

BACKGROUND AND SCOPE

In today's high tech engineering world, the customer requirement on the products/processes are stringent, such as, extraordinary properties of materials, complex 3-D geometries, miniature features, nano level surface finish, multifunctional properties with simple ease of operations and low cost. Competitions exist worldwide to meet the customer requirement efficiently and effectively in the stipulated period of time. Many engineering materials were developed to meet the customer requirements with high standards, but machining of these materials is difficult and even impossible with conventional machining processes. Even if possible with NC/CNC/DNC, there is a thousands of slide movements, high MRR , high feed rates and high speed of operations are required to machine 3-D geometries with required accuracies. The alternative is to develop advanced manufacturing processes in general and advanced machining processes in particular.

Keeping in view the above developments, a one week short term course is developed for faculty and practicing engineers who wish to have an insight into the micromachining techniques used for miniaturization of product and processes. Micromachining is the basic technology for fabrication of micro-components of size in the range of 1 to 999 micrometers. The course will deal with fundamentals and diversified applications of the advanced machining processes. The mathematical content has been kept simple with the aim of making the course good rather than rigorous.

COURSE OBJECTIVES

Short Term Course (STC) is aimed to make the participants aware of the Advanced Mechanical Micromachining Techniques used for miniaturization of Product and Processes. Currently this technology is globally prevailing in the area of Industries/Defense in general and multi domain applications in particular. So the course is designed to give a glimpse on the fundamental principles, design and development of tailor-made setups to carry out the cutting edge research in the field of micromachining.

COURSE CONTENTS

The course will deal with the fundamentals and diversified application areas of various micromachining

techniques like Mechanical assisted, Thermal assisted, Chemical assisted processes, Micro/Nano finishing methods, Optimization techniques, Metrology of micro machined components, Smart material based micro sensors and micro actuators used for micromachining, Sustainability issues in micromachining and Global status and research challenges in micromachining techniques.

VENUE

Sessions will be held at the Industrial Consultancy & Sponsored Research (IC & SR) Building, Hall No. 1, IIT Madras, Chennai.

RESOURCE PERSONS

The teaching faculty constitutes experts from the Department of Mechanical Engineering and other Departments of IIT Madras. Guest speakers from other reputed organizations will also be invited.

LECTURE NOTES

To fully realize the objectives of the course, the lecture notes will be made available to the participants at the time of registration at IIT Madras.

ABOUT THE DEPARTMENT OF MECHANICAL ENGINEERING

Department of Mechanical Engineering at IIT Madras is as old as the institute itself. Its impact on the institute and on society is easily demonstrated by noting the alignment of the Department's evolution with key events and technological advances in India and elsewhere. The Departmental activities can be categorized into three major streams, namely Design, Manufacturing, and Thermal.

Today, the Department of Mechanical Engineering of IIT Madras attracts and features an extraordinary rich diversity and quantity of talented individuals, with nearly 700 undergraduates, 150 Master of Technology, 100 Master of Science (by research) and 220 Doctoral students and over 60 faculty members. The impressive array of students makes the Department as the largest in the country and one of the largest in Asia.

AICTE Sponsored Short Term Course (STC) on “Advanced Mechanical Micromachining Techniques for Miniaturization of Products and Processes”

January 14-19, 2019

Registration Form

1. Name
2. Designation
3. Educational Qualification
4. Department
5. Organization
6. Teaching Experience
7. Favorite Subjects
8. No. of STCs attended so far
At IIT Madras ____ At other places ____ Total ____
9. Mailing Address
10. Telephone
11. E-mail

Date:

Signature of the Applicant

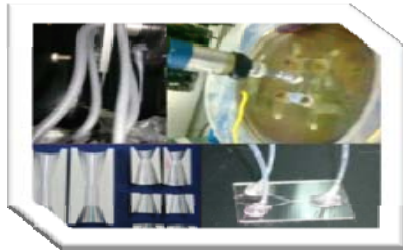
SPONSORSHIP CERTIFICATE

Certified that Dr/Mr/Mrs _____
_____ is being sponsored hereby
for attending the AICTE Sponsored Short Term Course
(STC) on **“Advanced Mechanical Micromachining
Techniques for Miniaturization of Products and
Processes”** to be conducted at Indian Institute of
Technology Madras, Chennai from January 14-19, 2019,
if selected. Also this is to certify that this institute is
recognized by AICTE.

Place: Signature of Sponsoring
Authority
Date: (Head of the institution)

APPLICATION FORMS SHOULD BE SENT TO

Dr Somashekhar S Hiremath
Associate Professor
Department of Mechanical Engineering
IIT Madras, Chennai - 600 036, India
Tel.: (O) 044-2257 4681; (R) 2257 6681
Fax: 044-2257 4652; 2257 0509



PLEASE SEND THE SCANNED SOFT COPIES TO

Mr. Ishwar Bhiradi : me17d025@smail.iitm.ac.in

Note: Please use photo copies of Registration Form if
more number of copies is required.

ABOUT THE MANUFACTURING ENGINEERING SECTION

The Manufacturing Engineering Section is spread over
three laboratories, one housed in Ranganathan Building,
one in the Machine Tool Laboratory and third one
Precision Engineering and Instrumentation laboratory in
Mechanical Sciences Block. Faculty members, technical
staffs and research scholars are focused on the
development of next generation advanced manufacturing
processes and cutting tools, machining of difficult-to
machine materials, machining and forming at micro and
nano scales, friction and laser based surface engineering,
microstructural alterations to improve the material
properties, infusing smartness into the processes and
machines, automation of processes at different levels,
high precision measurement and characterization at all
length-scales

ELIGIBILITY & ENTITLEMENT

Faculty of Mechanical, Industrial Production, Automobile
and ECE from AICTE recognized Engineering Colleges are
eligible to apply. Selected candidates will be paid TA to
the limit of 3 tier AC fare/Bus fare from the working
place to Chennai and return by the shortest route on
production of tickets only. Registration form can be sent
in the format enclosed along with a **refundable
deposit** of Rs. 1000 through DD in favor of **“IIT
Madras”** payable at Chennai. The DD will be returned to
the participant at the end of the course.

BOARDING AND LODGING

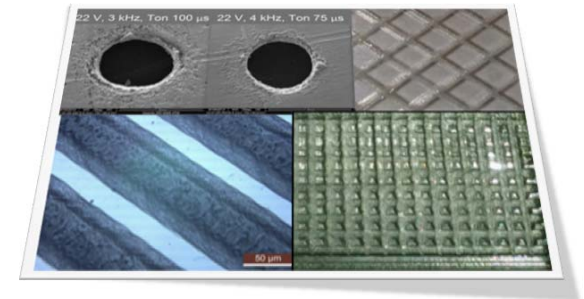
Arrangements have been made to accommodate all the
participants in the Taramani Guest House at IIT Madras.
Boarding and lodging (twin sharing basis) will be
provided to the selected candidates. **Family
accommodation is not available.**

DATES TO REMEMBER

- **Registration Form** duly signed by the Head of the
Institution should reach the coordinator both soft copy
and hard copy before **30th November 2018**.
- **Notification of Acceptance:** **05th December 2018**
(through **email only**).

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Short Term Course (STC) on

“Advanced Mechanical Micromachining Techniques for Miniaturization of Products and Processes”



January 14-19, 2019

Course Coordinator
Dr Somashekhar S Hiremath

Organized by



Department of Mechanical Engineering
Indian Institute of Technology Madras
Chennai-600 036 India
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