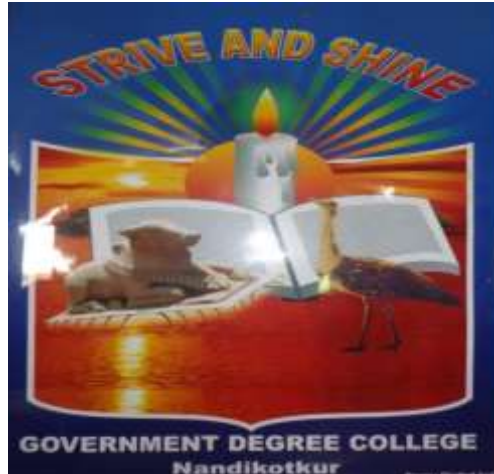


GOVERNMENT DEGREE COLLEGE

NANDIKOTKUR, Nandyal (Dist.,)

DEPARTMENT OF MATHEMATICS



Programme Outcomes (POs)
Programme Specific Outcomes(PSOs)
&
Course Outcomes (COs)

POs, PSOs & COs Mapping

PROGRAMME OUTCOMES

Students admitted in to B.Sc. Programme are expected to acquire the following outcomes

PO1	Domain Knowledge: Students understand the basic scientific principles and theories related to various phenomena in their disciplines and their relevance in the day-to-day life .Students develop demonstrating comprehensive knowledge and understanding of one or more other disciplines that form a part of an undergraduate programme of study.
PO2	Communication Skills: Students able to express thoughts and ideas effectively in writing and orally and communicate with others using appropriate media, confidently share views and express herself/himself,
PO3	Critical thinking: Student will be able to analyze and synthesize data from a variety of sources and draw valid conclusions and support them with evidence and examples.
PO4	Creativity: Students will be able to • create, perform, or think in different and diverse ways about the same objects or scenarios, • innovate and perform tasks in a better manner
PO5	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.
PO6	Digital and technological skills: The graduates will be able to demonstrate the capability to: • use ICT in a variety of learning and work situations, • access, evaluate, and use a variety of relevant information sources, and use appropriate software for analysis of data.
PO7	Research-related skills: The graduates will be able to demonstrate: • a keen sense of observation, inquiry, and capability for asking relevant/ appropriate questions, • the capacity to develop appropriate methodology and tools for data collection
PO8	Environmental awareness and action: The graduates should be able to demonstrate the acquisition of and ability to apply the knowledge, skills, attitudes, and values required to take appropriate actions for effective waste management, conservation of biological diversity, management of biological resources and biodiversity, forest and wildlife conservation, and sustainable development and living
PO9	Community engagement and service: The graduates will be able to demonstrate the capability to participate in community-engaged services/ activities for promoting the wellbeing of society
PO10	Career opportunities: Students after graduation have several career and employment opportunities such as research firms, agriculture industry, health care industry, pharmacy industry, chemical industry, diagnostic laboratories, software companies, banks, higher studies etc.

ROGRAMME SPECIFIC OUTCOMES (PSOs)

The Department of Mathematics Government Degree College, Nandikotkur, Nandyal Dist. offers three Year (comprising 6 semesters) Undergraduate Programme in Mathematics .After completion of course the, 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.

On successful completion of this course, the students will be able to:

PSO Number	On successful completion of this course, the students will be able to:	PO Addressed
PSO1	Think in a critical manner	3,7
PSO2	Know when there is a need for information, be able to identify, locate, evaluate, and effectively use that information for solving the issue or problem at hand.	4,10
PSO3	Formulate and develop mathematical arguments in a logical manner	4,10
PSO4	Acquire good knowledge and understanding in advanced areas of mathematics and statistics, chosen by the student from the given courses.	1,10
PSO5	Understand, formulate and use quantitative models arising in social science, Business and other contexts.	3,4
PSO6	Recall basic facts about mathematics and should be able to display knowledge of conventions such as notations , terminology.	4,7
PSO7	To improve competency to make eligible and employable in the job market	4,10
PSO8	Student is equipped with mathematical modeling ability, problem solving skills, creative talent and power of communication necessary for various kinds of employment	2,10

PSO-PO Mapping

PO											
PSO		1	2	3	4	5	6	7	8	9	10
	1			*				*			
	2				*						*
	3				*						*
	4	*									*
	5			*	*						
	6				*			*			
	7				*						*
	8		*								*

COURSE OUTCOMES (COs)

SEMESTER-I

Course Code: 20C1310A

Course Name: Differential Equations

CO Number	On successful completion of this course, the student will be able to:	PSO Addressed
CO1	Find the solution of differential equations of the first order and of the first degree by variables separable, Homogeneous and NonHomogeneous methods	2,8
CO2	Find a solution of differential equations of the first order and of a degree higher than the first by using methods solvable for p, x and y.	2
CO3	Find the solutions of second and higher order linear differential equations with constant coefficients, linear equations with variable coefficients.	2
CO4	Solve simultaneous linear equations with constant coefficients and Total Differential equations.	2
CO5	Find the solution of First order partial differential equations for some standard types.	2
CO6	Apply Laplace transform to solve second order linear differential equation and simultaneous linear Differential equations	1,2

SEMESTER-II

Course Code: 20C2310A

Course Name: Three Dimensional Solid Analytical Geometry

CO Number	On successful completion of this course, the student will be able to:	PSO Addressed
CO1	Define the various forms of equation of a plane, straight line, Sphere, Cone and Cylinder	2
CO2	Find the angle between planes, Bisector planes, Perpendicular distance from a point to a plane, Image of a line on a plane, Intersection of two lines	2
CO3	Define coplanar lines and illustrate	3
CO4	learn geometry of line, plane and sphere and their equations in various forms in detail.	3
CO5	Student will learn geometry of two dimensions and three dimensions	3

SEMESTER-III**Course Code: 20C3310****Course Name: Abstract Algebra**

CO Number	On successful completion of this course, the student will be able to:	PSO Addressed
CO1	Acquire the basic knowledge and the structure of Group, Subgroup and Cyclic Groups	3
CO2	Explain the significance of the notion of a normal subgroup, and of a simple group	1
CO3	Analyze and demonstrate examples of subgroups, normal subgroups and quotient groups	1
CO4	Explain the terms isomorphism and homomorphism	3
CO5	Understand the ring theory concepts with the help of knowledge in group theory and to prove the theorems	6

SEMESTER-IV**Course Code: 20C4310A****Course Name: Real Analysis**

CO Number	On successful completion of this course, the student will be able to:	PSO Addressed
CO1	Get clear idea about the real numbers and real valued functions	3
CO2	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.	3
CO3	Recognize bounded, convergent, divergent, Cauchy and monotonic sequences and to calculate their limit superior, limit inferior, and the limit of a bounded sequence.	4
CO4	Know the geometrical interpretation of mean value theorems	2
CO5	Riemann integration properties, Fundamental theorem of integral calculus	8

Course Code: 20C4310B
Course Name: Linear Algebra

CO Number	On successful completion of this course, the student will be able to:	PSO Addressed
CO1	Understand the concepts of vector spaces, subspaces, basis, dimension and their properties	3
CO2	Understand the concepts of linear transformations and their properties	3
CO3	Find the characteristic equation, eigen values and eigen vectors of a matrix	2
CO4	Prove Cayley- Hamilton theorem, Schwartz inequality, Gram schmidt orthogonalization process	2
CO5	Learn the properties of inner product spaces and determine orthogonality in inner product spaces.	2

SEMESTER-V

Long Term Internships

CO1	Explore career alternatives prior to graduation.	PSO 7
CO2	Integrate theory and practice.	PSO 7
CO3	Develop work habits and attitudes necessary for job success.	PSO 7
CO4	Build a record of work experience.	PSO 7
CO5	Develop communication, interpersonal and other critical skills	PSO 7

SEMESTER-VI**Course Code: 20C53106B****Course Name: Multiple Integrals and Applications of Vector Calculus**

CO Number	On successful completion of this course, the student will be able to:	PSO Addressed
CO1	Learn multiple integrals as a natural extension of definite integral to a function of two variables in the case of double integral / three variables in the case of triple integral	2
CO2	Learn applications in terms of finding surface area by double integral and volume by triple integral	2
CO3	Determine the gradient, divergence and curl of a vector and vector identities	3,2
CO4	Evaluate line, surface and volume integrals.	2,8
CO5	understand relation between surface and volume integrals (Gauss divergence theorem), relation between line integral and volume integral (Green's theorem), relation between line and surface integral (Stokes theorem)	4

Course Code: 20C53107B**Course Name: Integrals Transforms with applications**

CO Number	On successful completion of this course, the student will be able to:	PSO Addressed
CO1	Evaluate Laplace transforms of certain functions, find Laplace transforms of derivatives and of integrals.	2
CO2	Determine properties of Laplace transform which may be solved by application of special functions namely Dirac delta function, error function, Bessel function and periodic function	4
CO3	Understand properties of inverse Laplace transforms, find inverse Laplace transforms of derivatives and of integrals	1,4
CO4	Solve ordinary differential equations with constant/ variable coefficients by using Laplace transform method.	2
CO5	Comprehend the properties of Fourier transforms and solve problems related to finite Fourier transforms	4