A Short Term Course on
ADDITIVE MANUFACTURING
July 13 – July 17, 2015

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

Name:
Position:
Department:
Institution/Organization:
Address: E-mail Address: Mobile No.:
Telephone No.:

Educational Background (starting from B.E./B.Tech):

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<th>Field of Specialization</th>
<th>Institution</th>
<th>% marks/CGPA/CPI</th>
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Areas of Research Interest:

Have you attended any course on “Additive Manufacturing” at IITK or elsewhere: Yes / No
(If yes, please give details……………………………………………….)

Note: Candidates from the teaching Institutions should send the demand draft only when they get the selection letter.

Payment details

Demand draft no. _______ dated ___________
Amount in Rs. _______ drawn at _________

Recommendation Signature of applicant

Signature of Head of the Department / Head of the organization (with seal).

*IMPORTANT DATES*

For College Teachers

- Receipt of applications: June 06, 2015
- Information to the selected candidates: June 14, 2015
- Receipt of the draft: June 22, 2015
- Short term course duration: July 13 - July 17, 2015

For Participants from Industries and R&D Labs

- Receipt of applications: June 13, 2015
- Information to the selected candidates: June 20, 2015
- Receipt of the draft: June 27, 2015
- Short term course duration: July 13 - July 17, 2015

ADDRESS FOR CORRESPONDENCE

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Phone:- 0512-259 7484(O); 259 7196(O); 259 7916 (O)
*Home page:- http://home.iitk.ac.in/~arvindkr/

*Note: Correspondence will be done through e-mail. Application’s hard copy should definitely be sent by post.
INTRODUCTION

An intensive course on Additive Manufacturing will be offered from July 13 to July 17, 2015, under the Continuing Education Programme of I.I.T. Kanpur. It is sponsored by Quality Improvement Programme, All India Council of Technical Education, New Delhi. The course is designed to cater the needs of teachers, scientists from R & D houses and Labs, and practicing engineers from industries. This programme will be specifically useful for persons who are concerned with training / teaching, research, and industrial applications of additive manufacturing, manufacturing of complex parts, CAD for additive manufacturing, bio-additive manufacturing, modelling, to name a few.

OBJECTIVE

Additive Manufacturing (AM) is a process of joining materials to make objects from 3D model data, usually layer upon layer, as opposed to subtractive manufacturing methodologies, such as traditional machining. The basic principle of AM is that a model, initially generated using a three-dimensional Computer Aided Design (3D CAD) system, can be fabricated directly. AM technologies have significantly evolved over the last decade. Because of their potential to extensively transform the nature of manufacturing processes, e.g., by enabling “Freedom of Design” several industries have been attracted by these technologies. Using AM, manufacturing of highly complex parts can be an economically viable alternative to conventional manufacturing technologies.

The basic objective of the present course is to acquaint the participants with the concept of AM, various AM technologies, materials science aspect for AM, modelling of AM processes, and their applications in various fields. Towards modelling in AM, relevant case studies have been included to expose the participants to the mathematical models for AM to describe the transport phenomena such as heat/mass transfer and fluid flow. The course will also cover AM process plan including building strategies and post-processing.

COURSE CONTENT

- Introduction to Additive Manufacturing
- CAD for Additive Manufacturing
- Material Science Aspects in Additive Manufacturing
  - Discussion on different materials used for AM, Use of multiple materials, multifunctional and graded materials in AM, Role of solidification rate
- Various Additive Manufacturing Processes
  - Powder-based AM processes involving sintering and melting, Printing processes (droplet based 3D printing), Fused deposition moulding (FDM), Laminated object manufacturing, Stereolithography, Micro- and nano-additive manufacturing processes.
- Modelling in Additive Manufacturing
  - Transport phenomena models: temperature and fluid flow, molten pool formation, Various case studies - modelling of fusion based AM process, powder bed melting based process, droplet based printing process.
- Applications of Additive Manufacturing
  - Additive Manufacturing in Aerospace, Automotive, Electronics industries and Biomedical applications.

FACULTY

Speakers shall be drawn from various disciplines of different IITs and other institutions of higher learning, and related industries and R&D organizations of different parts of the country.

COURSE FEE

FOR COLLEGE TEACHERS ONLY

There is no course fee for the sponsored teachers from engineering colleges (only those approved by AICTE, New Delhi). They will be paid to and fro III AC class train fare via shortest route (strictly on production of ticket), and free boarding and lodging in the hostel of IIT Kanpur. The applications of the teachers from the accredited colleges should reach the course coordinator latest by 23rd May, 2015 giving the information as shown in the Proforma. The engineering College teachers are required to send hard copy applications duly recommended by the Head of the Institution/Department. The candidate should have minimum qualification as B.E. / B.Tech. / B.Sc. (Engineering). However, candidates with M.E. / M.Tech. / M.Sc. (Engineering) will be given preference. The candidates with Ph.D. degree with manufacturing specialization are most welcome, and will be given highest priority.

For the selected candidates: The selected candidates will be requested to send a refundable caution deposit of Rs. 1000/- to ensure their commitment for participation in the course. This amount will be refundable only to those teachers who attend the course (Please do not send the money until you get selection letter / e-mail). Please write your name on the back of demand draft.

FOR PARTICIPANTS FROM INDUSTRIERS AND R & D LABS

Private and public sector industries, R & D Labs, teaching institutions and other organizations are welcome to depute their executives, managers, teachers and engineers to participate in the course. The sponsoring organizations are required to pay a registration fee of Rs. 7500/- per participant. The participants will have to make their own arrangements to meet their travel and other expenses. Boarding and lodging can be arranged in IITK guest house or IITK hostels based upon prior request and on the payment basis. Applications on a separate sheet giving the information shown in the proforma should reach the Course Coordinator latest by 30th May, 2015.

** For Ph.D. Scholars, the registration fee is Rs. 2500/-. Please note that the Ph.D. Scholars have to be bear their boarding & lodging and travel expenses.

MODE OF PAYMENT

The registration fee or refundable caution money deposit should be sent by bank draft payable at the “State Bank of India, IIT Kanpur” Branch and drawn in favor of “MFS Course”.

The list of the selected candidates will also be displayed on the home page of the coordinator, as given below.

Home page: [http://home.iitk.ac.in/~arvindkr](http://home.iitk.ac.in/~arvindkr)