NARAJOLE RAJ COLLEGE

(NAAC Accredited 'B' Grade Govt. Aided College)
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Course Outcome

Mathematics (Hons.)

Semester	I
Title of Course	Calculus, Geometry & Ordinary Differential Equation
Paper Code	MJ-1T (Theory)
Credits	04
Hours	04 hours/week

The students of Mathematics (H) of Semester-I will acquire the knowledge about the Leibnitz rule, L' Hospital'a rule, reduction formula, conics, solution of differentiation equation, Bernoulli differential Equation by studying this course.

The theory paper (MJ-1T) of this course (MJ-1) provides the student with-

CO1. Describe Leibnitz rule and its application to various problems.

CO2. Write Down L'Hospital's rule with applications in business, economics and life sciences.

CO3. Illustrate reduction formula for different types of functions.

CO4. Classification of conics.

CO5. Write down general, particular, explicit, implicit and singular solutions of a differential equation.

CO6. Illustration of exact differential equation and integrating factors.

CO7. Reduction to separable differential equation.

CO8. Describe linear equation and Bernoulli differential equations.

CO2: Solution of second order linear differential equations (LDEs) with constant coefficients, concept of particular integral.

Semester	I
Title of Course	MATLAB-1
Paper Code	SEC1P
Credits	03
Hours	03 hours/week

The students of Mathematics (H) of Semester-I utilizes the MATLAB environment to acquire with a working knowledge of computer-based problem-solving methods relevant to science and engineering, including programming and numerical analysis techniques. Students outline, write, test, and debug computer programs to solve problems and display results, with emphasis on proper documentation of computer code and reports. Common examples and applications of physics and engineering are used throughout the course.

The paper (SEC 1) of this course provides the student with-

CO1: Students learned features of MATLAB as a programming tool. They are fully familiar to all the features of MATLAB software and easily handle the software.

CO2: To Impart the Knowledge to the students with MATLAB software. This enhances programming knowledge in Research and Development.

CO3: To provide a working introduction to the Matlab technical computing environment. Themes of data analysis, visualization, and programming.

CO4: To introduce students the use of a high-level programming language, Matlab. Scientific problem solving with applications and examples from Engineering.

CO5: New teaching model which include theory & practical running simultaneously is introduced to our students. This method is very effective and helped to develop programming skills and technique to solve mathematical problems.

CO6: Students learned graphic features of MATLAB and they are able to use this feature effectively in the various applications.

Semester	I
Title of Course	Calculus, Geometry & Ordinary Differential Equation
Paper Code	MI-1T (Theory)
Credits	04
Hours	04 hours/week

The students of other science subjects (H) of Semester-I will acquire the knowledge about the Leibnitz rule, L'Hospital'a rule, reduction formula, conics, solution of differentiation equation, Bernoulli differential Equation bystudying this course.

The theory paper (MI-1T) of this course (MI-1) provides the student with-

CO1. Describe Leibnitz rule and its application to various problems.

CO2. Write Down L'Hospital's rule with applications in business, economics and life sciences.

CO3. Illustrate reduction formula for different types of functions.

CO4. Classification of conics.

CO5. Write down general, particular, explicit, implicit and singular solutions of a differential equation.

CO6. Illustration of exact differential equation and integrating factors.

CO7. Reduction to separable differential equation.

CO8. Describe linear equation and Bernoulli differential equations.

CO2: Solution of second order linear differential equations (LDEs) with constant coefficients, concept of particular integral.

Semester	II
Title of Course	Algebra
Paper Code	MJ-2T (Theory)
Credits	04
Hours	04 hours/week

The students of Mathematics (H) of Semester-II will acquire the knowledge about the Complex numbers, De Moivre's Theorem, Equivalence relation, well-ordering property, Division algorithms, Principles of Mathematical induction, linear Transformation, Eigen values and Eigen vectors, Rank of matrix, Cayley Hamilton theorem by studying this course.

The theory paper (MJ-2T) of this course (MJ-2) provides the student with-

CO1.Representation of complex numbers in polar forms.

CO2. Write Down De Moivre's theorem with rational indices with applications.

CO3. Identify relation between roots and coefficients.

CO4. Describe different types of inequalities.

CO5. Describe equivalence relation, well-ordering property of positive integers.

CO6. Write down division algorithm, congruence relation, principles of mathematical induction.

CO7. Representation of linear system of equations in matrix form and derivation of solutions.

CO8. Describe linear transformation.

CO9. Identify rank of a matrix, eigen values, eigen vectors, characteristics equation of a matrix.

CO10. Describe Cayley-Hamilton theorem and its use in finding the inverse of a matrix.

Semester	II
Title of Course	MATLAB-2
Paper Code	SEC2P
Credits	03
Hours	03 hours/week

The students of Mathematics (H) of Semester-II will acquire with multi paradigm numerical computing environment and was developed by Math Works. It is used for integrating computation, visualization, and programming so that the programming environment becomes easy to use. The applications of MATLAB are immense. It is a powerful linear algebra tool with a very good collection of toolboxes; therefore it finds applications in research and teaching on domains of robotics and automation.

The paper (SEC2) of this course provides the student with-

CO1: Students learned graphic features of MATLAB and they are able to use this feature effectively in the various applications

CO2: Students are able to use MATLAB as a simulation tool.

CO3: Major outcome is students are able to work as a 'MATLAB programmer' in the industry because of the hands on practical sessions. This job oriented course will helps students to get the jobs in future.

CO4: Apply a top-down, modular, and systematic approach to design, write, test, and debug sequential MATLAB programs to achieve computational objectives.

CO5: Design and document computer programs and analyses in a careful and complete manner so as to effectively communicate results, to facilitate evaluation and debugging by another programmer, and to anticipate and resolve user errors.

CO6: Introduce common approaches, structures, and conventions for creating and evaluating computer programs, primarily in a procedural paradigm, but with a brief introduction to object-oriented concepts and terminology.

Semester	II
Title of Course	Algebra
Paper Code	MI-2T (Theory)
Credits	04
Hours	04 hours/week

The students of other science subjects (H) of Semester-I will acquire the knowledge about the Complex numbers, De Moivre's Theorem, Equivalence relation, well-ordering property, Division algorithms, Principles of Mathematical induction, linear Transformation, Eigen values and Eigen vectors, Rank of matrix , Cayley Hamilton theoremby studying this course.

The theory paper (MI-2T) of this course (MI-2) provides the student with-

CO1.Representation of complex numbers in polar forms.

CO2. Write Down De Moivre's theorem with rational indices with applications.

CO3. Identify relation between roots and coefficients.

CO4. Describe different types of inequalities.

CO5. Describe equivalence relation, well-ordering property of positive integers.

CO6. Write down division algorithm, congruence relation, principles of mathematical induction.

CO7. Representation of linear system of equations in matrix form and derivation of solutions.

CO8. Describe linear transformation.

CO9. Identify rank of a matrix, eigen values, eigen vectors, characteristics equation of a matrix.

CO10. Describe Cayley-Hamilton theorem and its use in finding the inverse of a matrix.