2019-2020

MECHANICAL ENGINEERING PRODUCTION

ME PRODUCTION

ACADEMIC YEAR 2019-2020

S3 MEP (2018 Batch)

Sl no	Course code	Subject name	Staff handled
1	MA 201	Linear Algebra & Complex Analysis	Mr. Ampady
2	ME201	Mechanics of Solids	Mr. Rantheesh J
3	ME200	Fluid Mechanics & Machinery	Mr. Vinod Vijayan
4	ME205	Thermodynamics	Mr. Vinod Vijayan
5	ME210	Metallurgy and Materials Engineering	Mr. Sachin S
6	HS210	Life Skills	Mrs. Sony Sethukumar
7	ME230	Fluid Mechanics & Machines Lab	Mr. Yedukrishnan
8	MP231	Production Engineering Drawing	Mr. Akhil Vikram

COURSE OBJECTIVES AND COURSE OUTCOMES
MA 201 LINEAR ALGEBRA AND COMPLEX ANALYSIS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	Identify complex-differentiable functions	Determine whether a given function is differentiable, analytic and if so find its derivative. To find harmonic conjugate
2	Use conformal mapping	Upon completion Conformal Mapping students will master concepts and theories of conformal mappings of simply connected and multiply connected domains.
3	Compute complex line integrals	Find parameterizations of curves, and compute complex line integrals directly. Use anti derivatives to compute line integrals. Use Cauchy's integral theorem and formula to compute line integral. Express complex-differentiable functions as power series.

4	Use the residue theorem.	Identify the isolated singularities of a function and determine whether they are removable, poles, or essential. Use the residue theorem to compute complex line integrals and real integrals.
5	Learn to solve systems of linear equations and application problems requiring them. Learn about and work with vector spaces and subspaces.	Demonstrate ability to manipulate matrices and to do matrix algebra. Demonstrate ability to solve systems of linear equations. Demonstrate ability to work within vector spaces and to distil vector space properties.
6	Learn to find and use eigen values and eigenvectors of a matrix.	Find the characteristic equation, eigen values and corresponding eigenvectors of a given matrix.

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

ME 201 MECHANICS OF SOLIDS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To acquaint with the basic concepts of stress and deformation in solids.	Understand basic concepts of stress and strain in solids
2	To practice the methodologies to analyse stresses and strains in simple structural members, and to apply the results in simple design problems	Determine the stresses in simple structural members such as shafts, beams, columns etc and apply these results in simple design problems.
3	To study about shear force and bending moment of beams loaded in different conditions.	Draw the shear force and bending moment diagrams of beams loaded in different conditions

COURSE OBJECTIVES AND COURSE OUTCOMES
ME200 - FLUIDMECHANICS AND MACHINERY

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To introduce students, the fundamental concepts related to the mechanics of fluids.	Knowledge on basic concepts of fluid properties.
2	To understand the basic principles of fluid machines and devices.	Analyze flow problems associated with statics, kinematics and dynamics of fluids.
3	To apply acquired knowledge on real life problems.	Use Euler's and Bernoulli's equations and the conservation of mass to determine velocities, pressures, and accelerations for incompressible and inviscid fluids.
4	To analyze existing fluid systems and design new fluid systems.	Understand the concepts of viscous boundary layers and the momentum integral.
5		Design and analyze fluid devices such as water turbines and pumps.
6		Understand and rectify problems faced in practical cases of engineering applications.

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

ME 205 - THERMODYNAMICS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To understand basic thermodynamic principles and laws	Understand the laws of thermodynamics and their significance
2	To develop the skills to analyze and design thermodynamic systems.	Apply the principles of thermodynamic for the analysis of thermal systems
3	To enable students to be more aware of the behavior of materials in engineering applications and select the materials for various engineering applications based on their thermal properties.	Understand the applications of thermodynamics
4	To understand the thermal devices completely	Recognize the relations exhibited in thermodynamics.
5	To determine thermal properties of unknown materials and develop an awareness to apply this knowledge in material design.	Select materials for applications as per their thermal properties.
6		Apply core concepts in thermodynamics to solve engineering problems.

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

ME 210 METALLURGY AND MATERIALS ENGINEERING

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To provide fundamental science relevant to materials.	Identify the crystal structures of metallic materials.
2	To provide physical concepts of atomic radius, atomic structure, chemical bonds, crystalline and non-crystalline materials and defects of crystal structures, grain size, strengthening mechanisms, heat treatment of metals with mechanical properties and changes in structure.	Analyze the binary phase diagrams of alloys Fe-Fe3C, etc.
3	To enable students to be more aware of the behavior of materials in engineering applications and select the materials for various engineering applications.	Correlate the microstructure with properties, processing and performance of metals.
4	To understand the causes behind metal failure and deformation.	Recognize the failure of metals with structural change.
5	To determine properties of unknown materials and develop an awareness to apply this knowledge in material design.	Select materials for design and construction.
6		Apply core concepts in materials science to solve engineering problems.

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

HS210 LIFE SKILLS

Sl No	Course Objectives	Subject Learning Outcomes or CourseOutcomes
		On completion of course the students willbe able to:
1	To develop communication competence in Prospective engineers.	Communication Effectively. Make effective presentations. .
2	To enable them to convey thoughts and ideas with clarity and focus. To learn leadership qualities and Practice them.	Write different types of reports. Face interview & group discussion
3	To develop report writing skills. To instill Moral and Social Values, Loyalty and also to learn to appreciate the rights	Critically think on a particular problem. Solve problems.
4	To equip them to face interview & Group Discussion. To create an awareness on Engineering Ethics and Human Values.	Work in Group & Teams Handle Engineering Ethics and Human Values.
5	To inculcate critical thinking process To understand team dynamics & effectiveness	Become an effective leader.
6	To prepare them on problem solving skills, To provide symbolic, verbal, and graphical interpretations of statements in a problem description.	

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

ME 230 - FLUID MECHANICS AND MACHINES LABORATORY

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To provide practical knowledge in verification of principles of fluid flow.	To provide the students with a solid foundation in fluid flow principles.
2	To impart knowledge in measuring pressure, discharge and velocity of fluid flow.	To provide the students knowledge in calculating performance analysis in turbines and pumps and can be used in power plants.
3	To understand Major and Minor Losses.	Students can able to understand to analyze practical problems in all power plants and chemical industries.
4	To gain knowledge in performance testing of Hydraulic Turbines and Hydraulic Pumps at constant speed and Head.	Conduct experiments (in teams) in pipe flows and open-channel flows and interpreting data from model studies to prototype cases.
5		Analyze a variety of practical fluid-flow devices and utilize fluid mechanics principles in design.
6		Given the required flow rate and pressure rise, select the proper pump to optimize the pumping efficiency.

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

PRODUCTION ENGINEERING DRAWING COURSE

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To understand the principles and requirements of machine and production drawings	Upon successful completion of the course the student will be able to prepare the detailed drawing of the assembled machine parts as per the standards individually.
2	To enable preparation of individual and assembled parts of the machine as per the standards	Start making drawings in computer aided design software.

S4 MEP (2018 Batch)

Sl no	Course code	Subject name	Staff handled
1	MA202	Probability Distributions, Transforms and Numerical Methods	Mrs. Lijimol S
2	MP212	Machine Tools	Mr. Sumanlal M S
3	ME216	Mechanical Technology	Mr. Sachin S
4	MP206	Foundry Technology	Mr. Yedukrishnan
5	MP208	Metal Joining Technology	Mr. Sumanlal M S
6	HS200	Business Economics	Mrs. Geetha Vijayan
7	MP232	Machine Tools Lab I	Mr. Sachin S
8	CE230	Material Testing Lab	Mrs. Najma Ananthakumar

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

MA202 PROBABILITY DISTRIBUTIONS, TRANSFORMS AND NUMERICAL METHODS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	Providing students with a formal treatment of probability theory.	Develop problem-solving techniques needed to accurately calculate probabilities.
2	Equipping students with essential tools for statistical analyses at the graduate level.	Apply selected probability distributions to solve problems.
3	The goal is to provide the basic understanding of the derivation analysis and use of these numerical methods along with the rudimentary understanding of finite precision arithmetic.	Apply problem-solving techniques to solving real-world events.
4	Apply the appropriate numerical techniques for problems	Be aware of the use of numerical methods in modern scientific computing. Be familiar with finite precision computation. Be familiar with numerical solutions of nonlinear equations in a

COURSE OBJECTIVES AND COURSE OUTCOMES FOR
MP212 MACHINE TOOLS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To impart knowledge on basic concepts of various machining processes and machine tools	Understand working of various Machine Tools
2		Understand speed and feed mechanisms of machine tools.
3		Estimate machining times for machining operations on machine tools

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

ME216 MECHANICAL TECHNOLOGY

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students willbe able to:
1	To make the students aware of the area of heat transfer and allied fields	Identify heat transfer equipment and the theory behind them.
2	To give students knowledge of mechanical power generation devices and its application	Understand working principles and performances of I C engines, which leads him to know more about automobiles and to search for improved performances.
3	To impart knowledge of low temperature and its applications.	Understand the working of different type of compressors
4	To analyze the aspects of engineering Problems solvable by applying the subject.	Know the principles and working of refrigerators and Air conditioning equipments.

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

MP206 FOUNDRY TECHNOLOGY

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To introduce different techniques and applications of casting process	Have exposure to the different casting Techniques, design principles, and application.
2	To impart basic casting design principles.	
3	To introduce different metal melting techniques.	

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

MP208 METAL JOINING TECHNOLOGY

Sl. No.	Course Objectives	Subject Learning Outcomes orCourse Outcomes
		On completion of course the students will be able to:
1	To introduce different types of welding techniques used in industry for metal joining	Identify the welding processes used in different types of welded joint.
2	To develop a skill of selecting a welding procedure for specific applications.	Select a welding process for a joint
3	To familiarize modern welding technique and machines	Recognize the techniques behind modern welding techniques/methods

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

HS 200 BUSINESS ECONOMICS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To familiarize the prospective engineers with elementary Principles of Economics and Business Economics.	Make investment decisions based on capital budgeting methods in alignment with micro economic theories.
2	To acquaint the students with tools and techniques that are useful in their profession in Business Decision Making which will enhance their employability;	Make investment decisions based on capital budgeting methods in alignment with macro economic theories.
3	To apply business analysis to the "firm" under different market conditions.	Analyse the profitability of the firm, economy of operation.
4	To apply economic models to examine current economic scenario and evaluate policy options for addressing economic issues.	Determination of price under various market situations with good grasp on the effect of trade cycles in business.
5		Gain knowledge of elementary accounting concepts used for preparing balance sheet and interpretation of balance sheet.

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

MP232 MACHINE TOOLS LAB I

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes On completion of course the students willbe able to:
1	To provide fundamental knowledge of various metal cutting practices, fundamentals of machine tools and principle	Select cutting tool materials and tool Geometries for different metals.
2	To apply the fundamentals and principles of metal cutting to practical applications using lathes, shaping machines and drilling machines etc.	Apply cutting mechanics to metal machining based on cutting force and power consumption.
3	To demonstrate the fundamentals of machining processes and machine tools.	Operate lathe, shaping machines, drilling machines, etc.
4	To develop knowledge and importance of metal cutting parameters.	
5	To develop fundamental knowledge on tool materials, cutting fluids and tool wear mechanisms.	

COURSE OBJECTIVES AND COURSE OUTCOME FOR

CE230 MATERIAL TESTING LAB

Sl No	Course Objectives	Subject Learning Outcomes or Course Outcomes **On completion of course the students will be able to:**
1	The objective of the strength of materials lab is to demonstrate the basic principles in the area of strength and mechanics of materials and structural analysis to the undergraduate students through a series of experiments.	To provide knowledge on mechanical behaviour of materials
2	The experiments are performed to measure the properties of the materials such as impact strength, tensile strength, compressive strength, hardness, ductility etc	To acquaint with the experimental methods to determine the mechanical properties of materials.
3	The experiments are performed to measure the properties of the materials such as impact strength, tensile strength, compressive strength, hardness, ductility etc.	To acquaint with the experimental methods to determine the mechanical properties of materials.

S7 MEP (2016 Batch)

Sl no	Course code	Subject name	Staff handled
1	ME401	Design of Machine Elements I	Mr. Sumanlal M S
2	MP403	Computer Integrated Manufacturing	Mr. Roshin Thomas Varghese
3	MP405	Tool Engineering	Mr. Sangeeth S Kumar
4	ME407	Mechatronics	Mrs. Arya P Mohan
5	MP407	Total Quality Management	Mrs. Archa Anoop
6	MP463	Micromachining Methods	Mr. Dileep Kumar C
7	MP451	Seminar & Project Preliminary	Mr. Vinod Vijayan
8	MP431	Production Engineering Lab	Mr. Sumanlal M S

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

ME401 DESIGN OF MACHINE ELEMENTS I

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To review concepts of statics and strength of materials.	Find out various stresses induced in a machine element under different type of loading conditions.
2	To introduce fundamental approaches to failure prevention of components	Devise machine components for its conceptual design.
3	To provide knowledge in the design of common machine elements such as fasteners, shafts, springs cotter joints and couplings.	·

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

MP403 COMPUTER INTEGRATED MANUFACTURING

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To understand how computers are integrated at various levels of manufacturing and its impact on productivity, product cost, and quality.	Interpret the various aspects of computer integra
2	To understand the use of computers in planning, manufacturing and inspection.	Compare and contrast the different technologies in manufacturing systems and planning.
3		Write part programme for various CNCoperations. Plan the inspection and testing for various industrial products.

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

MP405 TOOL ENGINEERING

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To enable selection of proper tool for given manufacturing operation	Select proper tool for given manufacturing operatic and tool holder.
2	To interpret designation system of cutting tool and tool holder.	Design jigs and fixtures for simple components.
3	To select and design jig and fixture for given simple component.	Understand different press tools and its operations
4	To know various press tools and press tools operations.	Understand the dies used for plastic and rubber molding
5	To select a die for a given simple component	

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

ME407 MECHATRONICS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To introduce the features of various sensors used in CNC machines and robot	Know the mechanical systems used in Mechatronics
2	To study the fabrication and functioning of MEMS pressure and inertial sensors	Integrate mechanical, electronics, control and computer engineering in the design of Mechatronics systems
3	To enable development of hydraulic/pneumatic circuit and PLC programs for simple applications	

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

MP407 TOTAL QUALITY MANAGEMENT

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students willbe able to:
1	To describe the relevance of quality management philosophies and frameworks	know basic concepts of quality and its relevance
2	To assess quality related problems and solve by using the 7 tools of quality management	understand cost of poor quality
3	To describe QFD and its relevance in quality management.	Study evolution of quality management
4	To indicate various continuous improvement strategies.	Understand various problem solving tools
5		Study various quality standards

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

MP463 MICROMACHINING METHODS

Sl No	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To give an overview of various techniques	To gain knowledge on the structure of materials in the micro scale.
2	To understand the theory of micromachining.	To understand various micro machining processes and to differentiate its uses.
3	To introduce various applications of MEMS	To select and apply the suitable micro machining process as per needs of design

COURSE OBJECTIVES AND COURSE OUTCOME FOR

MP451 SEMINAR & PROJECT PRELIMINARY

Sl. No.	Course Objectives	Course Outcomes On completion of course the students will be able to:
1	To develop skills in doing literature survey, technical presentation and report preparation.	Analyse a current topic of professional interest and present it before an audience
2	To enable project identification and execution of preliminary works on final semester project	Identify an engineering problem, analyse it and propose a work plan to solve it.

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

MP431 PRODUCTION ENGINEERING LAB

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To provide programming practice in CNC	
2	To learn Measurement of Flat, Cylindrical and Spherical surfaces using Coordinate Measuring Machine (CMM) r	
3	To make simple components using Rapid prototyping (RP) Machine.	
4	To impart knowledge on the fundamental concepts and principles of metrology	
5	To explain the need of various modern measuring instruments and precision measurements	

S8 MEP (2016 Batch)

Sl no	Course code	Subject name	Staff handled
1	ME402	Design of Machine Elements II	Mr. Sachin S
2	MP404	Productions and Operations Management	Mr. Sangeeth S Kumar
3	MP462	Project Management	Mr. Yadhukrishnan
4	CE469	Environmental Impact Assessment	Mrs. Sony Sethukumar
5	MP492	Project	Mr. Vinod Vijayan

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

ME402 DESIGN OF MACHINE ELEMENTS II

Sl No	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To provide basic design methods for clutches, brakes, belt drives, bearings, gears and connecting rod.	Apply design procedures for industrial requirements.
2	To introduce the design modifications to be considered for ease of manufacturing	Design machine components to ease the manufacturing limitations

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

MP404 PRODUCTIONS AND OPERATIONSMANAGEMENT

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will beable to:
1	To equip with elementary knowledge of aspects of Production and Operations management for application in functions such as Capital Budgeting, Product Design, Production Planning & Control	Comprehend concepts of Production Systems
2		Illustrate Capital Budgeting and Cost Analysis with simple examples
3		Explain aspects of Product Design & Development
4		Summarize factors related to facility location and plant layout
5		Infer suitable demand forecasting models and production systems Exemplify MRP & scheduling techniques for simple applications

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

MP462 PROJECT MANAGEMENT

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will beable to:
1	To understand the fundamental concepts and principles of Project management.	Manage various projects effectively and efficiently
2	To get an exposure to exposure to project management, so as to enable the managers of tomorrow to successfully complete sophisticated projects within the constraints of capital, time, and other resources.	Appraise various projects
3	To prepare different types of appraisals of projects.	Use various Network techniques for managing projects
4	To undertake time estimation and schedule preparation of projects using PERT and CPM	

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

CE469 ENVIRONMENT IMPACT ASSESSMENT

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will beable to:
1	To know the various types of environmental pollution	gain basic knowledge of various pollution impacts
2	To make aware the impact due to various type technique	

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

MP492 PROJECT

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will beable to:
1	To apply engineering knowledge in practical	Think innovatively on the development of components, products, processes or technologies in the engineering field
2	To foster innovation in design of products, processes or systems	Apply knowledge gained in solving real life engineering problems
3	To develop creative thinking in finding viable solutions to engineering problems	

2019 SCHEME

S1 MEP (2019 Batch)

Sl no	Course code	Subject name	Staff handled
1	MAT 101	LINEAR ALGEBRA AND CALCULUS	Mrs. Sangeetha S
2	CYT 100	ENGINEERING CHEMISTRY	Mrs. Renju R
3	EST 100	ENGINEERING MECHANICS	Mr. K S Sasi
4	EST 130	BASICS OF ELECTRICAL & ELECTRONICS ENGINEERING	Mr. Prajeesh R& Mrs. Seethu Vijayan
5	HUT 101	LIFE SKILLS	Sreeti Gangadharan
6	CYL 120	ENGINEERING CHEMISTRY LAB	Mrs. Renju R
7	ESL 130	ELECTRICAL & ELECTRONICS WORKSHOP	Mr. Rahul P Raj & Mr. Amjith S

COURSE OBJECTIVES AND COURSE OUTCOMES

MAT 101 LINEAR ALGEBRA AND CALCULUS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	This course introduces students to some basic mathematical ideas and tools which are at the core of any engineering course	solve systems of linear equations, diagonalizable matrices and characterize quadratic forms
2	. A brief course in Linear Algebra familiarises students with some basic techniques in matrix theory which are essential for analysing linear systems.	compute the partial and total derivatives and maxima and minima of multivariable functions
3	The calculus of functions of one or more variables taught in this course are useful in modelling and analysing physical phenomena involving continuous change of variables or parameters and have applications across all branches of engineering.	compute multiple integrals and apply them to find areas and volumes of geometrical shapes, mass and centre of gravity of plane laminas
4		perform various tests to determine whether a given series is convergent, absolutely convergent or conditionally convergent
5		determine the Taylor and Fourier series expansion of functions and learn their applications
6		

COURSE OBJECTIVES AND COURSE OUTCOMES

CYT 100 ENGINEERING CHEMISTRY

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To enable the students to acquire knowledge in the concepts of chemistry for engineering applications	Apply the basic concepts of electrochemistry and corrosion to explore its possible applications in various engineering fields.
2	familiarize the students with different application oriented topics like spectroscopy, electrochemistry, instrumental methods etc.	Understand various spectroscopic techniques like UV-Visible, IR, NMR and its applications.
3	Also familiarize the students with topics like mechanism of corrosion, corrosion prevention methods, SEM, stereochemistry, polymers, desalination etc., which enable them to develop abilities and skills that are relevant to the study and practice of chemistry	Apply the knowledge of analytical method for characterizing a chemical mixture or a compound. Understand the basic concept of SEM for surface characterization of nanomaterials.
4		Learn about the basics of stereochemistry and its application. Apply the knowledge of conducting polymers and advanced polymers in engineering.
5		Study various types of water treatment methods to develop skills for treating wastewater.
6		

COURSE OBJECTIVES AND COURSE OUTCOMES

EST 100 ENGINEERING MECHANICS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	Goal of this course is to expose the students to the fundamental concepts of mechanics and enhance their problem-solving skills.	Recall principles and theorems related to rigid body mechanics
2	It introduces students to the influence of applied force system and the geometrical properties of the rigid bodies while stationary or in motion.	Identify and describe the components of system of forces acting on the rigid body
3	After this course students will be able to recognize similar problems in real-world situations and respond accordingly.	Apply the conditions of equilibrium to various practical problems involving different force system.
4		Choose appropriate theorems, principles or formulae to solve problems of mechanics.
5		Solve problems involving rigid bodies, applying the properties of distributed areas and masses
6		

COURSE OBJECTIVES AND COURSE OUTCOMES

EST 130 BASICS OF ELECTRICAL & ELECTRONICS ENGINEERING

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	equip the students with an understanding of the fundamental principles of electrical engineering	Apply fundamental concepts and circuit laws to solve simple DC electric circuits
2	provide an overview of evolution of electronics, and introduce the working principle and examples of fundamental electronic devices and circuits	Develop and solve models of magnetic circuits
3	provide an overview of evolution of communication systems, and introduce the basic concepts in radio communication	Apply the fundamental laws of electrical engineering to solve simple ac circuits in steady state
4		Describe working of a voltage amplifier
5		Outline the principle of an electronic instrumentation system
6		Explain the principle of radio and cellular communication

COURSE OBJECTIVES AND COURSE OUTCOMES

HUT 101 LIFE SKILLS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	Life skills are those competencies that provide the means for an individual to be resourceful and positive while taking on life's vicissitudes.	Define and Identify different life skills required in personal and professional life
2	Development of one's personality by being aware of the self, connecting with others, reflecting on the abstract and the concrete, leading and generating change, and staying rooted in time-tested values and principles is being aimed at.	Develop an awareness of the self and apply well-defined techniques to cope with emotions and stress.
3	This course is designed to enhance the employability and maximize the potential of the students by introducing them to the principles that underly personal and professional success, and help them acquire the skills needed to apply these principles in their lives and careers.	Explain the basic mechanics of effective communication and demonstrate these through presentations.
4		Take part in group discussions
5		Use appropriate thinking and problem solving techniques to solve new problems
6		Understand the basics of teamwork and leadership

COURSE OBJECTIVES AND COURSE OUTCOMES

CYL 120 ENGINEERING CHEMISTRY LAB

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To impart scientific approach and to familiarize with the experiments in chemistry relevant for research projects in higher semesters	Understand and practice different techniques of quantitative chemical analysis to generate experimental skills and apply these skills to various analyses
2		Develop skills relevant to synthesize organic polymers and acquire the practical skill to use TLC for the identification of drugs
3		Develop the ability to understand and explain the use of modern spectroscopic techniques for analysing and interpreting the IR spectra and NMR spectra of some organic compounds
4		Acquire the ability to understand, explain and use instrumental techniques for chemical analysis
5		Learn to design and carry out scientific experiments as well as accurately record and analyze the results of such experiments
6		Function as a member of a team, communicate effectively and engage in further learning. Also understand how chemistry addresses social, economical and environmental problems and why it is an integral part of curriculum

COURSE OBJECTIVES AND COURSE OUTCOMES

ESL 130 ELECTRICAL & ELECTRONICS WORKSHOP

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	Electrical Workshop is intended to impart skills to plan and carry out simple electrical wiring. It is essential for the practicing engineers to identify the basic practices and safety measures in electrical wiring.	Demonstrate safety measures against electric shocks.
2		Identify the tools used for electrical wiring, electrical accessories, wires, cables, batteries and standard symbols
3		Develop the connection diagram, identify the suitable accessories and materials necessary for wiring simple lighting circuits for domestic buildings
4		Identify and test various electronic components
5		Draw circuit schematics with EDA tools
6		Assemble and test electronic circuits on boards
7		Work in a team with good interpersonal skills

S2 MEP (2019 Batch)

Sl no	Course code	Subject name	Staff handled
1	MAT 102	VECTOR CALCULUS, DIFFERENTIAL EQUATIONS AND TRANSFORMS	Mrs. Ambilimol V P
2	PHT 110	ENGINEERING PHYSICS B	Mrs. Sreeti Gangadharan
3	EST 110	ENGINEERING GRAPHICS	Mr. K S Sasi
4	EST 120	BASICS OF CIVIL & MECHANICAL ENGINEERING	Mr. John P George Mrs. Jayalekshmi R
5	HUT 102	PROFESSIONAL COMMUNICATION	Dr. Shalini Sasi
6	EST 102	PROGRAMMING IN C	Mrs. Vivitha Vijay
7	PHL 120	ENGINEERING PHYSICS LAB	Mrs. Sreeti Gangadharan
8	ESL 120	CIVIL & MECHANICAL WORKSHOP	Mrs. Arya P Mohan & Mrs. Jayalekshmi R

COURSE OBJECTIVES AND COURSE OUTCOMES

MAT 102 VECTOR CALCULUS, DIFFERENTIAL EQUATIONS AND TRANSFORMS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students willbe able to:
1	This course introduces the concepts and applications of differentiation and integration of vector valued functions, differential equations, Laplace and Fourier Transforms.	Compute the derivatives and line integrals of vector functions and learn their applications
2	The objective of this course is to familiarize the prospective engineers with some advanced concepts and methods in Mathematics which include the Calculus of vector valued functions, ordinary differential equations and basic transforms such as Laplace and Fourier Transforms which are invaluable for any engineer's mathematical tool box.	Evaluate surface and volume integrals and learn their inter-relations and applications.
3	The topics treated in this course have applications in all branches of engineering.	Solve homogeneous and non-homogeneous linear differential equation with constant coefficients
4		Compute Laplace transform and apply them to solve ODEs arising in engineering
5		Determine the Fourier transforms of functions and apply them to solve problems arising in engineering

COURSE OBJECTIVES AND COURSE OUTCOMES

PHT 110 ENGINEERING PHYSICS B

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	The aim of the Engineering Physics program is to offer students a solid background in the fundamentals of Physics and to impart that knowledge in engineering disciplines.	Compute the quantitative aspects of waves and oscillations in engineering systems.
2	The program is designed to develop scientific attitudes and enable the students to correlate the concepts of Physics with the core programmes	Apply the interaction of light with matter through interference, diffraction and identify these phenomena in different natural optical processes and optical instruments.
3		Analyze the behaviour of matter in the atomic and subatomic level through the principles of quantum mechanics to perceive the microscopic processes in electronic devices.
4		Apply the knowledge of ultrasonics in non-destructive testing and use the principles of acoustics to explain the nature and characterization of acoustic design and to provide a safe and healthy environment
5		Apply the comprehended knowledge about laser and fibre optic communication systems in various engineering applications

COURSE OBJECTIVES AND COURSE OUTCOMES

EST 110 ENGINEERING GRAPHICS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes On completion of course the students willbe able to:
1	To enable the student to effectively perform technical communication through graphical representation as per global standards.	Draw the projection of points and lines located in different quadrants.
2		Prepare multiview orthographic projections of objects by visualizing them in different positions
3		Draw sectional views and develop surfaces of a given object
4		Prepare pictorial drawings using the principles of isometric and perspective projections to visualize objects in three dimensions
5		Convert 3D views to orthographic views
6		Obtain multiview projections and solid models of objects using CAD tools

COURSE OBJECTIVES AND COURSE OUTCOMES

EST 120 BASICS OF CIVIL & MECHANICAL ENGINEERING

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes On completion of course the students willbe able to:
1	Objective of this course is to provide an insight and inculcate the essentials of Civil Engineering discipline to the students of all branches of Engineering	Recall the role of civil engineer in society and to relate the various disciplines of Civil Engineering.
2	To provide the students an illustration of the significance of the Civil Engineering Profession in satisfying the societal needs.	Explain different types of buildings, building components, building materials and building construction
3	To introduce the students to the basic principles of mechanical engineering	Describe the importance, objectives and principles of surveying.
4		Summarise the basic infrastructure services MEP, HVAC, elevators, escalators and ramps
5		Discuss the Materials, energy systems, water management and environment for green buildings.
6		Analyse thermodynamic cycles and calculate its efficiency
7		Illustrate the working and features of IC Engines
8		Explain the basic principles of Refrigeration and Air Conditioning
9		Describe the working of hydraulic machines
10		Explain the working of power transmission elements
11		Describe the basic manufacturing, metal joining and machining processes

COURSE OBJECTIVES AND COURSE OUTCOMES

HUN 102 PROFESSIONAL COMMUNICATION

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes On completion of course the students willbe able to:
1	Clear, precise, and effective communication has become a sine qua non in today's information-driven world given its interdependencies and seamless connectivity.	Develop vocabulary and language skills relevant to engineering as a profession
2	Any aspiring professional cannot but master the key elements of such communication.	Analyze, interpret and effectively summarize a variety of textual content
3	The objective of this course is to equip students with the necessary skills to listen, read, write, and speak so as to comprehend and successfully convey any idea, technical or otherwise, as well as give them the necessary polish to become persuasive communicators	Create effective technical presentations
4		Discuss a given technical/non-technical topic in a group setting and arrive at generalizations/consensus
5		Identify drawbacks in listening patterns and apply listening techniques for specific needs
6		Create professional and technical documents that are clear and adhering to all the necessary conventions

COURSE OBJECTIVES AND COURSE OUTCOMES

EST 102 PROGRAMING IN C

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes On completion of course the students willbe able to:
1	The syllabus is prepared with the view of preparing the Engineering Graduates capable of writing readable C programs to solve computational problems that they may have to solve in their professional life.	Analyze a computational problem and develop an algorithm/flowchart to find its solution
2	The course content is decided to cover the essential programming fundamentals which can be taught within the given slots in the curriculum.	Develop readable* C programs with branching and looping statements, which uses Arithmetic, Logical, Relational or Bitwise operators.
3	This course has got 2 Hours per week for practicing programming in C. A list showing 24 mandatory programming problems are given at the end.	Write readable C programs with arrays, structure or union for storing the data to be processed
4	The instructor is supposed to give homework/assignments to write the listed programs in the rough record as and when the required theory part is covered in the class.	Divide a given computational problem into a number of modules and develop a readable multi-function C program by using recursion if required, to find the solution to the computational problem
5	The students are expected to come prepared with the required program written in the rough record for the lab classes.	Write readable C programs which use pointers for array processing and parameter passing
6		Develop readable C programs with files for reading input and storing output

COURSE OBJECTIVES AND COURSE OUTCOMES

PHL 120 ENGINEERING PHYSICS LAB

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes On completion of course the students willbe able to:
1	The aim of this course is to make the students gain practical knowledge to co-relate with the theoretical studies and to develop practical applications of engineering materials and use the principle in the right way to implement the modern technology.	Develop analytical/experimental skills and impart prerequisite hands on experience for engineering laboratories
2		Understand the need for precise measurement practices for data recording
3		Understand the principle, concept, working and applications of relevant technologies and comparison of results with theoretical calculations
4		Analyze the techniques and skills associated with modern scientific tools such as lasers and fiber optics
5		Develop basic communication skills through working in groups in performing the laboratory experiments and by interpreting the results

COURSE OBJECTIVES AND COURSE OUTCOMES

ESL 120 CIVIL & MECHANICAL WORKSHOP

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes On completion of course the students willbe able to:
1	The course is designed to train the students to identify and manage the tools, materials and methods required to execute an engineering project.	Name different devices and tools used for civil engineering measurements
2	Students will be introduced to a team working environment where they develop the necessary skills for planning, preparing and executing an engineering project.	CO 2 Explain the use of various tools and devices for various field measurements
3	To enable the student to familiarize various tools, measuring devices, practices and different methods of manufacturing processes employed in industry for fabricating components.	CO 3 Demonstrate the steps involved in basic civil engineering activities like plot measurement, setting out operation, evaluating the natural profile of land, plumbing and undertaking simple construction work.
4		CO 4 Choose materials and methods required for basic civil engineering activities like field measurements, masonry work and plumbing.
5		CO 5 Compare different techniques and devices used in civil engineering measurements
6		CO 6 Identify Basic Mechanical workshop operations in accordance with the material and objects
7		CO 7 Apply appropriate Tools and Instruments with respect to the mechanical workshop trades
8		CO 8 Apply appropriate safety measures with respect to the mechanical workshop trades