DON BOSCO INSTITUTE OF TECHONOLGY, KURLA, MUMBAI

Department of Mechanical , (ODD semester, 2018-19)			
SE Mech			
Course Name:	Applied Mathematics III		
Course Code	MEC301		
Faculty Name:	Revathy		
Year	2	**Sem**	3

CO Number	Course Outcome
MEC301.1	Students will be able to Define Laplace Transforms and Inverse Laplace Transforms for standard functions; Define harmonic functions and Orthogonal trajectories; Define conformal mapping and bilinear transformations. Define singularities of complex valued functions.
MEC301.2	Students will be able to Obtain the Laplace Transforms, Inverse Laplace Transforms of combinations of standard functions using the properties of Laplace and Inverse Transforms; Find Cauchy – Riemann equations to verify if a function is analytic; Obtain the harmonic conjugate and orthogonal trajectory of given family; Define Conformal mapping and obtain the image under given standard transformation;
MEC301.3	Students will be able to use Cauchy – Riemann equations to verify if a function is analytic, Define Conformal
MEC301.4	Students will be able to identify Harmonic functions; obtain images of regions using translation, rotation and inversion; Check if a given sequence of functions is orthogonal/orthonormal; obtain Half Range and complex form of Fourier Series; Obtain Karl Pearson's correlation coefficient and Spearman's rank correlation coefficient
MEC301.5	Obtain an analytic function given a linear combination of its real and imaginary parts; Obtain the Bilinear transformation using Cross Ratios and obtain the fixed points of a BLT. Understand and analyze the complex valued functions. Evaluate integrals using Cauchy's integral theorem, Cauchy's integral formula and Residue theorem.
MEC301.6	Solve Partial Differential equations (heat equation) using Fourier Series; Use Bender-Schmidt and Crank-Nickolson method to solve p.d.e

Course Name:	Thermodynamics		
Course Code	MEC302		
Faculty Name:	Dr.Rao/ Jenifer		
Year	2	**Sem**	3

CO Number	Course Outcome
MEC302.1	Demonstrate application of the laws of thermodynamics to wide range of systems.
MEC302.2	Write steady flow energy equation for various flow and non-flow thermodynamic systems
MEC302.3	Compute heat and work interactions in thermodynamics systems
MEC302.4	Demonstrate the interrelations between thermodynamic functions to solve practical problems
MEC302.5	Use steam table and mollier chart to compute thermodynamics interactions
MEC302.6	Compute efficiencies of heat engines, power cycles etc.

Course Name:	Strength of Materials		
Course Code	MEC303		
Faculty Name:	Dr.Padiya/ Hemant		
Year	2	Sem	3

CO Number	Course Outcome
MEC303.1	State concepts of various types of stresses induced in given material under different loading conditions
MEC303.2	Describe the concept of shear force & bending moment of beams under different loading conditions
MEC303.3	Explain the stress distribution in the object subjected to bending, shear load & torsion, combined loading, Principal
MEC303.4	Draw SFD & BMD, stress distribution diagrams, find deflection of beams at different loading conditions
MEC303.5	Illustrate the effect of loading on collars & struts, thin & thick shells

Course Name:	Production Process I		
Course Code	MEC304		
Faculty Name:	Deepika / Bajirao		
Year	2	Sem	3

CO Number	Course Outcome
MEC304.1	Identify different primary forming processes like Metal casting, forging, Rolling, plastic moulding and
MEC304.2	State different chip forming processes like milling, turning, drilling etc.
MEC304.3	Differentiate the conventional and non conventional machining process.
MEC304.4	Describe different casting process, forming process,welding operations and machining operations
MEC304.5	Solve numericals on casting and forming process.
MEC304.6	processes like turning, grooving, drilling, etc.

Course Name:	Material Technology		
Course Code	MEC305		
Faculty Name:	Jenifer/ Madan		
Year	2	Sem	3

CO Number	Course Outcome
MEC305.1	Classify different materials and get an outline of new materials like composites, nano-materials and
MEC305.2	Relate mechanical behaviour of materials subjected to deformation under different loading conditions to
MEC305.3	Discuss theory for making an alloy with construction of various types of phase diagrams
MEC305.4	Select the appropriate heat treatment processes for ferrous alloys which are suitable for the different
MEC305.5	Interpret the iron-iron carbide equilibrium diagram and TTT diagram for selecting proper heat treatment

Course Name:	Computer aided machine drawing		
Course Code	MEL301		
Faculty Name:	Johnson / Hemant Hogade		
Year	2	Sem	3

CO Number	Course Outcome
MEL301.1	Identify the different Conventional representation of different section lines w.r.t.materials. and threaded
MEL301.2	Illustrate curves of intersection for different solids which penetrate each other w.r.t. their axis and Illustrate
MEL301.3	Preparation of detail drawing and assembly drawing of joints, shaft couplings, Bearings, Pulleys and pipe
MEL301.4	Inspection of actual dimensions from a physical model (e.g. cotter joint and other machine element) and
MEL301.5	Construct 3D model assembly in Solid Works platform and decide the tolerance values for the mating

Course Name:	Strength of Materials		
Course Code	MEL302		
Faculty Name:	Dr.Padiya/ Hemant		
Year	2	Sem	3

CO Number	Course Outcome
MEL302.1	Analysethe stress -strain behaviour of materials
MEL302.2	Measure ultimate tensile/compression strength of material
MEL302.3	Measure torsional strength of material
MEL302.4	Perform impact test using Izod andCharpy method
MEL302.5	Measurethe hardness of materials.

Course Name:	Material Technology		
Course Code	MEL303		
Faculty Name:	Jenifer/ Madan		
Year	2	Sem	3

CO Number	Course Outcome
MEL303.1	Demonstrate the stages in metallography to characterize the material
MEL303.2	Interpret the Iron-Iron carbide equilibrium diagram and TTT diagram for microstructure study and for
MEL303.3	Demonstrate the fatigue testing to evaluate the parameter and to find failure criteria for ferrous and non-

TE Mech				
Course Name:	Internal Combustion Engines			
Course Code	MEC501			
Faculty Name:	Nilesh G/ Sandeep Sabnis			
Year	3	**Sem**	5	
CO Number	**Course Outcome**			
MEC501.1	Differentiate constructional features and operations of 4 stroke & 2 stroke S.I. & C.I. engines.			
MEC501.2	Identify and explain construction and working of various subsystems and accessories of I C Engines			
MEC501.3	Plot and analyze performance of engines using engine testing and evaluation methods			
MEC501.4	Understand and explain Impact of I C engines on environment and air pollution and knows the			
MEC501.5	Describes the recent developments in the I C engines field in terms of new technologies for fuel efficiency,			

Course Name:	Mechanical Measurements and Control			
Course Code	MEC502			
Faculty Name:	Rajwade/Chavan			
Year	3	**Sem**	5	
CO Number	**Course Outcome**			
MEC502.1	Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers for			
MEC502.2	Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving			
MEC502.3	Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a			
MEC502.4	Examine and break information into parts/structure by identifying process of measuring instruments			
MEC502.5	Present and defend opinions on error analysis by making judgments about information, validity related to			

Course Name:	Heat Transfer			Heat Transfer
Course Code	MEC503			
Faculty Name:	Dr.Pawar/ Pawan k			
Year	3	**Sem**	5	
CO Number	**Course Outcome**			
MEC503.1	Student explains basic concepts of heat transfer			
MEC503.2	student derives differential equation and analyzes steady state conduction heat			
MEC503.3	Student derives diferential equations for heat transfer through extended surfaces,			
MEC603.4	Student does dimensional analysis in convection heat transfer and analyzes			
MEC603.5	Student analyzes radiation based on various laws of radiation heat transfer			
MEC603.6	Student derives basic equations in heat Exchanger design and analyses the same			

Course Name:	Dynamics of Machinery		
Course Code	ME504		
Faculty Name:	Swapnil/Suryavanshi		
Year	3	Sem	5

CO Number	Course Outcome
MEC504.1	Explain Basic Concepts of Dynamics of Machinery
MEC504.2	Develop mathematical model to represent dynamic system and derive
MEC504.3	Determine natural frequency of mechanical systems.
MEC504.4	Analyse Static and Dynamic forces.
MEC504.5	Estimate Vibration transmisibility and measure motion parameters using vibration measuring instruments.

Course Name:	Press Tool Design		
Course Code	MEDLO5011		
Faculty Name:	Sudhakar Ambhore		
Year	3	Sem	5

CO Number	Course Outcome
MEDLO5011.1	Student will be able to define, list and state various press working operations for mass production of sheet metal
MEDLO5011.2	Student will be able to identify scrap minimization, safety aspects and automation in press working
MEDLO5011.3	Student will be able to explain and describe principles and blank development in bent & drawn components, failure
MEDLO5011.4	Student will be able to recognize and prepare working drawings and setup for economic production of sheet metal
MEDLO5011.5	Student will be able to demonstrate various press working operations for mass production of sheet metal parts,
MEDLO5011.6	Student will be able to Design Piercing & Blanking Die, solve problems on Cutting force and Stripping Force,

Course Name:	Machining Sciences and Tool Design		
Course Code	MEDLO5012		
Faculty Name:	Sudhakar Ambhore		
Year	3	Sem	5

CO Number	Course Outcome
MEDLO5012.1	Student will be able to define, list and state various forces, single, multipoint cutting tools, heat generation in
MEDLO5012.2	Student will be able to identify machining science like mechanics of machining, tool wear, tool life and surface
MEDLO5012.3	Student will be able to explain and describe Metal Cutting Theory, Dynamometry, Cutting tool materials, machining
MEDLO5012.4	Student will be able to recognize and classify the inter-relationship between cutting parameters and machining
MEDLO5012.5	Student will be able to demonstrate the properties of various cutting tool materials and hence use an appropriate tool
MEDLO5012.6	Student will be able to Design Single, Multi point cutting tool and solve various forces involved in the machining

Course Name:	Internal Combustion Engines		
Course Code	MEL501		
Faculty Name:	Nilesh G/ S Sabnis		
Year	3	Sem	5

CO Number	Course Outcome
MEL501.1	Student demonstrates and describes arrangements within 4 stroke engines and cycles of operation
MEL501.2	Student demonstrates and describes arrangements within 2 stroke engines and cycles of operation
MEL501.3	Student shows components and demonstrate mechanism of fuel air mixing in carburetor and correlates fluid
MEL501.4	Student shows components and demonstrate working of fuel injection pump & various types of nozzles
MEL501.5	Student describes methods of creating very high voltage for spark to occur, with the use of electro-magnetic
MEL501.6	Student performs engine test and evaluates engine performance.
MEL501.7	Student performs engine test and evaluates engine performance.
MEL501.8	Student performs engine test and evaluates engine performance.

Course Name:	Mechanical Measurements and Control		
Course Code	MEL502		
Faculty Name:	Rajwade/Chavan		
Year	3	Sem	5

CO Number	Course Outcome
MEL502.1	Demonstrate Displacement measurement skills through Hands-On Practice by using Mechanical and
MEL502.2	Sketch Transient state response for a fluid flow using waster hammer devices and identify sensor for a
MEL502.3	Design experiment setup for identifying frequency response by making a Encoder uisng AM and

Course Name:	Heat Transfer		
Course Code	MEL503		
Faculty Name:	Dr.Pawar/ Pavan k		
Year	3	Sem	5

CO Number	Course Outcome
MEL503.1	Student explains basic concepts of heat transfer
MEL503.2	Student derives differential equation and analyzes steady state conduction heat transfer theoreticaly and
MEL503.3	Student derives diferential equations for heat transfer through extended surfaces, unsteady state
MEL503.4	Student does dimensional analysis in convection heat transfer and analyzes free/forced convection in
MEL503.5	Student analyzes radiation based on various laws of radiation heat transfer theoretically and verifies
MEL503.6	Student derives basic equations in heat Exchanger design and analyses the same theoretically, verifies

Course Name:	Dynamics of Machinery		
Course Code	MEL504		
Faculty Name:	Swapnil/Suryavanshi		
Year	3	Sem	5

CO Number	Course Outcome
MEL504.1	Plot and analyse Governor characteristics.
MEL504.2	Analyse Gyroscopic effect on laboratory model.
MEL504.3	Estimate natural frequency of mechanical systems.
MEL504.4	Analyse vibration response of mechanical systems.
MEL504.5	Determine damping coefficient of a system.
MEL504.6	Balance rotating masses.

Course Name:	Manufacturing Sciences Lab		
Course Code	MEL505		
Faculty Name:	Sudhakar Ambhore		
Year	3	Sem	5

CO Number	Course Outcome
MEL505.1	Identify and select location and clamping faces/points on jobs.
MEL505.2	Design and develop simple productive and cost effective jigs and fixtures.
MEL505.3	Identify press tool requirements to build concepts pertaining to design of press tools.
MEL505.4	Select a proper force measurement method for the required machining operation.
MEL505.5	Select a proper temperature measurement method for the required machining operation.
MEL505.6	Design multi point cutting tool.

Course Name:	Business Communication and Ethics		
Course Code	MEL506		
Faculty Name:	Renjit/Vishal		
Year	3	Sem	5

CO Number	Course Outcome
MEL506.1	Utilize communication skills effectively in both oral and written form
MEL506.2	Demonstrate knowledge of professional and ethical responsibilities
MEL506.3	Develop an attitude for life-long learning
MEL506.4	Manifest an entrepreneurial approach
MEL506.5	Participate and succeed in Campus placements and competitive examinations like GATE, CET.
MEL506.6	Demonstrate an awareness of contemporary issues

MEL506.7	Develop thinking skills necessary for analysing the impact of engineering solutions on Society

BE Mech			
Course Name:	Machine Design -II		
Course Code	MEC701		
Faculty Name:	Johnson/Shreeprasad		
Year	4	**Sem**	7

CO Number	Course Outcome
MEC701.1	The learner will be able to [KNOWLEDGE] Describe the basic working of gears, rolling and sliding contact
MEC701.2	The learner will be able to [UNDERSTAND] Explain the type of loading conditions, on the component,
MEC701.3	The learner will be able to [APPLY] Use/Perform design calculations based on strength and wear concepts
MEC701.4	The learner will be able to [ANALYSE] Identify and model a machine element and analyse the stresses
MEC701.5	The learner will be able to [EVALUATE] Select and Synthesize machine elements and evaluate the

Course Name:	CAD/CAM/CAE		
Course Code	MEC702		
Faculty Name:	Deepika/Shreeprasad		
Year	4	**Sem**	7

CO Number	Course Outcome
MEC702.1	Identify proper computer graphics techniques for geometric modelling
MEC702.2	Transform, manipulate objects and store and manage graphical data
MEC702.3	Design/Model and Prepare part programming applicable to CNC machines using modern tools i.e.
MEC702.4	Analyze complex engineering components using FEA analysis
MEC702.5	Classify and associate industry practices and CIM utilities in Mechanical Industries along with rapid

Course Name:	Mechanical Utility Systems		
Course Code	MEC703		
Faculty Name:	Cleta		
Year	4	**Sem**	7

CO Number	Course Outcome
MEC703.1	Describe operating principles of compressors and pumps
MEC703.2	Calculate performance of reciprocating/rotary compressors and pumps
MEC703.3	Illustrate and analyze characteristic curves of pumps
MEC703.4	Interpret possibilities of energy conservation in pumping and compressed air systems
MEC703.5	Demonstrate trials on various pumps/compressors to evaluated their performance

Course Name:	Production Planning and Control		
Course Code	MEC704		
Faculty Name:	Sandeep Dasgupta/Juned A		
Year	4	Sem	7

CO Number	Course Outcome
MEC704.1	To provide a comprehensive exposure to Production Planning & Control (PPC) and its significance in Industries.
MEC704.2	To acquaint students with various activities of PPC.
MEC704.3	To give insight into the ongoing & futuristic trends in the control of inventory.
MEC704.4	To appraise about need and benefits of planning functions related to products and processes.
MEC704.5	To give exposure to production scheduling and sequencing

Course Name:	Energy Management		
Course Code	MEE7013		
Faculty Name:	Sandeep P. Sabnis		
Year	4	Sem	7

CO Number	Course Outcome
MEE7013.1	Student will be able to summarise and explain need for energy management and economics
MEE7013.2	Student will be able audit small installation or equipment for energy efficiency and suggest improvements.
MEE7013.3	Student will be able to describe importance of and analyze efficiency in thermal and electrical utilities.
MEE7013.4	Student will be able to explain need of waste heat recovery and cogeneration

Course Name:	Computational Fluid Dynamics		
Course Code	MEE7015		
Faculty Name:	Dr.Pawar		
Year	4	Sem	7

CO Number	Course Outcome
MEE7015.1	Student gains an overview of CFD, its applications, its relative position as compared to traditional
MEE7015.2	Student derives and understands the meaning of terms in the set of governing equations
MEE7015.3	Student develops an understanding of different types of structured and unstructured grids, classification of
MEE7015.4	Student discretizes and solves the governing equations with appropriate initial and boundary conditions in
MEE7015.5	Student derives the stream function-vorticity formulation for incompressible flow, understands SIMPLE and
MEE7015.6	Student understands the finite volume formulation and solves steady one, two and three dimensional

Course Name:	Piping Engineering		
Course Code	MEE7017		
Faculty Name:	Rajwade		
Year	4	Sem	7

CO Number	Course Outcome
MEE7017.1	Discuss different governing codes and dimensional standards for piping commodities and select the
MEE7017.2	Interpret piping drawing symbols and relate the information available in all the supporting documents and
MEE7017.3	Develop plot plan, equipment layout, Piping layout, piping isometrics and all the relevant layouts making

Course Name:	Robotics		
Course Code	MEE70111		
Faculty Name:	Chavan		
Year	4	Sem	7

CO Number	Course Outcome
MEE70111.1	Describe Metaphor of a Human arm as an Industrial robotic Manipulator, system Anatomy with DOF
MEE70111.2	Apply Euler’s principle for Homogeneous Transformations and Assignment of Frames, Robot Activation
MEE70111.3	Use of Image Processing for Machine vision. Robot Programming for path in space, Motion interpolation
MEE70111.4	Practice Robot Kinematics i.e. Forward & reverse. Manipulator Path control (Trajectory planning) and
MEE70111.5	Root Intelligence & Task Planning Introduction, State space search, Problem reduction, use of predictive
MEE70111.6	Robot application in manufacturing Material transfer, machine loading & un loading, processing operation,