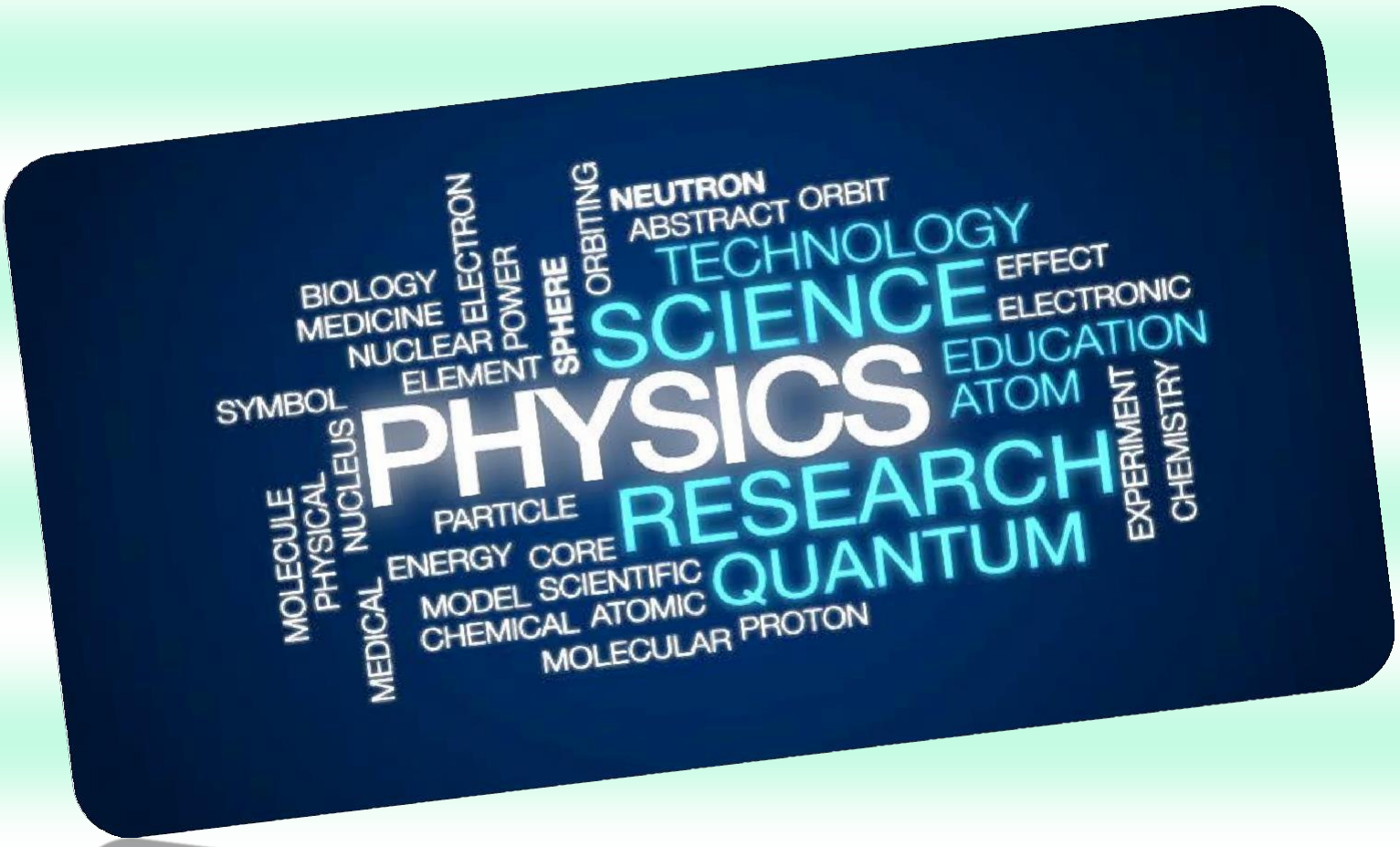
Government Degree College for Women


Golconda, Hyderabad, TS.

# WELCOME TO NAAC PEER TEAM



# About...

The Department of Physics is one of the science departments of Government Degree College for Women, Golconda established in 2015, it had the rare privilege of becoming the first science department of the college. The college is now affiliated to the Osmania University, Hyderabad. Right from 2015, the department offered a 3-year undergraduate program in Mathematics with Physics and Chemistry as subsidiary subjects with an annual evaluation system. Presently The new program is structured on a semester basis which runs through 3 years from the entry-level. From the academic year 2018-19 another Course with Mathematics, Physics and Computer Science has been started.

# VISION

- Enhance intellectual, computational, experimental, communication, analytical and scientific skills of the student.
- To generate Academic, Scientific Temper.

# MISSION

- Learning by doing
- To impart higher education with a multifaceted aspect with basic and advance sciences, excelling the human resource in broader perspectives of the national and global context.

# ACADEMIC PROGRAMS(Bachelor of Science in PHYSICS)

The academic program at the undergraduate level With physics as an optional and mathematics and Chemistry as other optional leads to the bachelor Of science. It is a 3 years program with (CBCS) Choice based credit system.

The academic program at the undergraduate level With physics as one of the optional and mathematics And computer science as the other two options. It is also a 3 years program with (CBCS) choice based Credit system.

## PROGRAMME AND MEDIUM OF INSTRUCTION

B.SC(MPC) E/M AND U/M

B.SC(MPCs) E/M

## THE NO.OF TEACHING POSTS

| Designation | Sanctioned | Filled |
|---|---|---|
| Professors | Nil | Nil |
| Assiciate Professors | Nil | Nil |
| Assisstant Professors | Nil | Nil |
| Lecturer | 1 | 1 |

# FACULTY

| NAME | QUALIFICATION | DESIGNATION | NO.OF YRS EXPERIENCE | NO.OF PhD's |
|---|---|---|---|---|
| Shaik Ahmed | M.Sc,B.Ed | Lecturer | 06 | pursuing |
| N.Kiranmai | M.Sc | Lecturer | 13 | ---------- |

## ➢ *Administrative Responsibilities*

- Guided more than five projects to undergraduate engineering students.
- Appointed as an examiner by Osmania University for spot valuation of undergraduate engineering students.
- Also a member of the Board of Studies Department Physics of Anwarululoom UG and PG College, Hyderabad.

## ➢ *Publication*

- "Effect of Ultrasound on Conductivity of Human Blood Of Different Groups" In International Journal of Science, Environment and Technology, Vol. 4, No 6, 2015.

## ➢ *Membership*

Life Member of Indian Science Congress.

## ➢ *Conferences*

- Presented a paper in two days National Level conference on "**ENVIRONMENTAL RADIATION AND FUNCTIONAL MATERIAL** on 28$^{th}$ and 1$^{st}$ Feb 2015 organized at Department of Physics, Osmania University.
- Participated in two day National Conference on "Recent Advances in Applied Nanomaterial" organized by Department of Physics, University College Of Science, Osmania University, Hyderabad, on 04$^{th}$ and 05$^{th}$ March 2016.
- Participated in a one-day international seminar on "international seminar in mathematics and physical sciences" organized by the Department of chemistry, Physics and Mathematics, Anwarululoom college, Hyderabad 26$^{th}$ Dec 2017.

## ➢ *The Core Papers(CBSC)-2016-2018*

| Semester | Paper [ Theory and Practical ] |
|---|---|
| I sem | Paper – I: Mechanics |
| | Practicals – I: Mechanics |
| II sem | Paper-II: Waves and Oscillations |
| | Practicals – II: Waves and Oscillations |
| III sem | Paper – III: Thermodynamics |
| | Practicals – III: Thermodynamics |
| IV sem | Paper – IV: Optics |
| | Practicals – IV: Optics |
| V sem | Paper –V: Electromagnetism |
| | Practicals – V: Electromagnetism |
| | Paper – VI : Elective – I Solid state physics/ Quantum Mechanics and Applications |
| | Practicals – VI : Elective – I Practical Solid state physics/ Quantum Mechanics and Applications |
| VI sem | Paper – VII : Modern Physics |
| | Practical – VII : Modern Physics Lab |
| | Paper – VIII : Elective – II Basic Electronics/ Physics of Semiconductor Devices |
| | Practicals – VIII : Elective – II Practical Basic Electronics/ Physics of Semiconductor Devices |

# Faculty Profile

| | |
|---|---|
| Name | N.Kiranmai |
| Designation | Lecturer (Contract basis) |
| Mobile Number | 9985820474 |
| Email | Kirannemani.kn@gmail. com |
| Educational Qualifications | M.Sc Physics-(Electronics and Instrumentation) |
| Aadhar Number | XXXXXXXX9730 |
| Date of Birth | 15/12/1984 |
| Date of entering service in DL | 01/11/2007 |
| Joining Date in the Present station | 22/12/2020 |
| Date of entering in Govt Service | |
| Basic Pay & Pay Scale | Rs 40.270 (consolidated) |
| Religion, Category and Caste | Hindu, OC , Brahmin |
| Previous experience before DL with dates and place of work. | |
| Orientation Courses attended with Dates and University | |
| Refresher Courses attended with Dates & University | |
| Workshops attended with dates and place. | |
| Seminars / Workshops conducted with title, dates and place.<br>C ollege/State/Nati onal/Internati onal | |
| Other Training programmes /Courses attended with dates and place. | |
| Faculty Development Programs | --Attended 2 weeks FDP programme on **"Skill Development and Competency enhancement for college teachers"** from 17th-30th June 2020, organized by Govt.Degree College, Parkal, Warangal.<br>-Attended FDP on **"Digital Teaching Tools"** from 29th June -5th July , organized by IQAC of Govt. City College (A) Nayapul, Hyderabad.<br>— Attended FDP on **"Sustainability of Institutions of higher learning in the context of Covid-19: Challenges and Prospectives"** from 6th -11th July 2020 organized by IQAC , Government Degree College, Narsampet.<br>—Attended FDP on **" Recent advances in synthesis , Characterization& application of Nano materials"** from 13th -17th July 2020 organized by Physics division, department of basic science , GMR institute of Technology. |
| | —Attended Webinar on **"Materials and phenomena for device applications & learning of physics- Post Covid-19",** on 13th May |

| | |
|---|---|
| Webinars | 2020 , organized by Govt. City College, Nayapul, Hyderabad.<br>—Attended National level Webinar on **"Dr. Babasaheb Ambedkar's Perspective on Modern Indian Society"** organized by Milind College of Arts ,Aurangabad on 3rd &4th June 2020.<br>—Attended Webinar on **"Bharathiya Nruthya Sangeetha Samalochana"** , on 8th July 2020, organized by WEC of Govt. City College, Nayapul, Hyderabad.<br>—Attended International Webinar on **" ICT enabled educationTeaching, Learning & Evaluation"** organized by Examination Branch Nizam College, from 13th -19th July 2020. |
| Membership in societies | |
| Awards | – |
| Papers published with bibliographic information | – |
| Other Seminar papers | – |
| Resource person/Speaker | – |
| Books published with title | |
| Projects with funding agency, title, amount duration (Completed and ongoing) | |
| Other services | – |

# DEPARTMENT OF PHYSICS

## COURSE OUTCOME

**Modern Physics:**

1: Develop the concepts of modern physics: basic knowledge of special theory of relativity and general theory of relativity, elementary quantum mechanics, nuclear physics, and particle physics.

2: Understand the relationship between observation and theory and their use in building the basic concepts of modern physics.

3: Understand how major concepts developed and changed over time.

4: Capable of analyzing and solving problems using oral and written reasoning skills based on the concepts of modern physics

5: Ability to prepare and organize a presentation on the application of modern physics to modern technology.

**Wave optics:**

1: Understand the basic concepts of wave optics and an ability to compute basic quantities in optics.

2: Learn to use methods for solving differential equations.

3: Experience the diverse applications of the wave equation.

**Solid State Physics:**

1: Understand basic concepts and mathematical methods of solid state physics.

2: Practice problem solving by using selected problems in solid state physics.

3: Explore important connections between theory, experiment, and current applications.

4: Develop a basis for future learning and work experience.

**Nuclear and Particle Physics:**

1: Acquire knowledge in the content areas of nuclear and particle physics, focusing on concepts that are commonly used in this area.

2: Develop and communicate analytical skills in subatomic physics.

3: Develop familiarity with the vast areas of nuclear and particle physics as well as develop an interest in these subjects.

**Classical Mechanics :**

1: Understand the terminology used in Classical Mechanics.

2: Employ conceptual understanding to make predictions, and then approach the problem mathematically.

3: Understand the important connections between theory and experiment.

4: Connect concepts and mathematical rigor in order to enhance understanding.

**Electricity and Magnetism:**

1: Know the vocabulary and concepts of physics as it applies to: Principles of Electric Fields, Gauss's Law, Electric Potential, Capacitance and Dielectrics, Current and Resistance, Direct Current Circuits, Magnetic Fields, Sources of Magnetic Fields, Faraday's Law, Inductance, Alternating Current Circuits, and Electromagnetic Waves.

2: Understand the relationship between electrical charge, electrical field, electrical potential, and magnetism.

3: Be able to use electromagnetic theory and principles in a wide range of applications.

4: Learn a variety of advanced mathematical methods and computer techniques.

5: Develop skill to solve numerical problems on it.

6: Solve mathematical problems involving electric and magnetic forces, fields, and various electro-magnetic devices and electric circuits.

7: Develop explicit problem-solving strategies that emphasize qualitative analysis steps to describe and clarify the problem.

8: Gain confidence in their ability to apply mathematical methods to understand electromagnetic problems to real-life situations.

**Principles of Optics:**

1: To develop an understanding of the principles of optics.

2: To build connections between mathematical development and conceptual understanding.
Thermal and Statistical Physics

**Thermal and Statistical Physics ;**

1: Understand how statistics of the microscopic world can be used to explain the thermal features of the macroscopic world.

2: Be able to use thermal and statistical principles in a wide range of applications.

3: Learn a variety of mathematical and computer techniques.

**Quantum Mechanics:**

1: Learn the mathematical tools needed to solve quantum mechanics problems. This will include complex functions and Hilbert spaces, and the theory of operator algebra. Solutions of ordin ary and partial differential equations that arise in quantum mechanics will also be studied.

2: Develop problem solving methods that will include mathematical as well as numerical computations and solutions.

3: Build connections between mathematical development and conceptual understanding.

**Atomic Physics:**

1: Apply the mathematical tools developed to various quantum mechanics problems.

2: Develop problem solving methods that will include mathematical as well as numerical computations and solutions.

3: Build connections between mathematical development and conceptual understanding.

# PARTICULARS OF STUDENT STRENGTH 2015-2020

| Academic year | Year | course | Strength(MPC&MPCs |
|---|---|---|---|
| | I | B.Sc Physics | 9 |
| 2015-16 | II | B.Sc Physics | Nil |
| | III | B.Sc Physics | Nil |
| | I | B.Sc Physics | 10 |
| 2016-17 | II | B.Sc Physics | 9 |
| | III | B.Sc Physics | Nil |
| | I | B.Sc Physics | 10 |
| 2017-18 | II | B.Sc Physics | 9 |
| | III | B.Sc Physics | Nil |
| | I | B.Sc Physics | 9+17 |
| 2018-19 | II | B.Sc Physics | 10 |
| | III | B.Sc Physics | 10 |
| | I | B.Sc Physics | 4+3 |
| 2019-20 | II | B.Sc Physics | 9+17 |
| | III | B.Sc Physics | 10 |

# TEACHING METHODS ADOPTED TO IMPROVE STUDENT LEARNING

Inn0vative methods such as ppt,smart boaeds, Etc.,.

Guest Lectures by subject experts

Attending mana tv topics delivered by experts And students

Remedial classess for slow learners

# LEARNING RESOURCES

Department library

# DEPARTMENT ACTIVITY

# STUDENT SEMINAR

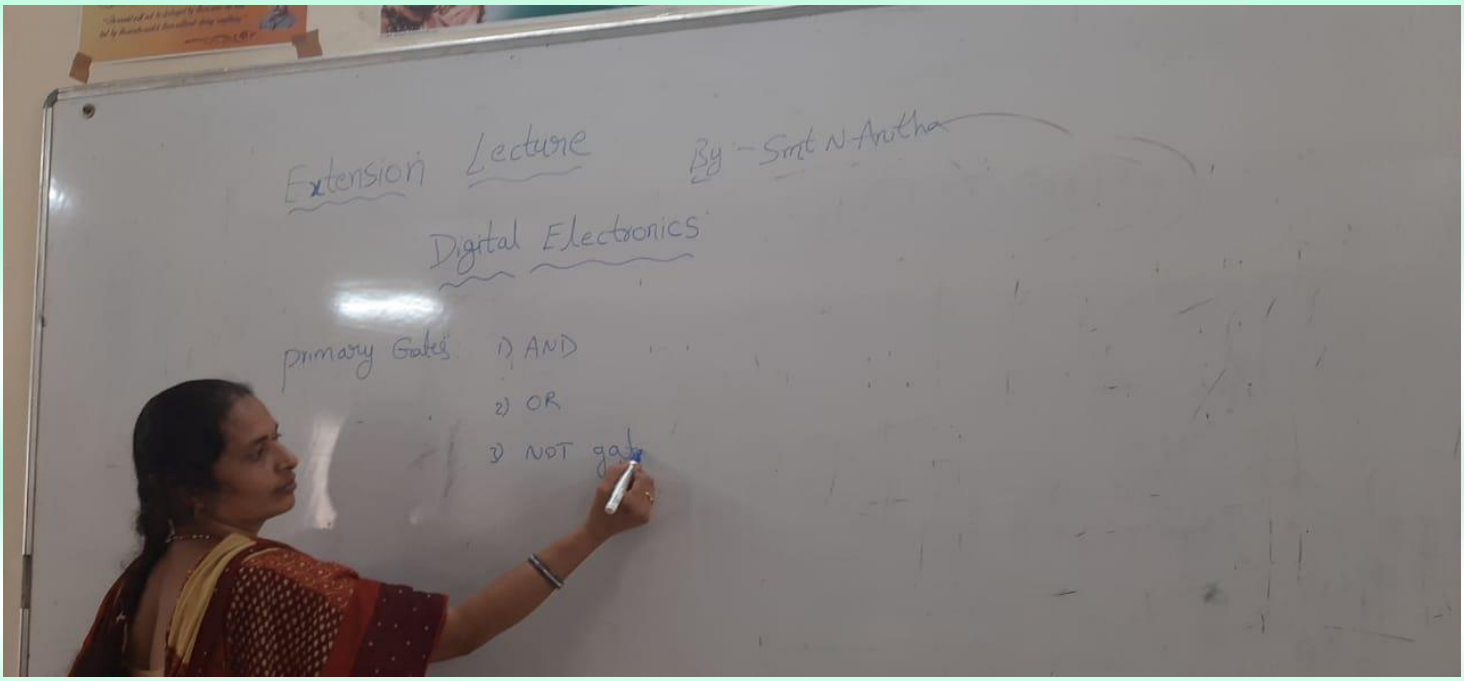

QUIZ

GROUP DISCUSSION

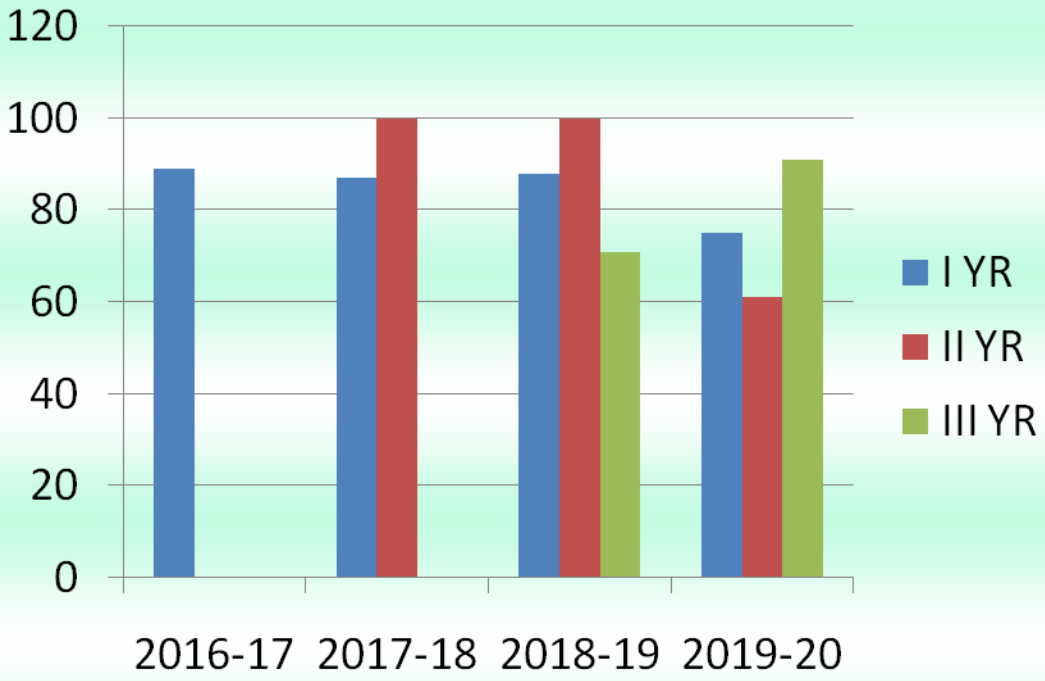
# NEWTON LAB:MECHANICS & OPTICS

# FARADAY LAB:ELECTRICITY & ELECTRONICS

# GUEST/EXTENSION LECTURE



# RESULT ANALYSIS



# FUTURE PLAN

Increasing the student strength and Upgradation of present lab with sufficient Equipments

To introduce the P.G course

# BEST PRACTICES

BEST PRACTICES

- **Best practices followed in the Physics Department**
- Students are encouraged to follow the latest advancements in "**Science and Technology across the world**"and made to follow, collect information from various sources and exhibited and presented in seminars through charts and PPTs.

Under '**Student as Teacher'**programme students of the college done the role of teacher for the students of high school and junior college in the college compound.

- **PG entrance coaching**for final year students

  **Field trips/Workshops/Extension Lectures/Career counselling, student seminars, quizzes, remedial coaching**
- **Jignasa study projects**for motivating the students in their future researcH
- Orientation programme and jobs in different manufacturing companies
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THANK YOU