

## Department Profile

Indira Priyadarshini Government Degree College for Women,

**Department of Physics**, Nampally, Hyderabad.



Dr. P. Indira M.Sc,Ph.D.,

Associate Professor

HOD, Department of Physics.

‘Sri.B. Narasimha M.Sc,B.Ed.,

Lecturer in Physics

### About the Department:

- Welcome to the UG Department of physics established in 2016 by the IPGDCW, Nampally. Hyderabad.
- This is the second biggest Women's Government Degree College in Hyderabad offering UG Physics in B.Sc. to the physical sciences students.
- The department has affiliation with Osmania University, Hyderabad which is one of the reputed universities of the country for UG courses. Under CBCS system, physics is offered to physical sciences students as one of the subjects for B.Sc. program.
- The student has choice to select any three subjects out of given seven subjects namely maths, physics, statistics, chemistry, computer science, data science and economics.
- Osmania university is also emphasizing the need of skill enhancement course, Generic elective, and project work.
- The excellent academic atmosphere of this department has attracted students from all parts of the Telangana state seeking admissions to B.Sc. physical sciences programs.
- The student's welfare, co-curricular and extracurricular activities are being looked after and nurtured by the physical sciences club.
- With the high research potential, well developed laboratories, and experienced teaching abilities of the members of the department, today, this department is bringing out the full potential of the students.
- The department is committed to impart high quality training at the UG level. We work with the motto "Excellence Matters".

### Vision

To provide academic and research excellence in essential technologies of physics by promoting a creative environment for learning and innovation.

### Mission

To provide dynamic, innovative, and flexible curriculum which equip the students with the necessary problem driven skills to strengthen their career prospects and potential to pursue their higher studies.

To foster inquisitive-driven research among students and staff to reinforce the domain knowledge and address contemporary societal issues.

To inculcate ethical values, leadership qualities and professional behaviour skills for improving the living standards of people.

### Course Objectives:

- The course should enable the students to understand basic electrostatic principles that are related to environment like photocopying machine, digital sound system, chimneys, spraying paints on cars and television.
- Students gain knowledge about scalar and vector field properties and motion of rocket in multistage, how a gyroscope shows direction in moving aero planes, central forces that are acting in planetary motion.
- Students know about how energy is wasted in the form of heat in machinery, working principle of refrigerator, how to measure sun temperature and lifetime of stars.
- Students learn about oscillations of pendulums, frequency of strings that produce vibrations in air, how light waves are interfering with each other and how to calculate wavelength of VIBGYOR colors using grating.
- Students know about rotational, vibrational energies of microscopic particles, and how to find out structure of crystals using X-rays.
- Students learn about how to increase conductivity of semiconducting materials to design transistor which is basic block of digital electronics.

### 1. Curricular Aspects

The department can offer good foundation in each semester for one theory paper and related practical paper along with value added course and certificate courses in UG program which is for 3 years and contains 6 semesters.

**B.Sc. PHYSICS SYLLABUS UNDER CBCS SCHEME**  
**SCHEME OF INSTRUCTION**  
 (Revised and effective from academic year 2019-2020)

Semester	Paper [ Theory and Practical ]	Instructions Hrs/week	Marks	Credits
I	Paper – I : Mechanics & Oscillations	4	100	4
	Practicals – I : Mechanics & Oscillations	3	50	1
II	Paper – II: Thermal Physics	4	100	4
	Practicals – II : Thermal Physics	3	50	1
III	Paper – III : Electromagnetic Theory	4	100	4
	Practicals – III : Electromagnetic Theory	3	50	1
IV	Paper – IV : Waves & Optics	4	100	4
	Practicals – IV :Waves & Optics	3	50	1
V	Paper –V : A. Modern Physics B. Computational Physics	4	100	4
	Practicals – V: A. Modern Physics B. Computational Physics	3	50	1
VI	Paper – VI : A. Electronics B. Applied Optics	4	100	4
	Practicals VI: A. Electronics B. Applied Optics	3	50	1

**Total credits: 30**

**Skill Enhancement Courses**

1. Experimental methods and Errors analysis
2. Electrical circuits and Networking
3. Basic Instrumentation
4. Biomedical Instrumentation
5. Digital Electronics

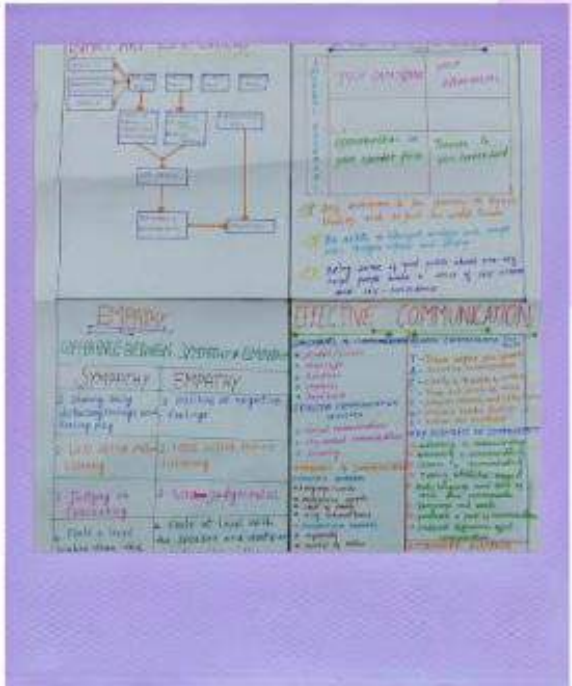
**Generic Elective:**

1. Renewable Energy & Energy Harvesting

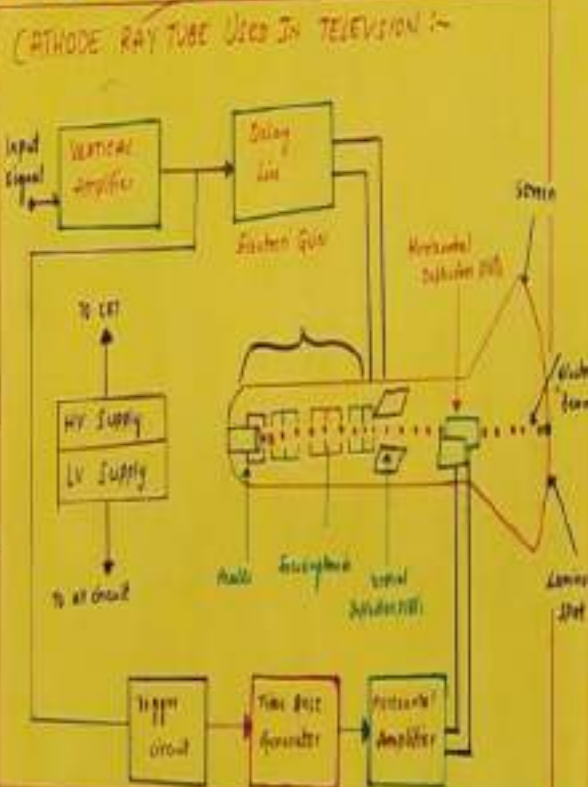
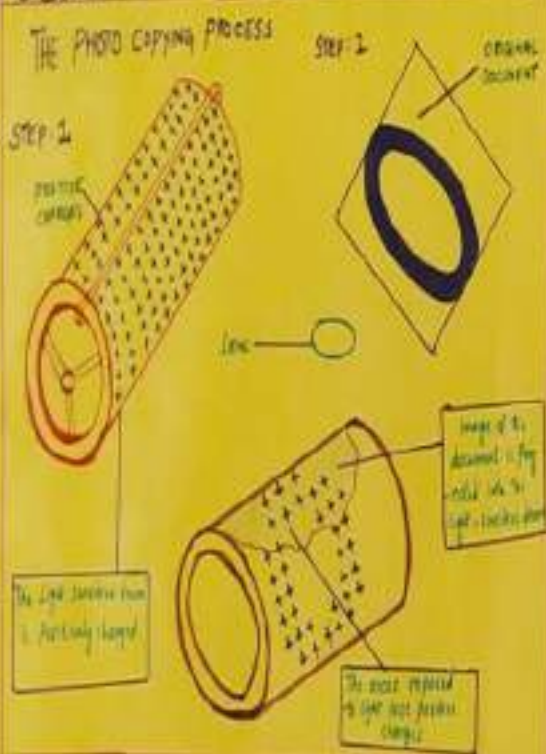
**Project work /Optional (Nano science)**

Value added course - Values in life skills.

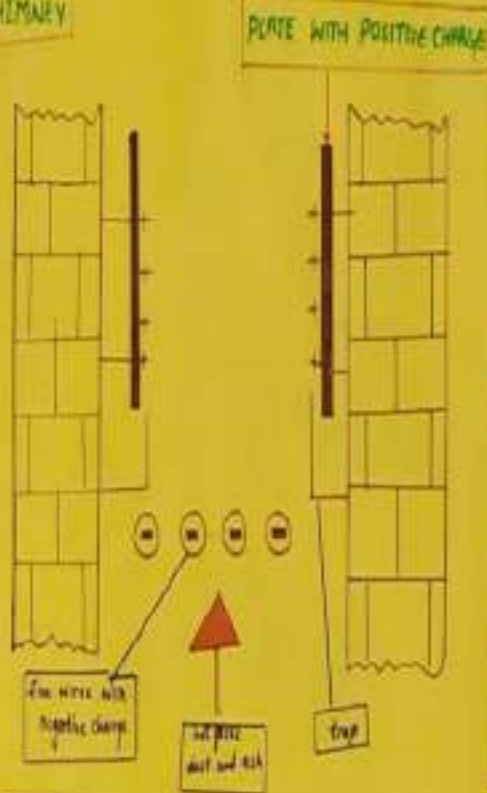
Certificate course - Concepts in Physics



# SUBJECT: PHYSICS RELATED TO ENVIRONMENT :-



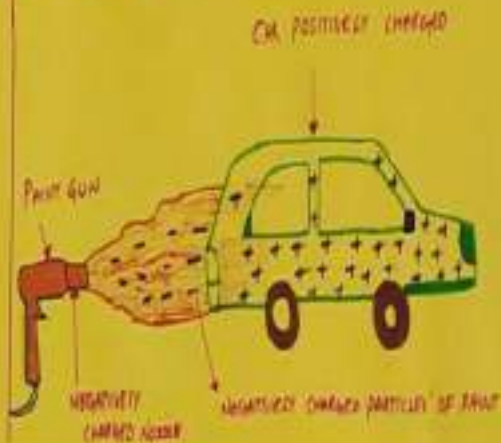
## CHEMISTRY



## STATIC ELECTRICITY: Useful charging

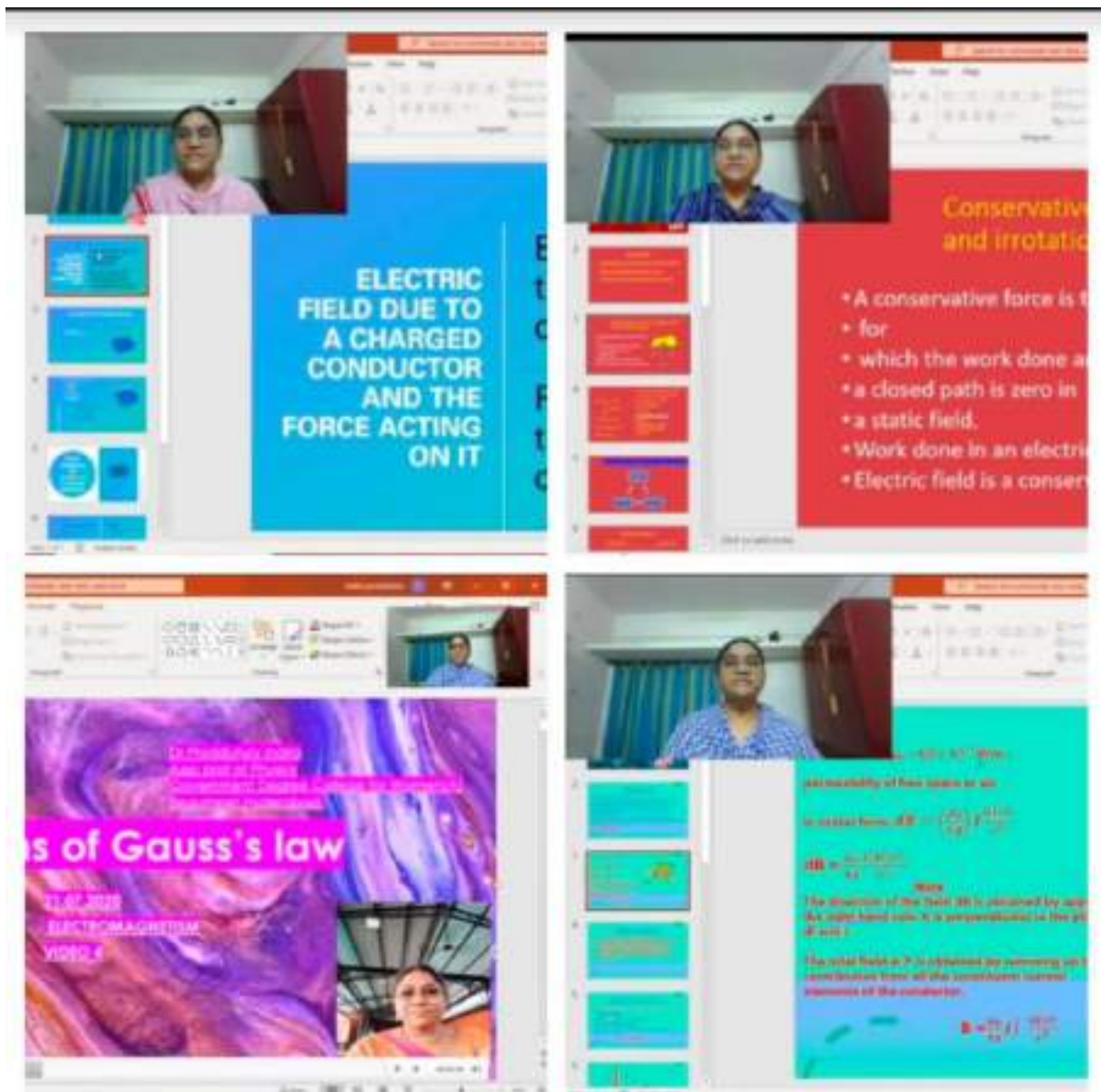
The paint is charged as it comes out of the nozzle.  
The paint is attracted to the car.  
The car must be earthed or connected to a positive voltage.

### ELECTROSTATIC PAINT SPRAYING TO CAR:



## 2. Teaching, learning and Evaluation

Apart from regular classroom teaching we prepare and give ppts for all topics, our video lessons are available on YouTube channels.



We prepare annual teaching plans, weekly plans and implementation will be provided in the teaching diary on daily basis.

The department conduct internal exams, assignments. We also encourage students to give seminars to improve the individual presentation skills of students.

Internal evaluation is done by the department for 20 marks.

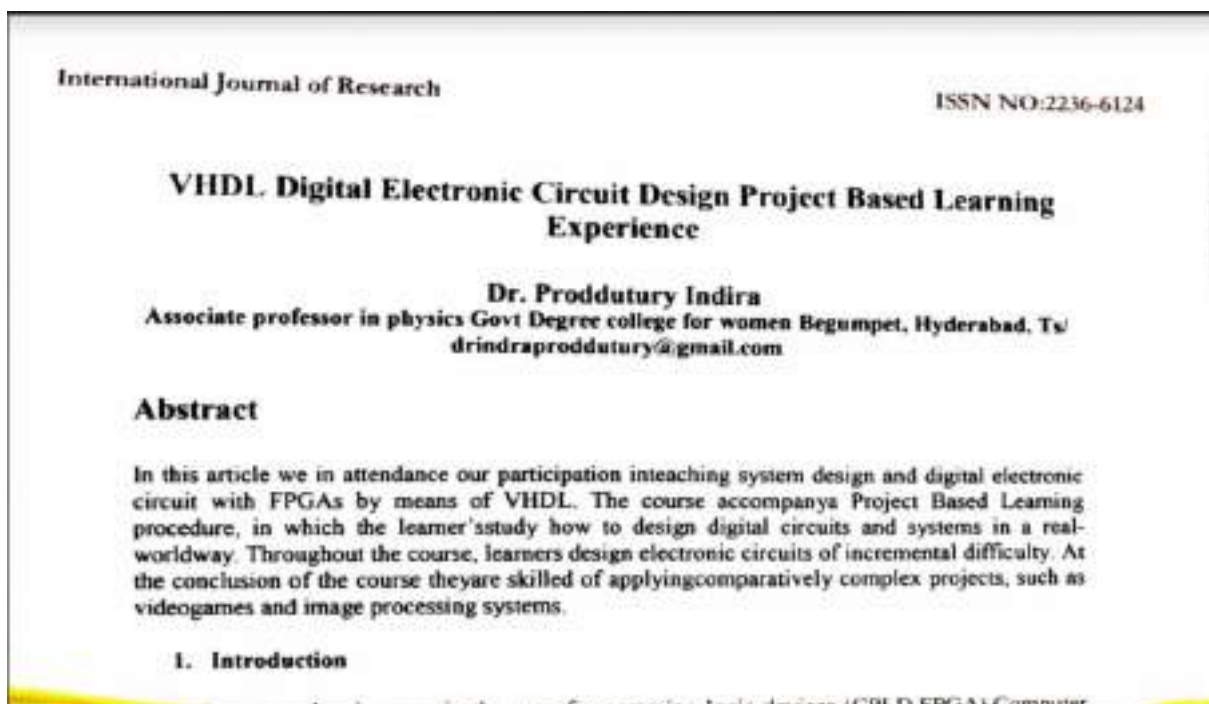
At the end of each semester Osmania university conducts theory and practical exams for 80 and 50 marks, respectively.

We give 4 credits to theory paper and 1 credit to practical paper as per CBCS pattern.

We collect feedback forms from students and conduct parents teachers meeting to evaluate and minimise the gap between teaching and learning.

### 3. Research, consultancy, and extension

#### Faculty Research Publication



Every semester we will arrange guest lectures and extension lectures to create awareness about recent developments in the subject.

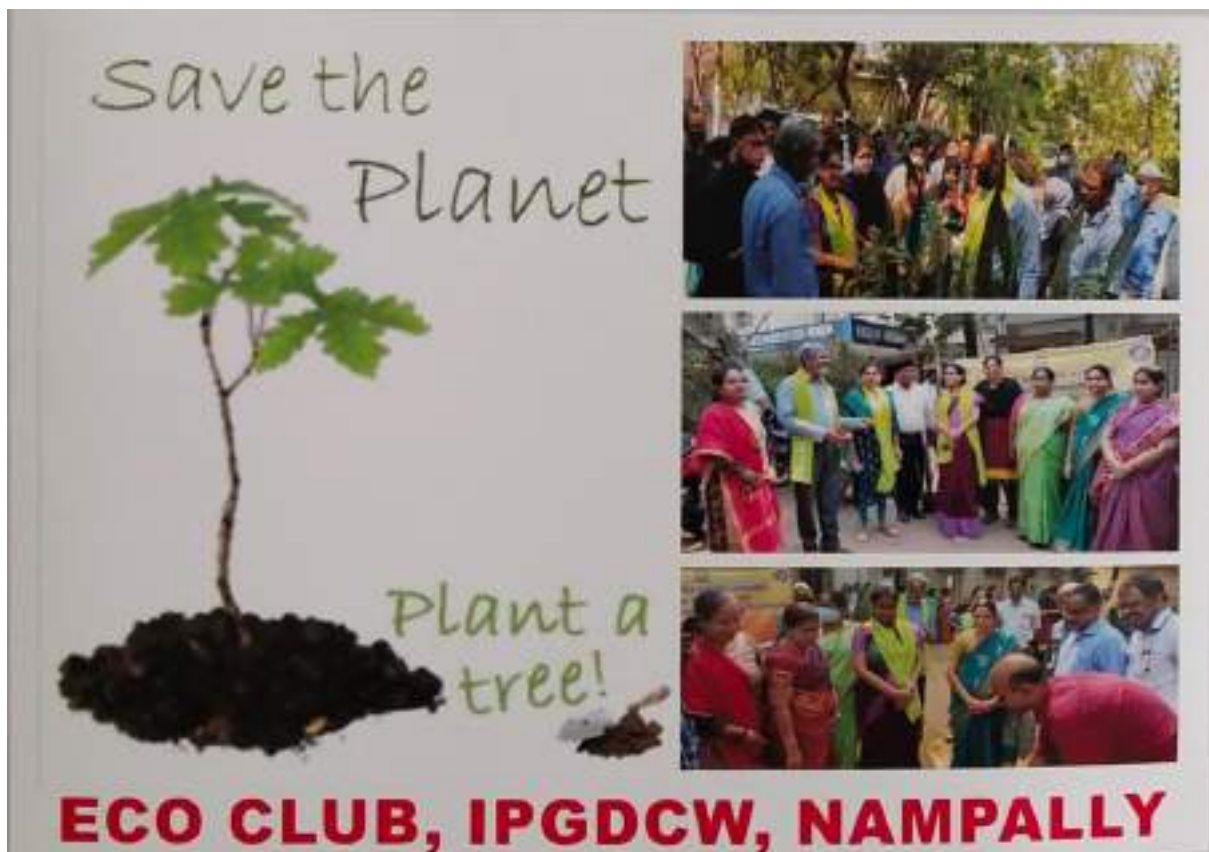




We conduct state level, national level and international level seminars and webinars to create awareness about recent research activities worldwide.

We encourage students towards higher education by providing PG entrance coaching.

We encourage students to take part in extension activities like eco club, awareness programs.

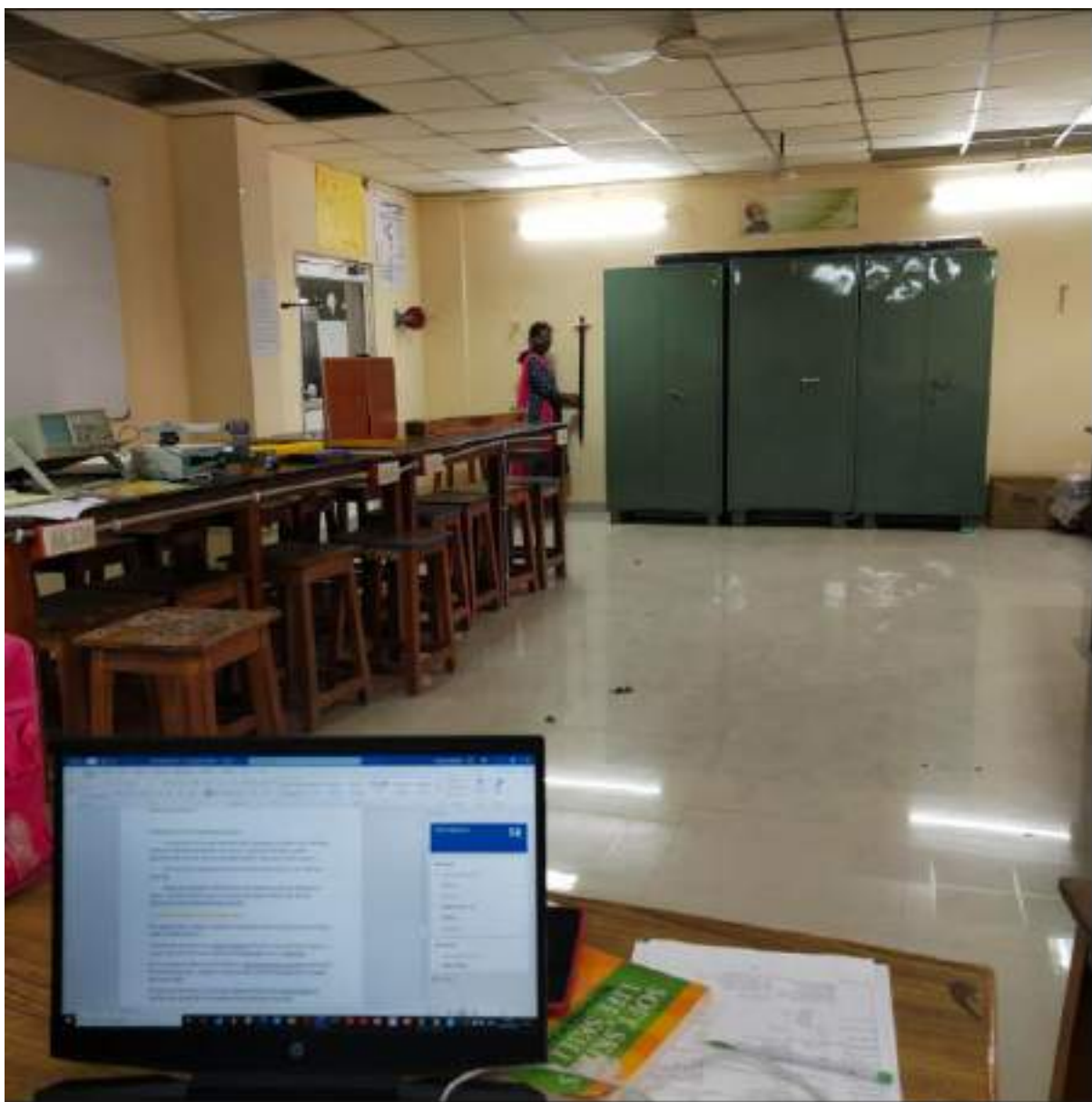


#### 4. Infrastructure and learning resources

The department is well equipped with necessary facilities and sufficient resources like well-ventilated classrooms, spacious laboratory, good departmental seminar library and digital library with two online systems.

We use smart boards with online facility and projectors for effective teaching.

Along with excellent infrastructure for experimental and theoretical physics, we also follow many innovative teaching methods like flipped classroom and blended learning methods.



## 5. Student support and Progression

The department conducts remedial coaching for improving the understanding levels of slow learners.

Each faculty observes the mentor-mentee procedure to guide the students in career and individual care aspects by using google forms, whatsapp.

We encourage students to participate in physical sciences club group activities like workshops, quiz, rangoli to improve their critical thinking skills in subject and social skills.

As soon as the Osmania University release results we do result analysis to improve the standards of the department wherever necessary.



## **6. Governance, leadership and management**

We have prepared 30 ppts and 30 videos as per the directions of our commissioner of collegiate education, Telangana.

We have joined eoffice through google forms recently to update any communication to the principal and higher ups to speed up the academic activities.

The department strictly follows the guidelines given by the academic guidance officer from time to time by implementing various activities promptly.

We attend general monthly meetings conducted by the principal to follow their valuable leadership. We submit annual curricular plan, teaching plan and teaching diaries to the principal.,

We are in tune with the higher officials in managing our department properly to bring out the total potential in the students.

## 7. Innovations and Best Practices

We undertake the following innovative practices to improve teaching outcomes.

**Indira Priyadarshini Government Degree College for Women, Nampally, Hyderabad**

International Webinar on 25.02.2021 at 2.50pm

Topic

**Multifunctional Nanomaterials for Next Generation Flexible Electronic Devices and Systems**

Organised by

**Department of Physics**

Gmeet  
<https://meet.google.com/dyy-fjj-dog>

**Speaker**  
Dr. Chandrakanth Reddy  
Scientific Researcher, Italy

Dr. P. Indira  
Dept of Physics  
IPGDC, Nampally, Hyd.

Dr. D. Varalakshmi  
Principal  
IPGDC, Nampally, Hyd.

International webinar speaker details

PERSONAL INFORMATION

## Experience and Qualification



[cchandraiahgari@fbk.eu](mailto:cchandraiahgari@fbk.eu)

### Experience

- Scientific Researcher, 2019-Today, FBK, Trento, ITALY
- Research Engineer, 2018-2019, ST Microelectronics, Tours, FRANCE
- Research Associate, 2017-2018, IIT-Delhi, New Delhi, INDIA
- Research Associate, 2016-2017, La Sapienza, Rome, ITALY

### Education

- PhD Doctorate, 2012-2016, La Sapienza, Rome, ITALY
- MS Nanotechnology, 2010-2011, Chalmers University of Technology, SWEDEN
- MS Nanotechnology, 2009-2010, KU Leuven, Leuven, BELGIUM
- MSc Applied Electrn, 2007-2009, Bhavans New Science, Hyderabad, INDIA
- BSc Applied Physics, 2003-2006, Kakatiya University, Karimnagar, INDIA



We implement the following best practices to motivate the students to become excellent performers in their professional and social life.

### 1. Awareness about research



2. Field trip to DrBRAOU to get an idea about higher education.

SO



CUTE