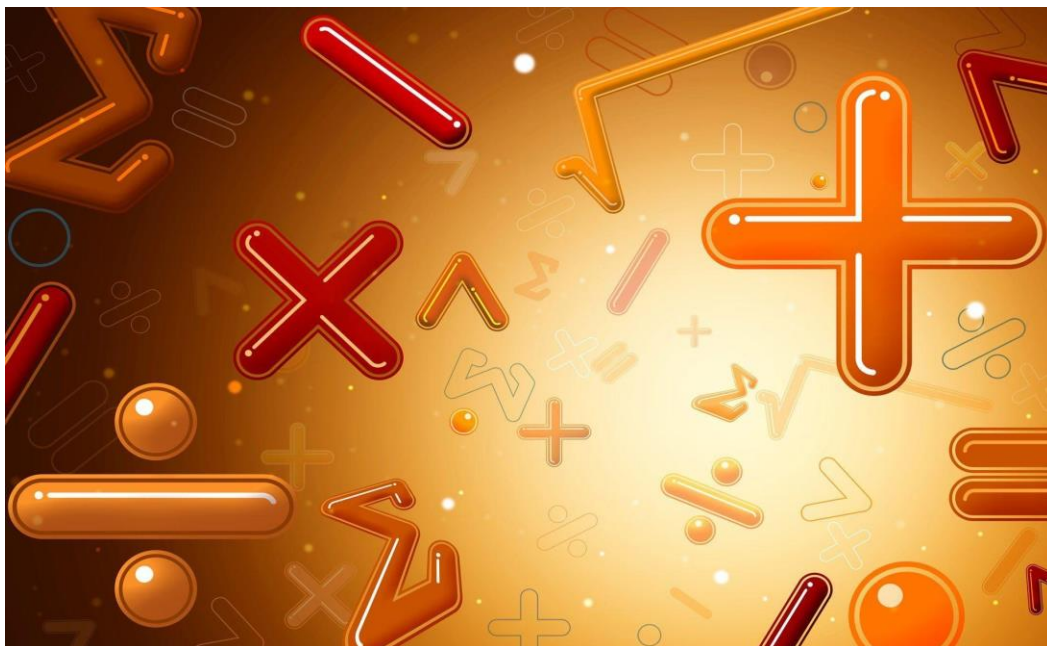




PSC & KVSC Government College

(Affiliated to Rayalaseema University, Kurnool)
Bommalasatram, Nandyal, Nandyal District
Andhra Pradesh - 518502

POs, PSOs and Cos Mapping



Department of Mathematics

PROGRAMME OUTCOMES (POs)

On successful completion of Graduate Program, Graduating Students/ Graduates will be able to:

PO 1	Domain Expertise: Able to demonstrate a thorough understanding and grasp more academic subjects that are part of an undergraduate program of study.
PO 2	Effective Communication Skills: Effectively convey thoughts and ideas. Enhance the ability to present noteworthy information in a clear and concise manner to various groups
PO 3	Critical Thinking: Evaluating and analyzing arguments, assertions, and opinions using empirical data. The ability to identify relevant assumptions or implications and construct logical arguments. Critically analyse practices, policies, and theories by utilizing a scientific approach to knowledge acquisition.
PO 4	Critical Problem Identification & Solving: The ability to apply one's competences to solve unfamiliar challenges based on what has been learned Apply one's learning to real-life scenarios.
PO 5	Teamwork / Coordination: Being able to facilitate a group's cooperative effort and act together as a group or team to achieve a common goal. Work effectively as an individual as well as a member of the team.
PO 6	IT literacy skills: The ability to utilize ICT in various learning situations. Using ICT tools to access, retrieve, and modify authenticated data using data analysis
PO 7	Life-long learning and Research related skills: Ability to habitualize self-learning and self-motivation Acclimate to the ever-increasing demands of the workplace and life. Skill in planning, conducting, and reporting the outcomes of an experiment or investigation. Ability to define a problem, test the problem, pose appropriate questions, and synthesize and articulate the problem
PO 8	Environmental Longevity: Get environmental awareness and follow eco-friendly practices to create a clean environment.
PO 9	Moral and Ethical Consciousness: Ability to live moral and ethical ideals and to use ethical practices in all aspects of one's job. Capable of demonstrating the ability to recognize ethical issues relevant to one's work, abstain from unethical behavior, show respect for environmental and sustainability issues, and act impartially and truthfully in all aspects of one's work.
PO 10	Effective Project Management: Determine the project's goals, objectives, and components, as well as the appropriate completion date. Plan and organize in such a way as to meet the targets on time. Be capable of recognizing opportunities and developing contingency plans.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

Students will be able to apply critical thinking skills to solve problems that can be modelled mathematically, to critically interpret numerical and graphical data, to read and construct mathematical arguments and proofs, to use computer technology appropriately to solve problems and to promote understanding, to apply mathematical knowledge to a career related to mathematical sciences thus cultivating a proper attitude for higher learning in mathematics. Students will be able to

PSO 1	Think in a critical manner
PSO 2	Know when there is a need for information, to be able to identify, locate, evaluate, and effectively use that information for the issue or problem at hand.
PSO 3	Formulate and develop mathematical arguments in a logical manner.
PSO 4	Acquire good knowledge and understanding in advanced areas of mathematics and statistics, chosen by the student from the given courses.
PSO 5	Understand, formulate and use quantitative models arising in social science, Business and other contexts.
PSO 6	A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology.
PSO 7	Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study.
PSO 8	Student is equipped with mathematical modeling ability, problem solving skills, creative talent and power of communication necessary for various kinds of employment

PSO-PO MAPPING

		POs									
PSOs		1	2	3	4	5	6	7	8	9	10
	1	*	*	*		*	*		*		*
	2	*		*	*		*			*	*
	3	*	*	*		*			*	*	
	4	*	*	*	*	*			*		
	5	*		*							*
	6	*	*	*			*	*		*	
	7	*		*				*			
	8	*	*	*	*		*		*	*	*

COURSE OUTCOMES (Cos)

Course Code: C1310

Course Name: Differential Equations

Upon completion of this course, students would be able to		PSO	PO
CO 1	Extract the solution of differential equations of the first order and of the first degree byvariables separable, Homogeneous and Non-Homogeneous methods	3,8	3,5,9
CO 2	Find a solution of differential equations of the first order and of a degree higher than the firstby using methods of solvable for p, x and y.	3	3,4,8
CO 3	Compute all the solutions of second and higher order linear differential equations withconstant coefficients, linear equations with variable coefficients.	3	1,6
CO 4	Solve simultaneous linear equationswith constant coefficients and Total Differential equations.	3	1,5,9
CO 5	Form partial differential equations	3,8	1,6,7
CO 6	Find the solution of First order partial differential equations for some standard types.	1	3,4,9
CO 7	Apply Laplace transform to solve second order linear differential equation and simultaneouslinear Differential equations.	3,8	2,9,10,
CO 8	Use inverse Laplace transform to return familiar functions	3	4,9

Course Code: C2310

Course Name: Solid Analytical Geometry

Upon completion of this course, students would be able to		PSO	PO
CO 1	Describe the various forms of equation of a plane, straight line, Sphere, Cone and Cylinder.	2	1.4,6
CO 2	Find the angle between planes, Bisector planes, Perpendicular distance from a point to aplane, Image of a line on a plane, Intersection of two lines	3	4,7,9
CO 3	Define coplanar lines and illustrate	7	5,8,9
CO 4	Compute the angle between a line and a plane, length of perpendicular from a point to a line	7	4,3
CO 5	Student will learn geometry of line, plane and sphere and their equations in various formsin detail.	3	5,7,9
CO 6	Student will learn geometry of two dimensions and three dimensions	2	4,8,9

Course Code: C3310

Course Name: Abstract Algebra

Upon completion of this course, students would be able to		PSO	PO
CO 1	Demonstrate understanding of and the ability to verify relationships between operations satisfying various properties (e.g. commutative property)	4	1,7,8
CO 2	Demonstrate understanding of and the ability to work within various algebraic structures	5	2,4,6
CO 3	Acquire the basic knowledge and the structure of Group, Subgroup and Cyclic Groups	2	1,2,3
CO 4	Explain the significance of the notion of a normal subgroup, and of a simple group	1	4,7
CO 5	Analyze and demonstrate examples of subgroups, normal subgroups and quotient groups	1	4,6
CO 6	Acquire the notion of permutations and operations on them	4	3,5,6
CO 7	Explain the terms isomorphism and homomorphism	3	2,4,8
CO 8	Describe the characteristics of a ring, quotient rings and ideals	1	1,5,9
CO 9	Familiarize with Rings, Integral Domains, Fields and Divisors of Zero	2	7,9

Course Code: C 4310 A

Course Name: Real analysis

Upon completion of this course, students would be able to		PSO	PO
CO 1	Learn the basic facts in logic and set theory.	1	1,4,6
CO 2	Learn to define sequence in terms of functions from $\mathbb{N}$ to a subset of $\mathbb{R}$ and to understand several properties of the real line.	2	1,5,6
CO 3	Recognize bounded, convergent, divergent, Cauchy and monotonic sequences and to calculate their limit superior, limit inferior, and the limit of a bounded sequence.	4	2,3,9
CO 4	Use the ratio, root, alternating series and limit comparison tests for convergence and absolute convergence of an infinite series of real numbers.	5	4,8,10
CO 5	Real-valued functions defined on an interval, limit and Continuity of a function. Algebra of limits. Differentiability of a function.	3	2,4,6
CO 6	Statement of Rolle's Theorem and its geometrical interpretation. Mean value theorems of Lagrange and Cauchy. Statements of Taylor's and Maclaurin's theorems with Lagrange's and Cauchy's forms of remainders. Taylor's and Maclaurin's infinite series of various functions.	2	3,6,7
CO 7	Riemann integration properties, Fundamental theorem of integral calculus	8	3,4,9

Course Code: C 4310 B
Course Name: Linear Algebra

Upon completion of this course, students would be able to		PSO	PO
CO 1	Define Vector Space, Quotient space Direct sum, linear span and linear independence, basis and inner product.	2	1,3,5
CO 2	Discuss the linear transformations, rank, nullity.	5,7	2,5,6
CO 3	Find the characteristic equation, eigen values and eigen vectors of a matrix	5,6	1,5,8
CO 4	Prove Cayley- Hamilton theorem, Schwartz inequality, Gram schmidt orthogonalization process	5,7	2,3,8
CO 5	Solve the system of simultaneous linear equations	2	4,5 6
CO 6	To learn basic concepts of vector space which is used in other pure mathematical subjects and engineering	2	1 ,4, 8

Course Code: C53105A
Course Name: Ring Theory and Vector Calculus

Upon completion of this course, students would be able to		PSO	PO
CO 1	To write precise and accurate mathematical objects in ring theory	6	1,3,5
CO 2	For checking the irreducibility of higher degree polynomials over rings	8	3,7,8
CO 3	To understand the concepts like ideals and quotient rings.	4	2,9
CO 4	To understand the concept of ring homomorphism.	5	4,6
CO 5	Find and interpret the gradient curl, divergence for a function at a given point.	1	1,3,5
CO 6	Interpret line, surface and volume integrals	1	2,9,10
CO 7	Evaluate integrals by using Green's Theorem, Stokes theorem, Gauss' Theorem	1	3,4,9

Course Code: C53106 B

Course Name: Laplace transforms

Upon completion of this course, students would be able to		PSO	PO
CO 1	Able to understand the Laplace transform of elementary functions.	3,5	1,3,5,8
CO 2	Able to use the rules of integration & definition of Laplace transform students to prove the properties of Laplace transform.	5,7	2,4,10
CO 3	Learns the topics inverse Laplace transform, application of Laplace transform helps to solve linear higher order differential equation, system of differential equations.	3,5	1,5,7,10

Course Code: C 53106 C

Course Name: Linear Programming

Upon completion of this course, students would be able to		PSO	PO
CO 1	Introduction to linear programming problems. Mathematical formulation of LPP. Graphical solution.	2	1,4,6
CO 2	Convex sets. Basic solutions (B.S.) and non-basic solutions. Reduction of B.F.S from B.S.	5	1,3,4
CO 3	Theory of simplex method. Optimality and unboundedness, the simplex algorithm, simplex method in tableau format, introduction to artificial variables, two-phase method. Big-M method and their comparison.	7	2,5,7
CO 4	Duality, formulation of the dual problem, primal-dual relationships, economic interpretation of the dual.	3	1,4,9
CO 5	Transportation problem and its mathematical formulation, northwest-corner method, least cost method and Vogel approximation method for determination of initial basic solution. Algorithms for solving transportation problems.	8	3,5,6,7
CO 6	Assignment problem and its mathematical formulation, Hungarian method for solving assignment problems.	6	2,4,9