

Government College of Engineering

Aurangabad

**“Two Days TEQIP Workshop Course on MEMS  
(Design and Fabrication)”**

(2<sup>nd</sup> – 3<sup>rd</sup> Jan 2020)

Sponsored by TEQIP Phase III Under FDP

**REGISTRATION**

Name: \_\_\_\_\_

Address For Communication:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Mobile No: \_\_\_\_\_

E-mail: \_\_\_\_\_

Educational Qualification:  
\_\_\_\_\_

Signature of Applicant

Signature of Head

**PATRONS**

**Dr. Vijay Saurabh**

Principal Secretary  
Higher and technical education  
Mantralaya , Mumbai

**Dr. Abhay Wagh**

Director , Directorate of Technical Education,  
Maharashtra State , Mumbai

**Dr. Mahesh Shivankar**

Joint Director, Technical Education ,  
Regional Office , Aurangabad.

**Dr. P. B. Murnal**

Principal Govt. College of Engineering ,  
Aurangabad

**Chairman**

Prof. S. R. Hirekhan  
Head of E&TC Department

**Coordinators**

Prof. N. R. Kolhare

**Contact for details**

1. Dipak Bore, 8698333437
2. Gopal Tidke 9922922053
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**LEARNING OBJECTIVES**

- Familiar with the fundamentals, fabrication process and application of MEMS

- Understand the basic principles of MEMS sensors and actuators (mechanical, electrical, piezoresistive, piezoelectric, thermal, microfluidic)
- Understand the design considerations of basic MEMS sensors and actuators
- Design a basic MEMS sensor and actuator device, such as an inertia sensor, and a pressure sensor
- Design the process flow of a basic MEMS device, such as an inertia sensor (accelerometer), given a fabrication process description.
- Understand and familiar with the fabrication process.

**MEASURABLE  
OUTCOMES**

- Design a basic MEMS device, such as a cantilever based actuator, pressure sensor, and accelerometer
- Design the fabrication process of a MEMS device, such as a capacitive pressure sensor or an inertia sensor
- Fabrication of a MEMS device, such as cantilever actuator
- Determine the fundamental trade-offs in a given basic MEMS device, and design with the suitable principles, materials, and structure
- Establishment of Industry-Institute Partnership/interaction Cell.

- Organizing Workshop, conferences and symposia with joint participation of the faculty and the industries.
- Encouraging engineers from industry to visit Engineering Institution to deliver lectures.
- Participation of experts from industry in curriculum development.
- Arranging visits of staff members to CMTI industry
- Visits of faculty to industry for study and discussions or delivering lectures on subjects of mutual interest.
- Memoranda of Understanding between the Institute and industries.
- Short-term assignment to faculty members in industries.
- Visiting faculty/professors from industries.
- Practical training of students in industries.

### ABOUT WORKSHOP

The workshop is sponsored by TEQIP. Apart from brief theoretical design rules, the present Workshop is intended to give microfabrication exposure training to the scientists and researchers who are interested in the field of MEMS. The fabrication of MEMS will include the design of simple MEMS structures, fabrication of MEMS structures using photoresists, Transfer of pattern into polymers using soft lithography, and wet etching to develop the

suspended structures. Expert gives keynote by Shardul Pandit, Project Assistant TU Wien and Mayuresh Kagalkar, Researcher Center Manufacturing Technology, CMTI Bangalore

The course will be held during 2-3 Jan 2020 at ELECTRONICS DEPARTMENT SEMINAR HALL, DEPARTMENT OF ELECTRONICS, Govt.College of Engineering, Aurangabad.

### COURSE CONTENTS

Topics will be covered in the Lecture:

Material: Semiconductors and Silicon

2. MEMS Fabrication Process 1) Types, Standards, Flow charts, basic chemicals 2) Lab types and requirements

3) Examples 3. MEMS Sensors 1) Theory: Types 2) Applications 3) case Studies:

Examples 4. Design, Simulation and fabrication process flow of Pressure sensor

Candidates should complete the enclosed registration form and send it by mail to the coordinator. Confirmation of eligible candidates will be on FIRST-COME-FIRST-SERVE basis upto a maximum of 30 candidates (APPROX). The complete registration form should be received by the coordinator by, 25<sup>th</sup> Dec 2019

**There is no Registration fees for this workshop:**

**Whom should Apply: UG, PG (for all branches) students/Research Scholar, Academician: faculty, Industry Person:**

### Important Dates

Last Date of Receipt of Registration From: **28<sup>th</sup> Dec, 2019 registration form**

<https://forms.gle/w6KfteGohzJs1cWRA>

### ADDRESS FOR CORRESPONDANCE

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