.1	K3	3	1		1											2	
C217.2	K3	3	1		1											2	
C217.3	K2	2	1													1	
C217.4	K3	3	1													2	
C217.5	K2	2	1		1											1	
C217.6	K3	3	2		1	3										2	2
C217.7	A3								3							2	
C217.8	A3									3		3				2	
C217.9	A3										3					2	
C217.10	A2												3			1	
C217		3	1		1	3			3	3	3	3	3			2	2

ME8691-COMPUTER AIDED DESIGN AND MANUFACTURING COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C310.1	Explain the 2D and 3D transformations, clipping algorithm, Manufacturing models and Metrics	1,2,3,4,6,10,11,12	1,2
C310.2	Describe the fundamentals of parametric curves, surfaces and Solids	1,2,3,4,6,10,11,12	1,2
C310.3	Summarize the different types of Standard systems used in CAD	1,2,3,4,6,10,11,12	1,2
C310.4	Apply NC & CNC programming concepts to develop part programme for Lathe & Milling Machines	1,2,3,4,6,10,11,12	1,2
C310.5	Summarize the different types of techniques used in Cellular Manufacturing and FMS	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes											Program Specific Outcomes			
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C310.1	K2	2				2					2			1	1	
C310.2	K2	2	1		1						2			1	1	
C310.3	K2	2				2					2				1	
C310.4	K2	2	1			2					2				1	
C310.5	K2	2	1			2					2				1	
C310		2	1	2	1	2					2			1	1	2

ME8693-HEAT AND MASS TRANSFER COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C311.1	Apply heat conduction equations to different surface configurations under steady state and transient conditions and solve problems	1,2,3,4,6,10,11,12	1,2
C311.2	Apply free and forced convective heat transfer correlations to internal and external flows through/over various surface configurations and solve problems	1,2,3,4,6,10,11,12	1,2
C311.3	Explain the phenomena of boiling and condensation, apply LMTD and NTU methods of thermal analysis to different types of heat exchanger configurations and solve problems	1,2,3,4,6,10,11,12	1,2
C311.4	Explain basic laws for Radiation and apply these principles to radiative heat transfer between different types of surfaces to solve problems	1,2,3,4,6,10,11,12	1,2
C311.5	Apply diffusive and convective mass transfer equations and correlations to solve problems for different applications	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes		
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C311.1	K2	2	1											1		
C311.2	K2	2	1		1									1		
C311.3	K2	2	1		1									1		
C311.4	K2	2	1		1									1		
C311.5	K2	2	1											1		
C311		2	1	2	1									1		

ME8593-DESIGN OF MACHINE ELEMENTS COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C302.1	Explain the influence of steady and variable stresses in machine component design	1,2,3,4,6,10,11,12	1,2
C302.2	Apply the concepts of design to shafts, keys and couplings	1,2,3,4,6,10,11,12	1,2
C302.3	Use the concepts of design to temporary and permanent joints.	1,2,3,4,6,10,11,12	1,2
C302.4	Solve the concepts of design to energy absorbing members, connecting rod and crank shaft.	1,2,3,4,6,10,11,12	1,2
C302.5	Complete the concepts of design to bearings.	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes											Program Specific Outcomes			
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		PO-1	PO1-21	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
C302.1	K2	2	1												1	
C302.2	K2	2	1												1	
C302.3	K2	2	1												1	
C302.4	K2	2	1												1	
C302.5	K2	2	1												1	
C302		2	1	2	2					2	2	2	3		1	

ME8501-METROLOGY AND MEASUREMENTS COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C303.1	Describe the concepts of measurements to apply in various metrological instruments	1,2,3,4,6,10,11,12	1,2
C303.2	Identify the principles of linear and angular measurement tools used for industrial applications	1,2,3,4,6,10,11,12	1,2
C303.3	Explain the procedure for conducting computer aided inspection	1,2,3,4,6,10,11,12	1,2
C303.4	Demonstrate the techniques of form measurement used for industrial components	1,2,3,4,6,10,11,12	1,2
C303.5	Discuss various measuring techniques of mechanical properties in industrial applications	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes		
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C303.1	K2	2									2				1	
C303.2	K2	2									2					
C303.3	K2	2				2					2					1
C303.4	K2	2									2			1	1	1
C303.5	K2	2	1								2			1		
C303		2	2			2					2			1	1	1

ME8594-DYNAMICS OF MACHINES COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C304.1	Solve static and dynamic forces of mechanisms	1,2,3,4,6,10,11,12	1,2
C304.2	Apply the balancing masses and their locations of reciprocating and rotating masses	1,2,3,4,6,10,11,12	1,2
C304.3	Compute the frequency of free vibration.	1,2,3,4,6,10,11,12	1,2
C304.4	Use the frequency of forced vibration and damping coefficient	1,2,3,4,6,10,11,12	1,2
C304.5	Change the speed and lift of the governor and estimate the gyroscopic effect on automobiles, ships and airplanes.	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes		
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C304.1	K2	2	1											1	1	1
C304.2	K2	2		1	1									1	1	
C304.3	K2	2	1	1										1	1	
C304.4	K2	2	1												1	
C304.5	K2	2	1	1											1	
C304		2	1	1	1					2	2	2	3	1	1	2

ME8511–KINEMATICS AND DYNAMICS LABORATORY

COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C306.1	Explain the gear ratios of various types of gear trains	1,2,3,4,6,10,11,12	1,2
C306.2	Compute the gyroscopic couple in gyroscope and centrifugal force in various governors	1,2,3,4,6,10,11,12	1,2
C306.3	Distinguish the significance of the reciprocating and rotating mass systems.	1,2,3,4,6,10,11,12	1,2
C306.4	Compute the parameters of vibration in the rotor systems	1,2,3,4,6,10,11,12	1,2
C306.5	Discuss the kinematic working models of various mechanisms and cam profile.	1,2,3,4,6,10,11,12	1,2
C306.6	Compute the critical speed of shafts	1,2,3,4,6,10,11,12	1,2
C306.7	Solve gear parameters, kinematics of mechanisms, gyroscopic effect and working of lab equipments	1,2,3,4,6,10,11,12	1,2
C306.8	Use mass moment of inertia of mechanical element, governor effort and range sensitivity, natural frequency and damping coefficient, torsional frequency, critical speeds of shafts, balancing mass of rotating and reciprocating masses, and transmissibility ratio	1,2,3,4,6,10,11,12	1,2
C306.9	Exhibit ethical principles in engineering practices	1,2,3,4,6,10,11,12	1,2
C306.10	Perform task as an individual and/or team member to manage the task in time	1,2,3,4,6,10,11,12	1,2
C306.11	Express the Engineering activities with effective presentation and report.	1,2,3,4,6,10,11,12	1,2
C306.12	Interpret the findings with appropriate technological/research citation.	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes											Program Specific Outcomes					
		K3	K4	K4	K5	K3,K5,K6	A3	A2	A3	A3	A3	A2	K4	K4	K4			
		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		
C306.1	K2	2															1	
C306.2	K2	2															1	
C306.3	K2	2		1													1	1
C306.4	K2	2															1	1
C306.5	K2	2															1	1
C306.6	K2	2	1														1	1
C306.7	K2	2																
C306.8	K2	2	1															
C306.9	A3								3									2
C306.10	A3									3		3						2
C306.11	A3										3							2
C306.12	A2												3					1
C306		2	1	1					3	3	3	3	3				1	1

ME8513–METROLOGY AND MEASUREMENTS LABORATORY

COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C308.1	Demonstrate the correct methods for measurement and calibration of various measuring devices.	1,2,3,4,6,10,11,12	1,2
C308.2	Explain the effective methods of measuring straightness, flatness, gear profile, screw threads.	1,2,3,4,6,10,11,12	1,2
C308.3	Compute the internal bore diameter measurement by bore gauge and telescope gauge.	1,2,3,4,6,10,11,12	1,2
C308.4	Compute the force and torque using suitable measuring devices	1,2,3,4,6,10,11,12	1,2
C308.5	Compute the temperature measurement using thermocouple	1,2,3,4,6,10,11,12	1,2
C308.6	Use Measurement of linear dimensions using Comparators	1,2,3,4,6,10,11,12	1,2
C308.7	Use Measurement of angles using bevel protractor and sine bar	1,2,3,4,6,10,11,12	1,2
C308.8	Apply the different measurement tools and perform measurements in quality Inspection	1,2,3,4,6,10,11,12	1,2
C308.9	Exhibit ethical principles in engineering practices	1,2,3,4,6,10,11,12	1,2
C308.10	Perform task as an individual and/or team member to manage the task in time	1,2,3,4,6,10,11,12	1,2
C308.11	Express the Engineering activities with effective presentation and report.	1,2,3,4,6,10,11,12	1,2
C308..12	Interpret the findings with appropriate technological/research citation.	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Outcomes	Level of CO	Program Outcomes												Program Specific Outcomes		
		K3	K4	K4	K5	K3,K5,K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C308.1	K3	3				3								2		2
C308.2	K2	2	1													1
C308.3	K2	2														1
C308.4	K2	2														1
C308.5	K2	2	1											1		1
C308.6	K3	3	2			3								2		2
C308.7	K2	3	2			3										
C308.8	K3	3	2			3										
C308.9	A3								3							2
C308.10	A3									3		3				2
C308.11	A3										3					2
C308..12	A2												3			1
C308		2	1			3			3	3	3	3	3	2		2

MG6851 -PRINCIPLES OF MANAGEMENT COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C410.1	Describe the Management And Organizations	1,2,3,4,6,10,11,12	1,2
C410.2	Classify managerial functions like planning	1,2,3,4,6,10,11,12	1,2
C410.3	Sketch managerial functions like organizing	1,2,3,4,6,10,11,12	1,2
C410.4	Use the managerial functions like staffing	1,2,3,4,6,10,11,12	1,2
C410.5	Teach the managerial functions like leading & controlling	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes											Program Specific Outcomes			
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C410.1	K2								2	2	2	2				
C410.2	K2								2	2	2					
C410.3	K2									2	2					
C410.4	K1									2	1	1				
C410.5	K2								2	2	2					
C410									2	2	2	2	1			

ME8651-DESIGN OF TRANSMISSIONS SYSTEMS COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C309.1	Use the concepts of design to belts, chains and rope drives	1,2,3,4,6,10,11,12	1,2
C309.2	apply the concepts of design to spur, helical gears	1,2,3,4,6,10,11,12	1,2
C309.3	Solve the concepts of design to worm and bevel gears.	1,2,3,4,6,10,11,12	1,2
C309.4	Teach the concepts of design to gear boxes	1,2,3,4,6,10,11,12	1,2
C309.5	Sketch the concepts of design to cams, brakes and clutches	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes		
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C309.1	K3	3	2	2											2	
C309.2	K3	3	2	2											2	
C309.3	K3	3	2	2											2	
C309.4	K3	3	2	2											2	
C309.5	K3	3	2	2											2	
C309		3	2	2											2	

ME8091-AUTOMOBILE ENGINEERING COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C314.1	Identify the various parts of the automobile and their functions and materials	1,2,3,4,6,10,11,12	1,2
C314.2	Describe the engine auxiliary systems and engine emission control	1,2,3,4,6,10,11,12	1,2
C314.3	Compare the working of different types of transmission systems.	1,2,3,4,6,10,11,12	1,2
C314.4	Explain the Steering, Brakes and Suspension Systems	1,2,3,4,6,10,11,12	1,2
C314.5	Summarize the possible alternate sources of energy for IC Engines	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes		
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C314.1	K2	2									2			1	1	
C314.2	K2	2	1								2				1	
C314.3	K2	2									2				1	
C314.4	K2	2									2				1	
C314.5	K2	2	1				2	3			2				1	
C314		2	1				2	3			2			1	1	

ME8681-CAD/CAMLAB COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C314.1	Analyze standard software tools to create part, assemblies and check for clearances.	1,2,3,4,6,10,11,12	1,2
C314.2	Modify 2D drafting to 3D using modeling software.	1,2,3,4,6,10,11,12	1,2
C314.3	Summarize the modern control in manufacturing systems(FANUC,SIEMENS)	1,2,3,4,6,10,11,12	1,2
C314.4	Develop the concepts of G and M codes and manual part programming for modern manufacturing technology.	1,2,3,4,6,10,11,12	1,2
C314.5	Apply CAPP in machining and turning centre	1,2,3,4,6,10,11,12	1,2
C314.6	Design modern tools in design, manufacture and planning	1,2,3,4,6,10,11,12	1,2
C314.7	Exhibit ethical principles in engineering practices	1,2,3,4,6,10,11,12	1,2
C314.8	Perform task as an individual and/or team member to manage the task in time	1,2,3,4,6,10,11,12	1,2
C314.9	Express the Engineering activities with effective presentation and report.	1,2,3,4,6,10,11,12	1,2
C314.10	Interpret the findings with appropriate technological /research citation.	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes		
		K3	K4	K4	K5	K3,K5,K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C314.1	K3	3	2	2	1	3									2	
C314.2	K3	3	2	2		3									2	
C314.3	K2	2													1	
C314.4	K3	3	2	2	1	3									2	
C314.5	K3	3	2	2		3									2	
C314.6	K3	3	2	2	1	3									2	
C314.7	A3								3						2	
C314.8	A3									3		3			2	
C314.9	A3										3				2	
C314.10	A2												3		1	
C314		3	2	2	1	3			3	3	3	3	3		2	

ME8682-DESIGN AND FABRICATION PROJECT COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C315.1	Use the design principles and develop concept for the project	1,2,3,4,6,10,11,12	1,2
C315.2	Estimate the time frame and cost for the project execution and completion	1,2,3,4,6,10,11,12	1,2
C315.3	Analyze the project progress with remedial measures individual in a team	1,2,3,4,6,10,11,12	1,2
C315.4	Examine the environmental impact of the project	1,2,3,4,6,10,11,12	1,2
C315.5	Demonstrate the project functionality along with report and presentation	1,2,3,4,6,10,11,12	1,2
C315.6	Apply the Engineering knowledge in design and economically manufacturing of components to support the society need.	1,2,3,4,6,10,11,12	1,2
C315.7	Assess health, safety and legal relevant to professional engineering practices.	1,2,3,4,6,10,11,12	1,2
C315.8	Comply the environmental needs and sustainable development.	1,2,3,4,6,10,11,12	1,2
C315.9	Justify ethical principles in engineering practices	1,2,3,4,6,10,11,12	1,2
C315.10	Perform multi-disciplinary task as an individual and/or team member to manage the project/task.	1,2,3,4,6,10,11,12	1,2
C315.11	Comprehend the Engineering activities with effective presentation and report.	1,2,3,4,6,10,11,12	1,2
C315.12	Interpret the findings with appropriate technological/research citation.	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes		
		K3	K4	K4	K5	K3,K5,K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C315.1	K3	3	2	2	2									2	2	2
C315.2	K3	3	2	2								3				2
C315.3	K4	3	3		2	3					3					
C315.4	K3	3					3	3	3				3	3	3	3
C315.5	K3	3	2									3				
C315.6	K3	3	2	2	2	3								2	2	2
C315.7	A3						3							2	2	2
C315.8	A2							3						1	1	1
C315.9	A3								3					2	2	2
C315.10	A3									3		3		2	2	2
C315.11	A3										3			2	2	2
C315.12	A2												3	1	1	1
C315		3	2	2	2	3	3	3	3	3	3	3	3	2	2	2

ME8792-POWER PLANT ENGINEERING COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C401.1	Describe the layout, construction and working of the components inside a thermal power plant.	1,2,3,4,6,10,11,12	1,2
C401.2	Summarize the layout, construction and working of the components inside a Diesel, Gas and Combined cycle power plants.	1,2,3,4,6,10,11,12	1,2
C401.3	Identify the layout, construction and working of the components inside nuclear power plants	1,2,3,4,6,10,11,12	1,2
C401.4	Sketch the layout, construction and working of the components inside Renewable energy power plants.	1,2,3,4,6,10,11,12	1,2
C401.5	Use the applications of power plants while extend their knowledge to power plant economics and environmental hazards and estimate the costs of electrical energy production.	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes		
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C401.1	K2	2												1		
C401.2	K2	2	1											1		
C401.3	K2	2												1		
C401.4	K2	2												1		
C401.5	K2	2	1					3						1		
C401.6	K2	2	1											1		
C401		2	1					3						1		

ME8791-MECHATRONICS

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C403.1	Describe the interdisciplinary applications of Electronics, Electrical, Mechanical and Computer Systems for the Control of Mechanical, Electronic Systems and sensor technology	1,2,3,4,6,10,11,12	1,2
C403.2	Sketch the architecture of Microprocessor and Microcontroller, Pin Diagram, Addressing Modes of Microprocessor and Microcontroller.	1,2,3,4,6,10,11,12	1,2
C403.3	Use the Programmable Peripheral Interface, Architecture of 8255 PPI, and various device interfacing	1,2,3,4,6,10,11,12	1,2
C403.4	Design the architecture, programming and application of programmable logic controllers to problems and challenges in the areas of Mechatronic engineering.	1,2,3,4,6,10,11,12	1,2
C403.5	Modify various Actuators and Mechatronics system using the knowledge and skills acquired through the course and also from the given case studies	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes		
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C403.1	K2	2									2			1		1
C403.2	K2	2				2					2			1		1
C403.3	K2	2	1	1		2					2			1		1
C403.4	K2	2				2					2					1
C403.5	K2	2	1			2					2			1		1
C403		2	1	1		2					2			1		1

ME8094-COMPUTER INTEGRATED MANUFACTURING SYSTEMS

COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C405.1	Explain the basic concepts of CAD, CAM and computer integrated manufacturing systems	1,2,3,4,6,10,11,12	1,2
C405.2	Summarize the production planning and control and computerized process planning	1,2,3,4,6,10,11,12	1,2
C405.3	Differentiate the different coding systems used in group technology	1,2,3,4,6,10,11,12	1,2
C405.4	Explain the concepts of flexible manufacturing system (FMS) and automated guided vehicle (AGV) system	1,2,3,4,6,10,11,12	1,2
C40.5	Classification of robots used in industrial applications	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes		
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C405.1	K2	2									2					1
C405.2	K2	2	1								2					1
C405.3	K2	2	1	1							2					1
C405.4	K2	2				2					2					1
C40.5	K2	2	1			2					2					1
C405.1	K2	2		1		2					2					1
C405		2	1	1		2					2					1

GE8077-TOTALQUALITYMANAGEMENT COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	
	Discuss various dimensions of product and service quality	
C404.2	Apply the TQM principles for quality improvement in organization	
C404.3	Distinguish various TQM tools and techniques used in Manufacturing and Service sectors	
C404.4	Use QFD tool to design and develop a new product as per customer requirements	
C404.5	Explain various ISO Standards and Quality systems practiced in various sector	

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes											Program Specific Outcomes			
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C404.1	K2			1	1		2		2			2				
C404.2	K3								3		3					
C404.3	K2				1						2					
C404.4	K3			2	2		3			3		3		2	2	
C404.5	K2							3								
C404				1	1		2	3	2	3		2		2	2	

ME8711-SIMULATION AND ANALYSIS LABORTATORY

COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C407.1	Analysis the Force and Stress using link elements in Trusses, cables etc.	1,2,3,4,6,10,11,12	1,2
C407.2	Design the Stress and deflection analysis in beams with different support conditions.	1,2,3,4,6,10,11,12	1,2
C407.3	Modify Stress analysis of flat plates and simple shells	1,2,3,4,6,10,11,12	1,2
C407.4	Solve the Stress analysis of axi – symmetric components	1,2,3,4,6,10,11,12	1,2
C407.5	stress and heat transfer analysis of plates	1,2,3,4,6,10,11,12	1,2
C407.6	Develop Thermal stress analysis of cylindrical shells.	1,2,3,4,6,10,11,12	1,2
C407.7	Collaborate Vibration analysis of spring-mass systems	1,2,3,4,6,10,11,12	1,2
C407.8	Plan the Model analysis of Beams	1,2,3,4,6,10,11,12	1,2
C407.9	Analyze the stresses and strains induced in plates, brackets and beams and heat transfer problems	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAMS PECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes											ProgramSpecificOutcomes			
		K3	K4	K4	K5	K3,K5,K6	A3	A2	A3	A3	A3	A2	K4	K4	K4	
		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
C407.1	K3	3	2			3								2	2	2
C407.2	K2	2				2									1	
C407.3	K2	2	1		1	2									1	
C407.4	K3	3			1	3									1	
C407.5	K3	3	2			3									2	
C407.6	K3	3	2			3									2	
C407.7	A3							3							2	
C407.8	A3								3			3			2	
C407.9	A3										3				2	
C407		3	2		1	3			3	3	3	3	3	2	2	2

ME8781-MECHATRONICS LABORATORY

COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C408.1	Summarize assembly language programming go f8085for arithmetic operation	1,2,3,4,6,10,11,12	1,2
C408.2	Operate programmable peripheral interface for stepper motor and traffic light	1,2,3,4,6,10,11,12	1,2
C408.3	<i>Demonstrate the speed control of DC motor by microcontroller</i>	1,2,3,4,6,10,11,12	1,2
C408.4	Prepare Hydraulic, Pneumatic and electro pneumatic circuits using software tool.	1,2,3,4,6,10,11,12	1,2
C408.5	Examine various fluid power circuits.	1,2,3,4,6,10,11,12	1,2
C408.6	Prepare PLC programs for controlling multiple cylinders using timers	1,2,3,4,6,10,11,12	1,2
C408.7	Explain the image processing technique	1,2,3,4,6,10,11,12	1,2
C408.8	Exhibit ethical principles in engineering practices	1,2,3,4,6,10,11,12	1,2
C408.9	Perform task as an individual and/or team member to manage the task in time	1,2,3,4,6,10,11,12	1,2
C408.10	Express the Engineering activities with effective presentation and report.	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes			
		K3	K4	K4	K5	K3,K5,K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4	
		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	
C408.1	K2	2														1	
C408.2	K3	3														2	
C408.3	K3	3	2			3										2	
C408.4	K3	3	2			3										2	
C408.5	K3	3	2													2	
C408.6	K3			2												2	
C408.7	K2	2				2										2	
C408.8	A3							3								2	
C408.9	A3								3		3		3			2	
C408.10	A3									3						2	
C408.11	A2												3			1	
C408		3	2	2		3			3	3	3	3	3			2	

ME8712-COMPREHENSION COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C409.1	<i>Summarize the various thermodynamics laws to engineering application</i>	1,2,3,4,6,10,11,12	1,2
C409.2	Distinguish various power cycles and it's applications	1,2,3,4,6,10,11,12	1,2
C409.3	Discuss various mechanism for design o f mechanical system	1,2,3,4,6,10,11,12	1,2
C409.4	Compute the properties and strength of engineering material	1,2,3,4,6,10,11,12	1,2
C409.5	Point out various manufacturing process suitable for making products	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes		
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C409.1	K2	2	1											1		
C409.2	K2	2	1											1		
C409.3	K2	2	1												1	
C409.4	K2	2	1												1	
C409.5	K1	1	1													1
C409		2	1											1	1	1

ME8073-UNCONVENTIONAL MACHINING PROCESSES

COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
	Describe the need for unconventional machining processes and its classification	1,2,3,4,6,10,11,12	1,2
C412.2	Compare various thermal energy and electrical energy based unconventional machining processes	1,2,3,4,6,10,11,12	1,2
C412.3	Summarize various chemical and electro-chemical energy based unconventional machining processes	1,2,3,4,6,10,11,12	1,2
C412.4	Explain various nano abrasives based unconventional machining processes.	1,2,3,4,6,10,11,12	1,2
C412.5	Compare various recent trends based unconventional machining processes	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes		
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C412.1	K2	2									2			1		
C412.2	K2	2									2			1		
C412.3	K2	2	1								2			1		
C412.4	K2	2			1			3			2			1		
C412.5	K2	2									2		3		1	
C412.6	K2	2		1				3			2				1	
C412		2	1	1	1			3			2		3	1	1	

ME8099-ROBOTICS

COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C412.1	Explain the concepts of industrial robots, classification, specifications and coordinate systems. Also summarize the need and application of robots in different sectors.	1,2,3,4,6,10,11,12	1,2
C412.2	Illustrate the different types of robot drive systems as well as robot end effectors.	1,2,3,4,6,10,11,12	1,2
C412.3	Apply the different sensors and image processing techniques in robotics to improve the ability of robots	1,2,3,4,6,10,11,12	1,2
C412.4	Develop robotic programs for different tasks and familiarize with the kinematics motions of robot.	1,2,3,4,6,10,11,12	1,2
C412.5	Examine the implementation of robots in various industrial sectors and interpolate the economic analysis of robots.	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes		
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C412.1	K2	2									2			1		
C412.2	K2	2									2			1		
C412.3	K2	2	1								2			1		
C412.4	K2	2			1			3			2			1		
C412.5	K2	2									2		3		1	
C412		2	1	1	1			3			2		3	1	1	

ME8097- NON DESTRUCTIVE TESTING AND EVALUATION COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	POs	PSOs
C412.1	Explain the fundamental concepts of NDT	1,2,3,4,6,10,11,12	1,2
C412.2	Classify the different methods of NDE	1,2,3,4,6,10,11,12	1,2
C412.3	Describe the concept of Thermography and Eddy current testing	1,2,3,4,6,10,11,12	1,2
C412.4	Identify the concept of Ultrasonic Testing and Acoustic Emission	1,2,3,4,6,10,11,12	1,2
C412.5	Summarize the concept of Radiography	1,2,3,4,6,10,11,12	1,2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	Program Outcomes												Program Specific Outcomes		
		K3	K4	K4	K5	K3,K5, K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C412.1	K2	2									2			1		
C412.2	K2	2									2			1		
C412.3	K2	2	1								2			1		
C412.4	K2	2			1			3			2			1		
C412.5	K2	2									2		3		1	
C412		2	1	1	1			3			2		3	1	1	

ME8811-PROJECT WORK COURSE OUTCOMES

After successful completion of the course, the students should be able to

CO No.	Course Outcomes	
C413.1	Use literature to identify the objective , scope and the concept of the work.	
C413.2	Apply suitable methods and materials to carry out experiments by conserving co-system	
C413.3	Develop a prototype/experimental set-up necessary to complete the project	
C413.4	Discuss the results obtained to derive conclusions	
C413.5	Defend the work by preparing a report as per the University format.	
C413.6	Compile the experimental information to publish in journals/conference	
C413.7	Assess health ,safety and legal relevant to professional engineering practices.	
C413.8	Comply the environmental needs and sustainable development.	
C413.9	Justify ethical principles in engineering practices	
C413.10	Perform multi-disciplinary task as an individual and/or team member to manage the project/task.	
C413.11	Comprehend the Engineering activities with effective presentation and report.	
C413.12	Interpret the findings with appropriate technological/research citation.	

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Outcomes	Level of CO	Program Outcomes											Program Specific Outcomes			
		K3	K4	K4	K5	K3,K5,K6	A3	A2	A3	A3	A3	A3	A2	K4	K4	K4
		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
C413.1	K3	3	2	2										2	2	2
C413.2	K3	3	2	2		3	3	3						2	2	2
C413.3	K5	3		3	3								3		3	3
C413.4	K2	2	1		3		2				2		3			
C413.5	K5	3	3								3		3			
C413.6	K6	3	3								3		3			
C413.7	A3						3									
C413.8	A2							3								
C413.9	A3								3							
C413.10	A3									3			3			
C413.11	A3										3					
C413.12	A2												3			
C413		3	2	2	3	3	3	3	3	3	3	3	3	2	2	2

