



Birla Institute of Technology & Science, Pilani
Dubai Campus



THREE-DAY WORKSHOP ON "MEMS MODELLING WITH COMSOL"

Birla Institute of Technology and Science, Pilani Dubai Campus (BPDC), in association with IEEE and ASME student branches is organizing a three day workshop on "Introduction to MEMS Modelling with COMSOL" during Dec 4 – 6, 2011.

ABOUT THE WORKSHOP

This is the second workshop on Micro Electro Mechanical Systems (MEMS) organized at this Institute. The workshop is designed to educate students and faculty from any engineering background to the exciting new emerging technologies and markets being developed in MEMS. In the inaugural workshop held in April 2011, an understanding of the basic principles underlying MEMS design, development and fabrication was provided. In this workshop, the application of COMSOL, a more powerful software tool for the design, modelling and analysis of various MEMS structures and devices will be explored. Participants will also have an insight into the various models governing these micro devices, where working principles are different from macro-scale electromechanical systems. Design of MEMS will be illustrated with examples. Hands-on sessions will provide the participants a unique opportunity to model their designs and simulate the performance of their MEMS device design.

ABOUT COMSOL

COMSOL is a finite element analysis solver and a Simulation software package for various physics and engineering applications, especially coupled phenomena involving multiphysics. It offers an extensive interface to MATLAB and its toolboxes for a large variety of pre- and post-processing possibilities. Partial differential equations (PDEs) form the basis for the laws of science and provide the foundation for modeling a wide range of scientific and engineering phenomena. COMSOL multiphysics applied to MEMS systems provide accurate solutions to a wide range of problems involving the application of microsensors, microactuators and microfluidics.

BENEFITS AND LEARNING OBJECTIVES

Participants will benefit not only from the knowledge of this emerging technology but also from the hands-on sessions using MEMS design simulation tools and from the understanding of the physical principles governing MEMS design. As a result, they will be prepared in research and development projects involving MEMS. A certificate of participation will be provided to every participant who successfully completes the workshop.

TARGET AUDIENCE

The workshop is open for engineering faculty and students who would like to explore into this exciting area of work with potentials for innovative designs. Those having a background in Mechanical and Electrical / Electronic Engineering are encouraged.

THE RESOURCE PERSON

The workshop will be conducted by Prof N N Sharma, BITS Pilani, India. Dr Sharma is the coordinator of the NPMASS National MEMS Design Centre in BITS Pilani, India. He has several years of experience in the area of MEMS design and modelling and was also the key resource person at the inaugural workshop held in this Institute in April 2011. A number of similar workshops that he successfully conducted recently all over India had a high participation level and were well received.

REGISTRATION

A nominal registration fee of AED 300 is applicable for faculty from other institutions. A subsidised registration fee of AED 50 is applicable for all students. All participants will be provided with a registration kit, and upon successful completion, will be given certificates of participation. Tea and snacks will be served during the workshop.

To confirm your participation, please fill up the Registration form online at <http://tinyurl.com/bitsworkshop> Alternatively you may email or fax the attached hardcopy to: Professor S Swaminathan, BITS Pilani Dubai Campus, Plot No UG 05 & 06, Dubai International Academic City, P O Box 345 055, **Dubai**. Phone: +971 55 6953629 Fax: +971 4 4200844 email: swami@bits-dubai.ac.ae Please confirm your registration by 28 Nov 2011.

PROGRAM OUTLINE

Day 1 (Sunday, 4 Dec 2011)

10.00 AM: Inauguration by Professor R K Mittal, Director, BITS Pilani Dubai Campus
10.30 AM: Refreshment
11.00 AM– 1.00 PM: Introduction MEMS, COMSOL tools
2.00 – 3.30 PM: COMSOL tools for MEMS – hands on: Start up

Day 2 (Monday, 5 Dec 2011)

8.00 – 12.00 PM: Highlights of COMSOL Multiphysics design hands on – Tutorial 1
1.00 – 3.30 PM: Application specific modules hands on – Tutorial 2

Day 3 (Tuesday, 6 Dec 2011)

8.00 – 10.30 AM: Modelling of MEMS devices with COMSOL hands on - Microsensors : Tutorial 3
10.30 – 12.00 PM: Modelling of MEMS devices with COMSOL hands on – Microactuators: Tutorial 4
1.00 – 2.30 PM: MEMS design hands on – other examples: Tutorial 5
2.30 – 3.30 PM: Concluding session, Distribution of Certificates

REGISTRATION FORM (email or fax this portion after filling out)

Name: _____ I am a faculty I am a student
Designation / Year/Program of study _____ Mobile: _____
Institution / Department _____
Address: _____ Email: _____

Tick as applicable:

- I will pay the Registration fee of AED 300 / AED 50 at the Registration desk.
- Mode of payment: Cash / Cheque (cheque must be in favour of " ETA-NET")

Dated: _____ Signature: _____

LOCATION MAP OF BITS, PILANI – DUBAI CAMPUS (GPS Coordinates: 25° 7' 52.93" N Latitude, 55° 25' 12.77" E Longitude)

