Name of Department- Mathematics

Course – B.A. (Prog.) 2018-19

Sem	Type of Course	Course Name	Course Outcomes
1	Core	Calculus	The students who take this course will be able to: CO1: Understand continuity and differentiability in terms of limits. CO2: Describe asymptotic behavior in terms of limits involving infinity. CO3: Use derivatives to explore the behavior of a given function, locating and classifying its extrema, and graphing the function.
2	Core	Algebra	The course will enable the students to understand: CO1: Solving higher order algebraic equations CO2: Solving simultaneous linear equations with at most four unknowns. CO3: Overview of abstract algebra, which is useful in their higher studies
3	Core	Analytic Geometry and Applied Algebra	The course will enable the students to: CO1: Identify and sketch curves. CO2: Use three dimensional geometry using vectors. CO3: Understand mathematical models to relate mathematics with daily life problems.
4	Core	Analysis	The course will enable the students to: CO1: Understand basic properties of the field of real numbers. CO2: To test convergence of sequence and series of real numbers. CO3: Distinguish between the notion of integral as anti-derivative and Riemann integral.
5	Core/DSE	Statistics	The course will enable the students to: CO1: Improve the quantitative and analytical skills. CO2: Determine moments and distribution function using moment generating functions. CO3: Test validity of hypothesis, using Chi-square, F and t-tests, respectively.
6	Core/DSE	Differential Equations	The course will enable the students to understand: CO1: Wronskian and its properties CO2: Method of variation of parameters and total differential equations CO3: Lagrange's method, and Charpit's method for solving PDE's of first order.
5	SEC	Transportation and Network Flow Problems	This course will enable the students to solve: CO1: Transportation, Assignment and Traveling salesperson problems. CO2: Network models and various network flow problems.
6	SEC	Statistical Software: R	This course will enable the students to: CO1: Use R as a calculator; CO2: Read and import data in R. CO3: Explore and describe data in R and plot various graphs in R.
5	GE	General Elective-I	The course will enable the students to understand: CO1: The contributions of remarkable Mathematicians in the field of mathematics. CO2:The number systems and their properties, also Latin and Magic squares. CO3:Matrices and determinants, inverse of a matrix, Cramer's rule to solve a systems of linear equations.
6	GE	General Elective-II	The course will enable the students to understand: CO1: The contributions of remarkable Mathematicians in the field of mathematics. CO2:Perspective geometry and its uses in art, Fractals and Fibonacci sequences with their applications in nature. CO3: Types of symmetry and patterns by looking at monuments/buildings/ornamental art, Escher's art, Golden Ratio.

Name of Department- Mathematics

Course – B.A. (Prog.) 2019-20

Sem	Type of Course	Course Name	Course Outcomes
1	Core	Calculus	The students who take this course will be able to: CO1: Understand continuity and differentiability in terms of limits. CO2: Describe asymptotic behavior in terms of limits involving infinity. CO3: Use derivatives to explore the behavior of a given function, locating and classifying its extrema, and graphing the function.
2	Core	Algebra	The course will enable the students to understand: CO1: Solving higher order algebraic equations CO2: Solving simultaneous linear equations with at most four unknowns. CO3: Overview of abstract algebra, which is useful in their higher studies
3	Core	Analytic Geometry and Applied Algebra	The course will enable the students to: CO1: Identify and sketch curves. CO2: Use three dimensional geometry using vectors. CO3: Understand mathematical models to relate mathematics with daily life problems.
4	Core	Analysis	The course will enable the students to: CO1: Understand basic properties of the field of real numbers. CO2: To test convergence of sequence and series of real numbers. CO3: Distinguish between the notion of integral as anti-derivative and Riemann integral.
5	Core/DSE	Statistics	The course will enable the students to: CO1: Improve the quantitative and analytical skills. CO2: Determine moments and distribution function using moment generating functions. CO3: Test validity of hypothesis, using Chi-square, F and t-tests, respectively.
6	Core/DSE	Differential Equations	The course will enable the students to understand: CO1: Wronskian and its properties CO2: Method of variation of parameters and total differential equations CO3: Lagrange's method, and Charpit's method for solving PDE's of first order.
5	SEC	Transportation and Network Flow Problems	This course will enable the students to solve: CO1: Transportation, Assignment and Traveling salesperson problems. CO2: Network models and various network flow problems.
6	SEC	Statistical Software: R	This course will enable the students to: CO1: Use R as a calculator; CO2: Read and import data in R. CO3: Explore and describe data in R and plot various graphs in R.
5	GE	General Elective-I	The course will enable the students to understand: CO1: The contributions of remarkable Mathematicians in the field of mathematics. CO2:The number systems and their properties, also Latin and Magic squares. CO3:Matrices and determinants, inverse of a matrix, Cramer's rule to solve a systems of linear equations.
6	GE	General Elective-II	The course will enable the students to understand: CO1: The contributions of remarkable Mathematicians in the field of mathematics. CO2:Perspective geometry and its uses in art, Fractals and Fibonacci sequences with their applications in nature. CO3: Types of symmetry and patterns by looking at monuments/buildings/ornamental art, Escher's art, Golden Ratio.

Name of Department- Mathematics

Course – B.A. (Prog.) 2020-21

Sem	Type of Course	Course Name	Course Outcomes
1	Core	Calculus	The students who take this course will be able to: CO1: Understand continuity and differentiability in terms of limits. CO2: Describe asymptotic behavior in terms of limits involving infinity. CO3: Use derivatives to explore the behavior of a given function, locating and classifying its extrema, and graphing the function.
2	Core	Algebra	The course will enable the students to understand: CO1: Solving higher order algebraic equations CO2: Solving simultaneous linear equations with at most four unknowns. CO3: Overview of abstract algebra, which is useful in their higher studies
3	Core	Analytic Geometry and Applied Algebra	The course will enable the students to: CO1: Identify and sketch curves. CO2: Use three dimensional geometry using vectors. CO3: Understand mathematical models to relate mathematics with daily life problems.
4	Core	Analysis	The course will enable the students to: CO1: Understand basic properties of the field of real numbers. CO2: To test convergence of sequence and series of real numbers. CO3: Distinguish between the notion of integral as anti-derivative and Riemann integral.
5	Core/DSE	Statistics	The course will enable the students to: CO1: Improve the quantitative and analytical skills. CO2: Determine moments and distribution function using moment generating functions. CO3: Test validity of hypothesis, using Chi-square, F and t-tests, respectively.
6	Core/DSE	Differential Equations	The course will enable the students to understand: CO1: Wronskian and its properties CO2: Method of variation of parameters and total differential equations CO3: Lagrange's method, and Charpit's method for solving PDE's of first order.
5	SEC	Transportation and Network Flow Problems	This course will enable the students to solve: CO1: Transportation, Assignment and Traveling salesperson problems. CO2: Network models and various network flow problems.
6	SEC	Statistical Software: R	This course will enable the students to: CO1: Use R as a calculator; CO2: Read and import data in R. CO3: Explore and describe data in R and plot various graphs in R.

Name of Department- Mathematics

Course – B.A. (Prog.) 2021-22

Sem	Type of Course	Course Name	Course Outcomes
1	Core	Calculus	The students who take this course will be able to: CO1: Understand continuity and differentiability in terms of limits. CO2: Describe asymptotic behavior in terms of limits involving infinity. CO3: Use derivatives to explore the behavior of a given function, locating and classifying its extrema, and graphing the function.
2	Core	Algebra	The course will enable the students to understand: CO1: Solving higher order algebraic equations CO2: Solving simultaneous linear equations with at most four unknowns. CO3: Overview of abstract algebra, which is useful in their higher studies
3	Core	Analytic Geometry and Applied Algebra	The course will enable the students to: CO1: Identify and sketch curves. CO2: Use three dimensional geometry using vectors. CO3: Understand mathematical models to relate mathematics with daily life problems.
4	Core	Analysis	The course will enable the students to: CO1: Understand basic properties of the field of real numbers. CO2: To test convergence of sequence and series of real numbers. CO3: Distinguish between the notion of integral as anti-derivative and Riemann integral.
5	Core/DSE	Statistics	The course will enable the students to: CO1: Improve the quantitative and analytical skills. CO2: Determine moments and distribution function using moment generating functions. CO3: Test validity of hypothesis, using Chi-square, F and t-tests, respectively.
6	Core/DSE	Differential Equations	The course will enable the students to understand: CO1: Wronskian and its properties CO2: Method of variation of parameters and total differential equations CO3: Lagrange's method, and Charpit's method for solving PDE's of first order.
5	SEC	Transportation and Network Flow Problems	This course will enable the students to solve: CO1: Transportation, Assignment and Traveling salesperson problems. CO2: Network models and various network flow problems.
6	SEC	Statistical Software: R	This course will enable the students to: CO1: Use R as a calculator; CO2: Read and import data in R. CO3: Explore and describe data in R and plot various graphs in R.

Name of Department- Mathematics

Course – B.A. (Prog.) 2022-23

Sem	Type of Course	Course/Paper Name	Course/Paper Outcomes
1	MAJOR	Elements of Discrete Mathematics	This course will enable the students to:
			CO1: Understand the basic concepts of sets, relations, functions, and induction.
			CO2: Understand mathematical logic and logical operations to various fields.
			CO3: Understand the notion of order and maps between partially ordered sets.
			CO3: Minimize a Boolean polynomial and apply Boolean algebra techniques to decode switching circuits.
1	MINOR	Topics in Calculus	This course will enable the students to:
			CO1: Understand continuity and differentiability in terms of limits and graphs of certain functions.
			CO2: Describe asymptotic behaviour in terms of limits involving infinity.
			CO3: Use of derivatives to explore the behaviour of a given function locating and classify its extrema and graphing the function.
			CO4: Apply the concepts of asymptotes, and inflexion points in tracing of cartesian curves.
			CO5: Compute the reduction formulae of standard transcendental functions with applications.
1	VAC	Vedic Mathematics-1	The learning outcomes of the course are:
			CO1: Overcome of the fear of Mathematics.
			CO2: Improved critical thinking.
			CO3: Familiarity with the Mathematical; underpinnings and techniques.
			CO4: Ability to do basic mathematics faster and with ease.
			CO5: Appreciate the Mathematical Advancement with of Ancient India.
1	SEC	Statistics with R	The learning outcomes of the course are:
			CO1: To enable students to handle data in the R software, thereby helping them to understand meaningful statistical analysis performed on the data.
			CO2: To enable students to extract data, and perform basic statistical operations in entelling.
			CO3: Data analysis, such as – data cleaning, data visualisation, data summarisation, and regression amongst others.
2	MAJOR	Analytic Geometry	This course will enable the students to:
			CO1: Learn concepts in two-dimensional geometry.
			CO2: Identify and sketch conics namely, ellipse, parabola and hyperbola.
			CO3: Learn about three-dimensional objects such as straight lines and planes using vectors, spheres, cones and cylinders.
2	MINOR	Elementary Linear Algebra	This course will enable the students to:
			CO1: Visualize the space R^n in terms of vectors and the interrelation of vectors with matrices.
			CO2: Familiarize with concepts of bases, dimension and minimal spanning sets in vector spaces.
			CO3: Learn about linear transformation and its corresponding matrix.
2	SEC	Statistics with R	The learning outcomes of the course are:
			CO1: To enable students to handle data in the R software, thereby helping them to understand meaningful statistical analysis performed on the data.
			CO2: To enable students to extract data, and perform basic statistical operations in entelling.
			CO3: Data analysis, such as – data cleaning, data visualisation, data summarisation, and regression amongst others.
2	VAC	Vedic Mathematics-1	The learning outcomes of the course are:
			CO1: Overcome of the fear of Mathematics.
			CO2: Improved critical thinking.
			CO3: Familiarity with the Mathematical; underpinnings and techniques.
			CO4: Ability to do basic mathematics faster and with ease.
			CO5: Appreciate the Mathematical Advancement with of Ancient India.
3	Core	Analytic Geometry and Applied Algebra	The course will enable the students to:
			CO1: Identify and sketch curves.
			CO2: Use three dimensional geometry using vectors.
			CO3: Understand mathematical models to relate mathematics with daily life problems.
4	Core	Analysis	The course will enable the students to:
			CO1: Understand basic properties of the field of real numbers.
			CO2: To test convergence of sequence and series of real numbers.
			CO3: Distinguish between the notion of integral as anti-derivative and Riemann integral.
5	Core/DSE	Statistics	The course will enable the students to:
			CO1: Improve the quantitative and analytical skills.
			CO2: Determine moments and distribution function using moment generating functions.
			CO3: Test validity of hypothesis, using Chi-square, F and t-tests, respectively.
6	Core/DSE	Differential Equations	The course will enable the students to understand:
			CO1: Wronskian and its properties
			CO2: Method of variation of parameters and total differential equations
			CO3: Lagrange's method, and Charpit's method for solving PDE's of first order.
5	SEC	Transportation and Network Flow Problems	This course will enable the students to solve:
			CO1: Transportation, Assignment and Traveling salesperson problems.
			CO2: Network models and various network flow problems.

6	SEC	Statistical Software: R	This course will enable the students to: CO1: Use R as a calculator; CO2: Read and import data in R. CO3: Explore and describe data in R and plot various graphs in R.

Name of Department- Mathematics

Course – B.A. (Prog.) 2023-24

Sem	Type of Course	Course/Paper Name	Course/Paper Outcomes
1	MAJOR	Elements of Discrete Mathematics	This course will enable the students to:
			CO1: Understand the basic concepts of sets, relations, functions, and induction.
			CO2: Understand mathematical logic and logical operations to various fields.
			CO3: Understand the notion of order and maps between partially ordered sets.
			CO3: Minimize a Boolean polynomial and apply Boolean algebra techniques to decode switching circuits.
1	MINOR	Topics in Calculus	This course will enable the students to:
			CO1: Understand continuity and differentiability in terms of limits and graphs of certain functions.
			CO2: Describe asymptotic behaviour in terms of limits involving infinity.
			CO3: Use of derivatives to explore the behaviour of a given function locating and classify its extrema and graphing the function.
			CO4: Apply the concepts of asymptotes, and inflexion points in tracing of cartesian curves.
			CO5: Compute the reduction formulae of standard transcendental functions with applications.
1	VAC	Vedic Mathematics-1	The learning outcomes of the course are:
			CO1: Overcome of the fear of Mathematics.
			CO2: Improved critical thinking.
			CO3: Familiarity with the Mathematical; underpinnings and techniques.
			CO4: Ability to do basic mathematics faster and with ease.
			CO5: Appreciate the Mathematical Advancement with of Ancient India.
1	SEC	Statistics with R	The learning outcomes of the course are:
			CO1: To enable students to handle data in the R software, thereby helping them to understand meaningful statistical analysis performed on the data.
			CO2: To enable students to extract data, and perform basic statistical operations in entelling.
			CO3: Data analysis, such as – data cleaning, data visualisation, data summarisation, and regression amongst others.
2	MAJOR	Analytic Geometry	This course will enable the students to:
			CO1: Learn concepts in two-dimensional geometry.
			CO2: Identify and sketch conics namely, ellipse, parabola and hyperbola.
			CO3: Learn about three-dimensional objects such as straight lines and planes using vectors, spheres, cones and cylinders.
2	MINOR	Elementary Linear Algebra	This course will enable the students to:
			CO1: Visualize the space R^n in terms of vectors and the interrelation of vectors with matrices.
			CO2: Familiarize with concepts of bases, dimension and minimal spanning sets in vector spaces.
			CO3: Learn about linear transformation and its corresponding matrix.
2	SEC	Statistics with R	The learning outcomes of the course are:
			CO1: To enable students to handle data in the R software, thereby helping them to understand meaningful statistical analysis performed on the data.
			CO2: To enable students to extract data, and perform basic statistical operations in entelling.
			CO3: Data analysis, such as – data cleaning, data visualisation, data summarisation, and regression amongst others.
2	VAC	Vedic Mathematics-1	The learning outcomes of the course are:
			CO1: Overcome of the fear of Mathematics.
			CO2: Improved critical thinking.
			CO3: Familiarity with the Mathematical; underpinnings and techniques.
			CO4: Ability to do basic mathematics faster and with ease.
			CO5: Appreciate the Mathematical Advancement with of Ancient India.
3	Core	Analytic Geometry and Applied Algebra	The course will enable the students to:
			CO1: Identify and sketch curves.
			CO2: Use three dimensional geometry using vectors.
			CO3: Understand mathematical models to relate mathematics with daily life problems.
4	Core	Analysis	The course will enable the students to:
			CO1: Understand basic properties of the field of real numbers.
			CO2: To test convergence of sequence and series of real numbers.
			CO3: Distinguish between the notion of integral as anti-derivative and Riemann integral.
5	Core/DSE	Statistics	The course will enable the students to:
			CO1: Improve the quantitative and analytical skills.
			CO2: Determine moments and distribution function using moment generating functions.
			CO3: Test validity of hypothesis, using Chi-square, F and t-tests, respectively.
6	Core/DSE	Differential Equations	The course will enable the students to understand:
			CO1: Wronskian and its properties
			CO2: Method of variation of parameters and total differential equations
			CO3: Lagrange's method, and Charpit's method for solving PDE's of first order.
5	SEC	Transportation and Network Flow Problems	This course will enable the students to solve:
			CO1: Transportation, Assignment and Traveling salesperson problems.
			CO2: Network models and various network flow problems.

6	SEC	Statistical Software: R	This course will enable the students to: CO1: Use R as a calculator; CO2: Read and import data in R. CO3: Explore and describe data in R and plot various graphs in R.