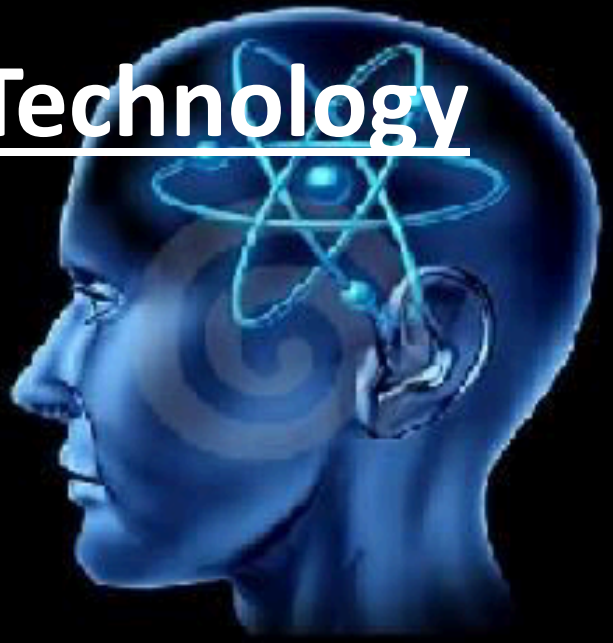
Nuclear Engineering & Technology Programme



IIT-Kanpur

Placement Brochure-2013-14

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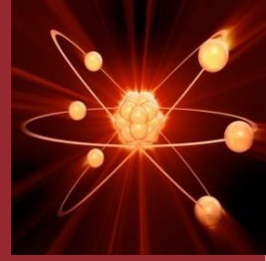
www.iitk.ac.in/net

About Programme



- The programme for Nuclear Engineering and Technology in IIT Kanpur is one of the oldest Nuclear Engg. Programme in India and was established in 1974.
- The programme provides research and development expertise in the experimental and theoretical studies of fusion and plasma physics, radio isotope applications in manufacturing engineering, computer aided tomography, reactor safety studies, heat transfer in nuclear sub-systems, and development of radiation detectors.
- The department is equipped with state-of-art facilities which provides computational support both for professionals and teaching & research faculty.
- This is interdisciplinary branch consisting of students from Electronics, Mechanical and Electrical Engg.
- The NET Programme is supported by department of Electrical and Mechanical for M-Tech Research and Thesis.
- Alumni includes nation's leading experts, educationists and Scientists in the field of Nuclear Engineering.

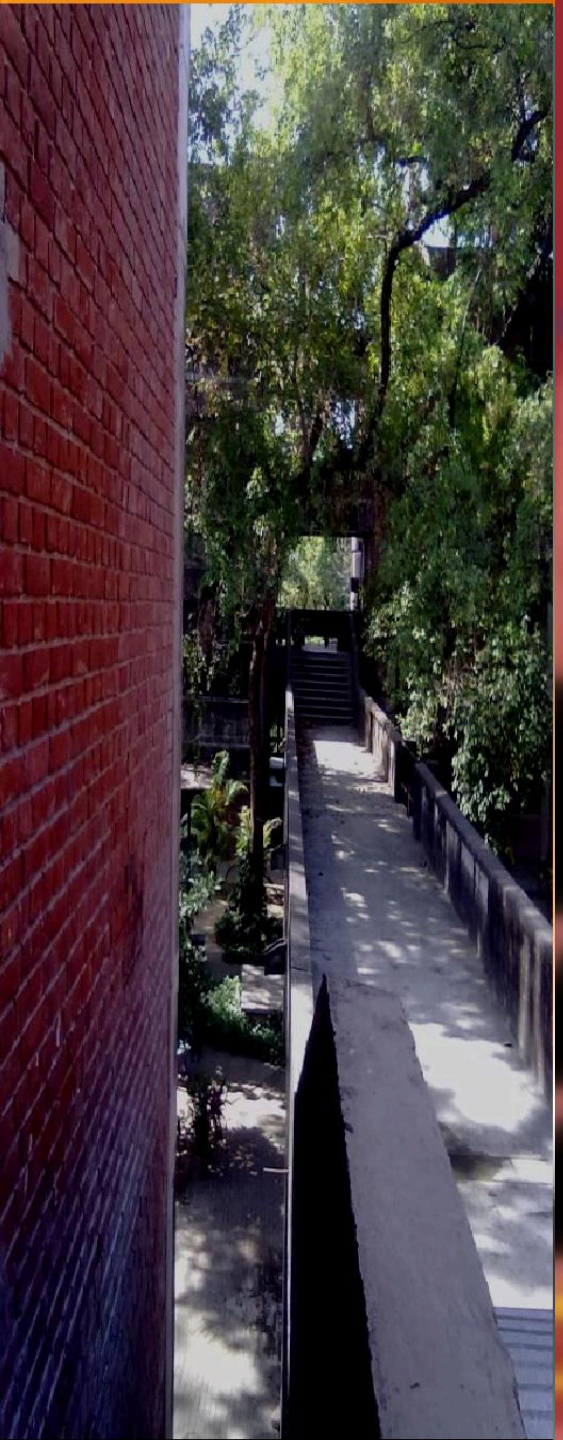
M-Tech thesis & Course/Lab Work

Thesis Areas

- Electrical Impedance Tomography
- Wireless Sensor network development in Nuclear environment.
- Control systems in Nuclear reactors.
- Tomographic Image reconstruction
- Design of a Tomography set-up in Lab.
- Safety analysis of PWR using RELAP.
- Analysis of gamma ray scattering in Nuclear reactor.

Course/Lab Work

- Reactor Physics
- Nuclear and Reactor Physics
- Nuclear Power Engineering – I
- Nuclear Power Engineering – II
- Nuclear Measurements Laboratory
- Neutron Transport Theory
- Radioisotope Application in Engineering
- Nuclear Fusion
- Nuclear Reaction and Interaction of Radiation with Matter
- Introduction to Computerized Tomography
- Non destructive Evaluation
- Fast Reactor Technology
- Mathematical Methods in Engineering



Research @ NET

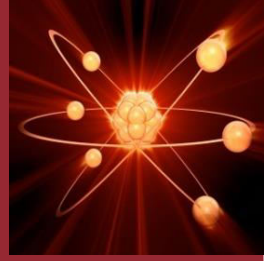
Current Research in NET :

- Fast algorithm development for Tomographic reconstruction over graphical processing units.
- Set-up design & Algorithm developments in Tomography.
- Edge localized modes analysis in Tokomak plasma.
- Tomography in Multi-phase flow.
- Comparative study of existing soft wares (like Fluent) and experimental tomography results.
- Application of RELAP5 for safety of Nuclear Reactors.
- BWR safety analysis.
- Fuel Reprocessing

Research Areas in NET :

- Nuclear Reactor Safety
- Multi-phase Flow analysis in Nuclear Reactors
- Safety codes Development
- High Performance Computing
- Non-destructive Testing
- Image Reconstruction in Tomography
- Fusion and Plasma Physics
- Nuclear Reactor Dynamics
- Detector Modelling for radiation measurement

Projects @ NET



Current Projects

- Development of Tomographic code for image reconstruction from visible radiation from Aditya and SST-1 Tokamak Plasma. (BRFST)
- Performance analysis of reactor internals using CFD simulation. (CHEVRON)
- Indian Civil Nuclear energy initiative. (PMD)
- Monte Carlo modelling of energy response of silicon diode detector in radiotherapy photon beam. (DAE)
- Safety analysis of LLCB TBM in ITER using modified RELAP code

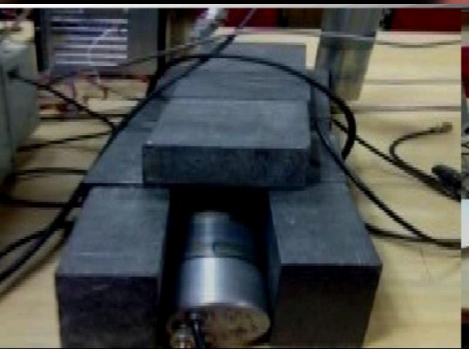
Some Sponsored Projects in the past

- Thermal hydraulic transient analysis of a proposed reactor. (DAE)
- Experimental Investigation of the LMMHD Facility at BARC using Computerized Tomography. (DAE)
- Studies in Ultrasonic NDT for Composite Materials. (Indo-German Project).
- Transient flow analysis of heavy density liquid metal in spallation targets of ADS. (DAE)
- Cancer Growth and Kanpur Error Theorems. (DRDO)
- Development of Digital Radiography based 3D system. (ISRO)
- Beam hardening and Photon Statistics. (DRDL)

Resources @ NET

The facilities at the nuclear engineering laboratory are latest for an academic institution. The facilities are being utilized by other departments as well as industrial organizations for their in-house experiment/ applications. The various facilities are as follows :

- 1.7 MV HC Tandetron Accelerator
- ϒ-ray Analyzers
- 5 Ci and 13 mCi Neutron sources
- Neutron Source Detector
- Nuclear Spectrometer (PNS-2)
- Radioactive materials (Cs-137, Ba-133, Co-60, Co-57, Na-22)
- CROs and Function Generator
- Mobile CT-Scanner developed in home




Student's Profile

Aashis Kr. Singh
B-Tech-Elecronics & Comm. Engg
GNIT,UPTU

Manas Kumar
B-Tech-Electronics & Comm. Engg
BBDNITM,UPTU

Harshavardhan Kulkarni
B-Tech-Mechanical Engg
RSCOE,Pune

Rashmi Sharma
B-Tech-Electronics & Comm Engg
SRMCEM,UPTU

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B-Tech-Electronics & Comm Engg
GNIT,UPTU

Anurag Maan
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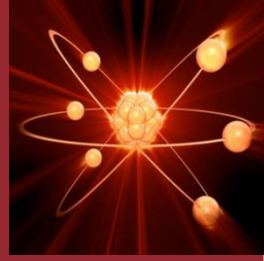
Walchand College of Engg,Sangli

Vineet Vishwakarma
B-Tech Mechanical Engg
Yeshwantrao Chavan College of Engg.

T.P.Singh
B-Tech-Electronics & Comm Engg
Punjab Engg College

Alumni of NET



Students of NET, IIT Kanpur are working in various organizations across the globe.
Few organizations that have been served are :

General Electric	DRDO
BARC	Tata Steel
P.M Dimensions	Tech Mahindra
G.E Global Research	IBM
Philips Healthcare	SHELL
Dar- Al- Handshah	Niksun
RRCAT	Holtec Asia Pvt ltd
TCE	ISPAT India

THANK YOU ☺