ABOUT THE INTERNSHIP

Dive into the Microscopic World: Summer Internship in Material Characterization

This intensive summer internship offers a hands-on exploration into the fascinating field of **Material Characterization**. Material characterization uses a range of analytical techniques to probe the **structure, properties, and performance** of materials at various scales – from the macroscopic down to the atomic level. It's the crucial link between material processing and its real-world applications. Understanding the fundamental characteristics of materials is essential for:

- **Materials Selection:** Choosing right material
- **Quality Control:** Ensuring materials meet required specifications.
- **Failure Analysis:** Determining the root cause of material failures.
- **Research & Development:** Developing new improved materials.
- **Process Optimization:** to achieve desired material properties.

During this internship, you will:

- Gain hands-on experience of key characterization techniques.
- Learn the theoretical principles behind each technique.
- Analyze real-world samples and interpret the resulting data.
- Develop critical thinking and problem-solving skills
- Interact with experienced researchers and professionals

This internship is ideal for Diploma, B. Tech., M. Tech. students in Materials Science, Mechanical Engineering, Chemical Engineering, Metallurgy, Physics, Chemistry & Related disciplines

Embark a journey to unravel inner workings of materials and gain invaluable skills for your future scientific or engineering career!

DURATION & COURSE FEE PER PARTICIPANT

Schedule: Starting from 2nd June to 25th July 2025.

Course fee: Rs. 1000/- payable to 'student fund'
A/C No. 10635508860, IFSC: SBIN0011812

To register go to the link given below:

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DEPARTMENT OF MECHANICAL ENGINEERING
BIT SINDRI, DHANBAD

'Unlocking Material Secrets: A Summer Internship In Characterization'

Offers

SUMMER INTERNSHIP

On

Material Characterization

Period: 2nd June – 25th July 2025

AT
DEPARTMENT OF
MECHANICAL ENGINEERING
BIT SINDRI, DHANBAD
JHARKHAND

ABOUT THE INTERNSHIP

Overview: This internship provides a comprehensive introduction to **Computational Fluid Dynamics (CFD)** with practical training using **ANSYS Fluent and CFX**. It is designed to build theoretical understanding and hands-on simulation skills, enabling participants to solve real-world fluid flow and heat transfer problems.

Objectives:

- Understand the fundamentals of CFD.
- Learn to simulate fluid flow and heat transfer using ANSYS software.
- Apply CFD techniques to solve practical engineering problems.
- Gain exposure to industry-relevant case studies.

Key Learning Modules:

Introduction to CFD: Governing Equations: Navier-Stokes, Continuity, Energy, CFD vs. Experimental Methods.

Meshing Techniques: Structured vs. Unstructured Mesh, Mesh Quality & Independence Study.

Using ANSYS Workbench: Geometry Creation (Space Claim/ Design Modeler), Mesh Generation, Boundary Conditions Setup.

Solver Settings & Post-Processing: Turbulence Models (k-ε, k-ω, SST), Residual Convergence, Result Interpretation: Velocity, Pressure, and Temperature Plots.

Case Studies: Internal Flow in a Pipe, External Flow over an Airfoil, Heat Transfer in a Heat Exchanger, Mixing in a T-junction.

Internship Highlights

- Hands-on Training with ANSYS Fluent.
- Mini Projects and Industry-based Case Studies.
- Certificate of Completion.
- Suitable for Mechanical, Aerospace, Chemical & Civil Engineering Students.

Eligibility: **B.Tech/ M.Tech students in relevant branch.**

DURATION & COURSE FEE PER PARTICIPANT

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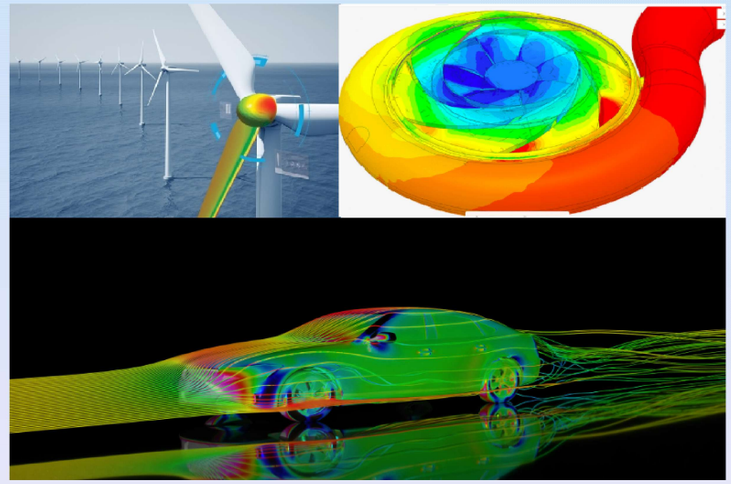
DEPARTMENT OF MECHANICAL ENGINEERING BIT SINDRI, DHANBAD

'To Nurture Innovation and to Meet Industrial Demand'



Offers

SUMMER INTERNSHIP (8-WEEKS)

On

Computational Fluid Dynamics (CFD) Applications through ANSYS Software

Period: 2nd June – 25th July 2025

AT
DEPARTMENT OF MECHANICAL ENGINEERING
BIT SINDRI, DHANBAD
JHARKHAND

ABOUT THE INTERNSHIP

HEATING VENTILLATION AND AIR CONDITIONING (HVAC)

This intensive summer internship offers a hands-on exploration into the fascinating field of Heating, Ventilation and Air conditioning system. Refrigeration &Air conditioning system provides comfortness of human being and material by which improves the efficiency and effectiveness of human being and material respectively. Todays, there are huge demands of air-conditioning in domestic and industries. The HVAC (Heating, Ventilation, and Air Conditioning) internship provides practical experience in the design, installation, maintenance, and troubleshooting of HVAC systems. This internship aims to bridge the gap between academic knowledge and real-world application by offering hands-on exposure to industry-standard equipment and practices. Interns gain valuable insight into system operations, energy efficiency, safety protocols, and customer service, under the guidance of experienced professionals. This experience is essential for developing technical skills, understanding industry standards, and preparing for a successful career in the HVAC field.

During this internship, you will:

- Gain fundamental theoretical knowledge of different types of refrigeration and air conditioning system.
- Hands-on experience of different types of cooling system.
- Learn the theoretical principles behind each cooling and air-conditioning system.
- Analyze real-world samples and interpret the resulting data.
- Develop critical thinking and problem-solving skills
- Interact with experienced researchers and professionals

This internship is ideal for Diploma, B. Tech., M. Tech. students in Mechanical Engineering, Production and Ind. Engg, Chemical Engineering, Food Technology, Hotel Management, Physics, Chemistry & Related disciplines

DURATION & COURSE FEE PER PARTICIPANT

Schedule: Starting from 2nd June to 25th July 2025.
Course fee: Rs. 1000/- payable to 'student fund'
A/C No. 10635508860, IFSC: SBIN0011812

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DEPARTMENT OF MECHANICAL ENGINEERING BIT SINDRI, DHANBAD

HEATING VENTILLATION AND AIR CONDITIONING (HVAC) SYSTEM FOR IMPROVENT IN EFFICIENCY AND EFFECTIVENESS

Offers

SUMMER INTERNSHIP

On

HEATING VENTILLATION AND AIR CONDITIONING

Period: 2nd June – 25th July 2025

AT
DEPARTMENT OF MECHANICAL ENGINEERING
BIT SINDRI, DHANBAD
JHARKHAND

ABOUT THE INTERNSHIP

The modern industrial landscape depends heavily on rotating machinery—such as pumps, motors, turbines, compressors, and gearboxes—for the efficient functioning of manufacturing and production systems. Ensuring the reliability and performance of these machines is essential for minimizing downtime, reducing maintenance costs, and enhancing overall productivity. One of the most effective strategies for maintaining machinery health is condition monitoring, particularly through vibration analysis and fault diagnosis.

This internship provides participants with valuable hands-on experience in the field of Machinery Fault Diagnosis and Vibration Analysis. This discipline involves monitoring and interpreting vibration signals from machinery to detect early signs of mechanical issues such as unbalance, misalignment, bearing faults, gear defects, and looseness. Early identification of these faults is crucial to preventing unexpected failures and prolonging the lifespan of critical equipment.

Interns are expected to apply theoretical concepts from the physics of dynamical systems, along with emerging Artificial Intelligence (AI) techniques, to solve real-world engineering problems and meet the diagnostic needs of modern industries. The program involves the use of vibration measurement tools, advanced signal processing techniques, and diagnostic procedures. Students will gain experience working with equipment such as accelerometers, data acquisition systems, and spectral analysis software to carry out precise condition monitoring and fault detection of rotating machinery systems.

Eligibility: **Diploma/ B.Tech/ M.Tech students in relevant branch.**

DURATION & COURSE FEE PER PARTICIPANT

Schedule: Starting from 2nd June to 25th July 2025.

Course fee: Rs. 1000/- payable to 'student fund'
A/C No. 10635508860, IFSC: SBIN0011812

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DEPARTMENT OF MECHANICAL ENGINEERING
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'To Nurture Innovation and to Meet Industrial Demand'

Offers

SUMMER INTERNSHIP

On

MACHINERY FAULT DIAGNOSIS AND VIBRATION ANALYSIS

Period: 2nd June – 25th July 2025

AT
DEPARTMENT OF MECHANICAL ENGINEERING
BIT SINDRI, DHANBAD
JHARKHAND

ABOUT THE INTERNSHIP

Thermal Management in Cavities: Applied Heat and Mass Transfer

This intensive summer internship program offers an opportunity to learn the fundamentals of Thermal Management in Cavities. This field of **Heat and Mass Transfer** finds wide applications like electronic cooling, cooling of heat generating devices etc. This includes learning to analyze and optimize cooling by natural convection and surface radiation in cavities. CFD is an essential tool for thermal analysis, flow visualization and cooling optimization. Artificial Intelligence tools like deep learning are helpful for analysis and optimization of cooling. Highlights of this internship program are:

- **Fundamentals of Heat and Mass Transfer**
- **Experimental Heat and Mass Transfer**
- **Experimental Study using an Experimental Setup**
- **Thermal Management of Heat Sources in Vented and Closed Cavities**
- **CFD tools for Thermal Analysis and Optimization**
- **Using AI Tools for Thermal Management**

During this internship, you will:

- Learn fundamentals of Heat and Mass Transfer.
- Experimental Study of Natural Convection over horizontal, vertical and tilted heated plates in vented cavities
- CFD tools for thermal analysis and optimization.
- AI tools for Thermal Analysis and Optimizations
- Discussion of some wide applications with future works
- Interaction with experienced researchers and professionals

This internship is ideal for B. Tech. students of Mechanical Engineering and Chemical Engineering, M. Tech. students in Heat Power Engineering, Thermal Engineering, etc. Embark a journey of applied Heat and Mass Transfer and gain invaluable skills for your future scientific, engineering or research career.

DURATION & COURSE FEE PER PARTICIPANT

Schedule: Starting from **2nd June to 25th July 2025 (8 Weeks)**

A Course fee: Rs. One Thousand Only (Rs. 1,000/-) is payable to **'STUDENT FUND' *A/C No. 10635508860, IFSC: SBIN0011812***

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Registration Link for Internship

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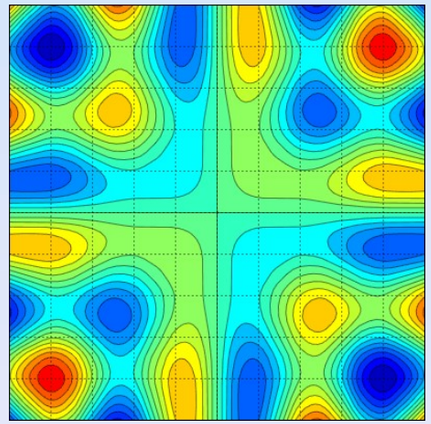
DEPARTMENT OF MECHANICAL ENGG.
BIT SINDRI, DHANBAD

Thermal Management in Cavities: Applied Heat and Mass Transfer



Offers

SUMMER INTERNSHIP (8 WEEKS)

On

Applied Heat and Mass Transfer

Period: 2nd June – 25th July 2025

AT
DEPARTMENT OF MECHANICAL ENGINEERING
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