

## FOURTH YEAR

**Understanding the Human being Comprehensively Human Aspiration Audits Fulfilment (ROE074):  
C401**  
Year of Study: 2019-20

Code	Course Outcome	Bloom Taxonomy Level
<b>C401.1</b>	Define, identify and remember the facts and process, to assess basic human aspirations /goals and to see the shifts.	K,1 K3
<b>C401.2</b>	Facilitate the competence to understand the harmony in nature/existence and apply it in attaining human goals.	K2, K3, K4
<b>C401.3</b>	Analyze various factors and sources influencing decision makings, and significance of knowledge in RESOLUTION.	K3, K4
<b>C401.4</b>	Evaluate transformation in thoughts through knowledge and in expressions as humane conduct (behaviour, work/participation).	K5, K6
<b>C401.5</b>	Create and develop the understanding of humane tradition and its various components.	K6, K1, K3

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
<b>C401.1</b>		2				1	1	1	1			2
<b>C401.2</b>			3			2	2	2	2			3
<b>C401.3</b>		3	3	2		3	3	3	2	2		3
<b>C401.4</b>		2	3	3		3	3	3	3	3		3
<b>C401.5</b>			3	3		3	3	3		2		3
<b>C401</b>		<b>2</b>	<b>3</b>	<b>3</b>		<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>2</b>		<b>3</b>

CO	PSO1	PSO2	PSO3	PSO4
<b>C401.1</b>	2			
<b>C401.2</b>	2	2		
<b>C401.3</b>	3	3		
<b>C401.4</b>	3	3		
<b>C401.5</b>	3	3		
<b>C401</b>	<b>3</b>	<b>3</b>		

**Operations Research (RME075): C402**

Year of Study: 2019-20

Code	Course Outcome	Bloom Taxonomy Level
<b>C402.1</b>	Student will be able to understand and define the scope, objectives, phases, different models and various limitations of operation research	K1, K2
<b>C402.2</b>	Student will be able to understand different application areas of operations research	K2
<b>C402.3</b>	Student will be able to succeed in stating whether a problem can be solved using operations research or not and which technique can be applied to which type of problem	K2, K3
<b>C402.4</b>	Student will be able to inquiry create and solve the problems related to transportation problem, assignment model,sequencing model, dynamic programming, game theory, queuing theory and inventorymodels	K2, K3, K4

<b>C402.5</b>	Student will be able to understand, evaluate, solve and create the industrial and practical problems related to optimization using operations research.	K2, K3, K5
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CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
<b>C402.1</b>	2	2	1	2	2							
<b>C402.2</b>	1	1	1		2							
<b>C402.3</b>	2	3	3	3								
<b>C402.4</b>	3	3	3	3								
<b>C402.5</b>	3	3		2	2							
<b>C402</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>2</b>							

CO	PSO1	PSO2	PSO3	PSO4
<b>C402.1</b>				2
<b>C402.2</b>				3
<b>C402.3</b>				3
<b>C402.4</b>			2	3
<b>C402.5</b>				3
<b>C402</b>			<b>2</b>	<b>3</b>

**CAD / CAM (RME701): C403**

**Year of Study: 2019-20**

Code	Course Outcome	Bloom Taxonomy Level
<b>C403.1</b>	Understand and analyse the principle of computer graphics, transformation and geometric modelling	K2,K4
<b>C403.2</b>	Understand and apply the Graphic standards and mesh generation methods.	K2, K3
<b>C403.3</b>	Apply the basics of CAM system and material handling systems.	K3
<b>C403.4</b>	Evaluate the robotics concepts and quality functions	K5
<b>C403.5</b>	Understand the rapid prototyping and FMS system	K1, K2

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
<b>C403.1</b>	3	3	3	3	3				3	3		3
<b>C403.2</b>	3	2	3	3	3							3
<b>C403.3</b>	3	1		1	2	2	2			3		3
<b>C403.4</b>	3	2			2						2	3
<b>C403.5</b>	3	2	1	2	3		2				2	2
<b>C403</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>2</b>		<b>3</b>	<b>3</b>	<b>2</b>	<b>3</b>

CO	PSO1	PSO2	PSO3	PSO4
<b>C403.1</b>	3		3	
<b>C403.2</b>	3		3	
<b>C403.3</b>			3	
<b>C403.4</b>			3	3
<b>C403.5</b>			3	

C403	3		3	3
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**Power Plant Engineering (RME071): C404**

**Year of Study: 2019-20**

Code	Course Outcome	Bloom Taxonomy Level
C404.1	To differentiate between various types of conventional & non-conventional power plants on the basis of operating cycles, fuels used & instruments used.	K1,K4
C404.2	To understand the effect of power generation on environment & various factors/parameters governing power generation.	K1,K2
C404.3	To apply modern tools/numerical techniques learned for analyzing the performance & efficiency of various types of power plants.	K3,K4
C404.4	To select the appropriate type of power plant among various options for any particular application considering the factors such as environmental, technical, economical etc.	K1,K5

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C404.1	3	3		3	2		3					3
C404.2	3	3		3	3	3	3					3
C404.3			3	3	3							3
C404.4	3	3			3	3						3
C404	3	3	3	3	3	3	3					3

CO	PSO1	PSO2	PSO3	PSO4
C404.1		3		3
C404.2		3		3
C404.3		3		2
C404.4		3		3
C404		3		3

**Automobile Engineering (RME702): C405**

**Year of Study: 2019-20**

Code	Course Outcome	Bloom Taxonomy Level
C405.1	Understand the vehicle construction, chassis, and lubrication system, cooling system, electric system and 3way catalytic converter of an automobile.	K1
C405.2	Describe the principle and working of transmission, MPFI, electronic fuel injection system and Ignition system.	K2
C405.3	Differentiate between clutch, gear box, rear axle drives, fluid flywheel, and torque converter.	K4
C405.4	Explain the types of wheels, tyres, steering gear box, suspension system telescopic, and leaf spring.	K2,K4
C405.5	Appraise the recent trends in emission control and automobile maintenance system.	K5

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
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C405.1	3	3		3	2							3
C405.2	3	3	2	2	2							3
C405.3	3	3	3	3	2							3
C405.4	3	3	3	3	2							3
C405.5					3	3	3	3				3
C405	3	3	3	3	2	3	3	3				3

CO	PSO1	PSO2	PSO3	PSO4
C405.1	3	3	3	2
C405.2	3	3	3	1
C405.3	2	2	2	1
C405.4	1	2	2	1
C405.5	1	1	1	1
C405	2	2.2	2.2	1.2

**CAD/CAM LAB (RME751): C406**

**Year of Study: 2019-20**

Code	Course Outcome	Bloom Taxonomy Level
C406.1	Writing and validation of computer program for Line & Circle Drawing and geometric Transformations.	K2
C406.2	Understand, Summarize and construct any 3D Modelling Software commands.	K2, K3
C406.3	Interpret the characteristic features of CNC machine, system devices, Mechatronics and controls.	K1, K2
C406.4	Creates Part Programming for CNC Lathe and Milling machines.	K6
C406.5	Compares ordinary and NC machines.	K4

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C406.1	3	3	1	3	3	2						1
C406.2	3	3	3	3	3	3			2	3		3
C406.3	3				3		2		2			
C406.4	2	3	2	2	3	3						2
C406.5	2											
C406	3	3	2	3	3	3	2		2	3		2

CO	PSO1	PSO2	PSO3	PSO4
C406.1	3		3	
C406.2	3	2	3	2
C406.3			3	
C406.4	2		3	2
C406.5			3	1
C406	3	2	3	2

**I. C. Engine & Automobile Lab (RME752): C407**

**Year of Study: 2019-20**

Code	Course Outcome	Bloom Taxonomy Level
C407.1	Study the various components of petrol engine and diesel engine.	K1,K2,K3
C407.2	Understand the working of various mechanisms & automobile components.	K1,K2,K3
C407.3	Perform engineering analysis of the automobile and its subsystems.	K4,K5

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C407.1	3		3	3					3			3
C407.2	3		3	3					3			
C407.3		3	3	3	3				3		3	3
C407	3	3	3	3	3				3		3	3

CO	PSO1	PSO2	PSO3	PSO4
C407.1	3	2		
C407.2	3	2		
C407.3	3	2		
C407	3	2		

**Project (RME754): C408**

**Year of Study: 2019-20**

Code	Course Outcome	Bloom Taxonomy Level
C408.1	Student should be able to describe and manage project as a member of team to use the technique, skill and modern engineering tools.	K1
C408.2	Students should be able to understand solutions to authentic (real world and illdefined) problems.	K2
C408.3	Students will be able to collect and disseminate information related to selected project.	K3
C408.4	Students should be able to design a system, component or process to meet desired need within realistic constraints.	K4,K5
C408.5	Students should be able to develop an action plan to improve presentation skills and have the confidence to make more of an impact on their audience.	K5

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C408.1	3	3	3	2	2	3		2	2	3	2	2
C408.2	2	3	3	2	3	2		2	2	3	2	2
C408.3	3	3	2	2	3	2		2	2	3	2	2
C408.4	2	3	3	2	2	2		1	2	3	3	2
C408.5	2	3	2	2	2	2		2	2	3	2	2
C408	2.4	3	2.6	2	2.4	2.2		1.8	2	3	2.2	2

CO	PSO1	PSO2	PSO3	PSO4
C408.1	2	2	2	2
C408.2	2	2	2	2

<b>C408.3</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>
<b>C408.4</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>
<b>C408.5</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>
<b>C408</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>

**Industrial Training (RME753): C409**
**Year of Study: 2019-20**

<b>Code</b>	<b>Course Outcome</b>	<b>Bloom Taxonomy Level</b>
<b>C409.1</b>	To expose the students to actual working environment	K2
<b>C409.2</b>	Ability to identify, formulate and model problems and find engineering solution based on a systems approach.	K3,K5
<b>C409.3</b>	To instill all ethical values & commit to professional ethics and responsibilities as an individual or a member of a team.	K4
<b>C409.4</b>	To experience and understand real life situations their related environments and accelerating the lifelong learning process.	K1,K2

<b>CO</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>	<b>PO12</b>
<b>C409.1</b>	3	3	3	3	3	3						
<b>C409.2</b>	3	3	3	3	3	3				3	3	
<b>C409.3</b>							3	3	3		3	3
<b>C409.4</b>	3	3	3	3	3	3	3	3	3	3	3	3
<b>C409</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>

<b>CO</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>
<b>C409.1</b>	3	3	3	
<b>C409.2</b>	3	3	3	
<b>C409.3</b>				3
<b>C409.4</b>				3
<b>C409</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>

**Renewable Energy Resources (ROE086): C411**
**Year of Study: 2019-20**

<b>Code</b>	<b>Course Outcome</b>	<b>Bloom Taxonomy Level</b>
<b>C411.1</b>	Create awareness among students about causes of energy scarcity, its solution and availability of Non-Conventional sources of energy technologies.	K1, K2
<b>C411.2</b>	Enable students to understand various renewable energy technologies and systems.	K2
<b>C411.3</b>	To impart the knowledge of generation of energy from sun, water, wind, geothermal system, biomass, waves, tides and ocean thermal energy.	K1, K4
<b>C411.4</b>	Equip the students with knowledge and understanding of various possible mechanisms about renewable energy projects and apply them in their fields.	K3

<b>CO</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>	<b>PO12</b>
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<b>C411.1</b>	1		2	1		2	3	3	1			2
<b>C411.2</b>	2	2	3	2	2		3	3			2	2
<b>C411.3</b>	3	2	3	2	2	2	1	2	3			2
<b>C411.4</b>	2			3	2		1		1			2
<b>C411</b>	<b>2</b>	<b>2</b>	<b>2.6</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2.6</b>	<b>2</b>		<b>2</b>	<b>2</b>

<b>CO</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>
<b>C411.1</b>		1	2	
<b>C411.2</b>		2	3	
<b>C411.3</b>	2	3	2	
<b>C411.4</b>		2		
<b>C411</b>	<b>2</b>	<b>2</b>	<b>2</b>	

**Total Quality Management (RME085): C412**

**Year of Study: 2019-20**

<b>Code</b>	<b>Course Outcome</b>	<b>Bloom Taxonomy Level</b>
<b>C412.1</b>	Develop indepth knowledge on various quality tools and techniques of quality management.	K1
<b>C412.2</b>	Develop an understanding on quality management philosophies and frameworks.	K2
<b>C412.3</b>	Apply the learnt tools and techniques for controlling, improving and measuring quality in manufacturing and service industry.	K3
<b>C412.4</b>	Understand and analyse proven methodologies to enhance management processes such as six sigma, benchmarking, quality circles etc.	K2, K4
<b>C412.5</b>	Choose a framework to evaluate the performance excellence of an organization, and determine the set of performance indicators that will align people with objective of organization.	K5

<b>CO</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>	<b>PO12</b>
<b>C412.1</b>	2			2	3	2	2	2	2	2	2	3
<b>C412.2</b>	3			2	3	2	3	2	2	2	2	3
<b>C412.3</b>	2			3	2	2	2	2			2	2
<b>C412.4</b>	3			3	2	2	2	2			2	2
<b>C412.5</b>	2			2	3	2	2	2	2		2	2
<b>C412</b>	<b>2.4</b>			<b>2.4</b>	<b>2.6</b>	<b>2</b>	<b>2.2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2.4</b>

<b>CO</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>
<b>C412.1</b>	2		3	2
<b>C412.2</b>	3	2	3	3
<b>C412.3</b>		3	2	2
<b>C412.4</b>	2	3		3
<b>C412.5</b>	3	2	3	
<b>C412</b>	<b>2</b>	<b>2</b>	<b>2.2</b>	<b>2.2</b>

**NonDestructive Testing (RME080): C413**

**Year of Study: 2019-20**

Code	Course Outcome	Bloom Taxonomy Level
C413.1	By the end of this unit, the students will be able to understand NDT scope, advantages, and comparison with Destructive Testing, NDT methods, terminology, flaws and defects, visual inspection.	K2
C413.2	By the end of this unit, the students will be able to demonstrate dye penetrant test scope, principle, equipments with common method of zyglot test and magnetic particle inspection principle, equipments and testing.	K1,K3
C413.3	By the end of this unit, the students will be able to analyse the radiographic methods along with Xray and Gamma ray	K4
C413.4	By the end of this unit, the students will be able to apply the knowledge of ultrasonic testing methods.	K1,K4
C413.5	By the end of this unit, the students will be able to create concept of eddy current testing along with principle, methods, equipment, techniques, sensitivity, advanced methods, applications, scope, and limitations.	K2,K5

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C413.1	3	2		1		2	2	2	3		3	
C413.2	3	3		2	2	2	2		2		3	3
C413.3	3	3		2		3	3		3	3		3
C413.4	3	1		2	2	3			3			3
C413.5	3	2		2	2			2				3
C413	3	2		2	2	3	2	2	2	3	3	3

CO	PSO1	PSO2	PSO3	PSO4
C413.1				2
C413.2		2	2	
C413.3	2	2	3	
C413.4			3	
C413.5			3	
C413	2	2	3	2

**Project II (RME852): C415**

**Year of Study: 2019-20**

Code	Course Outcome	Bloom Taxonomy Level
C415.1	Student should be able to describe and manage project as a member of team to use the technique, skill and modern engineering tools.	K1
C415.2	Students should be able to understand solutions to authentic (real world and illdefined) problems.	K2
C415.3	Students will be able to collect and disseminate information related to selected project.	K3
C415.4	Students should be able to design a system, component or process to meet desired need within realistic constraints.	K4,K5
C415.5	Students should be able to develop an action plan to improve presentation skills and have the confidence to make more of an impact on their audience.	K5



CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C415.1	3	3	3	2	2	3		2	2	3	2	2
C415.2	2	3	3	2	3	2		2	2	3	2	2
C415.3	3	3	2	2	3	2		2	2	3	2	2
C415.4	2	3	3	2	2	2		1	2	3	3	2
C415.5	2	3	2	2	2	2		2	2	3	2	2
C415	2.4	3	2.6	2	2.4	2.2		1.8	2	3	2.2	2

CO	PSO1	PSO2	PSO3	PSO4
C415.1	2	2	2	2
C415.2	2	2	2	2
C415.3	2	2	2	2
C415.4	2	2	2	2
C415.5	2	2	2	2
C415	2	2	2	2

**Seminar (RME851): C417**

**Year of Study: 2019-20**

Code	Course Outcome	Bloom Taxonomy Level
C417.1	Identify, understand and discuss current, realworld technological issues.	K1,K2
C417.2	To explore new directions of various cutting edge technologies and their societal and environmental impact.	K4,K5
C417.3	To develop self-management& reflection skills.	K2
C417.4	To improve oral and written communication skills.	K3,K2

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C417.1	3	3	3	2	3	3		3	2			3
C417.2	3	3	3	2	3	3	3					3
C417.3								3	2			
C417.4										3		
C417	3	3	3	2	3	3	3	3	2	3	3	3

CO	PSO1	PSO2	PSO3	PSO4
C417.1	3	3	3	
C417.2	3	3	3	
C417.3				3
C417.4				3
C417	3	3	3	3

**Advanced Welding Technology (RME081): C418**

**Year of Study: 2019-20**

Code	Course Outcome	Bloom Taxonomy Level
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<b>C418.1</b>	Define and explain various types of welding processes, welding power sources, welding hazards and safety precautions.	K1, K2
<b>C418.2</b>	Apply the knowledge of welding to find out defects, distortions and heat input.	K3
<b>C418.3</b>	Analyse the welding parameters used to do a defect free sound weld.	K4
<b>C418.4</b>	Design and evaluate the welding parameters by using WPS/PQR.	K3, K5, K6

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
<b>C418.1</b>	3	3	2			2						
<b>C418.2</b>	2	3										
<b>C418.3</b>		3		2								
<b>C418.4</b>				2								
<b>C418</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>2</b>		<b>2</b>						

CO	PSO1	PSO2	PSO3	PSO4
<b>C418.1</b>			3	
<b>C418.2</b>			3	
<b>C418.3</b>			3	
<b>C418.4</b>			3	
<b>C418</b>			<b>3</b>	