

EXECUTIVE SUMMARY

National Institute of Foundry and Forge Technology (NIFFT), Ranchi established by Govt. of India, in collaboration with UNDP, UNESCO in 1966 at Ranchi, Jharkhand, conducts the PDF, Ph.D, M.Tech.(FFT), M.Tech.(MSE),M.Tech.(Env.Engg), B.Tech.(M.E.), B.Tech.(MME), A.D.C (Foundry Tech.) and A.D.C (Forge Tech) programmes which have been accredited by National Board of Accreditation (NBA), AICTE, New Delhi and they are affiliated to Ranchi University, Ranchi.

Placement:

The placement for the current batch was 100% and the package for B.Tech. Students were in the range of 2.4 to 4.8 lac, for M.Tech. 2.0 to 2.4 lac and for ADC 1.5 to 2.65 lac.

Publications:

7 publications in International Journals of repute.

Equipment added:

The following equipments were purchased by the dept of Materials and Metallurgical Engg. :-

- (i) Metallurgical microscope (3 Nos.)
- (ii) Digital metallurgical microscope (1 No.)
- (iii) Computerized micro hardness testing machine

Seminar conducted:

- (i) Need for vocational education and training in Jharkhand, September 9-10, 2008.
- (ii) Advances in Materials technology, March 5-6, 2009.

TEQIP:

Training programmes were conducted under TEQIP and 48 faculty members and staff of the Institute had gone for training programmes in India and abroad. After completion of the training, all the faculty members and staff had given a brief presentation about their training and experience.

Academic Development:

National Board of Accreditations, AICTE, New Delhi had accredited our two M.Tech courses in Foundry Forge Technology and Manufacturing Engg. recently.

Infrastructure Development:

- (a) Three model class rooms were developed with the assistance from TEQIP.
- (b) 400 seat Boys Hostel, 100 seat Girls Hostel, construction of extension of 66 bedded hostel right side wing (g+2), and Physics Lab for an estimated cost of Rs.32,3640,436/- by CPWD are under construction.

Annual Report 2008-09

NIFFT AN OVERVIEW

Ever since its inception in 1966 by the Govt. of India in collaboration with UNDP-UNESCO, National Institute of Foundry and Forge Technology (NIFFT), Ranchi has been looked upon by the Industry to provide qualified engineers and well trained specialist in the field of Foundry Technology, Forge Technology and other allied manufacturing areas and has earned reputations as a leading Institute for imparting technical education and organizing teaching and training programmes in these engineering disciplines. The Institute has also been tenaciously and meticulously industrial research, design and development work in the relevant areas and providing consultancy and documentation services to the Industries.

- NIFFT is registered as a society under the societies registration act of 1860. The management of the Institute is vested with Board of Governors with chairman at its apex and members drawn from AICTE, MHRD, Private and Public enterprises, Technical and R & D institutions. AICTE, MHRD, Private and Public Enterprises, Technical and R&D institutions.

Academic Programmes

NIFFT has five departments of study viz. Foundry Technology, Forge Technology, Manufacturing Engineering, Materials and Metallurgical Engineering and Applied sciences and Humanities. The Institute offers the following regular programmes.

- Post Doctoral programmes
- Doctoral programmes leading to Ph.D. Degree
- M.Tech.degree course in Foundry- Forge Technology of two years duration
- M.Tech.degree course in Manufacturing engineering of two years duration
- M.Tech.degree course in Environmental engineering of two years duration
- M.Tech.degree course in Material Science and Engineering of two years duration
- B.Tech degree course in Manufacturing Engineering of four years duration
- B.Tech degree course in Metallurgy and Materials Engineering of four years duration
- Advance diploma course in Foundry Technology of eighteen months duration
- Advance diploma course in Forge Technology of eighteen months duration

All the academic programmes have been accredited by National Board of accreditation (NBA), AICTE, New Delhi. Students are selected for admission through All India Engineering Entrance Examination (conducted by CBSE all over India) for B.Tech courses; through GATE score and interview for M.Tech. Courses; through written examination conducted by NIFFT and interview for advanced diploma course; and through counseling / interview for doctoral and post doctoral programmes.

The Institute is affiliated to Ranchi University for the award of under graduate and post graduate degrees. Advanced Diploma is awarded by the Institute itself. So far, approximately 525 B.Tech.1230 ADC, 245 M.Tech and 8 Ph.D. students have been awarded their degrees.

The Institute has kept its objective broadening and course expanding with time for adapting to the dynamics of the industries and needs of the society. In order to give impetus to other allied fields including environmental engineering, some new courses are about to be introduced shortly.

Continuing Education:

Continuing education at all levels such as part time research programmes, refresher and special courses in established and emerging practices for industry personal is one of the most important activities of the Institute contributing towards development of society. The programmes are usually of 1-2 week duration offering a wide range of topics covering foundry and forge technology, pollution control, energy conservation and management, manufacturing processes, materials characterization, inspection and quality control and other fields of industrial importance. The activities also include unit based programmes of short term duration on request from the industries or organizations as per their need either at the premises of the industries / organizations concerned or at the Institute. The Institute has also the privilege of imparting training to people from other developing countries of South-East Asia and Africa. Students from countries like Burma, Srilanka and Nigeria have undergone training at this Institute in the past. The Institute has also conducted unit based programmes in Foundry Technology for Nepalese and Srilankan engineers / technologists (Technocrats).

Recently Institute has conducted Unit Based Programmes for technical personnel of M/S KSB Pumps Ltd., Ahmadnagar, Maharashtra.

Research Activities:

One of the main objectives of the Institute is to carry out industrial research and development work in foundry, forge and associated scientific and engineering fields. All infrastructural facilities exist in the Institute for carrying out research activities, R&D programmes cover the area like pattern design and manufacture, and system design, melting, methoding of castings, forging process simulation, die life estimation, evaluation of lubricants, CAD&CAM of casting and forging failure analysis, Mechanical and NDT testing, chemical and instrumental analysis, environment & pollution control, metal matrix composites and powder metallurgy forging. Most of the faculty members are holding Ph.D. degree. The faculty members continuously participate in various seminars/symposia/conferences to present their research works. Many research papers are also published in different national and international journals of repute.

Consultancy Services:

The Institute provides consultancy services to the industries in the field of foundry, forge and allied fields on payment basis depending on quantum of the work involved besides pre-consultancy charges. Consultancy services are extended in the form of preparation of feasibility reports, preparation and execution of technical projects, selection and evaluation of equipment and machinery, testing of raw materials and quality control of products.

NIFFT faculty members (individual or group) holds discussions with the concerned industrial representative in order to identify and define the problem and to develop consultancy proposal based on quantum of work involved. If needed, specialists may conduct pre consultancy survey for 1 to 2 days in the organization to overview the infrastructure available and ongoing processes. Institute and the concerned industry will then enter into an agreement with terms of reference, estimated consultancy fees and time schedule. Recently Department of Forge Technology has set a Forging Plant for M/s Macnally Bharat Limited.

Experimental and Testing Facilities:

The Institute has well equipped laboratories and workshop for carrying out practical study work by the students and for extending testing facilities pertaining to foundry, forge, metallurgical analysis and materials characterization to the outside organizations on payment basis.

The department of Foundry Technology has Cupola Furnace(1.5 tones per hour), Crucible furnace (2 nos., 50 Kg each), Electric Arc Furnace (20 Kg), Skelener furnace (15 Kg Aluminum, Induction furnace (50 Kg), Electric Pit Furnace (5 Kg.Al), Pressure Die Casting machine(60 tonnes), On line Carbon Silicon Analyzer & Thermal Analysis System, Complete Sand Plant, Sand Mullers, Jolt and Squeeze Moulding Machine, Shell Moulding Machine, Permiability Meter, Compressive strength tester, Mould Hardness Tester, Thermolab, Surface Area Measurement Equipment, Universal Testing Machine foe Sand, AFS Clay Determinator, Shatter Index Testing Machine, Gas Measurement Equipment, Moisture Teller, Sample Preparation of Machine etc.

The department of Forge Technology has 750 Kg Frictionn Hot Hammer, 150 tones Hydraulic Press, Pneumatic Power Hammer (50, 150&250 Kgs), 120 tone Trimming Press 1” Multiforge Upsetter, Laboratory Rolling Mill, Carbolite Furnace, Oil Fired Billet Heating Production, rapid Prototype Lab., Hot Isostatic press etc.

The department of Materials & Metallurgical Engineering has major equipments such as Servo Hydraulic Dynamic Testing Machine, Differential Thermal Analyzer, Scanning Electron microscope, X-ray Diffractometer, Impact Testing Machine, In situ Metallographic Equipment, Universal Tensile Testing Machine, Metallography, Image Analyzer, Portable X-ray Fluorescence FIM, Magnetic Crack Detector, Induction Heating Machine, High Temperature Muffle Furnace, Ultrasonic Flaw Detector, Fluorescent Penetrant Inspection Equipment.

The Department of Manufacturing engineering has well equipped Pattern and Machine shops; Metrology Laboratory having profile Projector, Laser Micrometer, Layout Measuring cum Making Machine, Auto Collimator, Surface Roughness Testing Machine and Form Tester; Welding Laboratory having Shielded Metal Arc Welding M/C, TIG welding attachment, MIG welding M/C, Submerged Arc Welding M/C, Spot Welding Machine, Plasma Arc Cutting M/C, Oxy Acetylene Cutting M/C, Spray Coating Unit; CAD/CAM and FMS laboratory having 4 – axis CNC Milling Machine, CNC Lathe, Robot (Linear Slide Base).

The Department of Applied Sciences and Humanities has classical chemical Analysis, Optical Emission Spectrometer, Orion Iron meter, Atomic Absorption Spectrometer, Photovac Air Analyzer, Nano Pure water system, Automatic particulate matter Detector, vacuum Coating Unit with electron Beam Evaporation, Scanning Potentiostat / Galvanostat, Electrical and electronics laboratory, Modern language laboratory and communication centre.

Seminar Conducted:

1. National seminar cum exhibition on ‘Need for vocational education and training in Jharkhand,’ 9-10th September, 2008.
2. National seminar on ‘Advances in Materials Technology (NSAMT-09’, 5-6 March, 2009.

International Publication/Awards

1. During the last year, the Institute has published six(6) papers in international journals of repute
2. One of the faculty members, Dr.D.Roy, MME Dept. has been awarded IEI young Engineers award 2008 by Institutions of Engineers (India) at Noida, UP.