VIDYAVARDHAKA COLLEGE OF ENGINEERING
DEPARTMENT OF MATHEMATICS

COURSE OUTCOMES- CBCS Scheme
ENGINEERING MATHEMATICS

Sub. Name:Mathematics for Computer Science Stream-I Sub. Code: BMATS101

On completion of this course, students are able to:

CO1 :Understand the basic concepts of calculus for a single and multi variable function, ordinary Differential equations, linear algebra, logic, mathematical induction, quantifiers and basic number theory.**(PO-1).**
CO2 :Apply the concepts of calculus for a single and multi variable function, ordinary differential equations, linear algebra, logic, mathematical induction, quantifiers and basic number theory to solve the problems arising in engineering fields.**(PO-1).**
CO3 :Analyse the solutions of engineering problems using the concepts of calculus, ordinary Differential equations, Linear Algebra.**(PO-2).**
CO4* :Using Modern Tool to solve/visualize engineering problems from the concepts of calculus, ordinary differential equations and linear algebra **(PO-5).**

Sub. Name: Mathematics for Electrical and Electronics Stream-I
Sub. Code:BMATE101

On completion of this course, students are able to:

CO1 :Understand the basic concepts of calculus for a single and multi variable function, ordinary Differential equations, linear algebra, logic, mathematical induction, quantifiers and basic number theory.**(PO-1).**
CO2 :Apply the concepts of calculus for a single and multi variable function, ordinary differential equations, linear algebra, logic, mathematical induction, quantifiers and basic number theory to solve the problems arising in engineering fields.**(PO-1).**
CO3 :Analyse the solutions of engineering problems using the concepts of calculus, ordinary Differential equations, Linear Algebra.**(PO-2).**
CO4* :Using Modern Tool to solve/visualize engineering problems from the concepts of calculus, ordinary differential equations and linear algebra **(PO-5).**

Sub. Name: Mathematics for Civil engineering Stream-II Sub. Code: BMATC201

At the end of semester the students should be able to:

CO-1 Understand the basic concepts of higher order differential equation, numerical methods, Laplace transform,vector calculus and Statistics.(PO-1).

CO-2 Apply concepts of higher order differential equation, numerical methods, Laplace transform, vector calculus and
Statistics to solve the problems arising in engineering fields. (PO-1).

CO-3 Analyse concepts of higher order differential equation, numerical methods, Laplace transform , vector calculus
and Statistics .(PO-2).

CO-4 Using Modern Tool to solve/visualize engineering problems from the concepts of higher order differential

equation, numerical methods, Laplace transform , vector calculus and Statistics.

(PO-5).

Sub. Name: Mathematics for Electrical and Electronics Stream-II Sub. Code: BMATE201

At the end of semester the students should be able to:

CO1:Understand the basic concepts of Vector calculus, Higher order differential equations, Laplace Transform,
Numerical methods, and Linear algebra.(PO-1).
CO2:Apply concepts of multivariable calculus Vector calculus, Higher order differential equations, Laplace Transform,
Numerical methods and Linear algebra . (PO-1).
CO3:Analyse concepts of Vector calculus, Higher order differential equations, Laplace Transform, Numerical methods and Linear algebra .(PO-2).
CO4:Using Modern Tool to solve/visualize engineering problems from the concepts of Vector calculus, Higher
order differential equations, Laplace Transform, Numerical methods and Linear algebra(PO-5).

Sub. Name: Mathematics for Mechanical Stream-II Sub. Code: BMATM201

At the end of semester the students should be able to:

CO-01 Understand the basic concepts of Higher order ODE analytically and numerically, vector calculus,Multiple integrals and Laplace transforms. (PO-1).
CO-02 Apply concepts of Higher order ODE and numerically vector calculus, Multiple integrals and Laplace transforms. (PO-1).
CO-03 Analyse concepts of Higher order ODE, vector calculus, Multiple integrals and Laplace transforms.(PO-2).
CO-04 Using Modern Tool to solve/analyse engineering problems from the concepts of Higher order ODEanalytically, vector calculus, Multiple integrals and Laplace transforms. (PO-5).

Sub. Name:Mathematics for CSE Stream-II Sub. Code: BMATS201

At the end of semester the students should be able to:

CO-1 :Understand the basic concepts of Vector calculus, linear algebra, Numerical methods, and
Graph theory.(PO-1).

CO-2 Apply concepts of Vector calculus, linear algebra, Numerical methods, and Graph theory . (PO-1).

CO-3 Analyse concepts of Vector calculus, linear algebra, Numerical methods, and Graph theory.(PO-2).

CO-4 Using Modern Tool to solve/visualize engineering problems from the conceptsof Vector
calculus, linear algebra, Numerical methods, and Graph theory (PO-5).

Sub. Name:Mathematics for Civil engineering Stream-III Sub. Code: BCEMA301

At the end of semester the students should be able to:

CO1 Understand the basic concepts of Fourier series, various transformation, classical and
numerical techniques of partial differential equations, complex functions and Optimizing techniques (PO-1).
CO2 Apply the concept of Fourier series, various transformation, classical and numerical
techniques of partial differential equations, complex functions and Optimizing techniques to solve the problems arising in Engineering field (PO-1).
CO3 Analyze mathematical problems arising in Engineering, using the concepts of Fourier series, various transformation, classical and numerical techniques of partial differential equations, complex functions and Optimizing techniques (PO-2).
CO4 Use modern tool to solve/visualize mathematical problems arising in Engineering
(PO-5).

Sub. Name:Mathematics for CSE Stream-III Sub. Code: BCSMA301

At the end of semester the students should be able to:

CO1 Understand the basic concepts of Fourier, Z-Transformation, Numerical Methods, Partial
Differential Equations, and combinatorics (PO-1).
CO2 Apply the concept of Fourier, Z-Transformation, Numerical Methods, Partial Differential
Equations, and combinatorics to solve the problems arising in Engineering field (PO-1).

CO3 Analyze mathematical problems arising in Engineering, using the concepts of Fourier, Z-
Transformation, Numerical Methods, Partial Differential Equations, and combinatorics (PO-2).

CO4* Use modern tool to solve/visualize mathematical problems arising in Engineering (PO-5).

Sub. Name:Mathematics for ECE Stream-III Sub. Code: BECMA301

At the end of semester the students should be able to:

CO1:Understand the basic concepts of Fourier, Z-Transforms, Partial Differential Equations, Numerical Solutions to ODE &PDE Advanced Linear Algebra (PO-1).

CO2:Apply the concept of Fourier, Z-Transforms, Partial Differential Equations, Numerical Solutions to ODE &PDE, Advanced Linear Algebra to solve the problems arising in Engineering field (PO-1).

CO3:Analyze mathematical problems arising in Engineering, using the concepts of Fourier, Z-Transforms,Partial Differential Equations, Numerical Solutions to ODE &PDE, Advanced Linear Algebra (PO-2).

CO4:Use modern tool to solve/visualize mathematical problems arising in Engineering (PO-5).

Sub. Name:Mathematics for ME Stream-III Sub. Code: BMEMA301

At the end of semester the students should be able to:

CO1: Understand the basic concepts of Fourier, Z-transformation, partial differential equations with numerical methods, and calculus of variation (PO-1).
CO2 :Apply the concept of Fourier, Z-transformation, partial differential equations with numerical methods, and calculus of variation to solve the problems arising in Engineering field (PO-1).
CO3 :Analyze mathematical problems arising in Engineering, using the concepts of Fourier, Z-transformation, partial differential equations with numerical methods, and calculus of variation(PO-2).
CO4* :Use modern tool to solve/visualize mathematical problems arising in Engineering(PO-5).

Sub. Name:Mathematics for EEE Stream-III Sub. Code: BEEMA301

At the end of semester the students should be able to:

CO1 Understand the basic concepts of Fourier series, various transformation, classical and
numerical techniques of partial differential equations, complex functions and Optimizing techniques (PO-1).
CO2 Apply the concept of Fourier series, various transformation, classical and numerical
techniques of partial differential equations, complex functions and Optimizing techniques to solve the problems arising in Engineering field (PO-1).
CO3 Analyze mathematical problems arising in Engineering, using the concepts of Fourier series, various transformation, classical and numerical techniques of partial differential equations, complex functions and Optimizing techniques (PO-2).
CO4 Use modern tool to solve/visualize mathematical problems arising in Engineering
(PO-5).

Sub: Mathematics – IV for ME sub code: BMEMA401

On completion of this course, students are able to:

CO1:Understand the basic concepts of Complex Analysis, Statistical Methods, Probability Distributions, Sampling Theory, Statistics, Queueing Theory and Reliability Engineering /Optimization (PO-1)

CO2:Apply the concept of Complex Analysis, Statistical Methods, Probability Distributions, SamplingTheory, Statistics, Queueing Theory and Reliability Engineering / Optimization to solve theproblems arising in Engineering field. (PO-1)

CO3:Analyze mathematical problems arising in Engineering using the Complex Analysis, Statistical Methods, Probability Distributions, Sampling Theory, Statistics,

Queuing Theory and Reliability Engineering / Optimization (PO-2).

C04 :Use modern tools to solve/visualize mathematical problems arising in Engineering(PO-5).

Sub:Mathematics – IV for EEE sub code: BEEMA401
On completion of this course, students are able to:

CO1:Understand the basic concepts of complex integration, statistical methods, probability distributions, sampling Theory, statistics. (PO-1)
CO2:Apply the concept of complex integration, statistical methods, probability distributions,sampling Theory, statistics.to solve the problems arising in Engineering field. (PO-1)
CO3:Analyze mathematical problems arising in Engineering using the complex integration, statistical methods, probability distributions, sampling Theory, statistics.(PO-2).
C04 Use modern tools to solve/visualize mathematical problems arising in Engineering (PO-5).

Sub:Mathematics – IV for ECE sub code: BECMA401
On completion of this course, students are able to:
CO1: Understand the basic concepts of complex analysis, statistical methods, probability distributions, sampling Theory and optimization. (PO-1)
CO2 :Apply the concept of complex analysis, statistical methods, probability distributions,sampling Theory and optimization to solve the problems arising in Engineering field. (PO-1)
CO3:Analyze mathematical problems arising in Engineering using the complex analysis, statistical methods, probability distributions, sampling Theory and optimization(PO-2).
C04 :Use modern tools to solve/visualize mathematical problems arising in Engineering (PO-5).

Sub:Mathematics – IV for CE sub code: BCEMA401
On completion of this course, students are able to:
CO1 :Understand the basic concepts of Complex Analysis, Statistical Methods, Probability Distributions,Sampling Theory, Statistics, Queuing Theory and Reliability Engineering / Optimization (PO-1)

CO2:Apply the concept of Complex Analysis, Statistical Methods, Probability Distributions, Sampling
Theory, Statistics, Queueing Theory and Reliability Engineering / Optimization to solve the problems arising in Engineering field. (PO-1)

CO3:Analyze mathematical problems arising in Engineering using the Complex Analysis, Statistical Methods, Probability Distributions, Sampling Theory, Statistics,Queuing Theory and Reliability Engineering / Optimization (PO-2).

C04 :Use modern tools to solve/visualize mathematical problems arising in Engineering
(PO-5).

Sub:Mathematics – Mathematics - IV for CSE Stream sub code: BITMA401
On completion of this course, students are able to:
CO1 Understand the basic concepts of Complex Analysis, Statistical Methods, Probability Distributions,Sampling Theory, Statistics, Queuing Theory and

Reliability Engineering / Optimization (PO-1)
CO2: Apply the concept of Complex Analysis, Statistical Methods, Probability Distributions, Sampling Theory, Statistics, Queuing Theory and Reliability Engineering / Optimization to solve the problems arising in Engineering field. (PO-1)
CO3: Analyze mathematical problems arising in Engineering using the Complex Analysis, Statistical Methods, Probability Distributions, Sampling Theory, Statistics,Queuing Theory and Reliability Engineering / Optimization (PO-2).
C04 :Use modern tools to solve/visualize mathematical problems arising in Engineering