

RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY, NAGPUR  
 FACULTY OF SCIENCE & TECHNOLOGY  
 COURSE OUTCOMES  
**III Semester B E Civil Enigneering (CBCS)**

<b>BECVE301T</b>	<b>APPLIED MATHEMEATICS - III</b>
CO1	Apply Fourier series in the analysis of periodic functions not in terms sine and cosinie encountered in engineering problems
CO2	Solve Partial differential equations of first, higher and second order using elementary techniques; formulate mathematical models to simple problems of vibration of strings md beams in terms of Partial differential equations and solving with elementary solution techiques
CO3	Learn the concept of finding maxima and minima of definite integral involving unknown function and its derivatives.
CO4	Learn Eigen value problem and its applications.
CO5	Learn to find an approximate solution of algebraic and transcendental equations, system of linear equations and first order ordinary differential equations by various numerical methods
CO6	Formulate simple optimization problem and learn to solve it by Graphical method and Simplex method
<b>BECVE302T</b>	<b>FLUID MECHANICS</b>
CO1	Understand the importance and practical significance of various fluid properties
CO2	Comprehend and estimate various forces acting partially or fully submerged bodies
CO3	Evaluate the importance of various parameter on the fluid motion
CO4	Know various flow measuring devices with their practical application
CO5	Illustrate the concept of impulse momentum principle, dimesnion analsis and model analysis of the fluid phenomenon
<b>BECVE302P</b>	<b>FLUID MECHANICS</b>
CO1	Determine the discharge of Venturimeter , Orifice meter, Rectangular Notch, Triangular Notch
CO2	Estimate the coefficient of velocity and the coefficient of contraction of the orifice and mouth piece.
CO3	Assess and interpret the condition of laminar flow, turbulent flow & Reynolds number

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<b>BECVE303T</b>	<b>SOLID MECHANICS</b>
CO1	Understand the behaviour of materials under different stress and strain conditions
CO2	Evaluate and draw shear force diagram and bending moment diagram and their relations
CO3	Formulate the bending and shear stresses equations and able to draw bending and shear stress diagram
CO4	Formulate slope and Deflection equations for beams subjected to various loads by Macauleys method
CO5	Analyze and Evaluate the torsion in circular section, Direct and Bending Stresses
<b>BECVE303P</b>	<b>SOLID MECHANICS</b>
CO1	Demonstrate the understanding and application of various types of strain gauges.
CO2	Evaluate various engineering properties of different materials.
CO3	Obtain a graphical solution to SFD & BMD problems for simple beams.
<b>BECVE304T</b>	<b>GEOTECHNICAL ENGINEERING</b>
CO1	Find the index and engineering properties of the soil
CO2	Determine properties & demonstrate interaction between water and soil
CO3	Analyze and compute principles of compaction and consolidation of soil
CO4	Ability to analyze to calculate bearing capacity, earth pressure and foundation settlement
CO5	Study and identify different types of natural materials like rock, minerals and soil
<b>BECVE304P</b>	<b>GEOTECHNICAL ENGINEERING</b>
CO1	Analyze the fundamental principles of soil and Geotechnical Engineering associated with the analysis and design of geotechnical structures
CO2	Utilize and compute mathematical, analytical and numerical methods to analyze geotechnical engineering problems
CO3	Determine the Index properties of soils.
CO4	Classification of soils.
CO5	Determination of Engineering Properties of soils.

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<b>BECVE 305 T</b>	<b>BUILDING CONSTRUCTION &amp; ELEMENTARY BUILDING DRAWING</b>
CO1	Identify components of a building.
CO2	Differentiate and identify types of building materials
CO3	Select the appropriate material for building construction
CO4	Plan various construction related activities and their quality control
CO5	Know and identify latest techniques and material used.
<b>BECVE 305P</b>	<b>BUILDING CONSTRUCTION &amp; ELEMENTARY BUILDING DRAWING</b>
CO1	Acquire the knowledge of building bye-laws & building code
CO2	Apply the principles of building planning, design and services; and draw submission/working drawing
CO3	Prepare the drawing of various building components
<b>BECVE306T</b>	<b>EFFECTIVE TECHNICAL COMMUNICATION</b>
CO1	Identify the common errors in the sentences, transform sentences and articulate the meaning of idioms, phrases and proverb
CO2	Derive the meanings of synonym/antonyms/analogies/technical jargon, etc
CO3	Write need-based official letters/notice/memo/circular/emails /applications, Draft a resume
CO4	Comprehend and analyze the various comprehension
CO5	Compile technical report/manual/project proposal, abstract of the proposal.

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<b>IV Semester B E Civil Enigneering (CBCS)</b>	
<b>BECVE401T</b>	<b>CONCRETE TECHNOLOGY</b>
CO1	Think logically for development Concrete technology application in field OF Civil Engineering
CO2	Gain an experience in the implementation of Concrete Materials on Engineering concepts which are applied on Construction Fields
CO3	Understand the process of mix design of concrete.
CO4	Differentiate special concrete from conventional concrete.
CO5	Analyze causes of deterioration of concrete components
<b>BECVE402T</b>	<b>STRUCTURAL ANALYSIS</b>
CO1	Apply knowledge to analyse determinate and indeterminate strucfures.
CO2	Apply knowledge to perform analysis of beams and frames using Slope Deflection Method andMoment Distribution Method.
CO3	Apply knowledge of Influence Line Diagram to analyse structural members for rolling loads.
CO4	Apply knowledge of Direct Stiffness Method to analyse Beams and Plane Frames.
CO5	Apply knowledge of Direct Stiffness Method to formulate Stiffiress Matrix, Transformation Matrix, Load Matrix to analyse Plane Truss.
<b>BECVE402P</b>	<b>STRUCTURAL ANALYSIS - PRACTICAL</b>
CO1	Apply the knowledge of different methods of analysis of structures to analyze the structural elements.
CO2	Analysis and design different structural components using application software
CO3	Adapt the appropriate method to develop the solution to engineering problems using software and modern tools.

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<b>BECVE403T</b>	<b>ENVIRONMENTAL ENGINEERING</b>
CO1	Have knowledge of characteristics of water, drinking water standards and necessity of treatment
CO2	Design various units of conventional water treatment plant
CO3	Understand the characteristics of wastewater, necessity of treatment, types of treatment processes
CO4	Equip with the basic knowledge related to design of waste water treatment
CO5	Understand of significance of air pollution, solid waste, climate change, geoenvironment etc
<b>BECVE403P</b>	<b>ENVIRONMENTAL ENGINEERING PRACTICAL</b>
CO1	Perform different tests to ascertain physical, chemical and biological characteristic of given water sample.
CO2	Knowledge of the importance levels of BOD & COD in a waste water treatment and know various methods to determine the same.
CO3	Know and visualize the working of various units of Water Treatment Plant during the visit and can write a report.
<b>BECVE404T</b>	<b>TRANSPORTATION ENGINEERING</b>
CO1	Define and describe different objectives and requirements of Highway Development and Planning, Alignments
CO2	Explain, Discriminate and Design various Geometric Features of Highways & Pavement Design
CO3	Understand, analyze, apply and evaluate the parameters of Traffic Engineering.
CO4	Explain and describe various terms in railway engineering and should be able to explain, discriminate and design various geometric features of railway track.
CO5	Understand the aircraft characteristics and terminal area functions. analyze and evaluate the basic runway length, orientation of runway
<b>BECVE404P</b>	<b>TRANSPORTATION ENGINEERING - PRACTICAL</b>
CO1	Evaluate the strength parameters of sub-grade soil through various tests.
CO2	Examine different physical and engineering properties of road aggregates and bitumen & assess its suitability for different types of roads.
CO3	Carryout Road Safety Audit

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<b>BECVE405T</b>	<b>SURVBYING AND GEOMATICS</b>
CO1	Measure length and bearing of lines using various instruments and calculate area of given field.
CO2	Use the theodolite to measure angle and distances for traversing also identify and correct the enors in traverse. Design and lay-out the various types of curves.
CO3	To carry out levelling and contouring also able to determine volume of earthwork
CO4	Use modem instrument like Total work station, GPS, DGPS for surveying and able to prepare maps in CAD
CO5	Use Remote Sensing and Geographical Information System(GIS), UAV Drone and LiDAR Survey.
<b>BECVE405P</b>	<b>SURVBYING AND GEOMATICS - PRACTICAL</b>
CO1	Exhibit the knowledge of working and uses of various survey instruments.
CO2	Take the measurement, record the measurement and perform the calculations by applying necessary adjustments.
CO3	Setting out of simple curves, computing height and area using various survey instruments.
<b>BECVE406P</b>	<b>MINI PROJECT</b>
CO1	Conceptualize the mini project and propose research/ basic conceptual questiond with its theoretical background
CO2	Formulate the Aim and Objective of the project based on the basic questions raised
CO3	Present the project in a clear and distinct manner through different oral, written, analysis and design techniques.

Date of Edit-16.4.2022