

**One Week Course**  
**on**  
**RECENT TRENDS IN MATERIALS AND**  
**MANUFACTURING ENGINEERING**

**December 10-15, 2018**

**for Faculty Members, Scholars and Students of**  
**Engineering Colleges**

**Principal Coordinators**

**Dr. K. Siva Prasad**  
**Dr. N. Ramesh Babu**  
**Dr. V. Muthupandi**



**Organized by**  
**Department of Metallurgical and Materials Engineering**  
**National Institute of Technology**  
**Tiruchirappalli-620015**  
**Tamil Nadu**

**Introduction**

Materials Engineering can be considered as the forefront of high technology for the simple reason that the advancements in technology are the direct result of advances in materials. Engineering Materials and Manufacturing Methods are the most important subjects of all disciplines as they impact nearly all fields of engineering. One of the serious problems confronting the engineers is the selection, treatment and use of materials for specific applications. To cope up with this situation all engineers must have some basic understanding of science of materials. This short term course deals with the structure and properties and processing of materials. The basic understanding of the structure and properties of materials forms a vital link in the manufacturing processes. This short term course is directed towards understanding why materials behave the way they do, how materials are made, and how new materials with unique properties can be created for specific engineering applications.

This course includes lectures on topics such as structure of materials, phase diagrams, phase transformations, mechanical behavior of materials, electrical and magnetic properties of materials, biomaterials, nano-materials, composite materials, metal forming, materials joining and other manufacturing methods, etc.

**Participants**

This course is intended for the faculty and students of engineering colleges. However, the interested practicing engineers and research scientists can also register for this course. This course covers the basic fundamentals of Physical Metallurgy, Materials Science, Mechanical Metallurgy and Manufacturing Processes. The topics covered in this course are very useful for the faculty and students of Metallurgy, Mechanical, Production and Automobile Engineering as they study and teach these topics in courses namely, Engineering Metallurgy, Engineering Materials, Materials Science and Metallurgy.

**Course Teachers:**

*Course Coordinators, Faculty from NITs, IITs, Research Labs and faculty from Abroad.*

**Course Content:**

Physical metallurgy, Mechanical behavior of Materials, Powder metallurgy, Metal joining, Metal forming, Fatigue, Creep, Fracture Mechanics, Advanced engineering materials, Additive manufacturing, Tribology, Unconventional machining, Advanced manufacturing methods, Nanomaterials, Biomaterials, High entropy alloys, Molecular dynamics simulations, finite element analysis, PEO coatings, etc.

**Address for communication:**

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## ABOUT THE DEPARTMENT

The Department of Metallurgical and Materials Engineering (formerly Department of Metallurgical Engineering) admitted the first batch of B.E. students in 1967. Since its inception, this department has been one of the premier centers of excellence in the field of Metallurgical and Materials Engineering. It has expanded since then in many ways and now offers three post-graduate programmes with specialization in Welding Engineering, Materials Science & Engineering and Industrial Metallurgy. The post-graduate courses have been attracting candidates with varied engineering backgrounds and also sponsored candidates from engineering industries and academia. The Department is recognized for excellence in teaching, research and services to industry. Faculty members of this department with rich experience in teaching and research have handled / are handling projects sponsored by agencies like MHRD, DRDO, AICTE, DST, NRB, DBT, MNRE, AR&DB, ISRO, Tata Steel, etc.. The Department is also a recognized center for QIP (Quality Improvement Programme) for both M.Tech. and Ph.D. programmes.

## Registration

Registration forms for attending the short term course should be sent (by email or post) to the coordinators on or before **05<sup>th</sup> December, 2018** in the attached format along with proof of the registration fee payment. The registration fee per participant is **Rs 4,000/-** (18% GST included)

The payment is to be made to the following account details:

Account Name : The Director, NIT Trichy  
Bank & Branch : SBI, NIT Trichy  
A/C Number : 10023883064  
IFSC Code : SBIN0001617

Selection will be on first come first serve basis and selected persons will be intimated through e-mail immediately.

(Submit the online transaction confirmation page with transaction reference number as proof of payment to the following email: [ksp@nitt.edu](mailto:ksp@nitt.edu) without fail)

Working lunch along with tea and snacks will be provided for the participants. Certificate of participation will be issued to the participants after completion of the course.

- ***The participants have to make their own arrangements for accommodation.***
- ***Limited accommodation may be arranged on payment basis in NITT guest house (based on availability). Tariff is Rs.700/- per candidate per day along with applicable GST) and for students in Hostels with prior requests.***
- ***No TA/DA will be paid.***

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### Registration Form

1. Name:
2. Age and Gender:
3. Designation:
4. Official address:
  
5. Qualification:
6. E-mail:
7. Phone numbers:
8. Details of the payment  
(Amount, Bank, Date and Transaction Ref. No)
9. Whether accommodation needed (Y/N):

**Signature of the participant**

(Photo copies can be used for registering more than one person)