

Registration form

Name: _____

Designation: _____

Organization: _____

Address for correspondence: _____

E-mail: _____

Phone: _____

Particulars of Registration Fee:

DD No.: _____ Date: _____

Amount: _____ Bank: _____

Accommodation Required: Yes/No

Date: _____ Signature: _____

Place: _____

The complete registration form accompanied by DD of requisite amount may be mailed well in advance to the coordinator. Payment in form of DD should be made in favor of "Continuing Education, NIT Rourkela", payable at Rourkela.

Course venue

The "Advanced Materials" course will be handled in Department of Metallurgical and Materials Engineering, NIT Rourkela, Established in 1964. The department has been emanate the advanced technology and cutting edge technology for academics and for public. The department undergo natural development in fundamental and practical knowledge aspect directly related to our society development.

Course objectives and deliverables

This program promote the leadership instinct and capabilities to develop materials among industrious managers. The prime objectives of the programme will be:

- To guide managers for successful careers in the esteemed organization by understanding the underlying theory and rationality behind process run in developing the materials that can sustain in hostile environment.
- To equip managers with a wider understanding of the quality issues associated with material development more integrated view of the process with respect to identifying the origin of those issues.
- To understand the cross-discipline/ department knowledge and information transfer for combating industry materials developing oriented problems, introducing technological innovation and making strategic vision to drive change, innovation, and future growth.

Panel discussion:

Theme - I:
Advances in Smart Materials and Nanoengineering

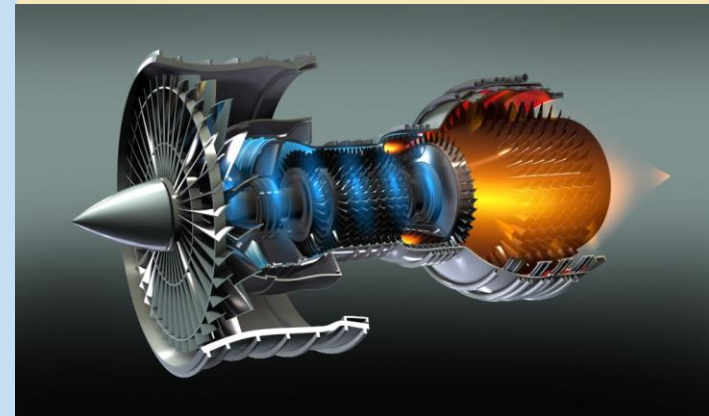
Panellists:
Prof. S. Aich, Prof. Ajit Behera, Prof. S. S. Mohapatra, Er. Jayram Barik, Er. S. C. Padhi.

Theme - II:
High Performance Alloys and Ultra-light Materials

Panellists:
Er. P. Mallik, Sct. K. Gugulot, Prof. Ajit Behera, Dr. A. Nayak, Dr. N. K. Sahu, Dr. M. Panigrahi, Sct. P. Prusty, Prof. K. N. Barik



**SHORT TERM COURSE
ON
ADVANCES IN MATERIALS
March 21 - 25, 2019**



Organized by

Dept. of Metallurgical and Materials Engineering

National Institute of Technology Rourkela

Rourkela-769008

Odisha, India





Significance of the course

Process metallurgy provides academics with the fundamentals of the manufacturing of metallic materials, from raw materials into finished parts or products. The aim of this course is to develop an understanding of principles of metallurgical processes, reactor design, metallurgical reactions, and development of metallurgical processes. Many of the unique features of metallurgical systems have been described in sufficient detail and numerous illustrative examples have been included so that it should also be useful for future metallurgical engineers working in the development period of new processes and/or in the continuation of the current processes. This five days short term course is intended to serve as a comprehensive course in process engineering metallurgy for the metallurgical engineering & materials science sectors. Engineering aspects of mineral processing, including unit operations and flow sheets. Science and technology of metal extraction with applications to specific ferrous and non-ferrous metals. The course includes methods for reactors used in iron and steelmaking, non-ferrous metallurgy, handling and use of metallurgical by-products, project task, and scaling-up of some metallurgical reactors and processes. The program structure aims to strengthen the understanding of the students in the core areas of metallurgical and materials engineering in order to meet the needs of the Indian industry as well as R&D organizations.

Resource Persons

Prof. S. Aich (IIT Kharagpur)
 Prof. Ajit Behera (NIT Rourkela)
 Er. J. Barik (SAIL, RSP)
 Sct. K. Gugulot (NML, Jamshedpur)
 Prof. S. S. Mohapatra (NIT Rourkela)
 Er. P. Mallik (HAL, Sunabeda)
 Prof. K. N. Barik (IGIT)
 Er. S. C. Padhi, X-DGM (SAIL, RSP)
 Prof. S. C. Mishra (NIT Rourkela)
 Sct. P. Prusty (IMMT, Bhubaneswar)

Course outline

Days	Focused Area
Day -I (21/03/2019)	Smart materials: Shape memory alloys, Shape memory polymers
	Smart materials: Magnetostrictive materials, pH-sensitive polymers, Halochromic materials, Chromogenic-systems
	Smart Fluid: Ferrofluid, Rheological fluid
Day -II (22/03/2019)	Properties of Nanoworld, Nanomaterials and their applications
	Lab visit and microstructural study on different nanomaterials by SEM/TEM
	Graphene and CNT .
	Fabrication of nanomaterials
Day -III (23/03/2019)	Advanced Ceramics
	OCL Plant visit to observe different ceramic brick fabrications
Module IV (24/03/2019)	Super alloys, Classification of superalloys, commercially available pure nickel alloys, Co-based superalloys, Fe-based superalloys, Ti alloys, Al-Li alloys
	Ultra-light Materials: Aerogels, Aerographite, Metallic Foams, Polymeric Foams, Metallic Microlattices, their synthesis, properties and applications.
Module V 25/03/2019	Advances in steel in RSP
	Fractures in superalloys and high temperature alloys

Who should attend?

Majorly for faculties, Industry persons and professionals (Engineers, Technical Managers, quality manager etc.) from reputed institute and industries.

The Successful participants who will attend the whole courses will be given participation certificate.

Important Dates

Last date for receipt of application is 12th of March 2019 and the notification of acceptance will be by 14th of March 2019.

Registration Fees

Faculties from institutes : INR 3000
 Industry delegates : INR 5000

The course fee includes course material, breakfast, lunch, and refreshment during the program days. Participants (Faculty members and Ph.D. students) from NITRKL are exempted from paying registration fees.

Accommodation

Accommodation will be provided in institute guest house on first come first serve basis. Double occupancy rooms for scholars and young faculties.

South block guest house Room : INR 1200 per day
 North block guest house Room : INR 600 per day

Course Coordinators

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 NIT Rourkela
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