

Department of Nano Science and Technology

- **Year of Establishment:** 2010
- **Coordinator:** Dr. UMA V., Associate Professor, M.Sc, M. Phil, Ph.D.

Mission of the Department

- To impart a firm theoretical foundation together with excellent practical training in the area of synthesis and characterization of nanomaterials and fabrication of nano devices.
- The syllabus is oriented to meet the challenges and opportunities that this field can offer to the society.

Vision of the Department

- The Department envisions to impart a career oriented education to enable and empower women.

Eligibility:

- Any Science graduates/BSc (Hon)/Engineering/BCA, studied mathematics at the +2/PUC level with minimum 50% marks in aggregate are eligible to apply.

SEMESTER – I	
Course code	Paper title
CC- 01	Basic Physics for Nanoscience + Lab
CC- 02	Basic Chemistry for Nanoscience + Lab
CC- 03	Material for Nanoscience
CC- 04	Basic Electronics for Nanoscience + Lab
AC- 01	Basic Mathematics for Nanoscience
AC- 02	Computational Lab
SC- 01	Personal Effectiveness, Business Communication
	Internship/CDP(Evaluated in II)
SEMESTER – II	
Course code	Paper title
CC- 05	Nano Fabrication+ Lab
CC- 06	Synthesis of nanomaterials+ Lab
CC- 07	Materials characterization+ Lab
CC-08	Properties of Nanoscale materials
AC -03	Green technology
AC - 04	Basics of Biochemistry
SC- 02	Research Methodology
	Internship
SEMESTER – III	
Course code	Paper title
EC- 01	Nano Electronics+ Lab
EC- 02	MEMS and Sensors + Lab
EC- 03	Energy devices
EC-04	Nano biotechnology Nanotextiles
AC-05	Computational mathematics for Nanoscience
SC- 03	Entrepreneurship
IMC- 01	Multidisciplinary Course
	Internship
SEMESTER – IV	
Course code	Paper title
EC- 05	Nanotechnology, Society and Ethics
EC- 06	Lithography Techniques and Fabrication + Lab
EC- 07	Organic electronics and Nanomagnetism
Pr-01	Project

Faculty Details:

Name	Designation	Qualification
Dr. Uma .V	HOD of Electronics. Dean PG Science, Coordinator NS&T	M.Sc., M. Phil, Ph.D.
Mr. Pradeep. N	Assistant Professor	M.Sc., M.Tech, M. Phil.
Ms. Chaitra. V	Assistant Professor	M.Sc

Infrastructure/ labs

The Department has well established labs with high end facilities

- M.Sc(NS & T) – 04: Simulation – 01 Matlab and Nisa (MEMS)

Nanoscience and Technology	
Synthesis Instruments	Characterization Instruments
<ul style="list-style-type: none"> ✓ Thermal evaporation ✓ Flash evaporation ✓ e-beam evaporation ✓ Chemical Vapor Deposition ✓ DC Sputtering ✓ Ball Milling ✓ Dip coating ✓ Spray pyrolysis ✓ Spin coating ✓ Electrochemical Work Station ✓ Auto Clave (Hydrothermal & Solvothermal) ✓ Muffle Furnace 	<ul style="list-style-type: none"> ✓ Atomic Force Microscope (AFM) ✓ Scanning Tunneling Microscope (STM) ✓ Gas sensor unit ✓ Humidity sensor unit ✓ Micro hardness tester ✓ Source measuring unit ✓ Four probe unit

Some of the focused areas of research

- ✓ Fabrication and characterization of Nanostructure materials
- ✓ Thin films deposition and characterization
- ✓ Thin film based sensors
- ✓ Carbon: Nanotubes, Nanospheres
- ✓ Solar cells
- ✓ Food Quality sensors

Glimpse of labs

Sputtering lab



Device lab

PVD lab



CVD lab



Spray Lab



AFM lab



Research Facilities extended to other Institution / Industry

- IIT- Hyderabad, Andrapradesh
- Vellore Institute of Technology University, Tamil Nadu
- VB Ceramic's (Industry), Chennai, Tamilnadu.
- RV College of Engineering, Bengaluru
- BMS College of Engineering, Bengaluru
- Christ University, Bengaluru
- Aloysius College, Mangalore
- Jain University, Bengaluru
- First Grade College, Mandya
- Joseph's College, Bengaluru
- Government Science College, Bengaluru
- Joythi Nivas College, Bengaluru
- Dayananda sagar college of Engineering, Bengaluru
- Indian Academy of Science, Bengaluru.
- Al-Ameen College of Pharmacy, Bengaluru
- REVA College of institute of Technology management, Bengaluru
- Jawaharlal Nehru National college of Engineering, Shimoga

- M S Ramaiah Institute of Technology, Bengaluru

Summer Internship

- M.Sc students are given an opportunity to take up summer internship in association with industries and research center

Industry/ Institute visits

- Indian Institute of Science(IISC), Bengaluru
- Jawaharlal Nehru Centre for Advanced Scientific Research (JNC SAR), Bengaluru
- Hindustan Unilever limited (HUL), Bengaluru.
- Center for Manufacturing Technology (CMTI) , Bengaluru
- Indian Space Research organization(ISRO)
- Bharat Electronics Limited (BEL), Bengaluru

Community Development programme

- BBMP waste segregation statistical analysis
- Awareness programme on renewable source of energy

Career options

This programme prepares the students to take up positions as junior scientist at the entry level of any industries like

- ✓ Factories of Nanodevices
- ✓ Commercial cosmetics
- ✓ Nano Medicine
- ✓ Material Chemistry
- ✓ Medical Electronics
- ✓ Nanolithography

Department Activities:

- Staff publications – 6 per year
- Student research publications – 3 per year
- International and National conference attended – 2 per year

Contact:

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