



6-Day Short Course on **Advanced Materials and Processing**

Sponsored by **TEQIP**

Organized at

**Discipline of Metallurgy Engineering and Materials Science
Indian Institute of Technology Indore**

Date: January 8 - 13, 2019, Venue: Helium Building (Room: SB 309), IIT Indore

Objective:

For promoting eco-friendly and safe future society there is an increasing interest towards research and development of new materials, their processing and characterization techniques. This TEQIP short-term course focuses on the recent trends in development of advanced materials, their processing/joining techniques, characterization techniques, advanced surface engineering techniques and failure analysis of engineering materials. Along with lectures on above mentioned topics, practical sessions will also be included.

Focused Areas

1. Recent development in advanced materials such as light weight materials
2. Advanced processing and joining techniques
3. Advances in surface engineering
4. Fatigue, fracture and failure analysis of materials
5. Advanced materials characterization techniques

Participants

The course is designed for :

- Faculties, Scientists and Engineers in Mechanical / Production / Metallurgy / Materials Science / Basic science
- Professionals involved in Materials / Metals/ Automotive/ other relevant industries.
- Research scholars and students in the relevant fields.

Course Conveners

Dr. Jayaprakash Murugesan
Assistant Professor
Metallurgy Engineering and
Materials Science, IIT Indore

Dr. Hemant Borkar
Assistant Professor
Metallurgy Engineering and
Materials Science, IIT Indore

Organizing Members

Dr. Abhijit Gosh
Assistant Professor
Metallurgy Engineering and
Materials Science, IIT Indore

Dr. Santosh Hosmani
Assistant Professor
Metallurgy Engineering and
Materials Science, IIT Indore

Dr. Sumanta Samal
Assistant Professor
Metallurgy Engineering and
Materials Science, IIT Indore

Certificate : Participants who successfully complete the course will be awarded a certificate.

Venue : The course will be conducted at IIT Indore premises.

Registration deadline: January 4, 2019

Registration Fees:

- There is **no fee for participants from TEQIP sponsored colleges**. The nominations along with the registration forms must be sent through their coordinator to the address below. Email confirmation in advance is suggested.
- For Other participants, the fee is Rs. 3500/- (Three Thousand Five Hundred Only) per participant for professionals and Rs. 1750/- (One Thousand Seven Hundred and Fifty Only) for students. Registration fee includes course material, tea & working lunches.

MODE OF PAYMENT:

Through DD drawn in favor of “**Registrar, IIT Indore**” payable at Indore, or through online payment/bank transfer (Bank: Canara Bank; Branch: IIT Indore, Simrol campus; Account number: 1476101027440; IFS Code: CNRB0006223).

Evidence of payment should be emailed in advance to confirm the participation.

Accommodation: Accommodation may be arranged in the IIT campus based on first come first serve based on availability (on payment basis).

Contact information:

Dr. M. Jayaprakash (Ph: 09755611891, jayaprakash@iiti.ac.in), Dr. Hemant Borkar (Ph: 08308233010, h.borkar@iiti.ac.in)
Metallurgy Engineering and Materials Science, IIT Indore, Simrol, Indore- 453552, India



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Programme Schedule

Day:1	
09.15 am - 10.00 am	Registration
10.00 am - 10.30 am	Inaugural Function
10.30 am - 11.00 am	Tea break
11.00 am - 12.30 pm	Advances in aluminum alloys development (Lecture by Dr. H. Borkar)
12.30 pm - 01.30 pm	Lunch break
01.30 pm - 03.00 pm	Advances in surface engineering-I (Lecture by Dr. Santosh Hosmani)
03.00 pm - 03.30 pm	Tea break
03.30 pm - 05.00 pm	Properties, Synthesis & Applications of Magnetorheological Materials (Lecture by Dr. Vijay Kumar S, GEC Ujjain)
Day:2	
09.30 am - 11.00 am	Advances in Magnesium alloys (Lecture by Dr. H. Borkar)
11.00 am - 11.30 am	Tea break
11.30 am - 01.00 pm	Advanced composite Materials (Lecture by Dr. Abhijit Gosh)
01.00 pm - 02.00 pm	Lunch break
02.00 pm - 03.30 pm	Practical session-1 (Lab Visits)
03.30 pm - 04.00 pm	Tea break
04.00 pm - 05.30 pm	Practical session-2 (Lab Visits)
Day: 3	
09.30 am - 11.00 am	Advances in fusion welding of materials (Lecture by Dr. M. Jayaprakash)
11.00 am - 11.30 am	Tea break
11.30 am - 01.00 pm	Advanced Materials characterization I (Lecture by Dr. Abhijit Gosh)
01.00 pm - 02.00 pm	Lunch break
02.00 pm - 03.30 pm	Practical session-3 (Advances in Fusion Welding - Welding Lab Practical)
03.30 pm - 04.00 pm	Tea break
04.00 pm - 05.30 pm	Practical session-4 (Hands on training in welding using virtual welding simulator)
Day: 4	
09.30 am - 11.00 am	Advances in Surface Engineering-II (Lecture by Dr. Santosh Hosmani)
11.00 am - 11.30 am	Tea break
11.30 am - 01.00 pm	Solidification behavior of Materials (Lecture by Dr. Sumanta Samal)
01.00 pm - 02.00 pm	Lunch break
02.00 pm - 03.30 pm	Practical session-5 (Solid state welding - Welding Lab Practical)
03.30 pm - 04.00 pm	Tea break
04.00 pm - 05.00 pm	Practical session-6 (Solid state welding demo-Welding lab)
Day: 5	
09.30 am - 11.00 am	Advanced Materials characterization II (Lecture by Dr. Abhijit Gosh)
11.00 am - 11.30 am	Tea break
11.30 am - 01.00 pm	Advances in solid state welding of materials (Lecture by Dr. M. Jayaprakash)
01.00 pm - 02.00 pm	Lunch break
02.00 pm - 03.30 pm	Practical session-7 (Casting and solidification lab)
03.30 pm - 04.00 pm	Tea break
04.00 pm - 05.00 pm	Practical session-8 (Casting and solidification lab-demo)
Day: 6	
09.30 am - 11.00 am	Fatigue, fracture and failure analysis in materials (Lecture by Dr. M. Jayaprakash)
11.00 am - 11.30 am	Tea break
11.30 am - 01.00 pm	Advanced Manufacturing techniques (Lecture by Dr. Dr. H. Borkar)
01.00 pm - 02.00 pm	Lunch break
02.00 pm - 03.00 pm	Feed back and conclusion
03.00 pm - 03.30 pm	Tea break
03.30 pm - 04.30 pm	Certificate distribution