3.1.3 PROGRAM LEVEL COURSE-PO MATRIX ALL COURSES INCLUDING FIRST YEAR COURSSES

COURSE LEADER

T.S.SRINIVASAN CENTRE FOR POLYTECHNIC COLLEGE AND ADVANCED TRAINING

Department of Mechanical Engineering

COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

BASIC ENGG - N - SCHEME I - SEM COURSE OUTCOME, PROGRAM

OUTCOME MAPPING

C40011 **COMMUNICATIVE ENGLISH - I**

C30012 Engineering Mathematics – I

C30013 Engineering Physics – I

C30014 Engineering Chemistry – I

C30015 Engineering Graphics – I

C30016 Engineering Physics – I Practical

C30017 Engineering Chemistry – I Practical

C30018 Workshop Practice

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 40011 & COMMUNICATIVE ENGLISH - I

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C40011	Apply the rules of grammar appropriately for better oral / written communication and interpretation.	2	1	2		2	3	3	2	3
C40011	Construct technical and non - technical sentences using the given vocabulary.	2			3	2	3	3	2	3
C40011	Read / listen and interpret technical and non – technical information, short messages, conversations, letters and emails.	3				2	3	3	2	3
C40011	Design and develop advertisements, graphic organizers and use the visual clues in the given context.	2			1		3	3	2	3
C40011	Interpret and critique literary texts, scholarly presentations, movies, books and TV news, thereby enhancing presentation skills and fluency.	3			2	2	3	3	2	3
AVERAGE		**2.4**	**1.0**	**2.0**	**2.0**	**2.0**	**3.0**	**3.0**	**2.0**	**3.0**

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 40012-ENGINEERING MATHEMATICS-I

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C40012.1	Explore Matrices, Determinants, and Binomial theorem and apply the techniques in solving problems in core engineering fields.	3	2	1	1	2	2	3	2	2
C40012.2	Study the algebra of complex numbers to solve nonlinear equations representing physical situations.	3	2	1	1	1	1	3	2	2
C40012.3	Resolve problems in real-life and engineering contexts involving heights, distances, and angles by applying the concepts of trigonometric ratios and functions.	3	2	1	3	1		3	2	2
C40012.4	Examine the change in the value of a function by using the basic concepts of calculus.	3	2		1	1	1	3	2	2
C40012.5	Apply the basic concepts of differential calculus in optimization and summation.	3	2		3	2		3	2	2
AVERAGE		**3.0**	**2.0**	**1.0**	**1.8**	**1.4**	**1.3**	**3.0**	**2.0**	**2.0**

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 30013 & ENGINEERING PHYSICS I

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C30013.1	Explore SI unit system and force system (force & moment)	3	2	2	3				2	
C30013.2	Demonstrate the properties of solids and liquids and apply them in mechanical engineering	3		3	2	2		2	2	3
C30013.3	Apply the principles of kinematics and kinetics to solve linear and curvilinear systems	3		2	2	3		3	2	3
C30013.4	Analyze the principles of rotational motion and gravitation in engineering situations	3		3	3	2		3	2	3
C30013.5	Analyse the characteristics of sound and magnetism and their effects in engineering / day-to-day applications	3		3	1	2		3	2	3
AVREAGE		**3**		**3**	**2**	**2**		**2**	**2**	**3**

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 30014 & ENGINEERING CHEMISTRY I

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C30014.1	Describe the atoms, molecules, bonds and the characteristics of acids and bases and their applications.	3	2		2	2		2	2	2
C30014.2	Analyse the concentrations of solutions and nano-particles and apply them.	2	2		2	2		2	2	2
C30014.3	Determine the qualities of water and demonstrate the techniques to improve qualities of water. Understand the techniques of manufacture of glasses and its applications.	2	2		2	2		2	2	2
C30014.4	Analyse electrochemical reactions and their industrial applications specific to surface techniques and battery technology	2	2		2	2		2	2	2
C30014.5	Demonstrate corrosion in detail, and learn to apply predominant techniques to reduce the impact of them in real life.	2	2		2	2		2	2	2
AVERAGE		**2.2**	**2.0**		**2.0**	**2.0**		**2.0**	**2.0**	**2.0**

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 30015 & ENGINEERING GRAPHICS I

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C40015.1	Ability to apply the usage of drawing instruments, dimensioning and conventional representation of engineering objects.	2	1	2	2	2	2	3	2	2
C40015.2	Ability to differentiate the types of conic curves by construct them which can utilize to design and manufacture in various engineering fields.	1								
C40015.3	Ability to draw the orthographic views of points and straight lines placed in various quadrants.	1	2	2	2			2	2	2
C40015.4	Apply the methods used for constructing special curves which can utilize to design and manufacture in various engineering fields.	1								
C40015.5	Interpretation skill to draw orthographic views of any given pictorial drawing of the components.	2	2	2	2	2	2	2	2	2
AVERAGE		**1.4**	**1.7**	**2.0**	**2.0**	**2.0**	**2.0**	**2.3**	**2.0**	**2.0**

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 30016 & ENGINEERING PHYSICS I PRACTICAL

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C30016.1	Develop basic communication and practical skills through working in groups in performing the laboratory experiments and by interpreting the results.		2	2		2	3	2	3	2
C30016.2	Analyze experimental data with theoretical values of scientific data and apply in related engineering field.	3		2	3	2		3	3	2
AVERAGE		**3.0**	**2.0**	**2.0**	**3.0**	**2.0**	**3.0**	**2.5**	**3.0**	**2.0**

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 30017 & ENGINEERING CHEMISTRY I PRACTICAL

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C30017.1	Measure the quantity of substance present in the solution	2	2		2	2		2	2	2
C30017.2	Understand the various types of chemical reactions takes place in volumetric analysis and do the experiment.	2	2		2	2		2	2	2
C30017.3	Understand the chemical reaction takes place during titration like neutralization reaction and practices.	2	2		2	2		2	2	2
C30017.4	Understand the knowledge of various methods used to measure the concentration of solution and do the experiment.	2	2		2	2		2	2	2

COURSE LEADER

C30017.5	To calculate the value of pH of solution and measure the quantity of hardness salt present in hard water	2	2		2	2		2	2	2
AVGERAGE		**2.0**	**2.0**		**2.0**	**2.0**		**2.0**	**2.0**	**2.0**

COURSE CODE & COURSE TITLE: 30018 & WORKSHOP PRACTICE

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
40001	Comprehend by effectively listening to speeches, stories and diverse accents.	3	1		2	2	3	3	2	3
40001	Recite and articulate words with the right pronunciation, fluency and intonation.	2		2		2	3	3	1	3
40001	Transcribe and construct written composition with precision and innovation.	2			2	2	3	3	1	3
AVERAGE		**2.3**	**1.0**	**2.0**	**2.0**	**2.0**	**3.0**	**3.0**	**1.3**	**3.0**

COURSE LEADER

BASIC ENGG - M - SCHEME II - SEM COURSE OUTCOME, PROGRAM OUTCOME MAPPING

C30021 Communication English II

C30022 Engineering Mathematics – II

C30023 Applied Mathematics

C30024 Engineering Physics – II

C30025 Engineering Chemistry – II

C30026 Engineering Graphics – II

C30027 Engineering Physics – II Practical

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

C30028 Engineering Chemistry – II Practical

COURSE CODE & COURSE TITLE: 40021 - COMMUNICATIVE ENGLISH - II

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
40021	Apply the rules of grammar appropriately for better oral / written communication and interpretation.	2	1	2		2	3	3	2	3
40021	Construct technical and non - technical sentences using the given vocabulary.	2			3	2	3	3	2	3
40021	Read / listen and interpret technical and non – technical information, short	3				2	3	3	2	3

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	messages, conversations, letters and emails.									
40021	Design and develop notices, slogans and use the visual clues in the given in the technical and non-technical context.	**2**			**1**		**3**	**3**	**2**	**3**
40021	Interpret and critique literary texts, scholarly presentations, thereby enhancing presentation skills and fluency.	**3**			**2**	**2**	**3**	**3**	**2**	**3**
AVG		**2.4**	**1.0**	**2.0**	**2.0**	**2.0**	**3.0**	**3.0**	**2.0**	**3.0**

COURSE CODE & COURSE TITLE: 30022 & ENGINEERING MATHEMATICS II

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C30022.1	Understand the equation of circle, family of circles and conic sections and use them as tools to solve engineering problems	3	2	1	1	2	2	3	2	2
C30022.2	Understand the concepts, types and properties of vectors and apply them to study geometry	3	3	2	1	1	1	3	2	2

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C30022.3	Apply vector product to solve mechanics and electrical problems	3	2	1	3	1		2	2	2
C30022.4	Understand the techniques of integration and practice them	3	2		1	1	1	3	2	2
C30022.5	Apply the techniques of integration to solve engineering problems	3	3		3	2		3	2	2
AVG		**3.0**	**2.4**	**1.3**	**1.8**	**1.4**	**1.3**	**2.8**	**2.0**	**2.0**

COURSE CODE & COURSE TITLE: 30023 & APPLIED MATHEMATICS

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C30023.1	Understand probability distribution methods and apply them to solve engineering problems	3	2	1	1	2	2	3	2	2
C30023.2	Understand straight line fitting techniques and apply them in engineering experimentation.	3	3	2	1	1	1	3	2	2

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C30023.3	Apply calculus to analyze mechanics and algebra	3	2	1	3	1		2	2	2
C30023.4	Apply calculus to analyze the geometric properties of irregular areas and volumes	3	2		1	1	1	3	2	2
C30023.5	Apply calculus to analyze engineering systems to form differential equations up to the order of 2	3	3		3	2		3	2	2
AVG		**3.0**	**2.4**	**1.3**	**1.8**	**1.4**	**1.3**	**2.8**	**2.0**	**2.0**

COURSE CODE & COURSE TITLE: 30024 & ENGINEERING PHYSICS II

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C30024.1	Understand the principles behind heat and work interaction.	3		2	2	2		2	2	3
C30024.2	Apply the principles of heat and temperature for liquefying gases And Extracting energy from the resources.	3		3	2	2		2	2	3

COURSE LEADER

C30024.3	Understand the optical principles and apply them efficiently (LASER, Optical fibre and Remote sensing).	2		2	3	2		2	2	3
C30024.4	Analyse the characteristics of electric current and create useful applications.	3		2	3	3		3	2	3
C30024.5	Understand the concepts and constructions of basic electronic equipment and their applications.	2		3	3	3		3	2	3
AVREAGE		**2.6**		**2.4**	**2.6**	**2.4**		**2.4**	**2.0**	**3.0**

COURSE CODE & COURSE TITLE: 30025 & ENGINEERING CHEMISTRY II

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C30025.1	Understand the means of air and water pollution and analyze its impact on environment and importance of solid waste management and apply green techniques to manage them.	2	2		2	2		2	2	2

COURSE LEADER

C30025.2	Know the composition of different types of fuels and its uses, and apply combustion calculations to analyze further	2	2		2	2		2	2	2
C30025.3	Understand the methods of purification of metals, metal powders applications and techniques of alloying and manufacture of abrasives	2	2		3	2		2	2	2
C30025.4	Understand the manufacture of cement, ceramics, types of lubricants, adhesives and its applications	2	2		2	2		2	2	2
C30025.5	acquire knowledge about polymers like plastics , rubber and its applications	2	2		2	2		2	2	2
AVG		**2.0**	**2.0**		**2.2**	**2.0**		**2.0**	**2.0**	**2.0**

COURSE CODE & COURSE TITLE: 30026 & ENGINEERING GRAPHICS II

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C30026.1	Apply the methods used for constructing special curves may utilize to design and manufacture in various engineering fields.		2	2	2	2	3	2	2	1

COURSE LEADER

C30026.2	Develop the surfaces in a plane and apply them in creating surface models.	2	2	2			2	2	2	
C30026.3	Ability to draw the projection of solids and apply them to communicate solid models.		1	2			2	2	2	
C30026.4	Develop sectional views and trace their true shapes and apply them to create cut section models.		1	2		2	2	2	2	2
C30026.5	Create isometric models using orthographic views and apply them to communicate outcomes of design.		2	2		2	2	2	2	2
AVERAGE		**3**	**3**	**3**	**3**	**1**	**1**	**1**	**2**	**3**

COURSE CODE & COURSE TITLE: 30027 & ENGINEERING PHYSICS II PRACTICAL

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO10	PSO1	PSO2

COURSE LEADER

C30027.1	Develop basic communication and practical skills through working in groups in performing the laboratory experiments and by interpreting the results.		2	2		2	3	2	3	2
C30027.2	Analyze experimental data with theoretical values of scientific data and apply in related engineering field.	3		2	3	2		3	3	2
AVERAGE		**3.0**	**2.0**	**2.0**	**3.0**	**2.0**	**3.0**	**2.5**	**3.0**	**2.0**

COURSE CODE & COURSE TITLE: 30028 & ENGINEERING CHEMISTRY II PRACTICAL

COURSE LEADER

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C30028.1	Identify the acid and basic radical present in an inorganic simple salt	2	2		2	2		2	2	2
C30028.2	Ability to carried out number of tests by using systematically	2	2		2	2		2	2	2
C30028.3	Understand the basics of qualitative analysis and systematic procedure	2	2		2	2		2	2	2
C30028.4	Write the harmful effects of various metallic pollutants present in industrial effluents	2	2		2	2		2	2	2
C30028.5	Identify the plastics and rubber by simple test	2	2		2	2		2	2	2
AVGERAGE		**2.0**	**2.0**		**2.0**	**2.0**		**2.0**	**2.0**	**2.0**

DME SW - M - SCHEME – III - SEM COURSE OUTCOME, PROGRAM OUTCOME MAPPING

COURSE LEADER

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

32031 Strength of Materials

32032 Manufacturing Processes

32033 Machine Drawing

32043 Fluid Mechanics and Fluid Power

32034 Computer Applications and CAD Practical

32035 Foundry and Welding Practical

32036 Lathe and Drilling Practical

32045 Strength of Materials and Fluid Mechanics Practical

COURSE CODE & COURSE TITLE: 32031 & STRENGTH OF MATERIALS

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32031.1	Apply relevant basic principles of mechanics for solving problems involving forces & moments on a static body.	3	2	2	3				2	
C32031.2	Analyse the effect of load on the behaviour of materials	2	3	2		2		2		2
C32031.3	Compute the geometrical properties for various sections & dimensions of thin cylinder and spherical shell.	3	2		2				2	
C32031.4	Analyse the behaviour of beam subjected to transverse load.	2	3	2		2		2		
C32031.5	Design shaft & closed coil helical spring using the principles of pure torsion.	3	2	3	2		2	2	3	2
AVERAGE		**2.6**	**2.4**	**2.3**	**2.3**	**2.0**	**2.0**	**2.0**	**2.3**	**2.0**

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 32032 & MANUFACTURING PROCESSES

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32032.1	Discuss the various casting techniques used in foundry	3			3	3		2	3	2
C32032.2	Identify appropriate joining techniques and defects in weld components.	3			2	3	3	3	3	3
C32032.3	Illustrate various metal forming processes to produce press components and powder metallurgy parts.	3			2	3	3	2	2	2
C32032.4	Relate metal cutting theory to manufacture parts using different lathe machines.	3	2	2	3	3	3	3	3	3
C32032.5	Perform hole making process and inspect components using metrological instruments.	3	2	2	3	3	3	2	3	2
AVERAGE		**3**	**2**	**2**	**2.6**	**3**	**3**	**2.4**	**2.8**	**2.4**

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 32033 & MACHINE DRAWING

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32033.1	Draw different types of sectional views.	3	2	3	2	-	-	2	1	2
C32033.2	Select different types of fits and tolerance for various types of mating parts during manufacturing and assembly.	3	1	3	1	1	1	2	3	2
C32033.3	Represent and interpret symbols of the factors during surface formation in manufacturing.	3	1	2	2	1	-	-	1	1
C32033.4	Design temporary fasteners in assembly drawing.	3	1	3	3	3	3	2	3	3
C32033.5	Apply drafting skills during sketch preparation for project work.	3	3	3	3	3	3	3	3	3
AVREAGE		**3.0**	**1.6**	**2.8**	**2.2**	**2.0**	**2.3**	**2.3**	**2.2**	**2.2**

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 32043 & FLUID MECHANICS AND FLUID POWER

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32043.1	Describe the various properties of fluid and pressure measurement techniques.	3	1		3					
C32043.2	Analyze the behaviour of fluids flowing through pipes using law of conservation of energy.	3	2		3					2
C32043.3	Analyze the performance of the various turbines and pumps.	3	2		3					2
C32043.4	Design simple pneumatic circuits for industrial automation.	2	2	3	2	2		2		2
C32043.5	Develop simple hydraulic circuits for machine tool applications.	2	2	3	2	2		2		2
AVERAGE		**2.6**	**1.8**	**3.0**	**2.6**	**2.0**		**2.0**		**2.0**

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 32034 & COMPUTER APPLICATION AND CAD PRACTICAL

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32034.1	Create two Dimensional assembly drawing and sectional views using CAD software.	2	3	3	3	2	3	2	1	2
C32034.2	Generate word documents, datasheet, database and presentation using MS-Office tools.	2	3	3	2	2	3	2	2	3
C32034.3	Prepare documents for communication, analysis and report generation in product development activities.	2	3	3	2	2	3	2	2	3
AVERAGE		**2.0**	**3.0**	**3.0**	**2.3**	**2.0**	**3.0**	**2.0**	**1.7**	**2.7**

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 32035 & FOUNDRY AND WELDING PRACTICAL

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32035.1	Comply with safe working practices in foundry and welding shops.	1			2	3			1	
C32035.2	Prepare simple green sand moulds using hand moulding techniques.	2	1		3	2			1	
C32035.3	Apply welding and gas cutting techniques on metal plates.	2	1		3	2			1	
AVERAGE		**1.7**	**1.0**		**2.7**	**2.3**			**1.0**	

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 32036 & LATHE & DRILLING PRACTICAL

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32036.1	Select appropriate work holding, tool holding and cutting parameters in lathe and drilling machines	3	3	3	3	2	1	2	2	2
C32036.2	Perform various operations in lathe machine on cylindrical components	2	3	3	3	2	1	1	1	2
C32036.3	Produce holes in the component using Drilling machines	2	2	2	2	2	1	2	1	2
AVERAGE		**2.3**	**2.7**	**2.7**	**2.7**	**2.0**	**1.0**	**1.7**	**1.3**	**2.0**

COURSE LEADER

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 32045 & STRENGTH OF MATERIALS & FLUID MECHANICS PRACTICAL

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32045.1	Determine the mechanical properties (strength & hardness) of structural elements subjected to various loads.	2	2	2	2	2	-	1	1	1
C32045.2	Calculate the coefficient of discharge & heads of fluid in flow through pipes and flow meters.	2	2	1	2	2	-	1	1	2
C32045.3	Infer about the performance of pumps & turbines by conducting suitable tests.	2	1	1	2	3	2	1	2	2
AVGERAGE		**2.0**	**1.7**	**1.3**	**2.0**	**2.3**	**2.0**	**1.0**	**1.3**	**1.7**

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

DME SW - M - SCHEME – IV - SEM COURSE OUTCOME,PROGRAM OUTCOME

MAPPING

32042 Special Machines

32046 Special Machines Practical

32091 Industrial Training – I

COURSE LEADER

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 32042 & SPECIAL MACHINES

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32042.1	Classify different manufacturing processes of plastics and composites.	2						1	1	
C32042.2	Distinguish various reciprocating machines used in manufacturing components.	3	2	2	3	3	2	1	3	2
C32042.3	Apply mechanics of milling to manufacture various types of gears.	3	2	2	3	3	3	3	3	2
C32042.4	Differentiate conventional abrasive machining processes and Non-conventional machining processes.	3	2		3	3	3	2	3	1
C32042.5	Illustrate the components and sub systems of CNC machines.	3			2	3	2	2	2	2
AVERAGE		**2.8**	**2**	**2**	**2.8**	**3**	**2.5**	**1.8**	**2.4**	**1.8**

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 32046 & SPECIAL MACHINES PRACTICAL

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32046.1	Identify and Understand the purpose of special machine tool	2	3	3	3	2	1	1	2	2
C32046.2	Practice to handle single point and multipoint cutting tools and Gears	2	3	3	3	2	1	1	1	1
C32046.3	Signify and Practice operating machines components	2	2	2	2	2	2	1	1	3
AVERAGE		**2.0**	**2.7**	**2.7**	**2.7**	**2.0**	**1.3**	**1.0**	**1.3**	**2.0**

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 32091 & INDUSTRIAL TRAINING-I

CO.NO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32091.1	Describe management and business practices, responsibilities of a diploma engineer, team working issues and ethical issues.					3	3	2	2	3
C32091.2	Analyze technical issues arising out of industrial practices and suggest meaningful solutions.	3	2	2	2	2			3	2
C32091.3	Apply known risk assessment methods for operational safety by identifying industry hazards	2	2	2	3	2	3	3	3	2
C32091.4	Develop a plan of work to meet deadlines by managing time and resources.	2	2	2	2	3	2	2	2	3
C32091.5	Communicate the outcomes of in-plant training through records, presentations, mini projects and final projects.	3	3	3	3	3	3	3	3	3
AVERAGE		**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**

COURSE LEADER

DME SW - M - SCHEME – V - SEM COURSE OUTCOME, PROGRAM OUTCOME MAPPING

32041	Heat Power Engineering
32044	Electrical Drives & Control
32053	Process Planning and Cost Estimation
32071	Total Quality Management
32037	Metrology and Metallography Practical
32044	Electrical Drives and control Practical
32055	Process Automation Practical
30002	Life and Employability Skills Practical

COURSE LEADER

T.S.SRINIVASAN CENTRE FOR POLYTECHNIC COLLEGE AND ADVANCED TRAINING

Department of Mechanical Engineering

COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: C32041 & HEAT POWER ENGINEERING

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32041.1	Understand the fundamentals of thermodynamics (terminologies, laws and processes) and apply them to steady flow situations.	1	3	3	3				2	2
C32041.2	Understand the formation of air standard cycles, characteristics of fuels and combustion and apply them for designing internal and external combustion engines	3	3	3	2	3		1	2	2
C32041.3	Analyze the principles of air compression and study reciprocating air compression in detail with applications	3	3	3	3	3		1	2	1
C32041.4	Recognize steam as a working fluid and use it efficiently to create thermal systems.	3	3	3		3	1	1	2	2
C32041.5	Classify steam boilers and study their performance and create heat balance sheets for designing thermal systems	3	3	3		2		1	2	2
AVERAGE		**2.6**	**3.0**	**3.0**	**2.7**	**2.8**	**1.0**	**1.0**	**2.0**	**1.8**

COURSE LEADER

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 32044 & ELECTRICAL DRIVES & CONTROL

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32044.1	Apply different laws to solve problems related to electrical circuits.	3	2	2	2				1	2
C32044.2	Explain the construction and working of AC & DC machines.	2		2	2	2	2	2	2	2
C32044.3	Identify the different electrical hazards and safety measures to be taken.				2	2				
C32044.4	Develop basic power supply circuits and logic circuits used in real life problems.	2	2	2	2	2	1			1
C32044.5	Design simple ladder logic diagrams for PLC using different control elements	2	2	2	2	2	2	2	2	2
AVERAGE		**2.3**	**2.0**	**2.0**	**2.0**	**2.0**	**1.7**	**2.0**	**1.7**	**1.8**

COURSE LEADER

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 32053 & PROCESS PLANNING AND COST ESTIMATION

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32053.1	Create a process plan for a given product.	2	2	2	2	2	2	2	2	2
C32053.2	Select a suitable process of manufacturing using break even analysis.	3	3	2	2	2	2	2	2	2
C32053.3	Apply the principles of ergonomics in work study.	1	1	2		2	1	2	1	2
C32053.4	Estimate the total cost for manufacturing a product.	3	3	2	2	2	2	2	2	2
C32053.5	Determine the machining time to manufacture a product.	3	2	1	3	2	1	1	2	2
AVERAGE		**2.4**	**2.2**	**1.8**	**1.8**	**2.0**	**1.6**	**1.8**	**1.8**	**2.0**

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Department of Mechanical Engineering

COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 32071 & TOTAL QUALITY MANAGEMENT

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32071.1	Describe the various principles of TQM & its implementation.	2								1
C32071.2	Utilize QC tools to achieve continuous improvement in quality.	2	3	2	3		1		1	1
C32071.3	Apply statistical techniques to interpret & eliminate factors affecting quality.	1	3	2	2		2		1	
C32071.4	Plot control charts for variables and attributes related to product and process quality.	1	3	2	2		2		1	2
C32071.5	Apply M7 tools & benchmarking techniques for management planning.	1	2	1	3		1		2	1
AVERAGE		**1.4**	**2.8**	**1.8**	**2.5**		**1.5**		**1.3**	**1.3**

COURSE LEADER

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Department of Mechanical Engineering

COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 32037 & METROLOGY AND METALLOGRAPHY PRACTICAL

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32037.1	Measure the linear, angular and geometric dimensions of simple components.	3	2	1	3	2	1	2	2	2
C32037.2	Examine the microstructure of ferrous and non-ferrous metals using metallurgical microscope.	2	3	2	3	2	1	1	2	1
C32037.3	Detect the cracks in specimen using visual test, magnetic particle, dye penetration and ring test.	1	2	1	3	2	1	2	2	1
AVERAGE		**2.0**	**2.3**	**1.3**	**3.0**	**2.0**	**1.0**	**1.7**	**2.0**	**1.3**

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 32047 & ELECTRICAL DRIVES AND CONTROL PRACTICAL

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32047.1	Analyze the performance characteristics of various AC and DC machines.	3	3	2	3	2	2	2	2	2
C32047.2	Develop power supply circuits using filters, rectifiers and voltage regulators.	2	2	1	2	1	2	1	1	2
C32047.3	Apply the fundamental digital logic concepts to verify truth tables.	2	2	1	2		2		1	1
AVERAGE		**2.3**	**2.3**	**1.3**	**2.3**	**1.5**	**2.0**	**1.5**	**1.3**	**1.7**

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 32055 & PROCESS AUTOMATION PRACTICAL

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32055.1	Apply fundamental knowledge of pneumatic and hydraulic systems in designing circuits and selection of components	3	3	3	3	2	2	2	3	2
C32055.2	Design hydraulic and pneumatic circuits for various industrial applications	3	3	3	3	2	2	3	3	2
C32055.3	Understand and troubleshoot industrial pneumatics and hydraulics circuits	3	3	3	3	2	2	3	3	2
C32055.4	Develop PLC programming skill using various functions	3	3	3	3	2	2	2	3	2
C32055.5	Programming and interfacing I/O's with PLC for process automation	3	3	3	3	2	2	3	3	2
AVGERAGE		**3.0**	**3.0**	**3.0**	**3.0**	**2.0**	**2.0**	**2.6**	**3.0**	**2.0**

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 30002 & LIFE AND EMPLOYABILITY SKILLS PRACTICAL

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C30002.1	Effectively listen and respond					3	3	3	1	3
C30002.2	Improve speaking skills and make conversations under different situations	1				3	3	3	2	3
C30002.3	Develop leadership and build team spirit skills					3	3	3	2	3
AVGERAGE		**3.0**	**3.0**	**3.0**	**3.0**	**2.0**	**2.0**	**2.6**	**3.0**	**2.0**

COURSE LEADER

DME SW - M - SCHEME – VI - SEM COURSE OUTCOME, PROGRAM OUTCOME MAPPING

32051	Design of Machine Elements
32052	Thermal and Automobile Engineering
32061	Industrial Engineering and Management
32062	Computer Aided Design and Manufacturing
32082	Robotics
32056	Thermal and Automobile Engineering Practical
32085	Robotics Practical
32056	CADM Practical

COURSE LEADER

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 32051 & DESIGN OF MACHINE ELEMENTS

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32051.1	Design various fasteners and joints using the principles of solid mechanics	3	3	3	0	2	0	2	2	2
C32051.2	Calculate the dimensions of shaft and couplings for a given application.	3	3	3	0	2	0	2	2	2
C32051.3	Select proper belt drive from manufacturer's catalogue for power transmission underv specified condition	3	3	3	0	2	0	2	2	2
C32051.4	Design a Journal bearings based on the principles of lubrication.	3	3	3	0	2	0	2	2	2
C32051.5	Evaluate the basic dimensions of spur gear and levers	3	3	3	0	2	0	2	2	2
AVERAGE		**3.0**	**3.0**	**3.0**	**0.0**	**2.0**	**0.0**	**2.0**	**2.0**	**2.0**

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 32052 & THERMAL AND AUTOMOBILE ENGINEERING

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32052.1	Compare thermal power plants, refrigeration and air conditioning systems based on their components and circuits.	3	2	3	2	2		2	2	1
C32052.2	Analyse the performance characteristics of IC engines.	2	3	2	3	2	3		2	
C32052.3	Discuss the technological developments of automotive fuel feed systems, cooling & lubricating systems.	2			2			2	2	2
C32052.4	Distinguish between various sub systems in automotive chassis and transmission	3	2	2		2			2	1
C32052.5	Illustrate recent technologies in automotive electronics, braking systems and emission control.	3		2	3	3	2	3	2	2
AVERAGE		**2.6**	**2.3**	**2.3**	**2.5**	**2.3**	**2.5**	**2.3**	**2.0**	**1.5**

COURSE CODE & COURSE TITLE: 32061 & INDUSTRIAL ENGINEERING AND MANAGEMENT

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32061.1	Select the plant layout incorporating plant safety procedures.	2	3	3		2		2	2	2
C32061.2	Apply work study principles as a tool for plant management.	2	3	3	2	2	2	3	2	2
C32061.3	Select suitable quality control charts as part of PPC.	3	3	3	3	3	1	3	2	2
C32061.4	Describe the types of organizations and their attributes.	1	1	2		1		2		1
C32061.5	Apply various inventory control techniques in material management.	3	1	1	2	1	2	3	2	2
AVERAGE		**2.2**	**2.2**	**2.4**	**1.4**	**1.8**	**1.0**	**2.6**	**1.6**	**1.8**

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 32062 & COMPUTER AIDED DESIGN AND MANUFACTURING

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32062.1	Practice the CAD activities in various stages of product design.									
C32062.2	Apply computer aided techniques to replace the conventional manufacturing planning and control functions.	2	2	3	3	2	2	2	2	2
C32062.3	Produce components using CNC part programming and additive manufacturing processes.	2	1	2	2	2	2	2	2	2
C32062.4	Illustrate the concepts of FMS, AGV and Robotics in industrial scenario.	2	2	3	3	2	2	2	3	2
C32062.5	Apply the concepts of Concurrent Engineering, Value Engineering, QFD and AR in Product Development Cycle.	2		1	1		2	2	3	2
AVERAGE		**2**	**1.7**	**2.3**	**2.3**	**2**	**2**	**2**	**2.5**	**2**

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 32082 & ROBOTICS

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32082.1	Identify the work volume of a robot configured for any specific application.	2		1		1			1	
C32082.2	Select appropriate controller, drive & grippers for a given application.	2	1		1				1	
C32082.3	Apply the principles of sensors& machine vision system in designing a robot.	2	1	1	1		1		1	1
C32082.4	Write robot programs for simple applications.	1		3	3				1	1
C32082.5	Select robot for basic industrial applications.	1				2		1	1	1
AVERAGE		**1.6**	**1.0**	**1.7**	**1.7**	**1.5**	**1.0**	**1.0**	**1.0**	**1.0**

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 32056 & THERMAL AND AUTOMOBILE ENGINEERING PRACTICAL

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32056.1	Evaluate various properties of lubricating oil.	2	2	3	2	2	2	2	2	1
C32056.2	Validate the valve-timing diagram & performance of an I.C Engine	2		2	3		3		3	
C32056.3	Identify the components of various automotive sub systems by dismantling & assembling. Demonstrate the working of IC engines and other automotive sub systems.	2	2	3	3	2	3	2	3	2
AVERAGE		**2.0**	**2.0**	**2.7**	**2.7**	**2.0**	**2.7**	**2.0**	**2.7**	**1.5**

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 32085 & ROBOTICS PRACTICAL

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32085.1	Select suitable robot components, based on application.	3		1			2	1	1	1
C32085.2	Develop a program for a robot, based on simple industrial applications.	2	1	3	3	1	2		1	2
C32085.3	Execute program developed in simulation software.			2	3		2		1	2

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AVGERAGE	**2.5**	**1.0**	**2.0**	**3.0**	**1.0**	**2.0**	**1.0**	**1.0**	**1.7**

COURSE CODE & COURSE TITLE: 32065 & MACHINE TOOL TESTING AND MAINTENANCE PRACTICAL

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32065.1	Testing, Alignment and preparing test chart for Linear machines (Shaping & Slotting machine)	2	3	2	3	2	1	1	2	2
C32065.2	Testing, Alignment and preparing test chart for Rotating machines(Lathe, Milling ,Drilling &Grinding)	2	3	2	3	2	1	1	1	2

COURSE LEADER

C32065.3	Dismantle, Inspect And Assembly Of Lathe Lead Screw And Nut, Three Jaw & Four jaw chuck, Lathe Tailstock, Bench Vice, Drill Chuck	1	3	3	2	2	2	1	1	2
AVGERAGE		**1.7**	**3.0**	**2.3**	**2.7**	**2.0**	**1.3**	**1.0**	**1.3**	**2.0**

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

DME SW - M - SCHEME – VII - SEM COURSE OUTCOME, PROGRAM OUTCOME MAPPING

32065 Machine Tool Testing and Maintenance Practical

32067 Project Work

32092 Industrial Training – II

COURSE CODE & COURSE TITLE: 32065 & MACHINE TOOL TESTING AND MAINTENANCE PRACTICAL

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
C32065.1	Testing, Alignment and preparing test chart for Linear machines (Shaping & Slotting machine)	2	3	2	3	2	1	1	2	2

COURSE LEADER

C32065.2	Testing, Alignment and preparing test chart for Rotating machines(Lathe, Milling ,Drilling &Grinding)	2	3	2	3	2	1	1	1	2
C32065.3	Dismantle, Inspect And Assembly Of Lathe Lead Screw And Nut, Three Jaw & Four jaw chuck, Lathe Tailstock, Bench Vice, Drill Chuck	1	3	3	2	2	2	1	1	2
AVGERAGE		**1.7**	**3.0**	**2.3**	**2.7**	**2.0**	**1.3**	**1.0**	**1.3**	**2.0**

COURSE LEADER

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COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

COURSE CODE & COURSE TITLE: 32091 & INDUSTRIAL TRAINING-II

CNO	DESCRIPTION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
32092.1	Describe management and business practices, responsibilities of a diploma engineer, team working issues and ethical issues.					3	3	2	2	3
32092.2	Analyze technical issues arising out of industrial practices and suggest meaningful solutions.	3	2	2	2	2			3	2
32092.3	Apply known risk assessment methods for operational safety by identifying industry hazards	2	3	3	3	2	3	3	3	2
32092.4	Develop a plan of work to meet deadlines by managing time and resources.	2	2	2	2	3	2	2	2	3
32092.5	Communicate the outcomes of in-plant training through records, presentations, mini projects and final projects.	3	3	3	3	3	3	3	3	3
AVERAGE		**2.5**	**2.5**	**2.5**	**2.5**	**2.6**	**2.8**	**2.5**	**2.6**	**2.6**

COURSE LEADER

T.S.SRINIVASAN CENTRE FOR POLYTECHNIC COLLEGE AND ADVANCED TRAINING

Department of Mechanical Engineering

COURSE OUTCOME AND PROGRAM OUTCOME MAPPING (AY 2020-2021)

32067-PROJECT WORK- CO-PO-PSO MAPPING

CO.No	COURSE OUTCOME	PO							PSO	
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
32067.1	Prepare a specification for a project for the investigation/design of a products / system/ service	3	3	3	3	3	3	3	3	2
32067.2	Plan, manage, keep records of review and control a project with specified time constraints using a project time plan and identify resource requirements and external constraints.	3	3	3	3	3	3	3	3	
32067.3	Identify sources of information and carry out an information search by searching, collating and evaluating information from a variety of sources and using a variety of methods, including information technology	3	3	3	3	2	2	3	3	
32067.4	Assess the effects of a range of factors (where appropriate) on the design, implementation and use of a product/system/service. e.g safety, financial, social, environmental and legal.	3	3	3	3	3	3	3	3	
32067.5	Define, explain and develop the principles/theory relevant to a particular study topic Choose, assemble and present appropriate information clearly in the form of a written report. Demonstrate competent execution of the project task.	3	3	3	3	2	3	3	3	3

COURSE LEADER

AVERAGE	3	3	3	3	3	3	3	3	3

COURSE LEADER