



RAJALAKSHMI ENGINEERING COLLEGE

(An Autonomous Institution)

Rajalakshmi Nagar, Thandalam, Chennai- 602 105.



**CENTRE OF EXCELLENCE IN
MEMS AND MICROFLUIDICS**



In Association with

INSTITUTE OF SMART STRUCTURES AND SYSTEMS (ISSS)



CERTIFICATE COURSE ON

Microfabrication Techniques for MEMS Devices

Saturdays (02.04.2022, 09.04.2022, 16.04.2022 & 23.04.2022)



Centre of Excellence in MEMS & Microfluidics (CEMM) at Rajalakshmi Engineering College has state-of-the-art research facilities with Clean Room infrastructure. CEMM focuses on research projects funded by various funding agencies such as DRDO, DST, AERB, UGC, AICTE etc., to develop miniaturized sensors for industrial / societal applications. The participants can gain knowledge on the cutting edge technologies, by exploring the various research activities being carried out at the center.



SPECIAL FEATURES

- Hands-on training on simulation software
- Equipment demonstrations
- Mentoring by Faculty Expert/ SRF/ JRF
- Project Presentations
- Technical Discussions
- This program can be converted into 1 credit course under Autonomous Institutions /Universities.
- Live streaming of entire session for the candidates participating through online mode.

CERTIFICATE CRITERIA

- A minimum of 75% of total attendance
- A minimum of 60% score in the assessment
- Assignment submission



ELIGIBILITY

Interested UG/ PG/ research scholars from any engineering discipline, academicians and industrialists.



VENUE

For offline candidates:
CEMM, J block, REC.



Please refer to the attached syllabus.

REGISTRATION DETAILS

Last date for registration: **01.04.2022**

Online Registration Link :

<https://forms.gle/zvzspogA7D7fR7V9A>

Course Fee : **Online Payment**

UG/PG students- Rs. 2000/-

Researchers & Academicians-Rs.3000/-

Industrialists- Rs. 5000/-

Name of the Account :**REC-R&D-CMMF**

Account No. : **145201000014680**

Name of the bank : **Indian Overseas Bank**

Branch : **Irungattukottai**

IFSC Code : **IOBA0001452**

- Covid19 protocols will be strictly adhered.
- Accommodation and travel allowances should be borne by the candidate.

For online candidates:
Google meet

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Google meet

CONTACT DETAILS

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CERTIFICATION COURSE SYLLABUS

Subject Name		L	T	P	C
Microfabrication Techniques for MEMS Devices		0	0	2	1
Objectives:					
<ul style="list-style-type: none"> • To familiarize the concept of micro electro mechanical systems • To gain clear understating of the micro fabrication techniques • To strengthen the fundamentals of fabricating MEMS devices • To impart knowledge on the CAD design of micro devices • To empower students to design and fabricate novel micro devices 					
1	Micro Electro Mechanical Systems (MEMS) - Introduction, definitions and applications				
2	Materials for micro-fabrication				
3	Micro fabrication processes: substrate cleaning, doping, oxidation, deposition, photolithography, etching				
4	Laboratory session 1- wafer cleaning process				
5	Laboratory session 2- oxidation				
6	Laboratory session 3- thin film deposition				
7	Laboratory session 4- photolithography				
8	Laboratory session 5- etching				
9	Laboratory session 6- characterization of micro devices				
10	CAD design of micro-devices, Simulation of Micro Devices				
11	Recent developments in micro fabrication				
Total contact hours				:	30
Course Outcomes:					
On completion of the course, candidate will be able to					
<ul style="list-style-type: none"> • understand the fundamentals of micro fabrication. • demonstrate the various fabrication techniques. • analyse the working and design of MEMS devices. • design complex micro devices in various CAD software. • fabricate any sensor in real time 					
References:					
1	Chang Liu, "Foundations of MEMS", Pearson Education Inc., 2012				
2	Tai Ran Hsu, "MEMS and Micro Systems Design and Manufacture", Tata McGraw Hill, New Delhi, 2002.				
3	Dr. Hardik J. Pandya,"Sensors and Actuators", NPTEL video course. https://www.youtube.com/playlist?list=PLgMDNELGJ1CbufZjqWa8uoSlQWKqVwPN7				