A short term course on
Laser Materials Processing
February 19- February 24, 2018

(Application form should contain the following information. It should be(not hand written) printed on A4 size paper.

Name:
Position:
Department:
Institution/organization:
Address:
E-mail Address: Mobile No:

Education background (starting from B.E./B.Tech):

Degree	Speciali-zation	Institute	CPI/ %marks	Year
B.E./B.Tech M.E./M.Tech Ph.D.				

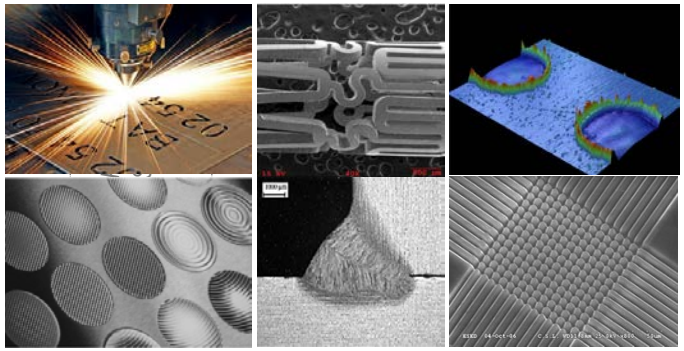
Areas of research interest:
Have you attended any course on "Laser material processing" at IITK or elsewhere : Yes/No
(If yes please give details….)

Note: Candidates from the teaching institution should send the demand draft only after getting the confirmation of their selection.

Payment Details
Demand draft no…..dated……..
Amount Rs……..drawn at……

Recommendation Signature of applicant

Signature of Head of the department/organization (with seal)



Various Applications of laser material processing

Important Dates

For college Teachers

- Receipt of application through email : Jan 15 , 2018
- Information to the selected candidates: Jan 30, 2018
- Receipt of the draft: Feb. 19, 2018

For participants from industries and R&D labs

- Receipt of application through email : Jan 30 , 2018
- Information to the selected candidates: Feb 4, 2018
- Receipt of the draft: Feb. 19, 2018

Address for correspondence

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A short term course on
Laser Materials Processing

For engineering college teachers, practicing engineers and scientists

February 19- February 24, 2018

Sponsored by
All India Council of Technical Education, New Delhi

Coordinator: Prof. J. Ramkumar

Department of Mechanical engineering Indian institute of technology, Kanpur

All India Council of Technical Education, New Delhi

Introduction

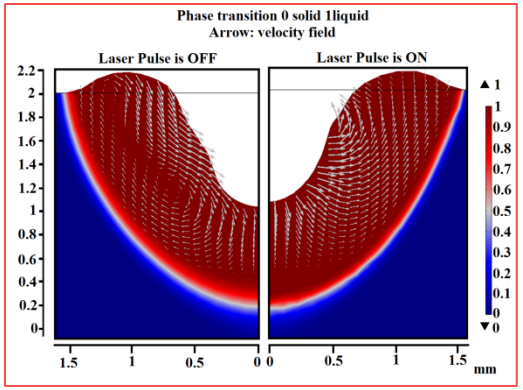
The overarching goal of this course is to disseminate cutting-edge technology and research in the field of laser materials processing. In today's world, lasers offer new and innovative solutions in many areas of manufacturing. Laser materials processing techniques include surface treatment, alloying, cladding, deposition, cutting, drilling, marking, machining and welding. With an introduction to physics of lasers and various types of lasers, fundamentals of laser-material interactions and their implications in various laser materials processing techniques along with innovative applications of laser material processes in manufacturing will be discussed in this course. In line with the current Government of India initiatives on ***MAKE IN INDIA AND SKILL INDIA,*** manufacturing industry personnel and researchers working in this area will immensely benefit from the expertise shared by the speaker on Laser Processing of Materials.

Objectives

•The primary objectives of the course are as follows:
•Introduce the participants to fundamental properties of laser beams as advanced materials processing and manufacturing tool.
•Provide the participants an overview of principles involved in laser-material interactions.
•Build broad understanding of laser based physical processes and their implications in material processing and manufacturing processes.
•Provide exposure to practical problems and their solutions through laser based manufacturing processes in various industries.
•Enable the participants to identify, select, and optimize laser materials processes through case studies of practical problems and probable solutions for innovative and potential next generation manufacturing processes.

Course content

- **Laser Operation Mechanism, Properties of Laser Radiation**
- **Laser Materials Interactions: Absorption of Laser Radiation, Thermal Effects**
- **Thermal Effects associated with Physical Processes during Laser Material Interaction.**
- **Lasers in Manufacturing: Laser Casting, Laser Forming/Shaping, Laser Joining**
- **Laser Welding, Laser Marking, Laser Cutting, Laser Drilling, Machining**
- **Laser Surface Alloying, Laser Cladding**
- **Laser Additive Manufacturing - Classification and Processing Philosophy**
- **Compositional and Microstructural Effects during Surface Modification**
- **Innovative Applications of Laser Materials Processes in Manufacturing**
- **Design and optimize laser based manufacturing process for potential application**



Phase distribution and spatial velocity field (Left: when laser pulse is OFF cooling occurs and only marangoni convection and gravitational force is effective, Right: When laser pulse is ON recoil pressure acts and splashes the molten metal as shown by the arrow plot.).

Registration fees

For participants from QIP/AICTE approved colleges, there is no registration fee. They will be provided TA (AC-III) by the shortest route from the nearest railway station to Kanpur. Daily allowance (for boarding and lodging) will be paid to every participant from QIP/AICTE approved colleges as per the existing rules of CDTE/QIP for the period of the course. A caution deposit of Rs. 1000 in the form of a DD should accompany the completed form. This will be refunded to those participants who attend the course.

For participants from industry/R&D organization, the registration fee (non-refundable) is Rs. 10,000/- (covers only course fees and course material). For Ph.D. scholars, the registration fee is Rs. 2,500/-, please note the PhD scholars have to bear their boarding and lodging and travel expenses.

Accomodation

Accommodation will be provided to all the participants from 19.02.2018 till 24.02.2018 in Visitor's Hostel. The boarding and lodging charges will have to be borne by the participants (DA will be paid as per the existing rules of CDTE/QIP). Rooms at the Guest House are very reasonably priced.
Kanpur, a major city of Uttar Pradesh is well-connected by rail, road and air to all the parts of the country. The railway station is at a distance of about 18 km from the IITK campus.

Payment Mode

The registration fee or refundable caution money deposit should be sent by bank draft payable at the "state bank of India" Branch and drawn in favor of "Registrar IITK".

- The list of selected candidates will be displayed on the home page of the coordinators, as given below.
- Home Page:- **http:// home.iitk.ac.in/~jrkumar/**