



## **MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)**

(An Autonomous Institution Affiliated to Madurai Kamaraj University)

(Accredited with “A” Grade by NAAC)

Pasumalai, Madurai -625004

### **I & II SEMESTER - COURSE OUTCOMES**

#### **ARTS / HUMANITIES**

#### **M.Sc MATHEMATICS**

18PMTTC11

#### **ALGEBRA - I**

##### **Course Outcomes:**

- CO1:** To introduce the advanced ideas in Group theory.
- CO2:** To familiarize Abelian groups and Ring theory.
- CO3:** To know about PID and UFD.
- CO4:** To equip the students with the algebraic structure on skill development.

18PMTTC12

#### **REAL ANALYSIS - I**

##### **Course Outcomes:**

- CO1:** To familiarize the concept of the construction of the real number system.
- CO2:** To introduce the convergence of sequence and series.
- CO3:** To explain about continuity and differentiability on real line  $\mathbb{R}$ .
- CO4:** To emphasize the proofs development.

18PMTTC13

#### **ORDINARY DIFFERENTIAL EQUATIONS**

##### **Course Outcomes:**

- CO1:** To provide knowledge on ODEs.
- CO2:** To familiarize power series solution, special functions.
- CO3:** To teach about existence and uniqueness of solutions of ODEs
- CO4:** To formulate and solve application problems based on skill development.

18PMTTC14

#### **GRAPH THEORY**

##### **Course Outcomes:**

- CO1:** To understand and apply the fundamental concepts in graph theory.
- CO2:** To apply graph theory based tools in solving practical problems.

**CO3:** To develop mathematical maturity.

**CO4:** To improve the different types of proof writing skills.

18PMTE11

### **COMBINATORIAL MATHAMATICS**

**Course Outcomes:**

**CO1:** To introduce combinatorial techniques.

**CO2:** To introduce the application of permutation and combination.

**CO3:** To improve the problem solving techniques

**CO4:** To demonstrate the use of mathematical reasoning by justifying based on skill development.

18PMTE12

### **DIFFERENCE EQUATIONS**

**Course Outcomes:**

**CO1:** To develop essential methods of obtaining numerical solutions.

**CO2:** Explore the use of differential equations as models in various applications.

**CO3:** To learn about the applications of statics and dynamics.

**CO4:** To develop skills and knowledge of standard concepts in difference equations.

18PMTE13

### **MECHANICS**

**Course Outcomes:**

**CO1:** To introduce the basic laws, principles and postulates governing statics.

**CO2:** To introduce the basic laws, principles and postulates governing dynamic systems.

**CO3:** To learn about the applications of statics and dynamics.

**CO4:** To provide the basic knowledge on skill based.

18PMTE14

### **ANALYSIS OF ALGORITHMS**

**Course Outcomes:**

**CO1:** To understand the fundamental concept of sorting.

**CO2:** To know about different types of graph algorithms.

**CO3:** To brief about DFS algorithm.

**CO4:** To apply the Fundamental principle of algorithm for employability.

18PMTTC21

## ALGEBRA - II

### Course Outcomes:

**CO1:** To familiarize various methods on solving algebraic equations.

**CO2:** To introduce inequalities.

**CO3:** To explain about metric measures

**CO4:** To set up and solve linear system and linear inequalities, algebraically based on skill development.

18PMTTC22

## REAL ANALYSIS – II

### Course Outcomes:

**CO1:** To introduce the Riemann-Stieltjes integral.

**CO2:** To familiarize the sequence and series of functions and equicontinuous families of functions.

**CO3:** To acquire knowledge in Exponential, Logarithmic, The Trigonometric and Gamma functions.

**CO4:** To formulate the problems in the sets and will be able to apply the fundamental principle on skill development.

18PMTTC23

## NUMERICAL ANALYSIS

### Course Outcomes:

**CO1:** To develop Numerical computational skills.

**CO2:** To practice Numerical computational applications.

**CO3:** To introduce difference equations and recurrence equations.

**CO4:** To demonstrate understanding and implementation of numerical solution of algorithms based for employability

18PMTTC24

## ADVANCED GRAPH THEORY

### Course Outcomes:

**CO1:** To introduce the graph theoretical concepts.

**CO2:** To explain about advanced application of Graph theory.

**CO3:** To introduce about graph algorithms.

**CO4:** To demonstrate the ability to improve the knowledge about advanced models and methods for employability.

18PMTTE21

## PARTIAL DIFFERENTIAL EQUATIONS

### Course Outcomes:

**CO1:** To expose the students to various methods of solving different kinds of Partial differential equations.

**CO2:** To make the students to apply their knowledge in PDE to other branches of sciences.

**CO3:** To classify First and Second order PDE.

**CO4:** To provide the capability of solving the differential equation problems on skill based.

18PMTE22

### **JAVA PROGRAMMING**

#### **Course Outcomes:**

**CO1:** To understand Java platform.

**CO2:** To know about HTML, tags & Applets.

**CO3:** To initiate the capability on creation and maintenance of websites.

**CO4:** To provide employability.

18PMTE23

### **AUTOMATA THEORY AND FORMAL LANGUAGE**

#### **Course Outcomes:**

**CO1:** To understand the notion of effective computability.

**CO2:** To familiarize finite and infinite Automata, Grammars.

**CO3:** To introduce Push and Down Automata.

**CO4:** To identify different formal language classes and their relationship for employability.

18PMTE24

### **FLUID MECHANICS**

#### **Course Outcomes:**

**CO1:** To understand the concept of fluids.

**CO2:** To explain about ideal fluids integrals.

**CO3:** To inculcate research attitude in diffusion.

**CO4:** To evaluate pressure drop in pipe flow using Hagen-Poiseuille's equation for laminar flow in a pipe for employability.

### **III & IV SEMESTER - COURSE OUTCOMES**

#### **M.Sc., MATHEMATICS**

18PMTC31 **FIELD THEORY AND LATTICES**

#### **Course Outcomes**

**CO1:** To make the students familiar with the concepts of Galois Theory.

**CO2:** To introduce its application in solvability by radicals.

**CO3:** To study about linear transformations and Lattices.

**CO 4:** To make them understand the aspects of field theory.

18PMTC32

### **COMPLEX ANALYSIS**

#### **Course Outcomes**

**CO1:** To understand the concept of analyticity, line integrals, residues.

**CO2:** To familiarize its applications.

**CO3:** To introduce Taylor and Laurent Series.

**CO4:** To introduce the theory of analytic function, complex integration and Riemann Zeta Function.

18PMTC33

### **TOPOLOGY**

#### **Course Outcomes**

**CO1:** To familiarize the concepts of Topology.

**CO2:** To learn the various aspects of Topological spaces.

**CO 3:** To define and categorize the separation axioms which separate a point from another Point.

**CO4:** To introduce the metrization theorem.

18PMTC34

### **STATISTICS**

#### **Course Outcomes**

**CO1:** To develop knowledge on various standard distributions.

**CO2:** To introduce Sampling Theory.

**CO3:** To familiarize the application through various statistical methods.

**CO4:** To create statistical models for real life problems.

18PMTN31

### **MATHEMATICS FOR COMPETITIVE EXAMINATIONS**

#### **Course Outcomes**

**CO1:** To develop knowledge on various standard distributions.

**CO2:** To introduce Sampling Theory.

**CO3:** To familiarize the application through various statistical methods.

**CO 4:** To apply the concepts in Competitive Examinations.

## 18PMTC41      **MEASURE THEORY AND INTEGRATION**

### **Course Outcomes**

**CO1:** To introduce the idea connected to the concepts of measures.

**CO2:** To explain about measurable sets and functions.

**CO3:** To learn more about Riemann and Lebesgue integration.

**CO4:** Ability to use a wide range of references and thinking.

## 18PMTC42              **FUNCTIONAL ANALYSIS**

### **Course Outcomes**

**CO1:** To develop the skills in analyzing the basic structure of Normed spaces.

**CO2:** To get knowledge in using some special classes of functions.

**CO3:** To explain about various types of operators.

**CO4:** To understand Banach and Hilbert spaces and self-adjoint Operators.

## 18PMTC43              **OPERATIONS RESEARCH**

### **Course Outcomes**

**CO1:** To familiarize various decision– making tools.

**CO2:** To introduce some techniques used in OR.

**CO3:** To introduce the application on inventory control system and etc.

**CO4:** To Identify the resources required for a project and generate a plan and work schedule.

## 18PMTE41

### **NUMBER THEORY**

### **Course Outcomes**

**CO1:** To introduce some importance tools in number theory.

**CO2:** To learn about number theoretical functions.

**CO3:** To recognise the importance of the Division Algorithm, and be able to apply it in a variety of scenarios.

**CO4:** To familiarize about primitive roots.

## 18PMTE42

### **ADVANCED TOPOLOGY**

### **Course Outcomes**

**CO1:** To introduce the concept of Local finiteness and Completeness.

**CO2:** To familiarize compactness.

**CO3:** To study about Baire spaces.

**CO4:** To define and categorize the separation axioms which separate a point from another point, a point from a set that does not contain this point and a set from another set.

18PMTE43

### **STOCHASTIC PROCESSES**

#### **Course Outcomes**

**CO1:** To introduce the concepts of Stochastic Process.

**CO2:** To familiarize its applications.

**CO3:** To learn about real life problems.

**CO4:** To provide the classification and properties of, discrete and continuous time Markov chains, simple Markovian queueing models.

18PMTE44

### **FUZZY SETS AND LOGIC**

#### **Course Outcomes:**

**CO1:** To develop the basic knowledge of fuzzy sets and its operations.

**CO2:** To familiarize fuzzy numbers and fuzzy operations.

**CO3:** To explain about the nature and difference between crisp and fuzzy relations.

**CO4:** Be thorough with the concept of Logical connectives and fuzzy graphs.