



St. Francis Institute of Technology

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Information Technology and Electronics & Telecommunication Engineering are NBA Accredited

Department of Mechanical Engineering

COURSE OUTCOMES (COs)

A.Y. 2022-23

Term - EVEN

Semester – IV

MEC401 – Engineering Mathematics-IV

MEC401.1	The students will be able to apply the concepts of Vector Calculus to evaluate line integrals, surface integrals using Green's theorem, Stoke's theorem and Gauss divergence theorem.
MEC401.2	The students will be able to use the concepts of Complex Integration for evaluating integrals, computing residues & evaluate various contour integrals
MEC401.3	The students will be able to apply the concept of Correlation and Regression to the engineering problems in data science, machine learning, and AI.
MEC401.4	The students will be able to understand the concepts of probability and expectation for getting the spread of the data and distribution of probabilities.
MEC401.5	The students will be able to use the concept of probability distribution to engineering problems & Testing hypothesis of small samples using sampling theory.
MEC401.6	The students will be able to use the concepts of parametric and nonparametric tests for analyzing practical problems.

MEC402 – Fluid Mechanics

MEC402.1	The students will be able to demonstrate the fundamental concepts of fluid statics.
MEC402.2	The students will be able to understand dimensional analysis and differentiate between velocity potential function and stream function.
MEC402.3	The students will be able to formulate and solve equations of the control volume for fluid flow systems.
MEC402.4	The students will be able to evaluate pressure drop in laminar and turbulent flow.
MEC402.5	The students will be able to calculate major and minor losses in pipes.
MEC402.6	The students will be able to explain the concepts of boundary layer for a flow of incompressible fluids through closed conduits and over surfaces.

MEC403/MEL402 – Kinematics of Machinery

MEC403.1	The students will be able to identify various components of mechanism also know the difference between mechanism and machine. He will also learn about different kind of mechanisms.
MEC403.2	The students will be able to develop mechanisms to provide specific motion by using the concepts of special mechanism
MEC403.3	The students will be able to calculate the velocities of different links. Also can draw velocity and acceleration diagrams of various mechanism.
MEC403.4	The students will be able to choose a cam profile for the specific follower motion.
MEC403.5	The students will be able to predict condition for maximum power transmission in the case of a belt drive. Also about the working of various kind of brakes.
MEC403.6	The students will be able to solve various types of gear train and solve for an interference-free gear pair.

MEC404 – CAD/CAM

MEC404.1	The students will be able to understand suitable techniques for 3D modelling with basic concepts of computer graphics.
MEC404.2	The students will be able to acquaint the knowledge of 2D and 3D Geometric Transformation.
MEC404.3	The students will be able to understand the process of using biomedical data for 3D modelling with new technologies.
MEC404.4	The students will be able to explain and demonstrate the programming aspects of the subtractive manufacturing process.
MEC404.5	The students will be able to understand basic process of additive manufacturing in particularly 3D printing using rapid prototyping and tooling processes.
MEC404.6	The students will be able to understand various cost effective alternatives for manufacturing products with virtual manufacturing.

MEC405/MEL401 – Industrial Electronics

MEC405.1	The students will be able to illustrate construction, working principles and applications of power electronic switches.
MEC403.2	The students will be able to identify rectifiers and inverters for dc and ac motor speed control.
MEC403.3	The students will be able to develop circuits using OPAMP and timer IC555.
MEC403.4	The students will be able to identify digital circuits for industrial applications.
MEC403.5	The students will be able to demonstrate the knowledge of basic functioning of microcontroller.
MEC403.6	The students will be able to analyze speed-torque characteristics of electrical machines for speed control.

MEL403 – Python Programming Lab

MEL403.1	The students will be able to understand and apply basic concepts of python programming.
MEL403.2	The students will be able to understand and use control structures and functions.
MEL403.3	The students will be able to create and use functions of the list, tuples, and dictionary.
MEL403.4	The students will be able to identify and install python packages
MEL403.5	The students will be able to develop and execute object-oriented programming using python
MEL403.6	The students will be able to develop and build a python program to solve real-world engineering problems

MESBL401 – CNC and 3D Printing (Skill based Lab)

MESBL401.1	The students will be able to develop and execute part programming for any given specific operation.
MESBL401.2	The students will be able to build any given object using various CNC operations.
MESBL401.3	The students will be able to demonstrate CAM Tool path and prepare G-Code file
MESBL401.4	The students will be able to build any given real life object using 3D printing process.
MESBL401.5	The students will be able to develop 3D model using available biomedical data.
MESBL401.6	The students will be able to understand usability of rapid tooling integrated investment casting process and its applications in various field.