

<b>Class: B.A. IInd Year (Hons.)</b>		<b>Semester-III(ODD)</b>
<b>Subject: MATHEMATICS</b>		
<b>Paper –BM-231: ADVANCED CALCULUS</b>		
<b>Paper:I(UG)</b>		
S. No.	Course Outcomes	
1.	Students will able to learn about continuous function, chain rule of differentiability and Mean value theorems, indeterminate forms & their applications.	
2.	Student come to know about the Limit & continuity of functions of two variables, partial differentiation. Also Taylor's theorem for function for two variables are taught	
3.	Explanations & knowledge of differentiability of two variables and maxima & minima of two variables and their use to solve the problems are provided.	
4.	Students learn about the Curves in space and curvature & torsion, circle of curvature & spherical curvature, surfaces in spaces & envelopes and also they will be able to relate this knowledge in their real life experiences.	

<b>Class: B.A. IInd Year (Hons.)</b>		<b>Semester-III (ODD)</b>
<b>Subject: MATHEMATICS</b>		
<b>Paper: BM -232:PARTIAL DIFFERENTIAL EQUATIONS</b>		
<b>Paper :II(UG)</b>		
S. No.	Course Outcomes	
1.	Formation of pde's, linear and non linear pde's, solution of pde's by lagrange and charpit method Students will get to know how to solve various pde's by various methods	
2.	Complementary functions and particular integrals of pde's, equations reducible to linear equations with constant coefficients Students will get to know to find complete solution of a pde	
3.	Classification of linear equations, solution of linear hyperbolic equations, monge's method for pde of second order Students will get to know about various pde's	
4.	Cauchy problem for second order pde's,characteristic equations and charcteristic curves, solution of laplace, wave and heat equation Student gets to know to solve these equations by separation of variables	

<b>Class: B.A. IInd Year (Hons.)</b>		<b>Semester-III(Odd)</b>
<b>Subject: MATHEMATICS</b>		
<b>Paper:BM-233:Statics</b>		
<b>Paper : III(UG)</b>		
S. No.	Course Outcomes	
1.	In the Unit 1,explanation about basic definitions of forces, their composition and resolution is given. Lami's Theorem and its practical applications are also provided. Like and Unlike parallel forces and Moments and couples are also taught.	
2.	In Unit 2,students are made to learn about Analytical conditions of equilibrium of forces, m-n theorems, Laws of friction, their practical uses and centre of gravity of objects.	
3.	In Unit 3,students learn about the meaning and uses of virtual work ,Forces in three dimensions,and poisot's central axis.	
4.	In Unit 4,students are taught about Wrenches, Null lines, Null planes, Stable and unstable equilibrium.	

Class - B.A.IInd YEAR (Hons.)		Semester-IV (Even)
Subject-Mathematics		
Paper-BM-241:Sequence and Series		
Paper-I(UG)		
S.No.	Course Outcome	
1	In unit I, students learnt about the boundedness of set of real numbers, limit points, open set, closed set, closure of a set in real numbers and their properties. They also learnt about Bolzano-Weierstrass theorem, open covers, Compact sets and Heine- Borel theorem. They will be able to use topology of real numbers in higher education.	
2	In unit II, students learnt about sequences, Bounded and Monotonic sequences, Cauchy's sequence. Students also discuss convergence and divergence of infinite series, geometric series or p-series. Students will be able to analyse the behaviour of different sequences and infinite series.	
3	In unit III, students discuss about some tests like D'Alembert ratio test, Cauchy's root test, Rabbe's test, Demorgan and Bertrand test, Logarithmic test, Cauchy integral test and Cauchy condensation test. students will be able to use different test how to check the infinite series is either convergent or divergent.	
4	In unit IV, students discuss alternating series, Abel's test, Dirichlets test, multiplication of series, Convergence and Absolute convergence of Infinite products. students will be able to check and identify the behaviour of Alternating series and infinite product.	

Class - B.A.IInd Year (Hons.)		Semester-IV (Even)
Subject-Mathematics		
Paper-BM-242:Special Functions and Integral Transform		
Paper: II(UG)		
S.No.	Course Outcome	
1	Explained the topics power series method, Bessel's equation and its solutions Bessel's functions and its properties, Convergence, Recurrence relations and Generating functions. Students learnt how to find the solution of Power series and Bessesl's	
2	Legendre's equation and Hermite's equation and their solutions: Recurrence relations and Generating functions, Orthogonality and Rodrigue's Formula. Students are now able to solve related problems based on it.	
3	Laplace Transforms(L.T.): L.T. of derivatives and integrals, differentiation and integration of L.T., Convolution thm, Inverse Laplace Transforms (I.L.T.): Convolution thm, I.L.T. of derivatives and integrals, solution of O.D.E using L.T. Students learnt about transformations, also learnt that L.T. can be used to solve differential equations.	
4	Fourier transform(F.T.): Linearity Property, Shifting, Modulation, Convolution thm, F.T. of Derivatives, Relation b/w F.T. and L.T. and their solutions. Students learnt that wave simplifications can be done by using F.T.	

**Class - B.A.IInd Year (Hons.)**

**Semester-IV (Even)**

**Subject-Mathematics**

**Paper-BM-243:Programming in C and Numerical Methods**

**Paper: III(UG)**

<b>S.No.</b>	<b>Course Outcome</b>
<b>1</b>	Introduction of Computer, Algorithm , Flowchart, Operator, Expression, Keywords, Importance of C'. Students learnt the various algorithm techniques and flowcharts in order to make programs
<b>2</b>	functions, Introduction to higher level languages, Loops, While loop, Do loop, For loop, Statement-If, If Else Statement, Nested If statement. students learnt define ,declare and call functions and nesting of various loops.
<b>3</b>	Array ,Structure and Unions Bisection method, newton raphson method , secant method students learnt about arrays and to find roots of algebraic and transcendental equations.
<b>4</b>	Gauss Elimination Method, Gauss Seidal Method , Triangularisation Method , LU Decomposition. students learnt to find solution of linear non homogeneous system of m equations in n unknowns