**Format for PSO and CO for AY 2019-20**

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| **Name of Faculty** | **Science and Technology** |
| **Name of Department** | **Mathematics**  |
| **UG Programme** | **B.Sc.**  |
| **Programme Specific Outcomes (PSO)** |
| 1. To develop mathematical curiosity and use inductive and deductive reasoning when solving problems
2. To develop the knowledge, skills and attitudes to pursue further studies in Mathematics.
3. To develop abstract, logical and critical thinking and the ability to reflect critically upon their work and the work of others
4. Know and demonstrate understanding of the concepts from the five branches of Mathematics – Number, Algebra, Geometry and Trignometry, Calculus and Discrete mathematics
5. To see how to use different forms of mathematical representation includes formulae, diagrams, tables, charts, graphs and models
6. To see how to use appropriate mathematical language representation such as notation, symbols and terminology in both oral and written explanations.
7. To create foundation for research and development in Mathematics.
8. To train students in skills related to research, education, industry, and market.
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| **Course Outcomes (CO) F. Y. B. Sc.** |
| **MT-111 : Algebra**1. To study the concepts of Sets, Relations and Functions
2. To discuss the divisibility in integers and their properties
3. To understand the concept of complex numbers and how the number system has been developed.

**MT-112 : Calculus I** 1. To understand the algebraic structure of real numbers, its absolute values.
2. To understand sequences, subsequences and their properties.
3. To understand concept of limit, right and left hand limits.
4. To understand the concept of continuity at a point and continuity of functions on an intervals.

**MT – 113 : Mathematics Practical** 1. Use appropriate mathematical concepts and skills to solve the problems.
2. Select and apply general rules correctly to solve problems those includes in algebra and calculus.
3. To develop skills of solving problems using Maxima software.
4. To improve mathematical problem solving techniques.

**MT-121 : Analytical Geometry** 1. To understand the analytical geometry in two and three dimensions.
2. To understand how to identify the nature and geometrical concepts of conics.
3. To explain the concept of planes and lines in three dimensions.
4. To understand sphere and their tangent planes both for standard and general sphere.

**MT-122 : Calculus II**1. To understand the concept of differentiation
2. To discuss various mean value theorems such as Rolle’s theorem, Lagrange’s mean value theorem and Cauchy’s mean value theorem
3. To understand L’ Hospital rule and using this rule how to find limits of indeterminate forms.
4. To understand the concept of ordinary differential equation and the methods for obtaining their general solutions.
5. To see the concept of Exact differential equations and also integrating factors.

**MT-123 : Mathematics Practical** 1. Use appropriate mathematical concepts and skills to solve the problems.
2. Select and apply general rules correctly to solve problems those includes in algebra and calculus.
3. To develop skills of solving problems using Maxima software.
4. To improve mathematical problem solving techniques.
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| **Course Outcomes (CO) S.Y.B.Sc.** |
| **MT - 211: Multivariable Calculus I** 1. Understand the concept of limit, continuity for the functions of two and three variables.
2. Understand the concept of partial differentiation.
3. Understand the concept of differentiability and equality of mixed partial derivatives of second order .
4. Understand the concept of directional derivative
5. Understand maxima and for functions of two and three variables.
6. To understand the concept of double and triple integrals.

**MT - 212: Laplace Transforms and Fourier series** 1. To understand the concept of Laplace transforms
2. Understand the various properties of Laplace transforms.
3. Understand the concept of Inverse Laplace transforms. .
4. Understand the concept of Gamma function and some standard functions.
5. Understand the various properties of of Inverse Laplace transforms.
6. Understand the concept of Convolution theorem
7. Understand concept of Fourier series and its expansion.

**MT – 213 : Mathematics Practical** 1. Use appropriate mathematical concepts and skills to solve the problems.
2. Select and apply general rules correctly to solve problems those includes in algebra and calculus.
3. To develop skills of solving problems using Maxima software.
4. To improve mathematical problem solving techniques.

**MT - 221: Linear Algebra** 1. Understand the concept of vector space or linear space. 2 Understand the concept of vector subspace 3. Understand what is mean by linearly dependent and independent variables. 4. Understand the concept of basis and dimension of a vector space. 1. Understand the concept of linear transformation, rank and nullity.
2. Understand the concept of inner product space.
3. To discuss Cauchy- Schwartz inequality
4. To understand Gram - Schmidt process to find orthonormal basis.

 **MT – 222 : Numerical methods and their applications** 1. To see how round – off number to appropriate significant figures and also decimal points.
2. To see how to find solutions algebraic and transcendental equations.
3. Discuss least square methods to fit a polynomial to the given data.
4. To see the concept of interpolation and different difference operators.
5. To study numerical differentiation and integration.
6. To understand applications of numerical methods.

**MT – 223 : Mathematics Practical** 1. Use appropriate mathematical concepts and skills to solve the problems.
2. Select and apply general rules correctly to solve problems those includes in algebra and calculus.
3. To develop skills of solving problems using Maxima software.
4. To improve mathematical problem solving techniques.
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