

DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES AND PROGRAM 2021 SCHEME

Course Name: C201 (Subject Code: 21MAT31) Transform Calculus, Fourier Series and Numerical Techniques

C201.1	To solve ordinary differential equations using Laplace Transform
C201.2	Demonstrate the Fourier series to study the behavior of periodic functions and their applications in system communications, digital signal processing and field theory
C201.3	To use Fourier transforms to analyze problems involving continuous-time signals and to apply Z-Transform techniques to solve difference equations
C201.4	To solve mathematical models represented by initial or boundary value problems involving partial differential equations
C201.5	Determine the extremals of functionals using calculus of variations and solve problems arising in dynamics of rigid bodies and vibrational analysis.

Course Name: C202 (Subject Code: 21ME32) Metal casting, Forming and Joining Processes

C202.1	Select appropriate primary manufacturing process and related parameters for obtaining initial shape and size of components.
C202.2	Design and develop adequate tooling linked with casting, welding and forming operations.
C202.3	Appreciate the effect of process parameters on quality of manufactured components
C202.4	Demonstrate various skills in preparation of molding sand for conducting tensile, shear and compression tests using Universal sand testing machine.
C202.5	Demonstrate skills in preparation of forging models involving upsetting, drawing and bending operations.
C202.6	Demonstrate skills in preparation of Welding models.

Course Name: C203 (Subject Code: 21ME33) Material Science and Engineering

C203.1	Understand the atomic arrangement in crystalline materials and describe the periodic arrangement of atoms in terms of unit cell parameters.
C203.2	Understand the importance of phase diagrams and the phase transformations.
C203.3	Know various heat treatment methods for controlling the microstructure.
C203.4	Correlate between material properties with component design and identify various kinds of defects.
C203.5	Apply the method of materials selection, material data and knowledge sources for computer-aided selection of materials.

Course Name: C204 (Subject Code: 21ME34) Thermodynamics

C204.1	Describe the fundamental concepts and principles of engineering thermodynamics.
C204.2	Apply the governing laws of thermodynamics for different engineering applications
C204.3	Analyse the various thermodynamic processes, cycles and results
C204.4	Interpret and relate the impact of thermal engineering practices to real life problems.

Course Name: C205 (Subject Code: 21ME35) MACHINE DRAWING AND GD & T

C205.1	Interpret the Machining and surface finish symbols on the component drawings.
C205.2	Apply limits and tolerances to assemblies and choose appropriate fits for given assemblies
C205.3	Illustrate various machine components through drawings
C205.4	Create assembly drawings as per the conventions.

DEPARTMENT OF MECHANICAL ENGINEERING

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Course Name: C2036(Subject Code:21SCR36) SOCIAL CONNECT & RESPONSIBILITIES

C2036.1 Understand social responsibility.

C2036.2 Practice sustainability and creativity.

C2036.3 Showcase Planning & organisation skills

Course Name: C2037(Subject Code: 21KSK37/21KBK37) Samskrutika Kannada / Balake Kannada

C2037.1 To understand the necessity of learning of local language for comfortable life.

C2037.2 To Listen and understand the Kannada language properly.

C2037.3 To speak, read and write Kannada language as per requirement.

C2037.4 To communicate (converse) in Kannada language in their daily life with kannada speakers.

C2037.5 To speak in polite conversation

Course Name: C20381 (Subject Code: 21ME381) INTRODUCTION TO PYTHON

C20381.1 Demonstrate proficiency in handling of loops and creation of functions.

C20381.2 Identify the methods to create and manipulate lists, tuples and dictionaries

C20381.3 Discover the commonly used operations involving regular expressions and file system

C20381.4 Examine working of PDF and word file formats

DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES AND PROGRAM 2021 SCHEME

Course Name: C201 (Subject Code: 21MAT41) COMPLEX ANALYSIS, PROBABILITY AND LINEAR PROGRAMMING	
C211.1	Use the concepts of an analytic function and complex potentials to solve the problems arising in fluid flow.
C211.2	Utilize conformal transformation and complex integral arising in aerofoil theory, fluid flow visualization and image processing
C211.3	Apply discrete and continuous probability distributions in analyzing the probability models arising in the engineering field
C211.4	Analyze and solve linear programming models of real-life situations and solve LPP by the simplex method
C211.5	Learn techniques to solve Transportation and Assignment problems.
Course Name: C202 (Subject Code: 21ME42) MACHINING SCIENCE AND JIGS & FIXTURES	
C212.1	Demonstrate the Conventional CNC machines and advanced manufacturing process operations
C212.2	Determine tool life, cutting force, and economy of the machining process.
C212.3	Analyze the influence of various parameters on machine tools' performance
C212.4	Select the appropriate machine tools and process, the Jigs, and fixtures for various applications.
Course Name: C203 (Subject Code: 21ME43) FLUID MECHANICS	
C213.1	Understand the basic principles of fluid mechanics and fluid kinematics.
C213.2	Acquire the basic knowledge of fluid dynamics and flow measuring instruments
C213.3	Understand the nature of flow and flow over bodies and the dimensionless analysis
C213.4	Acquire the compressible flow fundamental and basics of CFD packages and the need for CFD analysis.
C213.5	Conduct basic experiments of fluid mechanics and understand the experimental uncertainties.
Course Name: C204 (Subject Code: 21ME44) MECHANICS OF MATERIALS	
C214.1	Understand simple, compound, thermal stresses and strains their relations and strain energy 5.
C214.2	Analyze structural members for stresses, strains and deformations.
C214.3	Analyze the structural members subjected to bending and shear loads.
C214.4	Analyze shafts subjected to twisting loads.
C214.5	Analyze the short columns for stability.
Course Name: C205 (Subject Code: 21ME45) Biology For Engineers	
C215.1	Elucidate the basic biological concepts via relevant industrial applications and case studies.
C215.2	Evaluate the principles of design and development, for exploring novel bioengineering projects
C215.3	Corroborate the concepts of biomimetics for specific requirements
C215.4	Think critically towards exploring innovative biobased solutions for socially relevant problems.
Course Name: C206 (Subject Code: 21MEL46) MECHANICAL MEASUREMENTS AND METROLOGY LABORATORY	
C216.1	Understand Calibration of pressure gauge, thermocouple, LVDT, load cell, micrometer. □ □.
C216.2	Apply concepts of Measurement of angle
C216.3	Demonstrate measurements using Optical Projector/Tool maker microscope, Optical flats
C216.4	Analyze Screw thread parameters using 2-Wire or 3-Wire method, gear tooth profile using gear tooth Vernier/Gear tooth micrometer

DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES AND PROGRAM 2021 SCHEME

C216.5	Understand the concepts of measurement of surface roughness
C216.6	Demonstrate the use of Coordinate Measuring Machine (CMM) / Laser Scanner
Course Name: C20381 (Subject Code: 21ME34) SPREAD SHEETS FOR ENGINEERS	
C21381.1	To create different plots and charts
C21381.2	To compute different functions, conditional functions and make regression analysis
C21381.3	To carryout iterative solutions for roots, multiple roots, optimization and non-linear regression analysis
C21381.4	To carryout matrix operations
C21381.5	To Understand VBA and UDF
C21381.6	To understand VBA subroutines and Macros
C21381.7	To carryout numerical integration and solving differential equations using different methods
Course Name: C2036 SOCIAL CONNECT & RESPONSIBILITIES	
C2036.1	Understand social responsibility.
C2036.2	Practice sustainability and creativity.
C2036.3	Showcase Planning & organisation skills