Pravara Medical Trust's

Arts, Commerce &Science College, Shevgaon

POs, PSOs and COs
2023-24 (CBCS-2019 Pattern)

Department of Mathematics

PROGRAMME: B.SC. (MATHEMATICS) (GENERAL)	
PROGRAMME OUTCOMES	PO1: Critical Thinking: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
	PO2: Effective Communication: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology.
	PO3: Social Interaction: Elicit views of others, mediate disagreements and help reach conclusions in group settings.
	PO4: Effective Citizenship: Demonstrate empathetic social concern and equity centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering
	PO5: Ethics: Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.
	PO6: Environment and Sustainability: Understand the issues of environmental contexts and sustainable development.
	PO7: Self-directed and Life-long Learning: Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological change

PROGRAMME SPECIFIC	PSO1: Give the students a sufficient knowledge of fundamental

OUTCOMES	principles, methods and a clear perception of innumerous power of mathematical ideas and tools and know how to use them by modeling, solving and interpreting.
	PSO2: Reflecting the broad nature of the subject and developing mathematical tools for continuing further study in various fields of science.
	PSO3: Enhancing students' overall development and to equip them with mathematical modeling abilities, problem solving skills , creative talent and power of communication necessary for various kinds of employment .
	PSO4: Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study.

COURSE OUTCOMES:

F.Y.B.SC. (2019 PATTERN)
SEMISTER-I

COURSE	COURSE OUTCOMES
Paper I Course Code: MT 111 Course Name: Algebra	CO 1: Explain [L2: Understanding] the concept of set, relation, equivalence relations and functions.
	CO 2: Apply [L3: Applying] well ordering principal and Mathematical indction.
	CO 3: Solving [L5: Evaluating] examples of gcd, lcm.
	CO 4: Creating [L6: Creating] Argand diagram in the complex plane. Also Able to find nth root of unity using De-Moivre's theorem
Paper II Course Code: MT 112 Course Name: Calculus	CO 1: Understand [L2: Understanding] the concept of algebraic and ordered properties of set of real numbers.
	CO 2: Describing [L1: Remembering] definition of sequence, limit of sequence, convergence and divergence.
	CO 3: Finding [L3: Applying] limit of sequence , Graphs of functions and determine [L3: Applying] continuity of real valued functions
	CO 4: Understand [L2: Understanding] the minimum -maximum theorem, Location of root theorem and Bolzano's intermediate value theorem. Also verifying [L4: Analyzing] with examples.
Paper III Course Code: MT113 Course Name: Maths Practical	CO 1: Finding [L5: Evaluating] equivalence relation and partition of set.
	CO 2: Applying [L3: Applying]Euler's theorem and Fermat's to find remainder.
	CO 3: Solve [L5: Evaluating] problems of increasing and decreasing function. Also determine [L5: Evaluating] the convergent and divergent sequence.
	CO 4: Explain [L2: Understanding] maxima software use for solving problems in calculus and algebra .Constructing [L6: Creating] graphs using Maxima software's.

SEMISTER-II

COURSE	COURSE OUTCOMES
Paper I Course Code: 121 Course Name: Analytical Geometry	CO 1: Know [L3: Applying] the concept of change of origin and rotation of axes. Use to reduce equation of second degree to standard form..

	CO 2: Determine [L5: Evaluating] equation of plane and lines in space with some given conditions
	CO 3: Finding [L5: Evaluating] perpendicular distance from point to the plane and angle between two lines and planes..
	CO 4: Understand [L2: Understanding] the concept of sphere and finding [L5: Evaluating] equation of sphere passing through given circle
Paper II Course Code:122 Course Name: Calculus II	CO 1: Understand [L2: Understanding] the definition of derivative and its properties..
	CO 2: Solving[L5: Evaluating] examples using various Mean value theorems and finding increasing and decreasing nature of function by applying MVT
	CO 3: Finding limits of function using [L3: Applying] L'Hospital rule. Also describe standard nth derivatives of some function and hence finding Taylors series.
	CO 4: Solving [L5: Evaluating] first order first order differential equation and creating some application of ODE in real life.
Paper III Course Code:123 Course Name: Maths Practical	CO 1: Solving [L5: Evaluating] examples on Mean value theorem and verifying it on Maxima software.
	CO 2: Finding [L5: Evaluating] solution of LDE and Exact ODE.
	CO 3: Understand [L2: Understanding] the translation and rotation of axes using Maxima.
	CO 4: Explain [L2: Understanding] the concept of plane, lines and sphere in space.

S.Y.B.SC. (2019 PATTERN)
SEMISTER-III

COURSE	COURSE OUTCOMES
Paper I Course Code: MT231 Course Name: Calculus of Several Variables	CO 1:.Exaplain [L2] level set, Graph, domain and range of function of several variables.
	CO 2: Compute [L5] limit and derivative of function of several variables
	. CO 3: Determine [L5] the equations of lines and planes using vectors and apply the chain rule for functions of several variables.
	CO 4: Apply [L3] Double and integral to find area and volume.
Paper II Course Code:MT232(A) Course Name: Numerical Methods and Its Applications	CO 1: Explain [L2] different types of digits and errors.
	CO 2:.Find the solution of algebraic and Transcendental Equations using [L3: Applying] Bisection method, The method of False position.
	CO 3: Constricting [L:6 Creating] Newton's Forward and Backward table and hence determine [L5: Evaluating] interpolating polynomial.
	CO 4:Able to find numerical solution of first order ordinary differential equations using [L3: Applying] Taylor Series method, Euler's method, Modified Euler's methods, Runge - Kutta Methods 2nd and 4th order
	CO-6. Understand the Boolean algebra and logic circuit
Paper III Course Code: MT233 Course Name: Mathematics Practical	CO 1: Explain [L2: Understanding] maxima software use for solving problems in calculus and numerical method.
	CO 2: Determine [L3] limit, level set, continuity derivative of

based on MT - 231 and MT -232	functions by maxima
	CO 3:.Solving algebraic and transcendental equation using [L3] maxima.
	CO 4:.Construct [L6: Creating] a programme in Maxima for solving ordinary differential equation by numerically.

SEMISTER-IV

COURSE	COURSE OUTCOMES
Paper I Course Code:MT241 Course Name: Linear Algebra	CO 1:Understand the basic ideas of vector algebra: linear dependence and independence and spanning
	; CO 2: Identify [L3: Applying] the row space, column space and null space of a matrix, and be familiar with the concepts of dimension of a subspace and the rank and nullity of a matrix.
	CO 3: Make use of [L3: Applying] Dimension Theorem to find dimension of matrix and linear transformation.
	CO 4: Determine [L5: Evaluating] orthogonal basis of inner product space.
Paper II Course Code: MT242(A) Course Name: Vector Calculus	CO 1: Perform [L2: Understanding] standard operations on vectors in two dimensional space and three-dimensional space.
	CO 2: Compute [L3: Applying] the dot product and cross product of vectors, length of vectors, and angles between vectors.
	CO 3: Make use of [L3: Applying] Line integral to find Arc lengths, Curvature of the curve.
	CO 4: Evaluating [L5] surface integral using Greens and stokes theorem.
Paper III Course Code:MT243 Course Name: Mathematics Practical	CO 1: Comparing [L5: Evaluating] different subspace of vector space.
	CO 2: Make use of [L3: Applying] Maxima software to solve examples on Rank, Nullity of the matrix and linear transformation..
	CO 3: Identifying [L2: Understanding] compressible and incompressible vector field
	CO 4: Construct [L5: Creating] a program to solve problems of surface integral using Maxima.