R.M.K COLLEGE OF ENGINEERING AND TECHNOLOGY

RSM NAGAR, PUDUVOYAL-601206

DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES

MAPPING COs

WITH POs AND PSOs

ACADEMIC YEAR

2020 – 2021

HS8151 – COMMUNICATIVE ENGLISH – I
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C101.1	Enable the development in sharing information about family and friends.	**K3, A2**
C101.2	Strengthen general comprehending skills and present lucid skills in free writing	**K2, A2**
C101.3	Understand the basic grammar techniques and utilise it in enhancing language development.	**K4, A2**
C101.4	Foster an environment for reading and develop good language skills.	**A2**
C101.5	Develop flair for any kind of writing with rich vocabulary and proper syntax.	**A2**
C101.6	Proficiency in writing technical articles and presenting papers on any topic of any genre.	**A3**

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
C101.1	**K3, A2**										2		3			
C101.2	**K2, A2**									2	2		3			
C101.3	**K4, A2**										2		3			
C101.4	**A2**										2		3			
C101.5	**A2**										2		3			
C101.6	**A3**									3	3		2			
C101										**3**	**2**		**3**			

MA8151 – ENGINEERING MATHEMATICS – I
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C102.1	Diagonalize symmetric matrices and similar matrices using Eigen values and Eigen vectors.	**K2**
C102.2	Explain gradients, potential functions, and directional derivatives of functions of several variables.	**K2**
C102.3	Compute line, surface and volume integral using Gauss divergence, Green's and stoke's theorem.	**K2**
C102.4	Discuss analytic functions in heat and fluid flow.	**K2**
C102.5	Extend the concept of contour integrals in evaluating Real integrals.	**K2**
C102.6	Discuss Laplace Transform methods to solve initial value problems for constant coefficient linear ODEs.	**K2**

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
C102.1	K2	2	1													
C102.2	K2	2	1													
C102.3	K2	2	1													
C102.4	K2	2	1													
C102.5	K2	2	1													
C102.6	K2	2	1													
C102		**2**	**1**													

PH8151 – ENGINEERING PHYSICS
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C103.1	Discuss the Young's modulus and Rigidity modulus of elasticity of materials and its determination through experimental methods	K2
C103.2	Describe the characteristics of laser light and their application in semiconductor laser	K2
C103.3	Discuss the principle behind the propagation of light through an optical fibre and its application in sensors.	K2
C103.4	Summarize the different modes of heat transfer.	K2
C103.5	Relate the quantum concepts in electron microscopes.	K2
C103.6	Describe the unit cell characteristics and the growth of crystals.	K2

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
C103.1	K2	2	1								2					
C103.2	K2	2	1								2					
C103.3	K2	2	1								2					
C103.4	K2	2	1								2					
C103.5	K2	2	1								2					
C103.6	K2	2	1								2					
C103		**2**	**1**								**2**					

CY8151 – ENGINEERING CHEMISTRY
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C104.1	Summarize the water related problems in boilers and their treatment techniques.	K2
C104.2	Discuss the applications of adsorption in the field of water and air pollution abatement.	K2
C104.3	Discuss the types of catalysis and the mechanism of enzyme catalysis	K2
C104.4	Associate phase rule in the alloying and the behaviour of one component and two component systems using phase diagram	K2
C104.5	Explain various types of fuels, their manufacturing processes and calculation of calorific theoretically	K2
C104.6	Summarize the principles and generation of energy in batteries ,nuclear reactors, solar cells, wind mills and fuel cells	K2

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
C104.1	K2	2	1								2					
C104.2	K2	2	1								2					
C104.3	K2	2									2					
C104.4	K2	2	1								2					
C104.5	K2	2	1								2					
C104.6	K2	2									2					
C104		2	1								2					

GE8151 – PROBLEM SOLVING AND PYTHON PROGRAMMING
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C105.1	Discuss the logical solutions through Flowcharts, Algorithms and Pseudo code	**K2**
C105.2	Explain the syntax for python programming constructs.	**K2**
C105.3	Compute the flow of the program to obtain the programmatic solution.	**K3**
C105.4	Examine the programs with sub problems using 'Python' language.	**K2**
C105.5	Compute the compound data using Python lists, tuples, and dictionaries	**K2**
C105.6	Apply python programs to read and write data from/to files .	**K3**

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
C105.1	K2	2	1	1	1											
C105.2	K2	2	1	1	1	2										
C105.3	K3	2	1	1	1	2										
C105.4	K2	3	2	2	1	3										
C105.5	K2	2	1	1	1	2										
C105.6	K3	3	2	2	1	3										
C105		**2**	**1**	**1**	**1**	**2**										

GE8152 – ENGINEERING GRAPHICS
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C106.1	Discuss about conics and orthographic views of engineering components	**K2**
C106.2	Draw the projection of points, lines and planes	**K1**
C106.3	Classify solids and projection of solids at different positions	**K3**
C106.4	Show sectioned view of solids and development of surface	**K3**
C106.5	Draw isometric projection and perspective views of an object/solid	**K1**
C106.6	Apply the concept of drawing in practical applications.	**K3**

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	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
C106.1	**K2**	2									2					
C106.2	**K1**	1									1					
C106.3	**K3**	3									3					
C106.4	**K3**	3									3					
C106.5	**K1**	1									1				1	
C106.6	**K3**	3		2							3					
C106		**2**		**2**							**2**				**1**	

(Program Outcomes header spans PO-1 through PO-12; Program Specific Outcomes header spans PSO-1 through PSO-3)

GE8161 – PROBLEM SOLVING AND PYTHON PROGRAMMING LAB

COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C107.1	Write, test, and debug simple Python programs.	K1
C107.2	Apply the concept of conditionals and loops in Python programs.	K3
C107.3	Develop the Python programs step-wise by defining functions and calling them.	K4
C107.4	Develop the programs in basic C constructs	K3
C107.5	Read and write data from/to files in Python.	K1
C107.6	Apply the concept of Pygame.	K3
C107.7	Exhibit ethical principles in engineering practices	A3
C107.8	Perform task as an individual and / or team member to manage the task in time	A3
C107.9	Express the Engineering activities with effective presentation and report.	A3
C107.10	Interpret the findings with appropriate technological / research citation.	A2

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
C107.1	K1	1	1	1	1											
C107.2	K3	3	2	2	1	3										
C107.3	K4	3	3	3	2	3										
C107.4	K3	3	2	2	1	3										
C107.5	K1	1	1	1	1	1										
C107.6	K3	3	2	2	1	3										
C107.7	A3								3							
C107.8	A3									3		3				
C107.9	A3										3					
C107.10	A2												3			
C107		2	2	2	1	3			3	3	3	3	3			

BS8161 – PHYSICS AND CHEMISTRY LAB
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C108.1	Assess optical fibre parameters using laser properties.	K2
C108.2	Measure the velocity of ultrasonic waves in a given liquid medium.	K2
C108.3	Compute the wavelength of mercury spectrum using properties of light	K2
C108.4	Compute the thermal conductivity of a bad conductor using Lee's method.	K2
C108.5	Determine the modulus of a material using Hooke's law.	K2
C108.6	Estimate water quality parameters such as dissolved oxygen content, chloride content of the water samples.	K2
C108.7	Estimate acids and bases quantitatively based on the conductance of the solution.	K2
C108.8	Estimate acids and bases quantitatively based on pH level of the solution.	K2
C108.9	Calculate molecular weight of a polymer using viscosity measurements.	K2
C108.10	Estimate iron content of the given water sample by spectral method.	K2
C108.11	Exhibit ethical principles in engineering practices	A3
C108.12	Perform task as an individual and / or team member to manage the task in time	A3
C108.13	Express the Engineering activities with effective presentation and report.	A3
C108.14	Interpret the findings with appropriate technological / research citation.	A2

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
C108.1	K2	2	1													
C108.2	K2	2	1													
C108.3	K2	2	1													
C108.4	K2	2	1													
C108.5	K2	2	1													
C108.6	K2	2	1													
C108.7	K2	2	1													
C108.8	K2	2	1													
C108.9	K2	2	1													
C108.10	K2	2	1													
C108.11	A3								3							
C108.12	A3									3		3				
C108.13	A3										3					
C108.14	A2												3			
C108		2	1						3	3	3	3	3			

HS8251 – TECHNICAL ENGLISH
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C109.1	Breakdown the ideas in to its elementary constituents, analyze and act after a meaning full thought process.	K2,A2
C109.2	Analyze the phrase and passage and explicitly pass on the ideas meaning fully.	K3,A2
C109.3	Manage to interpret the given phrase or the graphical rendering and review the contents well individually or as a group.	K3,A2
C109.4	Concentrate on the communication aspect of complicated ideas and respond positively.	A2
C109.5	Debate the issues and find the rudiments of the problem individually and as a group.	A3
C109.6	Respond intelligently and seek clarification and understand completely.	A2

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
C109.1	K2,A2										2		3			
C109.2	K3,A2									2	2		3			
C109.3	K3,A2										2		3			
C109.4	A2										2		3			
C109.5	A3									3	3		2			
C109.6	A2										2		3			
C109										3	2		3			

MA8251 – ENGINEERING MATHEMATICS – II
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C110.1	Compute Eigen values and Eigen vectors of a matrix, diagonalize symmetric matrices and similar matrices	K2
C110.2	Explain gradients, potential functions, and directional derivatives of functions of several variables.	K2
C110.3	Compute line, surface and volume integral using Gauss divergence, Green's and stoke's theorem.	K2
C110.4	Discuss analytic functions in heat and fluid flow.	K2
C110.5	Extend the concept of contour integrals in evaluating Real integrals.	K2
C110.6	Discuss Laplace Transform methods to solve initial value problems for constant coefficient linear ODEs	K2

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
C110.1	K2	2	1													
C110.2	K2	2	1													
C110.3	K2	2	1													
C110.4	K2	2	1													
C110.5	K2	2	1													
C110.6	K2	2	1													
C110		**2**	**1**													

PH8251 – MATERIALS SCIENCE
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C111.1	Discuss on various phase diagrams and applications	K2
C111.2	Discuss the Iron Carbon phase diagram and the applications of ferrous alloys	K2
C111.3	Describe the mechanical properties of materials and their measurements	K2
C111.4	Summarize the properties of magnetic materials	K2
C111.5	Describe the properties of dielectrics and superconducting materials	K2
C111.6	Summarize the properties and applications of ceramics ,composites and nanomaterials	K2

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
C111.1	K2	2	1								2					
C111.2	K2	2	1								2					
C111.3	K2	2									2					
C111.4	K2	2									2					
C111.5	K2	2									2					
C111.6	K2	2									2					
C111		2	1								2					

BE8253 – BASIC ELECTRICAL, ELECTRONICS AND INSTRUMENTATION ENGINEERING
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C112.1	Analyze the DC Electrical Circuits.	K3
C112.2	Analyze the AC Electrical Circuits.	K3
C112.3	Explain the working principle & Performance Characteristics of Electrical Machines.	K2
C112.4	Explain the Construction & Static Characteristics of Electronic devices and its Application.	K2
C112.5	Choose the Instrument for Electrical measurement for a specific application.	K2

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
C112.1	K3	3	2	1										1		
C112.2	K3	3	2	2										2		
C112.3	K2	2	1	1												
C112.4	K2	3	2	2	1	1										
C112.5	K2	2	1	1	1											
C112		3	2	2	1	1										

GE8291 – ENVIRONMENTAL SCIENCE AND ENGINEERING
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C113.1	Summarize the values, threats, conservation of biodiversity and ecosystems	**K2**
C113.2	Discuss the sources, effects, control measures of different types of pollution, and solid waste management	**K2**
C113.3	Associate the effects of exploitation of Natural resources on environment	**K2**
C113.4	Summarize the water conservation methods and various environmental acts for environmental sustainability	**K2**
C113.5	Explain the effect of Human population and role of IT in environment and human health	**K2**
C113.6	Discuss scientific, technological, economic and social solutions to environmental problems	**K2**

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
C113.1	**K2**						2	3			2			1		
C113.2	**K2**	2					2	3			2			1		
C113.3	**K2**	2					2	3			2			1		
C113.4	**K2**						2	3			2			1		
C113.5	**K2**							3			2					
C113.6	**K2**	2	1				2	3			2					
C113		**2**	**1**				**2**	**3**			**2**			**1**		

GE8292 – ENGINEERING MECHANICS
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C114.1	Compute the resultant force for planar and spatial system of forces.	K2
C114.2	Estimate the force, moment for planar and spatial system of forces.	K2
C114.3	Compute the centroid, second moment of area, center of gravity, product moment of inertia and mass moment of inertia.	K2
C114.4	Compute the motion parameters like displacement, velocity, acceleration using dynamics.	K2
C114.5	Compute the reaction force by applying principles of friction and the motion parameters of rigid body.	K2
C114.6	Apply the concepts of mechanics and work in force analysis	K3

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
C114.1	K2	2	1													
C114.2	K2	2	1													
C114.3	K2	2	1													
C114.4	K2	2	1													
C114.5	K2	2	1													
C114.6	K3	3	2													
C114		2	1													

GE6162 – ENGINEERING PRACTICES LAB
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C115.1	Identify Tools and Techniques used for Sheet Metal Fabrication.	K1
C115.2	Use welding equipment to join the structures.	K3
C115.3	Demonstrate Plumbing requirements of domestic buildings.	K3
C115.4	Apply the skills of basic electrical engineering for house wiring practice	K3
C115.5	Measure various electrical quantities	K3
C115.6	Explain the working of electronic components and its utilization	K2
C115.7	Apply electronic principles to develop circuits for primitive application	K3
C115.8	Exhibit ethical principles in engineering practices	A3
C115.9	Perform task as an individual and / or team member to manage the task in time	A3
C115.10	Express the Engineering activities with effective presentation and report.	A3
C115.11	Interpret the findings with appropriate technological / research citation.	A2

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	К3, К5, К6	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
C115.1	K1	2		1		1										
C115.2	K3	3	2													
C115.3	K3	3	2													
C115.4	K3	3	2	2	1	3										
C115.5	K3	3	2	2	1	3										
C115.6	K2	2	1		1	2				2	2	2				
C115.7	K3	3	2	2	1	3				3	3	3				
C115.8	A3								3							
C115.9	A3									3		3				
C115.10	A3										3					
C115.11	A2												3			
C108		3	2	2	1	2			3	3	3	3	3			

BE8261 - BASIC ELECTRICAL, ELECTRONICS AND INSTRUMENTATION ENGINEERING LAB
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C116.1	Illustrate the performance, Characteristics and Load test on DC Shunt motor and DC Generator	K2
C116.2	Analyze the measurement of three phase power and explain the performance of induction motor & Transformer	K2
C116.3	Demonstrate the various electric circuits laws and theorems	K2
C116.4	Explain the various characteristics of different transducers	K2
C116.5	Apply the simple circuits based on diodes and transistors	K2
C116.6	Explain the study of CRO and measurement of AC Signals	K2
C116.7	Exhibit ethical principles in engineering practices	A3
C116.8	Perform task as an individual and / or team member to manage the task in time	A3
C116.9	Express the Engineering activities with effective presentation and report.	A3
C116.10	Interpret the findings with appropriate technological / research citation.	A2

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
C116.1	K2	2	1	1	1		1									
C116.2	K2	2	1	1	1		1									
C116.3	K2	2	1	1	1											
C116.4	K2	2	1	1	1											
C116.5	K2	2	1	1	1											
C116.6	K2	2	1													
C116.7	A3								3							
C116.8	A3									3		3				
C116.9	A3										3					
C116.10	A2												3			
C117		2	1	1	1		1		3	3	3	3	3			

MA8351 – TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C201.1	Solve Linear Partial differential equations of first and second order.	K2
C201.2	Associate the concepts of Fourier series expansion for even and odd functions.	K2
C201.3	Associate the concepts of Fourier series in solving boundary value problems.	K2
C201.4	Discuss the Fourier transform, Fourier Sine and Cosine transform techniques.	K2
C201.5	Describe the concepts of Z-Transform techniques for discrete time systems.	K2
C201.6	Discuss the problems in Heat Conduction, Communications systems and Electromagnetic Theory using Transform techniques.	K2

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	K2	2	1													
C201.2	K2	2	1													
C201.3	K2	2	1													
C201.4	K2	2	1													
C201.5	K2	2	1													
C201.6	K2	2	1													
C201		2	1													

ME8391 – ENGINEERING THERMODYNAMICS
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C202.1	Explain the basic concepts and laws of thermodynamics.	K2
C202.2	Apply the concept of enthalpy and entropy in thermal systems	K3
C202.3	Calculate the properties of pure substance and explain the working of steam cycles	K3
C202.4	Distinguish the properties of ideal and real gases.	K2
C202.5	Solve problems in psychrometric processes and gas mixtures.	K3
C202.6	Apply thermodynamic laws for real time applications	K3 & A2

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													
C202.3	K3	3				3										
C202.4	K2	2	1			3										
C202.5	K3	3	2		1											
C202.6	K3 & A2	3	3	2						2	2	2	3	2		
C202		3	2		1	3				2	2	2	3	1		

CE8394 – FLUID MECHANICS AND MACHINERY
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C203.1	Calculate the fluid properties and flow characteristics	K3
C203.2	Calculate the flow of fluid in circular conduits	K3
C203.3	Discuss the importance of dimensional and model analysis	K2
C203.4	Discuss centrifugal and reciprocating pumps using velocity triangles	K2
C203.5	Estimate the performance of impulse and reaction turbines	K2
C203.6	Demonstrate a keen understanding of various fluid properties, involving real time experimentation	K3 & A2

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
C203.1	K3	3	2													
C203.2	K3	2	1													
C203.3	K2	2	1													
C203.4	K2	2	1													
C203.5	K2	2	1													
C203.6	K3 & A2	2	2							2	2	2	3			
C203		2	1							2	2	2	3			

ME8351 – MANUFACTURING TECHNOLOGY – I
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C204.1	Distinguish the various casting methods for product making with their merits and demerits.	**K2**
C204.2	Distinguish the various material joining process and associated defects with possible cause and cure.	**K2**
C204.3	Discuss various metal forming process with its application	**K2**
C204.4	Distinguish the various process involved in sheet metal forming with its applications and salient features	**K2**
C204.5	Explain the various process in making of plastic components for engineering / domestic applications.	**K2**
C204.6	Apply the manufacturing process suitable for making products.	**K3 & A2**

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					
C204.2	K2	2									2				2	
C204.3	K2	2									2					
C204.4	K2	2									2				2	
C204.5	K2	2									2				2	
C204.6	K3 & A2	3		2						2	2	2	3			
C204		2		2						2	2	2	3		2	

EE8353 – ELECTRICAL DRIVES AND CONTROL
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C205.1	Explain the selection of power rating for drive motor based on various factors	**K2**
C205.2	Summarize the various characteristics of DC and AC drive motors.	**K2**
C205.3	Illustrate various braking methods of DC and AC drive motor based on its applications.	**K2**
C205.4	Select secure starting methods of DC and AC motors.	**K3**
C205.5	Explain various conventional and solid state speed control methods of DC drives	**K2**
C205.6	Explain various conventional and solid state speed control methods of AC drives	**K2**

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	2	1	1		2	1			1					
C205.2	**K2**	2	2	1	1						1					
C205.3	**K2**	2	2	1	1						1					
C205.4	**K3**	2	2	1	1						1					
C205.5	**K2**	2	1	1							1					
C205.6	**K2**	2	1	1							1					
C205		**2**	**2**	**1**	**1**		**2**	**1**			**1**					

ME8361 – MANUFACTURING TECHNOLOGY LAB – I
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C206.1	Demonstrate the working of lathe machine	**K3**
C206.2	Identify various operations performed in Lathe machines.	**K1**
C206.3	Examine tool life, tool wear and forces in metal cutting	**K3**
C206.4	Identify suitable manufacturing techniques to manufacture different products	**K1**
C206.5	Utilize CNC Program for various machining process	**K3**
C206.6	Predict the necessary operation to complete the given exercise	**K2**
C206.7	Exhibit ethical principles in engineering practices	**A3**
C206.8	Perform task as an individual and / or team member to manage the task in time	**A3**
C206.9	Express the Engineering activities with effective presentation and report.	**A3**
C206.10	Interpret the findings with appropriate technological / research citation.	**A2**

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														
C206.2	K1	1														
C206.3	K3	3	2		1											
C206.4	K1	1													2	
C206.5	K3	3		2	1	3									2	
C206.6	K2	2			1	2										
C206.7	A3								3							
C206.8	A3									3		3				
C206.9	A3										3					
C206.10	A2												3			
C206		**2**	**2**	**2**	**1**	**3**			**3**	**3**	**3**	**3**	**3**		**2**	

ME8381 – COMPUTER AIDED MACHINE DRAWING
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C207.1	Classify the code of practices, symbols and relevant BIS specifications used in industrial engineering drawings as per best of practices	K3
C207.2	Use standard data books in selection of various machine components like bolts, nuts, screws, keys etc., as per best of industrial practices	K2
C207.3	Distinguish the significance of geometric dimensioning and tolerancing in manufacturing industries along with utilization of dimensional tolerancing in engineering drawings	K2
C207.4	Apply standard CAD software packages in drafting orthographic drawings, with all necessary detailing of various standard machine components	K2
C207.5	Apply standard CAD software packages in making 3D models of various machine components and assemble them in a suitable virtual environment with necessary GD and T considerations	K2
C207.6	Use the whole computer aided drawings as on effective engineering communication tool suitable for various industries.	K3
C207.7	Exhibit ethical principles in engineering practices	A3
C207.8	Perform task as an individual and / or team member to manage the task in time	A3
C207.9	Express the Engineering activities with effective presentation and report.	A3
C207.10	Interpret the findings with appropriate technological / research citation.	A2

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
C207.1	K3	3													2	
C207.2	K2	3	2												2	
C207.3	K2	3	2	2											2	
C207.4	K2	3			2	3									2	
C207.5	K2	3			2	3									2	
C207.6	K3	3	2	2	2	3										
C207.7	A3								3							
C207.8	A3									3						
C207.9	A3										3					
C207.10	A2												2			
C207		3	2	2	2	3			3	3	3		2		2	

EE8361 – ELECTRICAL ENGINEERING LAB
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C208.1	Analyze the performance of various types of DC motors	**K3**
C208.2	Experiment with the different characteristics & load test of DC shunt and series generator	**K3**
C208.3	Experiment with the different characteristics & load test of Transformer	**K3**
C208.4	Analyze the performance of single phase and three phase Induction motor	**K3**
C208.5	Determine the performance of an alternator and synchronous machine	**K4**
C208.6	Summarize the concepts of AC and DC starters	**K2**
C208.7	Exhibit ethical principles in engineering practices	**A3**
C208.8	Perform task as an individual and / or team member to manage the task in time	**A3**
C208.9	Express the Engineering activities with effective presentation and report.	**A3**
C208.10	Interpret the findings with appropriate technological / research citation.	**A2**

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	**K3**	3	2	1	1											
C208.2	**K3**	3	2	1	1											
C208.3	**K3**	3	2	1	1											
C208.4	**K3**	3	2	1	1											
C208.5	**K4**	3	3	2	2											
C208.6	**K2**	2	1	1	1											
C208.7	**A3**								3							
C208.8	**A3**									3		3				
C208.9	**A3**										3					
C208.10	**A2**												3			
C208		**3**	**2**	**1**	**1**					**3**		**3**				

HS8381 INTERPERSONAL SKILLS / LISTENING & SPEAKING
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C209.1	Listen and react by giving verbal and non verbal feedback.	**A2**
C209.2	To make effective contribution in Group Discussions.	**K2 & A3**
C209.3	Compare and Contrast the ideas from multiple choices and summarize.	**K2**
C209.4	Respond confidently in both Formal and Informal conversations.	**A2**
C209.5	To Greet and to respond to Greetings.	**A2**
C209.6	Apply stress and intonation while speaking to make the presentation effective.	**K3**
C209.7	Exhibit ethical principles in engineering practices	**A3**
C209.8	Perform task as an individual and / or team member to manage the task in time	**A3**
C209.9	Express the Engineering activities with effective presentation and report.	**A3**
C209.10	Interpret the findings with appropriate technological / research citation.	**A2**

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
C209.1	A2									2	3		3			
C209.2	K2 & A3									3	2		3			
C209.3	K2									2	2		3			
C209.4	A2									2	2		3			
C209.5	A2									3	2		3			
C209.6	K3									2	3		2			
C209.7	A3								3							
C209.8	A3									3		3				
C209.9	A3										3					
C209.10	A2												3			
C209									**3**	**2**	**2**	**3**	**3**			

MA8452 – STATISTICS AND NUMERICAL METHODS
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C210.1	Explain the concept of testing of hypothesis for small and large samples in real life problems.	**K2**
C210.2	Associate the concept of testing of hypothesis with the ANOVA techniques in design of experiments in the field of agriculture.	**K2**
C210.3	Compute the solution of algebraic and transcendental equations	**K2**
C210.4	Estimate the eigen values of a matrix numerically	**K2**
C210.5	Discuss the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems.	**K2**
C210.6	Discuss ordinary differential equations using numerical methods	**K2**

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
C210.1	**K2**	2	1													
C210.2	**K2**	2	1													
C210.3	**K2**	2	1													
C210.4	**K2**	2	1													
C210.5	**K2**	2	1													
C210.6	**K2**	2	1													
C210		2	1													

ME8492 – KINEMATICS OF MACHINERY
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C211.1	Explain the principles of kinematic pairs of planar mechanisms.	K2
C211.2	Compute velocity and acceleration in planar mechanisms.	K2
C211.3	Apply various motion principles to draw cam profiles	K3
C211.4	Explain the role of gear geometry in power transmission and compute appropriate gear train suitable for a given application	K2
C211.5	Discuss the effect of various types of friction in power transmission	K2
C211.6	Examine the kinematic interactions of various elements in a given machine and generalize the motion pairs into a suitable mechanism.	K3 & A2

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														
C211.2	K2	2	1	1												
C211.3	K3	3	1													
C211.4	K2	2	1	1												
C211.5	K2	2	1													
C211.6	K3 & A2	3	2	2						2	2	2	3			
C211		2	1	2						2	2	2	3			

ME8451 – MANUFACTURING TECHNOLOGY – II
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C212.1	Apply the theory of metal cutting for effective machining.	K3
C212.2	Discuss the working principles of various operations performed in a lathe machine.	K2
C212.3	Explain the working of special type machines.	K2
C212.4	Discuss multi – point machining machineries.	K2
C212.5	Apply NC codes to prepare machining program.	K3
C212.6	Apply suitable machine tool in machining of desired product.	K3 & A2

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					
C212.2	K2	2									2					
C212.3	K2	2	1								2				2	
C212.4	K2	2				2					2				2	
C212.5	K3	3		2		3					2				2	
C212.6	K3 & A2	3		2		3				2	2	2	3		2	
C211		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	Highest Cognitive Level
C213.1	Explain various binary alloy systems with respective invariant reaction	K2
C213.2	Classify various heat treatment process and its significance	K3
C213.3	Discuss various Ferrous and non-ferrous metals with its application	K2
C213.4	Explain the various non-metallic materials with its applications	K2
C213.5	Compute the material properties by various material testing techniques	K2
C213.6	Apply the knowledge of material science on material selection for specific requirements	K3 & A2

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					
C213.2	K3	3	2		1						2					
C213.3	K2	2		1							2					
C213.4	K2	2		1							2					2
C213.5	K2	2				2					2					2
C213.6	K3 & A2			2						2	2	2	3			2
C213		2	2	1	1	2				2	2	2	3			2

CE8395 – STRENGTH OF MATERIALS FOR MECHANICAL ENGINEERING
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C214.1	Compute the stress, Strain and deformation of rigid and deformable bodies	**K2**
C214.2	Calculate the stresses in beams subjected to transverse loadings	**K3**
C214.3	Examine the effect of torsion in shafts and spring coil	**K3**
C214.4	Calculate the deflection and slopes in beams	**K3**
C214.5	Calculate the stresses and strains associated with thin & thick cylinder and spherical shells	**K3**
C214.6	Calculate the Stresses and deformation of structural members subjected to axial, flexural and torsional loads	**K3&A2**

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
C214.1	**K2**	2	1													
C214.2	**K2**	3	2													
C214.3	**K2**	3	2													
C214.4	**K2**	3	2													
C214.5	**K2**	3	2													
C214.6	**K2 & A2**	3	2	2	1					2	2	2	3			2
C214		**3**	**2**	**2**	**1**					**2**	**2**	**2**	**3**			**2**

ME8493 – THERMAL ENGINEERING - I
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C215.1	Explain the performance of different air standard cycles	K2
C215.2	Discuss the working of single stage and multistage reciprocating air compressor along with factors influencing its performance	K2
C215.3	Explain the functioning and features of IC engines, components and auxiliaries.	K2
C215.4	Calculate the performance parameters of IC Engines and its associated systems.	K3
C215.5	Discuss the concepts to improve the performance of Gas turbines.	K2
C215.6	Apply thermal engineering principles to examine the performance of compressors, engines and turbines.	K3 & A2

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	K2	2	1													
C215.3	K2	2														
C215.4	K3	3	2	2										2		
C215.5	K2	2	1													
C215.6	K3 & A2	3	2	2						2	2	2	3	2		
C215		2	1	2						2	2	2	3	2		

ME8462 – MANUFACTURING TECHNOLOGY LAB – II
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C216.1	Use specific milling machine to cut contour and gear teeth on the given work piece	K3
C216.2	Use gear generation methods to form gears	K3
C216.3	Use different machine tools for finishing operations	K3
C216.4	Produce cutting edges using tool and cutter grinder	K3
C216.5	Use CNC Programming for machining special contour	K3
C216.6	Apply suitable machining sequence to plan the process in producing a component	K3
C216.7	Exhibit ethical principles in engineering practices	A3
C216.8	Perform task as an individual and / or team member to manage the task in time	A3
C216.9	Express the Engineering activities with effective presentation and report.	A3
C216.10	Interpret the findings with appropriate technological / research citation.	A2

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												
C216.2	K3	3	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							
C216.8	A3									3		3				
C216.9	A3										3					
C216.10	A2												3			
C216		3	2	2		3			3	3	3	3	3			

CE8381 – STRENGTH OF MATERIALS AND FLUID MECHANICS AND MACHINERY LAB
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C217.1	Compute the tensile, shear, impact and torsional strength properties of materials	**K3**
C217.2	Calculate the deflection of beam by deflection method and springs using tensile and compression tests	**K3**
C217.3	Infer the influence of heat treatment process in mechanical properties and micro structure	**K2**
C217.4	Apply Bernoulli's principle in determining the coefficient of discharge of various flow meters	**K3**
C217.5	Discuss the effect of change in pressure head, flow rate and characteristics of hydraulic pumps	**K2**
C217.6	Explain the effect of change in pressure head, flow rate and characteristics of hydraulic prime movers	**K2**
C217.7	Exhibit ethical principles in engineering practices	**A3**
C217.8	Perform task as an individual and / or team member to manage the task in time	**A3**
C217.9	Express the Engineering activities with effective presentation and report.	**A3**
C217.10	Interpret the findings with appropriate technological / research citation.	**A2**

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		1											2
C217.2	K3	3	2													
C217.3	K2	2	1		1											2
C217.4	K3	3	2													
C217.5	K2	2	1													
C217.6	K2	2	1													
C217.7	A3								3							
C217.8	A3									3		3				
C217.9	A3										3					
C217.10	A2												3			
C217		3	2		1				3	3	3	3	3			2

HS8461 – ADVANCED READING AND WRITING
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C218.1	Read and evaluate the text intelligently.	A1
C218.2	Understand parts of speech and use appropriate connectives in writing a paragraph.	K2 & A2
C218.3	To write effective job application letter.	A2
C218.4	Implement speed reading techniques.	K3
C218.5	Perform critical thinking in various professional contexts.	A2
C218.6	To prepare descriptive and narrative writing.	K3
C218.7	Exhibit ethical principles in engineering practices	A3
C218.8	Perform task as an individual and / or team member to manage the task in time	A3
C218.9	Express the Engineering activities with effective presentation and report.	A3
C218.10	Interpret the findings with appropriate technological / research citation.	A2

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
C218.1	K3									2	3		3			
C218.2	K3									2	2		2			
C218.3	K2									2	3		3			
C218.4	K3									2	2		3			
C218.5	K2									3	2		3			
C218.6	K3									2	2		2			
C218.7	A3								3							
C218.8	A3									3		3				
C218.9	A3										3					
C218.10	A2												3			
C218									3	2	2	3	3			

ME8595 – THERMAL ENGINEERING - II
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C301.1	Discuss about various types of steam nozzles and its flow characteristics	K2
C301.2	Explain the functioning and features of different types of Boilers along with its auxiliaries required to compute performance parameters.	K2
C301.3	Calculate the Performance of steam turbines in power generation.	K3
C301.4	Summarize the concept of Cogeneration, working features of heat pumps and Heat Exchangers.	K2
C301.5	Compute the cooling load for air conditioning and COP of refrigeration systems.	K2
C301.6	Apply thermal engineering principles to examine the performance of various thermal systems.	K3 & A2

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
C301.1	K2	2	1													
C301.2	K2	2	1											1		
C301.3	K3	3	2													
C301.4	K2	2		1												
C301.5	K2	2	1			2										
C301.6	K3 & A2	3	2		1					2	2	2	3	2		
C301		2	1	1	1	2				2	2	2	3	1		

ME8593 – DESIGN OF MACHINE ELEMENTS
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C302.1	Compute the stress acting on various machine elements	K2
C302.2	Compute the dimensions, stress requirements of shaft and couplings based on various load conditions	K2
C302.3	Summarize the temporary and permanent joints based on application requirements	K2
C302.4	Compute the dimensions of the energy storing devices for specific applications	K2
C302.5	Predict appropriate bearing, from the standard catalog for varied applications	K2
C302.6	Apply the various design concepts on to real time product applications	K3 & A2

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
C302.1	K2	2	1												2	
C302.2	K2	2	1												2	
C302.3	K2	2	1												2	
C302.4	K2	2	1												2	
C302.5	K2	2	1												2	
C302.6	K3 & A2	3	2	2	2					2	2	2	3		3	
C302		2	1	2	2					2	2	2	3		2	

ME8501 – METROLOGY AND MEASUREMENTS
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C303.1	Explain the fundamentals of Measuring system & Errors in Measurement.	**K2**
C303.2	Discuss the use of Linear and Angular Measurement instruments	**K2**
C303.3	Explain the working of Laser Interferometer and Coordinate Measuring Machine (CMM).	**K2**
C303.4	Distinguish the methods available for measuring various forms	**K2**
C303.5	Associate suitable measuring instruments to measure power, flow and temperature.	**K2**
C303.6	Show the different measurement technologies to quantify varying parameters for real time applications	**K3**

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
C303.1	**K2**	2					2				2					
C303.2	**K2**	2									2					
C303.3	**K2**	2				2					2					
C303.4	**K2**	2									2					
C303.5	**K2**	2	1								2					
C303.6	**K3**	2	1	1							2					
C303		**2**	**1**	**1**		**2**	**2**				**2**					

ME8594 – DYNAMICS OF MACHINES
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C304.1	Estimate the forces required by various machine components to overcome inertia	K2
C304.2	Compute the unbalanced forces on reciprocating and rotating masses, facilitating the establishment of dynamic equilibrium.	K2
C304.3	Distinguish the types of free vibration and its effect on machine elements.	K2
C304.4	Associate the response of systems exposed to various types of forced vibrations	K2
C304.5	Discuss on control mechanisms namely governor and gyroscope with their applications.	K2
C304.6	Classify forces in mechanical system and related vibration issues to solve the problem	K3& A2

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												
C304.2	K2	2	1													
C304.3	K2	2	1													
C304.4	K2	2	1													
C304.5	K2	2	1													
C304.6	K3 & A2	3			1					2	2	2	3			
C304		2	1	1	1					2	2	2	3			

OMF551 – PRODUCT DESIGN AND DEVELOPMENT
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C305.1	Associate all the stake holders for effective NPD in an organization	**K2**
C305.2	Predict the feasible concept for product development	**K2**
C305.3	Explain the various process involved in product architecture	**K2**
C305.4	Defend the significance of the Industrial Design process in product development.	**K2**
C305.5	Discuss the cost involved in project execution and product making.	**K2**
C305.6	Apply the concepts involved in NPD and validated through a case study.	**K3 & A2**

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
C305.1	K2							3			2					
C305.2	K2			2							2					
C305.3	K2	2									2				2	
C305.4	K2	2									2				2	
C305.5	K2	2									2					2
C305.6	K3 & A2	2	2							2	2	2	3			2
C305		2	2								2	2	2	3			2

ME8511 – KINEMATICS AND DYNAMICS LAB
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C306.1	Explain the gear ratios of various types of gear trains	K2
C306.2	Compute the gyroscopic couple in gyroscope and centrifugal force in various governors	K2
C306.3	Distinguish the significance of the reciprocating and rotating mass systems.	K2
C306.4	Compute the parameters of vibration in the rotor systems	K2
C306.5	Discuss the kinematic working models of various mechanisms and cam profile.	K2
C306.6	Compute the critical speed of shafts	K2
C306.7	Exhibit ethical principles in engineering practices	A3
C306.8	Perform task as an individual and / or team member to manage the task in time	A3
C306.9	Express the Engineering activities with effective presentation and report.	A3
C306.10	Interpret the findings with appropriate technological / research citation.	A2

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
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	
C306.6	K2	2	1												1	
C306.7	A3								3						2	
C306.8	A3									3		3			2	
C306.9	A3										3				2	
C306.10	A2												3		1	
C306		2	1	1					3	3	3	3	3	1	1	

ME8512 – THERMAL ENGINEERING LAB – II
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C307.1	Compute the conduction rate in one dimensional for the given plate and circular surfaces	K2
C307.2	Compute heat transfer coefficient for different types of convection.	K2
C307.3	Utilize thermal analysis of different heat exchanger to compare the actual and theoretical heat transfer rate.	K3
C307.4	Compute temperature distribution using heat transfer correlations for various apparatus.	K2
C307.5	Apply thermodynamics principles to find various parameters of air conditioning and refrigeration system	K3
C307.6	Demonstrate the fundamentals of heat transfer and predict the response of thermal system	K3
C307.7	Exhibit ethical principles in engineering practices	A3
C307.8	Perform task as an individual and / or team member to manage the task in time	A3
C307.9	Express the Engineering activities with effective presentation and report.	A3
C307.10	Interpret the findings with appropriate technological / research citation.	A2

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
C307.1	K2	2	1											1		
C307.2	K2	2	1											1		
C307.3	K3	3	2			3								2		
C307.4	K2	2	1			2								1		
C307.5	K3	3	2											2		
C307.6	K3	3	2		1									2		
C307.7	A3								3					2		
C307.8	A3									3		3		2		
C307.9	A3										3			2		
C307.10	A2												3	1		
C307		3	2		2	3			3	3	3	3	3	2		

ME8513 – METROLOGY AND MEASUREMENTS LAB
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C308.1	Demonstrate the correct methods for measurement and calibration of various measuring devices.	K3
C308.2	Explain the effective methods of measuring straightness, flatness, gear profile, screw threads.	K2
C308.3	Compute the internal bore diameter measurement by bore gauge and telescope gauge.	K2
C308.4	Compute the force and torque using suitable measuring devices	K2
C308.5	Compute the temperature measurement using thermocouple	K2
C308.6	Apply the different measurement tools and perform measurements in quality Inspection	K3
C308.7	Exhibit ethical principles in engineering practices	A3
C308.8	Perform task as an individual and / or team member to manage the task in time	A3
C308.9	Express the Engineering activities with effective presentation and report.	A3
C308.10	Interpret the findings with appropriate technological / research citation.	A2

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
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	A3								3							2
C308.8	A3									3		3				2
C308.9	A3										3					2
C308.10	A2												3			1
C308		2	1			3			3	3	3	3	3	2		2

ME8651 – DESIGN OF TRANSMISSION SYSTEMS
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C309.1	Compute the design parameters of flexible transmission elements like belts, chains and wire ropes for given condition	K3
C309.2	Compute the spur and helical gear terminology considering strength and wear	K3
C309.3	Compute the required parameters in designing worm, bevel and double helical gear power transmission	K3
C309.4	Calculate the speed ratio and gear box parameters for the given application	K3
C309.5	Compute the parameters require to design cam, clutches and brakes for varied applications	K3
C309.6	Calculate the parameters to design power transmission elements using standard catalogue	K3 & A2

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	
C309.6	K3 & A2	3	2	2						2	2	2	3		2	
C309		3	2	2						2	2	2	3		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	Highest Cognitive Level
C310.1	Explain the basic concept of product design and 2D / 3D CAD manipulations.	K2
C310.2	Discuss the representation of curves, surface and solid modeling techniques for various real time applications	K2
C310.3	Discuss the various CAD standards	K2
C310.4	Discuss the fundamentals of CNC and Part Programming	K2
C310.5	Explain the cellular manufacturing and Flexible manufacturing system	K2
C310.6	Apply the CAD concepts in component design and manufacturing	K3& A2

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	K3	2	1			2									1	
C310.2	K3	2	1		1										1	
C310.3	K3	2				2									1	
C310.4	K3	2				2									1	
C310.5	K3	2				2									1	
C310.6	K3 & A2	3	2	2		3				2	2	2	3		2	
C310		2	1	2	1	2				2	2	2	3		1	

ME8693 – HEAT AND MASS TRANSFER
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C311.1	Explain the concept of one dimensional steady and transient heat conduction through various systems	K2
C311.2	Discuss the concept of convection with the flow of fluids in different elements.	K2
C311.3	Associate the significance of phase change with heat transfer in heat exchangers	K2
C311.4	Discuss the concept of radiation and application in heat transfer systems.	K2
C311.5	Explain the concept of mass transfer and its correlations.	K2
C311.6	Apply the conduction and convection principles in product application by real time study.	K3 & A2

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		
C311.6	K3 & A2	3	2	2	1					2	2	2	3	2		
C311		2	1	2	1					2	2	2	3	1		

ME8692 – FINITE ELEMENT ANALYSIS
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C312.1	Calculate the solution for BVP using numerical techniques.	**K3**
C312.2	Compute structural and thermal problems utilizing 1D problem formulation.	**K3**
C312.3	Use 2D scalar formulation for solving thermal and torsion problems	**K3**
C312.4	Use 2D vector formulation for solving plane stress, plane strain and axisymmetric problems	**K3**
C312.5	Use iso-parametric formulation for complex contour domain	**K3**
C312.6	Compute the real time primitive structural and thermal problems using finite element techniques.	**K3 & A2**

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
C312.1	K3	3	2												2	
C312.2	K3	3	2												2	
C312.3	K3	3	2		1										2	
C312.4	K3	3	2												2	
C312.5	K3	3	2												2	
C312.6	K3 & A2	3	2		1	3				2	2	2	3		2	
C312		**3**	**2**		**1**	**3**				**2**	**2**	**2**	**3**		**2**	

ME8694 – HYDRAULICS AND PNEUMATICS
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C313.1	Explain the Fluid power and operation of different types of pumps.	K2
C313.2	Summarize the features and functions of Hydraulic motors, actuators and Flow control valves	K2
C313.3	Explain the different types of Hydraulic circuits and systems	K2
C313.4	Explain the working of different pneumatic circuits and systems	K2
C313.5	Summarize the various trouble shooting methods and applications of hydraulic and pneumatic systems	K2
C313.6	Discuss the robotic arm using various pneumatic components for loading and unloading applications	K4

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
C313.1	K2	2														
C313.2	K2	2	1													
C313.3	K2	2	1	1							1					
C313.4	K2	2	1	1							1					
C313.5	K2	2	1													
C313.6	K4	3	3	3							3					
C313		2	1	1							2					

ME8091 – AUTOMOBILE ENGINEERING
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C314.1	Distinguish the vehicle structure, engine components and accessories.	K2
C314.2	Discuss various engine auxiliary and emission control systems	K2
C314.3	Explain the working principle of various transmission and control systems	K2
C314.4	Discuss the functions of steering, brakes and suspension systems.	K2
C314.5	Explain the various energy sources available for vehicles based on trend, economic and pollution free condition.	K2
C314.6	Discuss the working of various components in automobile engineering	K2

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	
C314.6	K2	2									2				1	
C314		2	1								2			1	1	

ME8681 – CAD / CAM LAB
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C315.1	Utilize standard software tools to create part, assemblies and check for clearances.	K3
C315.2	Modify 2D drafting to 3D using modeling software.	K3
C315.3	Summarize the modern control in manufacturing systems (FANUC, SIEMENS)	K2
C315.4	Utilize the concepts of G and M codes and manual part programming for modern manufacturing technology.	K3
C315.5	Utilize CAPP in machining and turning centre	K3
C315.6	Apply modern tools in design, manufacture and planning	K3
C315.7	Exhibit ethical principles in engineering practices	A3
C315.8	Perform task as an individual and / or team member to manage the task in time	A3
C315.9	Express the Engineering activities with effective presentation and report.	A3
C315.10	Interpret the findings with appropriate technological / research citation.	A2

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	1	3									2	
C315.2	K3	3	2	2		3									2	
C315.3	K2	2													1	
C315.4	K3	3	2	2	1	3									2	
C315.5	K3	3	2	2		3									2	
C315.6	K3	3	2	2	1	3									2	
C315.7	A3								3						2	
C315.8	A3									3		3			2	
C315.9	A3										3				2	
C315.10	A2												3		1	
C315		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	Highest Cognitive Level
C316.1	Use the design principles and develop concept for the project	K3
C316.2	Estimate the time frame and cost for the project execution and completion	K3
C316.3	Analyze the project progress with remedial measures individual in a team	K4
C316.4	Examine the environmental impact of the project	K3
C316.5	Demonstrate the project functionality along with report and presentation	K3
C316.6	Apply the Engineering knowledge in design and economically manufacturing of components to support the society need.	K3
C316.7	Assess health, safety and legal relevant to professional engineering practices.	A3
C316.8	Comply the environmental needs and sustainable development.	A2
C316.9	Justify ethical principles in engineering practices	A3
C316.10	Perform multi-disciplinary task as an individual and / or team member to manage the project/task.	A3
C316.11	Comprehend the Engineering activities with effective presentation and report.	A3
C316.12	Interpret the findings with appropriate technological / research citation.	A2

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
C316.1	K3	3	2	2	2									2	2	2
C316.2	K3	3	2	2								3				2
C316.3	K4	3	3		2	3					3					
C316.4	K3	3					3	3	3				3	3	3	3
C316.5	K3	3	2									3				
C316.6	K3	3	2	2	2	3								2	2	2
C316.7	A3						3							2	2	2
C316.8	A2							3						1	1	1
C316.9	A3								3					2	2	2
C316.10	A3									3		3		2	2	2
C316.11	A3										3			2	2	2
C316.12	A2												3	1	1	1
C316		3	2	2	2	3	3	3	3	3	3	3	3	2	2	2

HS8581 – PROFESSIONAL COMMUNICATION
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C317.1	Listening sharply and reading keenly to understand and act aptly.	K2,A2
C317.2	Make effective presentations and to excel in Group Discussions.	K3,A3
C317.3	By employing the soft skills to become a Successful Leader.	K3,A2
C317.4	To write crisp resume and Job Application Letters employing appropriate language.	A2
C317.5	To successfully meet the requirements of International Exams in the language and skills.	A3
C317.6	To successfully get jobs by enhancing the Overall Personality.	A3
C317.7	Exhibit ethical principles in engineering practices	A3
C317.8	Perform task as an individual and / or team member to manage the task in time	A3
C317.9	Express the Engineering activities with effective presentation and report.	A3
C317.10	Interpret the findings with appropriate technological / research citation.	A2

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
C317.1	K2,A2									2	2		3			
C317.2	K3,A3									3	3		3			
C317.3	K3,A2										2		3			
C317.4	A2									2	2		3			
C317.5	A3									3	3		3			
C317.6	A3									3	3		2			
C317.7	A3								3							
C317.8	A3									3		3				
C317.9	A3										3					
C317.10	A2												3			
C317									3	3	2	3	3			

ME8792 – POWER PLANT ENGINEERING
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C401.1	Discuss the layout of thermal power plant and working principle of various types of boilers.	K2
C401.2	Explain the working of diesel and gas turbine power plant along with optimization technique	K2
C401.3	Discuss the various types of nuclear reactors used in nuclear power plant	K2
C401.4	Summarize the principles and working of various renewable energy power plants.	K2
C401.5	Explain the energy, economic and environmental issues of power plants	K2
C401.6	Paraphrase the different types of power plant, its function and issues related to them	K2

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		

ME8793 – PROCESS PLANNING AND COST ESTIMATION
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C402.1	Associate the knowledge of engineering fundamentals for process planning	K2
C402.2	Distinguish various process planning activities	K2
C402.3	Discuss the various elements involved in costing.	K2
C402.4	Estimate the product cost of job done by various manufacturing methods	K2
C402.5	Estimate the Machining time for various operations carried out in different machines	K2
C402.6	Apply the concept of Process planning and cost estimation for various production process	K3

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
C402.1	K2	2														1
C402.2	K2	2														1
C402.3	K2	2	1													1
C402.4	K2	2	1													1
C402.5	K2	2	1													1
C402.6	K3	3														2
C402		2	1													1

ME8791 – MECHATRONICS
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C403.1	Discuss the functions of sensors, actuators and associated control systems.	K2
C403.2	Explain the features of microprocessor and microcontroller	K2
C403.3	Discuss various programmable peripheral interface for specific applications	K2
C403.4	Summarize the functionality of Programmable Logic Controller.	K2
C403.5	Associate the mechatronics and actuator systems for real time applications	K2
C403.6	Discuss the influence of mechatronics systems(microprocessor, microcontroller & PLC) in industrial automation	K2

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
C403.6	K2	2	1	1		2					2			1		1
C403		2	1	1		2					2			1		1

OMF751 – LEAN SIX SIGMA
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C404.1	Describe the fundamental need of Lean and Six Sigma in Industries	K2
C404.2	Associate the tools and techniques of lean sigma to increase productivity	K2
C404.3	Explain lean six sigma techniques to bring competitive business culture	K2
C404.4	Apply Quality tools like – QFD, CPQ and Six Sigma in challenging futuristic environment.	K1
C404.5	Discuss the economic benefits of Six sigma tools in continuous improvement process.	K2
C404.6	Demonstrate the effectiveness of Lean Six Sigma Techniques towards productivity.	K2 & A3

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			2		2		2	2	1			
C404.2	K2					3				3	3	3				
C404.3	K2			1	2						2	2				
C404.4	K1			2	2	3	3			3	3	3	2			
C404.5	K2							3			2					
C404.6	K2 & A3			1		2				2	2	2	1			
C404				1	1	3	2	3	2	3	2	2	1			

ME8073 – UNCONVENTIONAL MACHINING PROCESSES
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C405.1	Explain the need for unconventional machining processes and various mechanical energy based processes	K2
C405.2	Discuss various thermal energy based unconventional machining processes.	K2
C405.3	Discuss various electrical energy based unconventional machining processes.	K2
C405.4	Summarize various chemical and electro-chemical energy based unconventional machining processes.	K2
C405.5	Explain various nano abrasive finishing based unconventional machining processes.	K2
C405.6	Distinguish various recent trends based unconventional machining processes	K2

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								2					1
C405.2	K2	2	2								2					1
C405.3	K2	2	2								2					1
C405.4	K2	2	2								2					1
C405.5	K2	2	2								2					1
C405.6	K3	2	2								2					1
C405		2	2								2					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	Highest Cognitive Level
C406.1	Explain the fundamental concepts of NDT	K2
C406.2	Discuss different Surface NDE methods	K2
C406.3	Discuss the concepts of Thermography and Eddy current Testing	K2
C406.4	Explain the concept of Ultrasonic Testing and Acoustic Emission	K2
C406.5	Explain the concept of Radiography	K2
C406.6	Apply various NDE techniques which enables to carry out various inspection in accordance with the established procedures	K3 & A2

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
C406.1	K2	2	1													
C406.2	K2	2	1													
C406.3	K2	3	2													
C406.4	K2	2		1												
C406.5	K2	2	1			2										
C406.6	K3 & A2	3	2		1					2	2	2	3			
C406		2	1	1	1	2				2	2	2	3			

ME8711 – SIMULATION AND ANALYSIS LAB
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C407.1	Apply the fundamentals concepts of finite element method in problem characterization	K3
C407.2	Compute the deflection and stress in 1D and 2D problem	K2
C407.3	Explain the effect of various load acting on 1D beam in real time problem	K2
C407.4	Examine the modal analysis for beam under various boundary conditions	K3
C407.5	Demonstrate the effects due to harmonic loading on structures	K3
C407.6	Examine the thermal effects on 2D structure	K3
C407.7	Exhibit ethical principles in engineering practices	A3
C407.8	Perform task as an individual and / or team member to manage the task in time	A3
C407.9	Express the Engineering activities with effective presentation and report.	A3
C407.10	Interpret the findings with appropriate technological / research citation.	A2

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
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
C407.10	A2												3			1
C407		3	2		1	3			3	3	3	3	3	2	2	2

ME8781 – MECHATRONICS LAB
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C408.1	Summarize assembly language programming of 8085 for arithmetic operation	K2
C408.2	Operate programmable peripheral interface for stepper motor and traffic light	K3
C408.3	Demonstrate the speed control of DC motor by microcontroller	K3
C408.4	Prepare Hydraulic, Pneumatic and electro pneumatic circuits using software tool.	K3
C408.5	Examine various fluid power circuits.	K3
C408.6	Prepare PLC programs for controlling multiple cylinders using timers	K3
C408.7	Explain the image processing technique	K2
C408.8	Exhibit ethical principles in engineering practices	A3
C408.9	Perform task as an individual and / or team member to manage the task in time	A3
C408.10	Express the Engineering activities with effective presentation and report.	A3
C408.11	Interpret the findings with appropriate technological / research citation.	A2

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			2	
C408.10	A3										3				2	
C408.11	A2												3		1	
C408		3	2	2		3			3	3	3	3	3		2	

ME8712 – TECHNICAL SEMINAR
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C409.1	Summarize the various thermodynamics laws to engineering application	K2
C409.2	Distinguish various power cycles and it's applications	K2
C409.3	Discuss various mechanism for design of mechanical system	K2
C409.4	Compute the properties and strength of engineering material	K2
C409.5	Point out various manufacturing process suitable for making products	K1
C409.6	Compute the fluid properties and flow characteristics	K2

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOME

Course Out Comes	Level of CO	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
C409.6	K2	2	1											1		
C409		2	1											1	1	1

MG8591 – PRINCIPLES OF MANAGEMENT
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C410.1	Distinguish the Evolution of Management thoughts and the challenges of Managerial activities in a Global Environment	K2
C410.2	Examine the various macro and micro environmental factors for strategic planning	K3
C410.3	Explain the need and importance of decision making for managers in the organization	K2
C410.4	Show out the various steps in Staffing, recruitment, training and development process in an organization	K3
C410.5	Discriminate the leadership styles, Barriers to effective communication, its impact and methods to overcome them	K4
C410.6	Explain various Controlling techniques to maintain standards in Organizations	K2

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					
C410.2	K3				1			3	3		3					
C410.3	K2				2			3	2	2	2					
C410.4	K3				2			3	3	3	2					
C410.5	K4				2			3	3	3	2					
C410.6	K2				3			3			2					
C410					**2**			**3**	**3**	**3**	**2**					

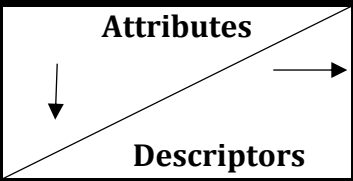# MG8091 – ENTREPRENEURSHIP DEVELOPMENT
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
C411.1	Discuss the types of entrepreneurship and the factors effecting entrepreneur	**K2**
C411.2	Discuss about competencies and motivation required to become an entrepreneur.	**K2**
C411.3	Extend the business concepts towards a start – up considering all factors	**K2**
C411.4	Explain the financial and accounting details needed for starting and running a small enterprise.	**K2**
C411.5	Summarize the various supports available to start a small enterprise.	**K2**
C411.6	Summarize the resources available and skills required to establish an enterprise	**K2**

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
C411.1	**K2**										2	2				
C411.2	**K2**							3			2		3			
C411.3	**K2**	2	1				2				2					1
C411.4	**K2**										2	3				1
C411.5	**K2**							3			2	2	3			1
C411.6	**K2**	2						3			2		3			1
C411		**2**	**1**				**2**	**3**			**2**	**2**	**3**			**1**

PRODUCT LIFE – CYCLE MANAGEMENT
COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
PLMCO.1	Apply the concept of primitives to draw 2D sketches	K3
PLMCO.2	Develop the parts using Creo - 3D Modelling Tool	K4
PLMCO.3	Use options like Align, Mate etc. to assemble the parts	K3
PLMCO.4	Extend the 3D modelling to produce model change using flexible modelling.	K2
PLMCO.5	Allocate roles and responsibility for the members in the organization	K3,A2
PLMCO.6	Implement the change management and Data management in an organization	K3, A2

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
PLMCO.1	K3	3				3									2	
PLMCO.2	K4	3				3									3	
PLMCO.3	K3	3				3									3	
PLMCO.4	K2	3				3									1	
PLMCO.5	K3,A2					3					2	2			3	
PLMCO.6	K3, A2	3				3					2	2			3	
PLM		3				3					2	2			3	

ME8811 – PROJECT WORK
COURSE OUTCOMES

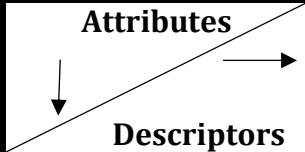**After successful completion of the course, the students should be able to**

CO No.	Course Outcomes	Highest Cognitive Level
C412.1	Use literature to identify the objective, scope and the concept of the work.	K3
C412.2	Apply suitable methods and materials to carry out experiments by conserving eco-system	K3
C412.3	Develop a prototype/experimental set-up necessary to complete the project	K5
C412.4	Discuss the results obtained to derive conclusions	K2
C412.5	Defend the work by preparing a report as per the University format.	K5
C412.6	Compile the experimental information to publish in journals/conference	K6
C412.7	Assess health, safety and legal relevant to professional engineering practices.	A3
C412.8	Comply the environmental needs and sustainable development.	A2
C412.9	Justify ethical principles in engineering practices	A3
C412.10	Perform multi-disciplinary task as an individual and / or team member to manage the project/task.	A3
C412.11	Comprehend the Engineering activities with effective presentation and report.	A3
C412.12	Interpret the findings with appropriate technological / research citation.	A2

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	K3	3	2	2										2	2	2
C412.2	K3	3	2	2		3	3	3						2	2	2
C412.3	K5	3		3	3							3			3	3
C412.4	K2	2	1		3		2				2		3			
C412.5	K5	3	3								3		3			
C412.6	K6	3	3								3		3			
C412.7	A3						3									
C412.8	A2							3								
C412.9	A3								3							
C412.10	A3									3		3				
C412.11	A3										3					
C412.12	A2												3			
C412		3	2	2	3	3	3	3	3	3	3	3	3	2	2	2

SEMINAR RUBRICS

COURSE OUTCOMES

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

CO No.	Course Outcomes	Highest Cognitive Level
SCO.1	Comprehend the Engineering activities with effective presentation.	**A2**
SCO.2	Practice in utilizing quality information through various resources	**A2**
SCO.3	Effective use of modern presentation techniques.	**K2**
SCO.4	Perform within the stipulated duration	**A2**
SCO.5	Justify the presentation content individually to a group	**A2**

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
SCO.1	A2										2					
SCO.2	A2												3			
SCO.3	K2					2										
SCO.4	A2											2				
SCO.5	A2									3						
SCO						2				3	2	2	3			

Attributes / Descriptors	1 Below Average	2 Scope to Improve	3 Average	4 Good	5 Excellent
SCO.1 Communication (PO10)	Inappropriate explanation of concepts	Explanation of concepts with little relevance	Explanation with insufficient description of technical information	Complete explanation of key concepts and insufficient description of technical information	Complete explanation of key concepts and strong description of technical information
SCO.2 Life Long Learning (PO12)	Information gathering only from non- electronic resources	Information gathering from limited resources	Information gathering from limited resources and utilizing appropriately	Information gathering from various resources and utilizing appropriately without citation	Information gathering from various resources and utilizing appropriately with proper citation
SCO.3 Modern Tool Usage (PO5)	Difficulty in coordinating with the modern tools	Use models with lack of explanation	Use Models to explain the concepts	Use ICT and Models to explain the technical concepts	Use ICT tools and Models to demonstrate the technical concepts.
SCO.4 Project Management (PO11)	Frequently late requires constant reminders	Requires reminding about deadlines	completes tasks with minimal need of reminders.	Completing tasks and assignments on time.	Completes tasks and assignments prior to the scheduled time & seldom requires reminder
SCO.5 Individual Work (PO9)	Difficulty in defending the audience	Able to defend the content	Defend the content with minimal justification	Defend the content with appropriate justification to few questions	Defend the content with appropriate justification to all questions

PROJECT RUBRICS
COURSE OUTCOMES

After successful completion of the course, the students should be able to
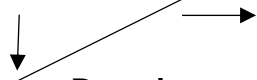
CO No.	Course Outcomes	Highest Cognitive Level
PCO.1	Assess health, safety and legal relevant to professional engineering practices.	**A3**
PCO.2	Comply the environmental needs and sustainable development.	**A2**
PCO.3	Justify ethical principles in engineering practices	**A3**
PCO.4	Perform multi-disciplinary task as an individual and / or team member to manage the project/task.	**A3**
PCO.5	Comprehend the Engineering activities with effective presentation and report.	**A3**
PCO.6	Interpret the findings with appropriate technological / research citation.	**A2**

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
PCO.1	**A3**						3									
PCO.2	**A2**							3								
PCO.3	**A3**								3							
PCO.4	**A3**									3		3				
PCO.5	**A3**										3					
PCO.6	**A2**												3			
							3	**3**	**3**	**3**	**3**	**3**	**3**			

Attributes \ Descriptors	1 Below Average	2 Scope to Improve	3 Average	4 Good	5 Excellent
PCO.1 Engineering and Society (PO6)	Does not visualize a role or need for science in human affairs.	Partially recognises a role or need for science in human affair	Recognizes the place of science in human affairs, but unable to communicate its roles.	Correctly describes the perspectives concerning the scientific aspects in Societal issue.	Develops and defends an informed position, integrating values, Science and technology in professional practice.
PCO.2 Environmental Sustenance (PO7)	Prevents waste, and Protects natural ecosystems.	Prevents waste, Protects natural ecosystems, Uses renewable energy sources.	Prevents waste, Protects natural ecosystems, Uses renewable energy sources, Uses inherently safe materials.	Prevents waste, Protects natural ecosystems, Uses renewable energy sources, Uses inherently safe materials and uses innovative technologies to achieve sustainability.	Prevents waste, Protects natural ecosystems, Uses renewable energy sources, Uses inherently safe materials, Incorporates environmental impact assessment tools and uses innovative technologies to achieve sustainability.

Attributes / Descriptors	1 Below Average	2 Scope to Improve	3 Average	4 Good	5 Excellent
PCO.3 Ethics (PO8)	Aware of ethical code to some extent.	Understand the Ethical code and rarely follows.	Recognize Ethical code and tries to implement.	Implementing Ethical Code of Conduct with Staff and Peer. Unable to evaluate ethical perspectives.	Implementing Ethical code of conducts with Staff, Peer and situation. Evaluating ethical perspectives and concepts.

Attributes / Descriptors	1 Below Average	2 Scope to Improve	3 Average	4 Good	5 Excellent
PCO.4 Individual & Team Work and Project Management and Finance (PO9 and PO11)	Does not work well with others. To be directed to do the assigned task in the group. Unable to handle the resources.	Occasionally helps to complete group goals. Sometime make fun of the group tasks and work of others. Finish individual task and not shows interest in the others task. Difficult in managing resources (Time / Money)	Occasionally helps to complete group goals. Sometime make fun of the group tasks and work of others. Finish individual task and not assist others. Perform some duties of assigned team role. Manages resources (Time / Money) to complete the task	Usually helps to complete group goals. Usually has a positive attitude about the tools and work of others. Assist team members in finishing project. Perform nearly all duties of assigned team role. Manages allotted resources (Time & Money) to complete the task	Works to complete all group goals. Always has positive attitudes about the task and work of others. All team members contribute equally. Perform all duties of assigned team role. Forecast and Manages resources (Time & Money) effectively to complete the task.

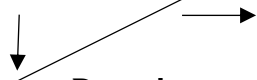| Attributes / Descriptors	1 Below Average	2 Scope to Improve	3 Average	4 Good	5 Excellent
PCO.5 Communication (PO10)	Inappropriate explanation of concepts. Difficulty in defending the audience. Reluctant to write the report.	Explanation of concepts without little relevance. Able to defend the content. Finds difficult in writing a report.	Insufficient description of technical information. Defend the content with lack of justification. Tries to prepare a report.	Complete explanation of key concepts and insufficient description of technical information Defend the content with appropriate justification to few questions. Prepare non-structured report.	Complete explanation of key concepts and strong description of technical information Defend the content with appropriate justification to all questions. Prepare a structured report.
PCO.6 Life-Long Learning (PO12)	Irrelevant gathering of Information from non- electronic resources	Information gathering from limited resources and unable to utilize	Information gathering from limited resources and utilizing appropriately	Information gathering from various resources and utilizing appropriately for justification without citation	Information gathering from various resources and comparing appropriately for justification with proper citation

LABORATORY RUBRICS
COURSE OUTCOMES
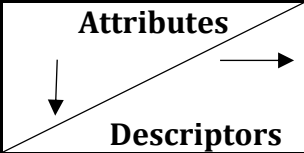
After successful completion of the course, the students should be able to

CO No.	Course Outcomes	Highest Cognitive Level
LCO.1	Exhibit ethical principles in engineering practices	A3
LCO.2	Perform task as an individual and / or team member to manage the task in time	A3
LCO.3	Express the Engineering activities with effective presentation and report.	A3
LCO.4	Interpret the findings with appropriate technological / research citation.	A2

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
LCO.1	A3								3							
LCO.2	A3									3		3				
LCO.3	A3										3					
LCO.4	A2												3			
							3	3	3	3	3	3	3			

Attributes / Descriptors	1 Below Average	2 Scope to Improve	3 Average	4 Good	5 Excellent
LCO.1 Ethics (PO8)	Aware of ethical code to some extent.	Understand the Ethical code and rarely follows.	Recognize Ethical code and tries to implement.	Implementing Ethical Code of Conduct with Staff and Peer. Unable to evaluate ethical perspectives.	Implementing Ethical code of conducts with Staff, Peer and situation. Evaluating ethical perspectives and concepts.
LCO.2 Individual & Team Work and Project Management & Finance (PO9 and PO11)	Does not work well with others. To be directed to do the assigned task in the group. Never complete the task in time.	Occasionally helps to complete group goals. Sometime make fun of the group tasks and work of others. Finish individual task and not shows interest in the others task. Needs remainder to complete the task.	Occasionally helps to complete group goals. Sometime make fun of the group tasks and work of others. Finish individual task and not assist others. Perform some duties of assigned team role. Rarely completes the task in time	Usually helps to complete group goals. Usually has a positive attitude about the tools and work of others. Assist team members in finishing project. Perform nearly all duties of assigned team role. Mostly completes the task in time	Works to complete all group goals. Always has positive attitudes about the task and work of others. All team members contribute equally. Perform all duties of assigned team role. Always completes the task in time.

Attributes / Descriptors	1 Below Average	2 Scope to Improve	3 Average	4 Good	5 Excellent
LCO.3 Communication (PO10)	Inappropriate explanation of concepts. Difficulty in defending the audience. Reluctant to write the report.	Explanation of concepts without little relevance. Able to defend the content. Finds difficult in writing a report.	Insufficient description of technical information. Defend the content with lack of justification. Tries to prepare a report.	Complete explanation of key concepts and insufficient description of technical information Defend the content with appropriate justification to few questions. Prepare non- structured report.	Complete explanation of key concepts and strong description of technical information Defend the content with appropriate justification to all questions. Prepare a structured report.
LCO.4 Life-Long Learning (PO12)	Irrelevant gathering of Information from non-electronic resources	Information gathering from limited resources and unable to utilize	Information gathering from limited resources and utilizing inappropriately	Information gathering from various resources and relating appropriately with the findings	Information gathering from various resources and comparing appropriately with the findings.

THE MAPPING OF COs WITH POs & PSOs OF ALL COURSES FOR ACADEMIC YEAR 2019 - 2020

Subject Code	Subject	SEM	Program Outcomes (POs)												Program Specific Outcomes		
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
HS8151	Communicative English	I									3	2		3			
MA8151	Engineering Mathematics – I	I	2	1													
PH8151	Engineering Physics	I	2	1								2					
CY8151	Engineering Chemistry	I	2	1								2					
GE8151	Problem Solving and Python Programming	I	2	1	1	1	1										
GE8152	Engineering Graphics	I	2		1							2				1	
GE8161	Problem solving and Python Programming Language	I	2	2	2	1	1			3	3	3	3	3			
BS8161	Physics And Chemistry Lab – I	I	2	1						3	3	3	3	3			
HS8251	Technical English	II									3	2		3			

Subject Code	Subject	SEM	Program Outcomes (POs)												Program Specific Outcomes		
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
MA8251	Engineering Mathematics – II	II	2	1													
PH8251	Material Science	II	2	1								2					
BE8253	Basic Electrical, Electronics, and Instrumentation Engineering	II	2	1	1	1	1										
GE8291	Environmental Science and Engineering	II	2	1				2	3			2				1	1
GE8292	Engineering Mechanics	II	2	1												1	
GE8261	Engineering Practices Lab	II	3	2	2	1	2			3	3	3	3	3		2	2
BE8261	Basic Electrical, Electronics, and Instrumentation Engineering Lab	II	2	1	1	1		1		3	3	3	3	3	1	1	2
MA8351	Transforms and Partial Differential Equations	III	2	1													
ME8391	Engineering Thermodynamics	III	3	2		1	3				2	2	2	3	1		
CE8394	Fluid Mechanics and	III	2	1							2	2	2	3			

Subject Code	Subject	SEM	Program Outcomes (POs)												Program Specific Outcomes		
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
	Machinery																
ME8351	Manufacturing Technology – I	III	2		2						2	2	2	3		2	
EE8353	Electrical Drives and Controls	III	2	2	1	1		2	1			1					
ME8361	Manufacturing Technology Laboratory – I	III	2	2	2	1	3			3	3	3	3	3		2	
ME8381	Computer Aided Machine Drawing	III	3	2	2	2	3			3	3	3		2		2	
EE8361	Electrical Engineering Laboratory	III	3	2	1	1					3		3				
HS8381	Interpersonal Skills / Listening & Speaking	III								3	2	2	3	3			
MA8452	Statistics and Numerical Methods	IV	2	1													
ME8492	Kinematics of Machinery	IV	2	1	2						2	2	2	3			
ME8451	Manufacturing Technology – II	IV	3	2	2		3				2	2	2	3		2	
ME8491	Engineering Metallurgy	IV	2	2	1	1	2				2	2	2	3			2

Subject Code	Subject	SEM	Program Outcomes (POs)												Program Specific Outcomes		
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CE8395	Strength Of Materials For Mechanical Engineering	IV	3	2	2	1					2	2	2	3			2
ME8493	Thermal Engineering – I	IV	2	1	2						2	2	2	3	2		
ME8462	Manufacturing Technology Laboratory –II	IV	3	2	2		3			3	3	3	3	3		2	
CE8381	Strength of Materials and Fluid Mechanics and Machinery Lab	IV	3	2		1				3	3	3	3	3			2
HS8461	Advanced Reading and Writing	IV								3	2	2	3	3			
ME8595	Thermal Engineering - II	V	2	1	1	1	2				2	2	2	3	1		
ME8593	Design of Machine Elements	V	2	1	2	2					2	2	2	3		2	
ME8501	Metrology and Measurements	V	2	1	1		2	2				2					
ME8594	Dynamics of Machines	V	2	1	1	1					2	2	2	3			
OMF551	Product Design and Development	V	2	2							2	2	2	3			2

Subject Code	Subject	SEM	Program Outcomes (POs)												Program Specific Outcomes		
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ME8511	Kinematics and Dynamics Lab	V	2	1	1					3	3	3	3	3	1	1	
ME8512	Thermal Engineering Lab – II	V	3	2		2	3			3	3	3	3	3	2		
ME8513	Metrology and Measurements Lab	V	2	1			3			3	3	3	3	3	2		2
ME8651	Design of Transmission Systems	VI	3	2	2						2	2	2	3		2	
ME8691	Computer Aided Design and Manufacturing		2	1	2	1	2				2	2	2	3		1	
ME8693	Heat and Mass Transfer		2	1	2	1					2	2	2	3	1		
ME8692	Finite Element Analysis		3	2		1	3				2	2	2	3		2	
ME8694	Hydraulics and Pneumatics		2	1	1							2					
ME8091	Automobile Engineering		2	1								2			1	1	
ME8681	CAD / CAM Lab		3	2	2	1	3			3	3	3	3	3		2	
ME8682	Design and Fabrication Project		3	2	2	2	3	3	3	3	3	3	3	3	2	2	2
HS8581	Professional Communication									3	3	2	3	3			

Subject Code	Subject	SEM	Program Outcomes (POs)												Program Specific Outcomes		
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ME6701	Power Plant Engineering	VII	2	1					3						1		
ME6702	Mechatronics	VII	2	1	1		2					2			1		1
ME6703	Computer Integrated Manufacturing Systems	VII	2	1	1		2					2					1
GE6757	Total Quality Management	VII			1	1		2	3	2	3		2		2	2	
ME6005	Process Planning and Cost Estimation	VII	2	1													1
ME6012	Maintenance Engineering	VII	2	1	1		2					2					1
ME6711	Simulation and Analysis Laboratory	VII	3	2		1	3			3	3	3	3	3	2	2	2
ME6712	Mechatronics Laboratory	VII	3	2	2		3			3	3	3	3	3		2	
ME6713	Comprehension	VII	2	1											1	1	1
MG6863	Engineering Economics	VIII	2	1													1
MG6071	Entrepreneurship Development	VIII	2	1				2	3			2	2	3			1
ME6016	Advanced I.C. Engines	VIII	2	1	1	1			3			2		3	1	1	
	PLM		3				3					2	2			3	

Subject Code	Subject	SEM	Program Outcomes (POs)												Program Specific Outcomes		
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
ME6811	Project Work	VIII	3	2	2	3	3	3	3	3	3	3	3	3	2	2	2