Government Degree College

Affliated to Andhra University

(Upgraded to Model Degree College under RUSA 2.0)

Paderu, Visakhapatnam-District,AP.

Est:1985 NAAC " B "Grade phone no: 08935 250013 Email.ID :Paderu.jkc@gmail

GOVERNMENTDEGREE COLLEGE,PADERU

VISAKHAPATNAM DIST

DEPARTMENT OF MATHEMATICS

DEPARTMENT PROFILE

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VISION:

To create an exciting and friendly place where everyone can explore and learn about how the world works with the help of practical knowledge.

MISSION:

Our goal is to make sure everyone understands the basics really well, while also trying out new ideas and working with other subjects. We want to help each other grow and discover new things, so we can make big breakthroughs in science together.

OBJECTIVES OF THE DEPARTMENT

- Ensure practical teaching that equips students with a deep understanding of fundamental mathematics principles.
- Cultivate an inclusive and diverse environment where all individuals feel welcome and valued, regardless of background or identity.
- Support the continuous professional growth of faculty, staff, and students through mentorship, training, and opportunities for career advancement.

INTRODUCTION:

In 1985, the Department of Mathematics was established at Government Degree College, Paderu, with a mission to bolster scientific education among students in the surrounding agency areas, thereby combating superstitions. Notably, the college actively encouraged the enrollment of female students in science courses. Moreover, it steadfastly advocated for every student to pursue advanced studies, thereby fostering a culture of academic excellence and knowledge expansion.

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Programme Outcomes:

- A comprehensive understanding of the fundamental principles and concepts in mathematics, physics, and chemistry, including calculus, algebra, mechanics, thermodynamics, atomic structure, chemical bonding, and organic chemistry.
- Students will be able to apply mathematical techniques, physical laws, and chemical principles to analyze and solve complex problems in diverse contexts, including theoretical calculations, experimental data analysis, and real-world applications.
- Students will develop proficiency in designing, conducting, and interpreting experiments in mathematics, physics, and chemistry, utilizing appropriate laboratory techniques, instrumentation, and data analysis methods.
- Students will be able to recognize and appreciate the interconnectedness of mathematics, physics, and chemistry, and apply interdisciplinary approaches to address scientific challenges and explore new research frontiers.
- Students will demonstrate effective communication skills, both orally and in writing, to articulate mathematical concepts, physical principles, and chemical phenomena clearly and coherently to diverse audiences, including peers, instructors, and the broader community.
- Students will develop critical thinking skills and the ability to analyze and evaluate experimental data, and theoretical models,
- These outcomes provide a framework for students to develop a well-rounded understanding of mathematics, physics, and chemistry and prepare them for various career paths in academia, industry, research, and beyond.

Course Outcomes:
Course 1: ordinary differential equations

- After successful completion of this course, the student will be able to; Solve linear differential equations
- Convert non exact homogeneous equations to exact differential equations by using integrating factors.
- Know the methods of finding solutions of differential equations of the first order but not of the first degree
- . 4. Solve higher-order linear differential equations, both homogeneous and non homogeneous, with constant coefficients.
- Understand the concept and apply appropriate methods for solving differential equation

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Course 2: Solid Geometry

- 1.Get the knowledge of planes.
- 2. Basic idea of lines, sphere and cones.
- 3. Understand the properties of planes, lines, spheres and cones.
- 4. Express the problems geometrically and then to get the solution.

Course 3: ABSTRACT ALGEBRA

- Acquire the basic knowledge and structure of groups, subgroups and cyclic groups.
- Get the significance of the notation of a normal subgroups.
- Get the behavior of permutations and operations on them.
- Study the homomorphisms and isomorphisms with applications.
- Understand the ring theory concepts with the help of knowledge in group theory and to prove the theorems.
- Understand the applications of ring theory in various field.

Course 4: REAL ANALYSIS

- Get clear idea about the real numbers and real valued functions.
- Obtain the skills of analyzing the concepts and applying appropriate methods for testing convergence of a sequence/ series.
- Test the continuity and differentiability and Riemann integration of a function.
- Know the geometrical interpretation of mean value theorems

Course 5: LINEAR ALGEBRA

- Understand the concepts of vector spaces, subspaces, basises, dimension and their properties
- Understand the concepts of linear transformations and their properties
- Apply Cayley- Hamilton theorem to problems for finding the inverse of a matrix and higher powers of matrices without using routine methods
- 4. Learn the properties of inner product spaces and determine orthogonality in inner product spaces

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Course 6A: NUMERICAL METHODS

- 1. Understand the subject of various numerical methods that are used to obtain approximate solutions
- 2. Understand various finite difference concepts and interpolation methods.
- 3. Work out numerical differentiation and integration whenever and wherever routine methods are not applicable.
- 4. Find numerical solutions of ordinary differential equations by using various numerical methods.
- 5. Analyze and evaluate the accuracy of numerical methods.

Course-7A:METHEMATICALSPECIAL FUNCTIONS

- Understand the Beta and Gamma functions, their properties and relation between these two functions, understand the orthogonal properties of Chebyshev polynomials and recurrence relations.
- Find power series solutions of ordinary differential equations.
- solve Hermite equation and write the Hermite Polynomial of order (degree) n, also find the generating function for Hermite Polynomials, study the orthogonal properties of Hermite Polynomials and recurrence relations.
- Solve Legendre equation and write the Legendre equation of first kind, also find the generating function for Legendre Polynomials, understand the orthogonal properties of Legendre Polynomials.
- Solve Bessel equation and write the Bessel equation of first kind of order n, also find the generating function for Bessel function understand the orthogonal properties of Bessel unction.

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About the Department:

1. Available courses.

S. NO	NAME OF THE COURSE	DURATION	SYSTEM ADOPTED	SEATS AVAILABLE
1	BSc Web Tech	3 years	Semester	20
2	BSc MPCs	3 years	Semester	50
3	BSc MPC	3 years	semester	50

Cadre strength of the Department :

Teaching posts	Sanctioned	Working
Regular	1	1
Budget Sanctioned Post	1	1

FACULTY OF THE DEPARTMENT

Name of the Faculty	Qualification	Designation	Specialization	Experience
D,Duryodhana	M.Sc,(Ph D)	Lecturer	Mathematics	5 Years
B.Vineela	M.Sc,M.phil	Lecturer	Mathematics	16 Years
K.Prasanna kumari	M.Sc,B.Ed	Lecturer	Mathematics	3 years

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STRENGTH PARTICULARS:

YEAR	NO. OF STUDENTS ADMITTED IN ALL GROUPS
2018-19	71
2019-20	76
2020-21	75
2021-22	116
2022-23	99

Result Analysis :

Year	No. Of Students Appeared	No. Of Students Passed	Pass Percentage
2018-19	75	70	93%
2019-20	62	59	95.2%
2020-21	61	59	95.2%
2021-22	72	69	96%
2022-23	65	62	95.4%

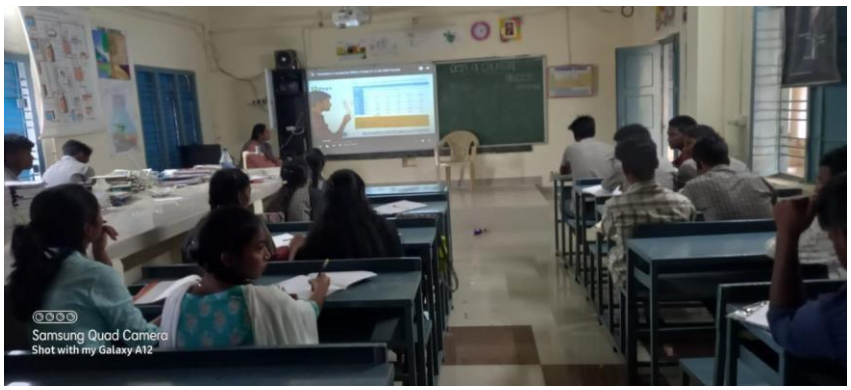
FACILITIES IN THE DEPARTMENT:

Adoption of ICT in Teaching and Learning:

Overall, the adoption of ICT in teaching enables students to adopt learning styles, promote critical thinking and problem-solving skills, and prepare students for the digital age. So our

department adopted ICT based teaching to the students. Also we adopted the learning

management system implemented by APCCE.



Lectures through ICT Based teaching

In addition to instructing students, seminars are also conducted utilizing ICT-based methods.

Departmental Library

To ease excess for students and faculty members, the department maintains its own Library. The library has over 30 books. The Department. has various types of academic text books, Reference books.

Highlights of the Department

The Department has qualified, dedicated and experienced faculty.

The Faculty members also encourage students with free study material for UG examinations as well as Competitive Exams i.e., PGCET Entrance.

The department conducts extension lectures, which is useful to the students to know the current trends in Physics as well as research going on.

Frequent seminars, Quiz programs, Group Discussions are conducted to the students.

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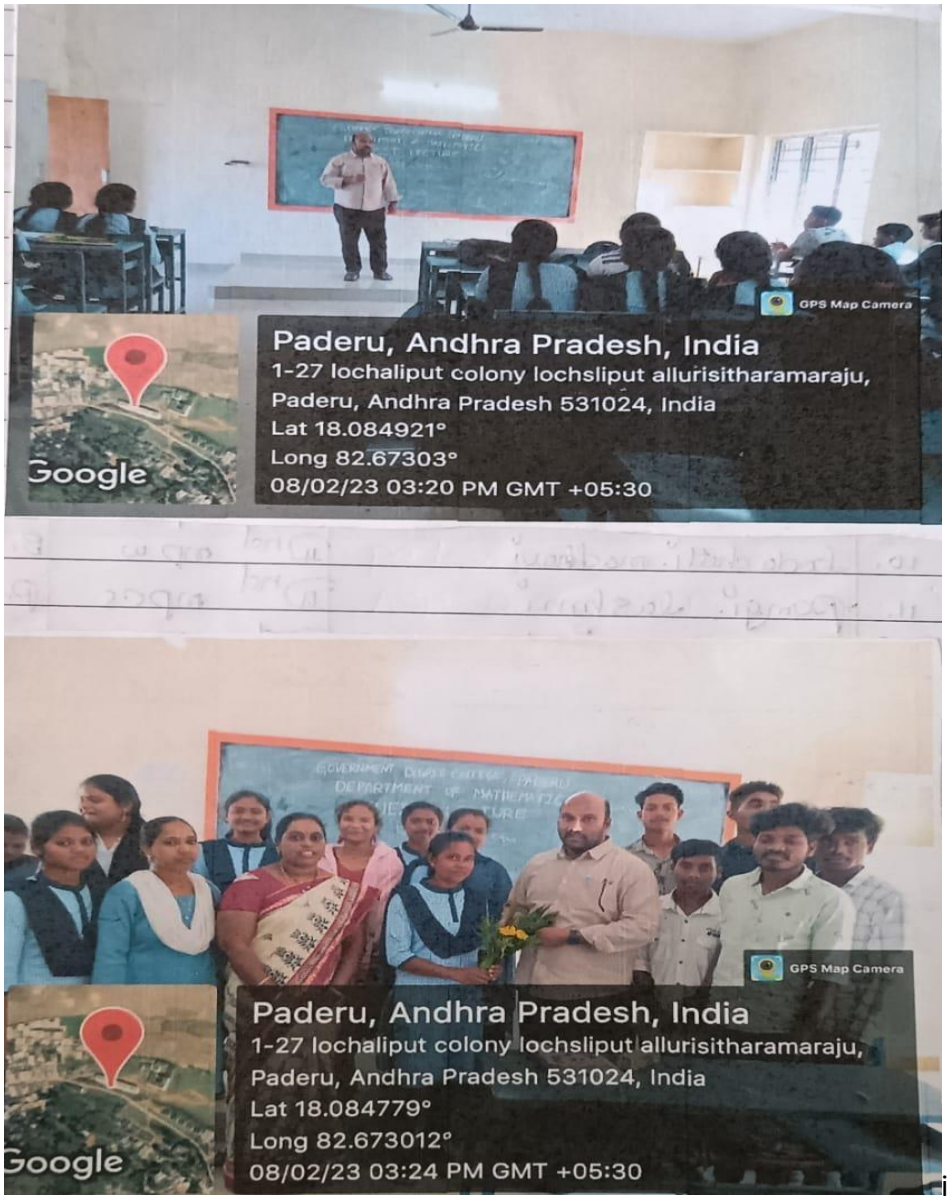
Guest Lectures:

Arranged a guest lecture by the below experienced faculty to improve the knowledge of the students.Lecture by Sri.U.Girija sankar,Lecturer



in Mathematics,GDC,chintapalli

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Lecture by Smt.P.Mangamma, Lecturer in Mathematics, GDC(W),marripalem

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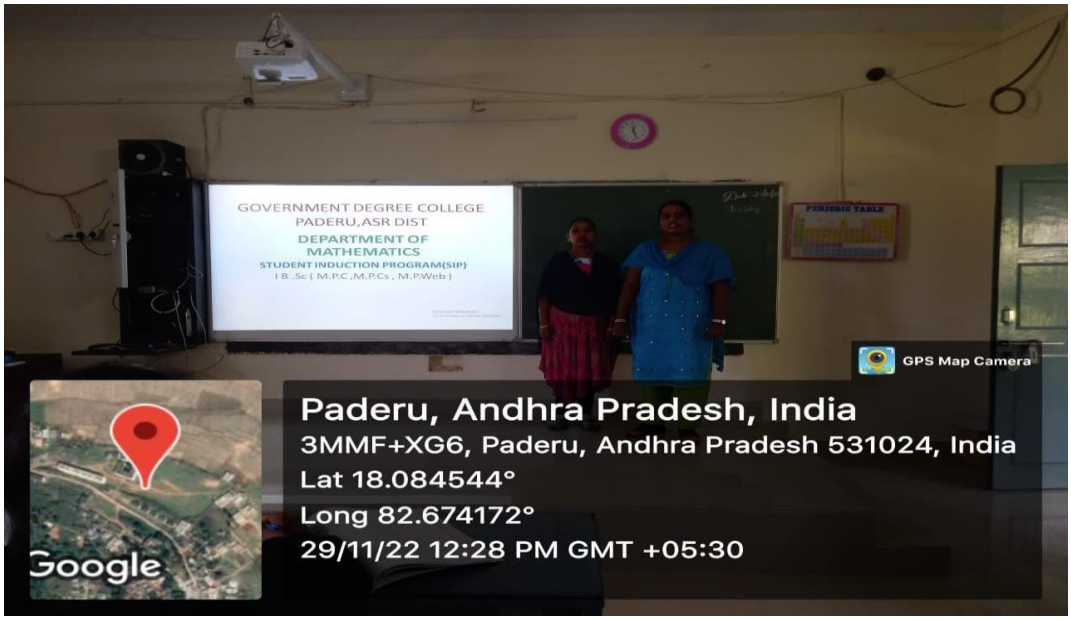
Departmental activities;

Student Induction Programme:

SIP is conducted to the students who joined our college. In this we ensure the students know about the curriculum and instructions of the college.



Quiz programs conducted:

Students are encouraged to participate in various quiz programs conducted by the department of the college and any other institutions so as to develop competitive spirit among them.

Assignments:

At least 10 assignments are conducted in each semester.

Students Achievements of in PGCET:

.	Name of the student	Rank	Course	University Admitted
2021-22	k.chinnaya dora	551	M.Sc	Andhra University

Certificate Courses offered

Year	Name of the Course Offered	No of Hours	No of Students Enrolled
2021-22	Vedic mathematics	30	74
2022-23	Differential calculus	30	71
	Creative and critical thinking	30	75

Online teaching;

Conducted online classes through various digital platforms such as Google meet and zoom during Covid pandemic days.

Future plans:

- To conduct the an National Webinar in Advances in Mathematics.
- To increase the student enrollment ratio in Mathematics higher education.

THANK YOU