



भारतीय
प्रौद्योगिकी
संस्थान

काशी हिन्दू विश्वविद्यालय



INDIAN
INSTITUTE OF
TECHNOLOGY
BANARAS HINDU UNIVERSITY

INFORMATION BROCHURE

(2019-2020)



M.Tech - Alloy Technology

About us:

The aim of M.Tech in Alloy Technology Program is to make graduates organizational ready through courses which enhance their technical prowess in Metallurgy, Practical Knowledge, Investigative Approach, Analytical Thinking and Problem Solving skills . The program structure is aimed at equipping students with broad base of fundamental knowledge so that they can cater to diverse sectors and contribute to the success of organization.

Faculty Profile:



Dr. Nilay Krishna Mukhopadhyay (PhD IISc Bangalore)

Head and Professor

Areas of Interest

Physical Metallurgy, Mechanical Alloying, Nanoindentation.



Dr. Rajiv Kumar Mandal (PhD)

Professor

Areas of Interest

Quasicrystals, Nanostructured Materials, Phase Transformations, Microstructural Evolution.



Dr. N. C. Shanti Srinivas (PhD IIT BHU)

Professor

Areas of Interest

Phase Transformations, Deformation and Fracture, Fatigue of Advanced Structural Materials, Advanced Steels, Additive Manufacturing and Failure Analysis.



Dr. B. Nageshwar Sarma (PhD)

Professor

Areas of Interest

Phase Equilibria, Phase Transformations and Computational Thermodynamics.



Dr. Rampada Manna (PhD IIT BHU)

Associate Professor

Areas of Interest

Phase Transformations, Design of Steels, Heat Treatment of Metals, Ultra – Fine Grained and Bulk Nanostructured Materials, Severe Plastic Deformation, Electropulsing and Steel Technologies.

**Dr. Joysurya Basu (PhD)**

Associate Professor

Areas of Interest

Electron Imaging, Analytical Techniques in Electron Microscopes, Simulation of Electron Images and Diffraction Patterns, Melting of Ferrous and Non – Ferrous Alloys, Rapid Solidification, Pulsed Laser Deposition, Wet – Chemical Synthesis, Differential Scanning Calorimetry and X – Ray Diffraction.

**Dr. Kausik Chattopadhyay (PhD IIT Kharagpur)**

Associate Professor

Areas of Interest

Fatigue and Fracture, Deformation Behaviour, Structure – Property Relationships in Materials, Corrosion and Oxidation, Advanced Structural Materials, Failure Analysis and Severe Plastic Deformation.

**Dr. Girija Shankar Mahobia (PhD IIT BHU)**

Associate Professor

Areas of Interest

Corrosion – Fatigue, Hot Corrosion, Iron and Steel Making, Welding Metallurgy and Metallurgical Failure Analysis.

**Dr. Vikas Jindal (PhD IIT BHU)**

Associate Professor

Areas of Interest

Computational Thermodynamics, Ab initio modeling of Thermodynamics, Alloy Design and Advanced Materials.

**Dr. Jayant Kumar Singh (PhD)**

Associate Professor

Areas of Interest

Foundry and Forge Technology, Heat and Mass Transfer in Metallurgical Processes.

**Dr. Nand Kishore Prasad (PhD)**

Associate Professor

Areas of Interest

Physical Metallurgy, Magnetic Materials, Nano Materials and Biomaterials.

**Dr. Bratindranath Mukherjee (PhD)**

Assistant Professor

Areas of Interest

Thin Films and Nanotechnology, Materials Characterization.

**Dr. Ashok Kumar Mondal (PhD IISc Bangalore)**

Assistant Professor

Areas of Interest

Mechanical Behaviour of Materials, Light Metals, Alloys and Composites – Processing, Microstructural Characterization and Evaluation of Mechanical Behaviour, High Temperature Deformation Behaviour (Creep).

Course Structure:

The main objective of Alloy Technology specialization is to transfer knowledge to young engineers and induce a systematic approach in them to analyze situations, simulate and model the behavior of metallic systems, inspect the behaviour of materials, investigate structure – property correlations of materials, predict consequences and prescribe solutions to issues of Metallurgical Origin.

The course curriculum instills the required scientific rigour in the young metallurgists so that they will become an invaluable asset both to their work place and nation. Our Alloy Technology Specialization emphasizes on the below diverse disciplines of Metallurgy:



- Materials Characterization
- Metallurgical Thermodynamics and Kinetics
- Computational Methods for Metallurgy
- Science and Technology of Solidification
- Heat Treatment of Advanced Ferrous Alloys
- Physical Metallurgy of Alloy Steels
- Near net shape Processing
- Surface Engineering
- Deformation Behaviour, Fracture Mechanics and Failure Analysis of metals
- Thermodynamics of Phase Equilibria
- Metal Joining Techniques
- Structural Phase Transformations

Lab Facilities:

1. Materials Characterization Laboratory:

Materials Characterization Laboratory comprises of units such as Transmission Electron Microscopy Lab, Scanning Electron Microscopy with EBSD, Structural Metallography unit with Projection Microscopy facility.

2. Corrosion Fatigue and Hot Corrosion Laboratory:

Corrosion Fatigue and Hot Corrosion Laboratory has facilities such as Corrosion Fatigue Test System (MTS), Corrosion Test setup, Ultrasonic Shot peening (USSP), Salt Coating Unit.

3. Mechanical Testing Laboratory:

Mechanical Testing Laboratory has facilities such as 50kN MTS servohydraulic Testing machine, 100kN Instron Universal Testing Machines, Micro and macro hardness Testers

4. Furnaces and Mills available:

Vacuum Induction Melting Furnace (2 kgs.) Plasma Furnace (2 Kgs.). Rolling Mill Controlled Atm. High Temperature Furnaces(~1300°C)

5. Computer Laboratory:

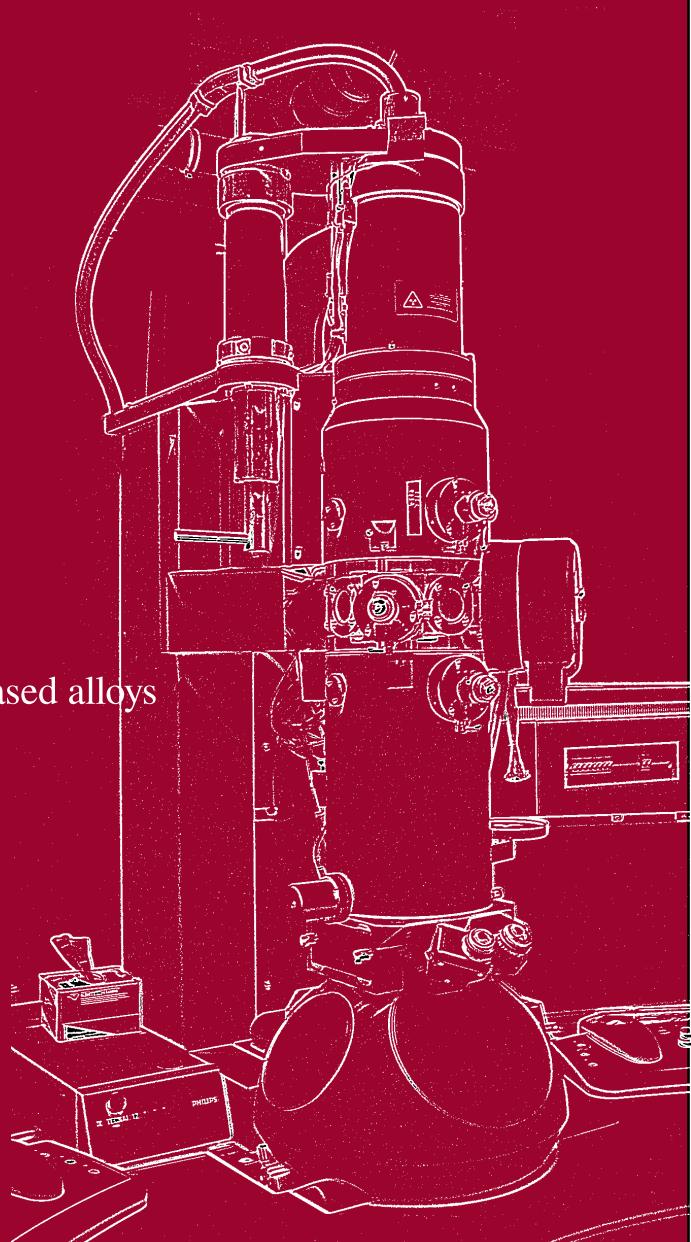
Softwares -Thermo – Calc, JmatPro.

6. Welding Laboratory

7. Foundry Laboratory

Current Areas of Research:

- Additive Manufacturing
- Materials Characterization
- High Nitrogen Ni free steels
- Low Density Steels
- High Strength Steels and Heat Treatment
- Solidification and Moulding Properties
- Tribological Characterization of Materials
- Industrial Waste Management
- Creep Fatigue interaction of steel
- Energy Materials
- Microstructure and ageing behaviour of Mg based alloys
- High Entropy Alloys
- High Temperature Solid Oxide Fuel Cells
- Hot Corrosion and Fatigue of Alloys
- Magnetic materials for Bio Applications
- Quasicrystals
- Powder Metallurgy
- Nanomaterials
- Biomedical alloys



Message from Prof. Incharge:

It gives me immense pleasure to extend you a most cordial invitation to participate in the Campus Recruitment Programme of the Indian Institute of Technology (BHU), Varanasi. With an increasing thrust being placed on Institute-Industry Interaction, it is my sincere belief that your esteemed organization and IIT (BHU) Varanasi will stand to gain immensely from this symbiotic relationship.

Our Institute holds the pride of place being pioneer in the field of engineering and technical education in this country and has a glorious heritage. We have been continuously ranked amongst the elite by all peers and stakeholders. Our constant pursuit of excellence has made our institute a focal point in technical education for students and faculty members alike. Admissions to the institute take place through the reputed Joint Entrance Examination (JEE) and Graduate Aptitude Test in Engineering(GATE).

At this institute, we take utmost care to groom our students according to the needs of the industry. We seek to open frontiers of knowledge and reveal new horizons of change to broaden mindset and to create positive attitude in our students. Our students receive industrial exposure by their frequent industrial visits. Besides, our undergraduate students undergo an eight-week training during summer vacation in reputed industries/institutions/organizations (in India as well as abroad) as part of their academic requirements.



We would be most delighted to host you for campus recruitment and beyond. I am looking forward to a mutually beneficial relationship,

Professor Anil Kumar Agrawal
Training & Placement Officer, IIT (BHU) Varanasi

Past Recruiters:



Placement Team:

Dr. Anil Kumar Agrawal

Professor In-charge

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