



A certificate course on

Advanced Welding Technology

under short term Continuing Education Programme

September 12 – 16, 2017

Coordinators

Prof. Amber Shrivastava

Prof. Sushil Mishra

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Office of

Continuing Education & Quality Improvement Programmes

Indian Institute of Technology Bombay

Powai, Mumbai – 400 076

INTRODUCTION

The joining processes play a prominent role in modern manufacturing. As almost all products are fabricated from multiple components/parts. Welding techniques are among the most practiced joining processes, for creating permanent joints in ferrous metals, non-ferrous metals and plastics. Defect-free consistent welding is critical for any application. It is important to understand (i) what are different types of conventional and non-conventional welding processes, (ii) how the weld joint is created, (iii) how the material is affected by the welding process (iv) how the heat affected zone can be minimized (v) how to model/predict the residual stresses (vi) how to detect the defects and quantify weld quality and (vii) how to select a welding process for any application.

BROAD OBJECTIVES

The broad objectives of this course will be to discuss various welding techniques, with respect to their joining mechanism, associated heat transfer, metallurgical changes, process control and weld quality. This discussion will include modeling techniques, defect detection methods and process selection.

COURSE CONTENTS

This course will cover welding science and metallurgical aspects of electric arc welding, gas tungsten arc welding, gas metal arc welding, laser welding, electron beam welding, friction stir welding, diffusion bonding and explosive welding. This 5-day course encompasses:

- Overview of welding processes
- Thermal aspects of welding processes
- Microstructure and characterization
- Modeling and simulation of welding
- Stresses and heat treatment
- Defects and their detection
- Destructive and non-destructive testing
- Weld quality
- Welding process selection

WHO MAY BENEFIT

The course content has been designed for beginners as well as for practicing welding engineers, who desire to gain comprehensive knowledge of welding. This course will cover basic and advanced level of welding technology, which is highly beneficial for engineers, scientists, managers, senior workers working in manufacturing related areas, research organizations, consulting companies and self-employed practitioners in this area. As participants are expected from all over India, this course would provide an excellent opportunity for the participants to interact with one another and discuss problems and solutions of mutual interest. The only pre-requisite for the course is a keen interest in welding.

VENUE FOR CLASSES

Course will be held at Van-Vihar Guest House IIT (Bombay).

LECTURE NOTES

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

FACULTY

The teaching faculty consists of Professors from Mechanical Engineering Department of IIT (Bombay).

- Prof. Amol Gokhale
- Prof. Sandip Kumar Saha
- Prof. Amitava De
- Prof. Shyamprasad Karagadde
- Prof. Asim Tewari
- Prof. Amber Shrivastava
- Prof. Sushil Mishra

IMPORTANT DATES

1. Last date for receipt of registration form: 20th August 2017
2. Course dates: Tuesday, 12th September 2017 to Saturday, 16th September 2017

ACCOMMODATION

Accommodation on twin sharing basis is available in the Institute Guest house for a limited number of participants on payment basis and with an advance request.

REGISTRATION

Register online first at: <http://tinyurl.com/AWT-IITB> followed by the payment of registration fee as described below

| | |
|----------------------------|---------------------------|
| Industry: | INR 25000/- + Service Tax |
| Academia: | INR 10000/- + Service Tax |
| Govt. Organizations & Lab: | INR 15000/- + Service Tax |
| Students: | INR 5000/- + Service Tax |

The demand draft should be drawn in favour of “**The Registrar, IIT Bombay-CEP Account**” payable at Mumbai.

No income tax is to be deducted at source from the course fee, as IIT Bombay is exempt from the same. The course fee includes course material, lunch and coffee/tea.

A Certificate of participation will be awarded to all the participants of the course.

Course coordinators:

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