



## DEPARTMENT OF BASIC SCIENCE

Course code: BMATS101

Course Name: Mathematics I for CSE Stream

CO1	Study and analyze the bentness of curve using Radius of curvature and its applications to evolutes and involutes.
CO2	Understand the notion of partial differentiation to calculate rates of change of multivariate functions and solve problems related to composite functions and Jacobians
CO3	Solve first order Linear and non linear differential equation analytically using standard methods.
CO4	Apply modular arithmetic to computer algorithms.
CO5	Apply the concept of matrix theory for solving for system of linear equations and compute eigenvalues and eigenvectors
CO6	Familiarize with modern mathematical tools namely Python

Course code: BMATC101

Course Name: Mathematics I for CV stream

CO1	Study and analyze the bentness of curve using Radius of curvature and its applications to evolutes and involutes.
CO2	Understand the notion of partial differentiation to calculate rates of change of multivariate functions and solve problems related to composite functions and Jacobians
CO3	Solve first order differential equation analytically using standard methods.
CO4	Applying higher order ODE's to determine undetermined coefficients.
CO5	Apply the concept of matrix theory for solving for system of linear equations and compute eigenvalues and eigenvectors
CO6	Familiarize with modern mathematical tools namely Python



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#29, Chimney Hills, Hesaraghatta Main Road, Chikkabanavara Post, Bangalore- 560090

Course code: BMATE101

Course Name: Mathematics I for EEE stream

CO1	Study and analyze the bentness of curve using Radius of curvature and its applications to evolutes and involutes.
CO2	Understand the notion of partial differentiation to calculate rates of change of multivariate functions and solve problems related to composite functions and Jacobians
CO3	Solve first order Linear and non linear differential equation analytically using standard methods.
CO4	Apply the concept of change of order of integration and variables to evaluate multiple integrals and their usage in computing area and volume
CO5	Apply the concept of matrix theory for solving for system of linear equations and compute eigen values and eigenvectors
CO6	Familiarize with modern mathematical tools namely Python

Course code: BMATM101

Course Name: Mathematics I for ME stream

CO1	Study and analyze the bentness of curve using Radius of curvature and its applications to evolutes and involutes.
CO2	Understand the notion of partial differentiation to calculate rates of change of multivariate functions and solve problems related to composite functions and Jacobians
CO3	Solve first order differential equation analytically using standard methods.
CO4	Applying higher order ODE's to determine undetermined coefficients.
CO5	Apply the concept of matrix theory for solving for system of linear equations and compute eigen values and eigenvectors
CO6	Familiarize with modern mathematical tools namely Python



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Course code: BMATS201

Course Name: Mathematics II for CSE stream

CO1	Apply the concept of change of order of integration and variables to evaluate multiple integrals and their usage in computing area and volume.
CO2	Understand the applications of vector calculus refer to solenoidal, and irrotational vectors Orthogonal curvilinear coordinates.
CO3	Demonstrate the idea of Linear dependence and independence of sets in the vector space, and linear transformation.
CO4	Apply the knowledge of numerical methods in analysing the discrete data and solving the physical and engineering problems.
CO5	Get familiarize with modern mathematical tools namely Python.

Course code: BMATE201

Course Name: Mathematics II for EEE stream

CO1	Understand the applications of vector calculus refer to solenoidal, irrotational vectors, line integral and surface integral.
CO2	Demonstrate the idea of Linear dependence and independence of sets in the vector space, and linear transformation
CO3	To understand the concept of Laplace transform and to solve initial value problems.
CO4	Apply the knowledge of numerical methods in solving physical and engineering phenomena.
CO5	Get familiarize with modern mathematical tools namely Python.

Course code: BMATC201/BMATM201

Course Name: Mathematics II for CV/ ME stream

CO1	Apply the knowledge of multiple integrals to compute area and volume.
CO2	Understand the applications of vector calculus refer to solenoidal, irrotational vectors, line integral and surface integral.
CO3	Demonstrate partial differential equations and their solutions for physical interpretations.
CO4	Apply the knowledge of numerical methods in solving physical and engineering phenomena.
CO5	Get familiarize with modern mathematical tools namely Mathematica/MatLab/Python/Scilab



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Course code: BCHES102 for CS Stream

Course Name: Chemistry

CO1	Identify the terms and processes involved in scientific and Engg. applications
CO2	Explain the phenomena of chemistry to describe the methods of engineering processes
CO3	Solve the problems in chemistry that are pertinent in engineering applications
CO4	Apply the basic concepts of chemistry to explain the chemical properties and processes
CO5	Analyze properties and process associated with a chemical substances in Multidisciplinary situations

Course code: BCHEE102 for EE Stream

Course Name: Chemistry

CO1	Identify the terms and process involved Scientific and engineering applications.
CO2	Explain the phenomena of chemistry to describe the methods of engineering processes
CO3	Solve for the problems in chemistry that are pertinent in engineering applications
CO4	Apply the basic concepts of chemistry to explain the chemical substances and processes
CO5	Analyze properties and process associated the chemical in Multidisciplinary situations
CO6	Analyze Various Chemical Samples qualitatively and quantitatively



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Course code: BCHEC102 for CV Stream

Course Name: Chemistry

CO1	Identify the terms and process involved Scientific and engineering applications
CO2	Explain the phenomena of chemistry to describe the methods of engineering processes
CO3	Solve for the problems in chemistry that are pertinent in engineering applications
CO4	Apply the basic concepts of chemistry to explain the chemical substances and processes
CO5	Analyze properties and process associated the chemical in Multidisciplinary situations
CO6	Analyze Various Chemical Samples qualitatively and quantitatively

Course code: BPHYS102 for EE Stream

Course Name: Physics

CO1	<b>Understand</b> the basic principles of Quantum Mechanics and their application.
CO2	<b>Elucidate</b> the concepts of conductors, dielectrics and superconductivity
CO3	<b>Illustrate</b> the working of LASERS and Optical fibers and their relevant applications.
CO4	<b>Discuss</b> the fundamentals of vector calculus and their applications in Maxwell's Equations and EM Waves.
CO5	<b>Demonstrate</b> the working principles of semiconductor devices
CO6	<b>Practice</b> working in groups to conduct experiments in physics and <b>perform</b> precise and honest measurements



Course code: BPHYS102 for CS Stream

Course Name: Physics

CO1	<b>Illustrate</b> the working of Lasers and Optical Fibers and their relevant applications.
CO2	<b>Discuss</b> the basic principles of Quantum Mechanics and their application.
CO3	<b>Apply</b> the knowledge of Quantum Mechanics and study the applications in Quantum Computing
CO4	<b>Summarize</b> the essential properties of superconductors and their applications.
CO5	<b>Illustrate</b> the application of physics in design and data analysis.
CO6	<b>Practice</b> working in groups to conduct experiments in physics and <b>perform</b> precise and honest measurements

Course code: BPHYS102 for CV Stream

Course Name: Physics

CO1	<b>Understand</b> the basic concepts of oscillations and waves, their applications, production of shock waves and its applications.
CO2	<b>Discuss</b> the concepts of elasticity and material failures.
CO3	<b>Summarize</b> the concepts of acoustics in buildings and explain the concepts in radiation and photometry.
CO4	<b>Illustrate</b> the production of lasers and its applications.
CO5	<b>Describe</b> the various natural hazards and safety precautions.
CO6	<b>Practice</b> working in groups to conduct experiments in physics and <b>perform</b> precise and honest measurements



Course code: BPOPS103 for CS Stream .Course Name: Principles of Programming Using C

CO1	Elucidate the basic architecture and functionalities of a computer and also recognize the hardware parts.
CO2	Apply programming constructs of C language to solve the real world problems
CO3	Explore user defined data structures like arrays in implementing solutions to problems like searching and sorting.
CO4	Design and Develop Solutions to problems using modular programming constructs using functions.
CO5	Explore user defined data structures like structures, unions and pointers in implementing solutions.

Course code: BESCK104C for CS Stream Course Name: Introduction to Electronics Engineering

CO1	<b>Demonstrate</b> the concepts of electronic circuits encompassing power supplies, rectifiers and amplifiers.
CO2	<b>Understand and Analyse</b> the Concepts of Oscillators and Operational amplifiers
CO3	<b>Demonstrate</b> the basics of digital logic engineering including data representation, circuits , Boolean algebra and combinational logic circuits.
CO4	<b>Illustrate</b> the characteristics and technological advances of embedded system
CO5	<b>Understand</b> the fundamentals of modern communication systems, its types with modulation and multiplexing schemes.



Course code: BCEDK103 for CS Stream. Course Name: Computer Aided Engineering Drawing

CO1	<b>Understand</b> the Knowledge of Engineering Geometry and solid edge software and create Engineering drawings on Orthographic Views. (Points, Lines, Planes)
CO2	<b>Draw</b> the orthographic projections of simple solids.
CO3	<b>Draw</b> the isometric projection of Simple solids and also convert simple isometric drawings into orthographic views.
CO4	<b>Draw</b> the development of lateral surface of simple solids.
CO5	<b>Identify</b> the interdisciplinary engineering components or systems through its graphical representation.

Course code: BETCK105H for EC Stream. Course Name: IOT

CO1	Describe the evolution of IoT, IoT networking components, and addressing strategies in IoT
CO2	Classify various sensing devices and actuator types.
CO3	Demonstrate the processing in IoT.
CO4	Explain Associated IOT Technologies.
CO5	Illustrate architecture of IoT applications.

Course code: 22ETC15E for CS Stream. Course Name: Renewable Energy Sources

CO1	Describe the environmental aspects of renewable energy resources. In Comparison with various conventional energy systems, their prospects and Limitations.
CO2	Describe the use of solar energy and the various components used in the energy production with respect to applications like-heating, cooling, desalination, power generation
CO3	Understand the conversion principles of wind and tidal energy
CO4	Understand the concept of biomass energy resources and green energy.





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CO5	Acquire the basic knowledge of ocean thermal energy conversion and hydrogen energy
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Course code: BESCK104D for CS Stream. Course Name: Introduction to Mechanical Engg

CO1	Explain the concepts of Role of Mechanical Engineering and Energy sources.
CO2	Describe the Machine Tool Operations and advanced Manufacturing process.
CO3	Explain the Working Principle of IC engines and EV vehicles.
CO4	Discuss the Properties of Common Engineering Materials and various Metal Joining Processes.
CO5	Explain the Concepts of Mechatronics, Robotics and Automation in IoT.

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