Rajasthan Technical University
University Departments
(Formerly Engineering College Kota)
(University College of Engineering Kota)

INFORMATIONBROCHURE

M.Tech
in
Nanotechnology

CENTRE OF NANOTECHNOLOGY
RAJASTHAN TECHNICAL UNIVERSITY, KOTA

VISION OF THE CENTRE

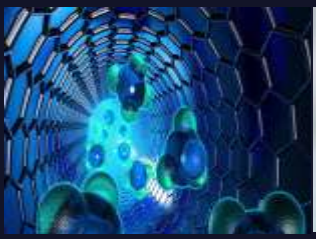
To establish Centre of Excellence in the field of Nanotechnology research.

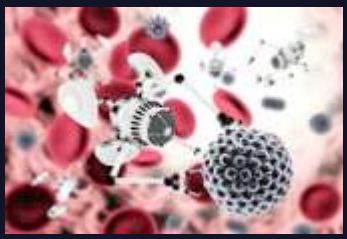
MISSION OF THE CENTRE

To impart quality engineering education in Nanotechnology.

To facilitate basic and advanced research in multi-interdisciplinary fields.

To prepare technical expertise along with professional ethics as per societal needs.





University Departments, Rajasthan Technical University, Rawatbhata Road, Kota – 324010
http://udrtukota.ac.in/UTD/

❖ Program Description:

The Centre of Nanotechnology offers program leading to award of M.Tech degree in Nanotechnology.

Nanotechnology is a fast emerging field having vast potential for applications in areas varying from engineering to medical, from chemistry to computer science and various other frontiers of science and technology. The program is developed and designed in consultation with industry partners and R&D organizations. The program offers exposure in multi-interdisciplinary diverse fields such as materials science, physics, chemistry, biochemistry, molecular biology, computing, mechanics, etc.

The Centre focuses on the following thrust areas of research:Nanofabrication (Nanostructures, Nanotubes, Nanowires, quantum dots, thin films), Nanomaterial characterization & measurements, Nanoelectronics, MEMS/NEMS Devices, Nanocomposites, Catalysis, Nanosensors, etc.

❖ Program Specific Outcomes (PSOs):

- **PSO 1:** Apply the fundamentals of basic science's to have advance knowledge and application of nanotechnology in the field of research, industry and developmental domains.
- **PSO 2:**Opt for higher education, disciplinary & multi-disciplinary research and to be a life-long learner.
- **PSO 3:** Aware of the impact of professional engineering solutions in societal, environmental context, professional ethics and be able to communicate effectively.

❖ Program highlights:

- Hands-On Research.
- Research projects in diverse interdisciplinary research areas.
- Training to use advanced equipment and critically analyze the experimental results.

❖ Target Groups:

- Students seeking advance knowledge of nanotechnology and electro-mechanical related courses.
- Professionals from Electronics& communication, Electronics& Instrumentation, Mechanical and Electrical.
- Researcher interested in the field of Nanotechnology.

❖ Who can apply:

- B.E. or B.Tech in Electronics and Communication, Electronics and Instrumentation, Electrical, Mechanical, Production & Industrial, Electrical and Electronics, Automobile and Production
- The admission criteria based on AICTE eligibility norms.
- For specific details, please refer CAM2020 booklet/brochure.

❖ Course Duration: Two years.

❖ Scholarship: Gate Scholarship to qualified candidates as per AICTE norms. Other scholarships are subjected to eligibility as per the norms.

❖ Core courses:

- Nanostructured Materials
- Nanomaterials Synthesis
- Engineering Principles for Nanotechnology
- Nanophysics
- Fabrication and Imaging Techniques for Nanotechnology
- Nanosensors and Transducers
- Functional Structure and Mechanics of Carbon Nanotubes

❖ Elective courses:

- Biology for Nanotechnology
- Nanofluid Dynamics
- Nanoelectronics
- Nanocomposites
- Nanobiotechnology
- Nanolithography
- Design of Simulation of MEMS and NEMS
- Chemical Principles of Self Assembly Systems
- Semiconductor nanoclusters and nanoparticles
- Industrial Nanotechnology
- Applications of Nanomaterials in Energy Conversion Process
- Nanomaterials and Energy Systems
- Nanotechnology for advanced Drug Delivery Systems
- Nanobiomaterials
- Risks Management for Health and Environment

❖ Labs:

- Nanotechnology Lab 1
- Nanotechnology Lab 2

❖ Research Domains for Dissertation:

- Nanomaterial synthesis by chemical route
- Nanomaterial synthesis by physical route
- Nanomaterials characterization
- MEMS based sensors
- Nano-electromechanical devices
- Nano-biotechnology based sensors/devices.

❖ Available Facilities:

- Well-developed chemical synthesis laboratory available as per the curriculum.
- Physical synthesis and characterization laboratory (development in process).

❖ M.Tech dissertation work:

- About 32 students have done research for their M.Tech dissertation work at the following reputed industries/institutions/ universities:
    - RRCAT, Indore
    - NPL, New Delhi
    - CEERI, Pilani
    - IIT Bombay , Mumbai
    - IIT Mandi, Mandi
    - IIT Kanpur, Kanpur
    - MNIT, Jaipur
    - JNU, Delhi

Faculty

Head of the Department

Dr. Rajeev Gupta
Professor
Specialization: Control & Instrumentation, Soft Computing, Intelligent Control

Program Coordinator

Dr. Dhirendra Mathur
Professor
Specialization: Nanotechnology, Antennas

Mr.Shobi Bagga
Assistant Professor
Specialization: Nanotechnology, VLSI

Ms. Sanju Tanwar
Assistant Professor
Specialization: Nanotechnology, Biotechnology

❖ Contact Information:

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