Bharath
INSTITUTE OF HIGHER EDUCATION AND RESEARCH
Declared as Deemed-to-be-University u/s 3 of the UGC Act, 1956

SCHOOL OF ELECTRICAL ENGINEERING

Fundamentals of Micro and NanoFabrication

Value Added Courses-2018

Course Objective

The objective of this course of study is to provide students with a glimpse into the semiconductor industry that has been the foundation upon which the electronics industry has been based for the past half century, and to provide insight into the future of that industry as well as nanotechnology in general. In the last 50 years, the dimensions of the features built into integrated circuits have shrunk from 25 mm to 25 nm. Over the next decade these features will approach atomic dimensions, giving rise to a host of unique nanotechnology challenges and opportunities.

The definition and description of the terminology and processes of microelectronics; semiconductor facilities and chemical processes for integrated circuit manufacture with an emphasis upon unit processes; the major unit processes including thin-film metal and dielectric deposition and etching, silicon oxidation and etching, ion implantation, diffusion, lithography, and planarization; an overview of promising nano patterning and nanofabrication techniques, such as electron and other particle-beam imaging, nanoimprint, and near-field probe imaging.

Resource Persons :

1.Ms.S.Saravana

2.Ms.K.Subbulakshmi

3.Ms.B.Hemalatha

Convener

Dr.M.Sangeetha

HOD/ECE

Bharath
INSTITUTE OF HIGHER EDUCATION AND RESEARCH
Declared as Deemed-to-be-University u/s 3 of the UGC Act, 1956

CIRCULAR

SCHOOL OF ELECTRICAL ENGINEERING

Date: 2.02.2018

The course on Fundamentals of Micro and Nano Fabrication is planned by School of Electrical Engineering which commences on 01.03.2018(Wednesday).In this regard the students are requested to give their willingness to Course Coordinator. It is instructed to actively participate and get benefitted for the certified course.

Course Coordinator: M. Sowmiya Manoj
Contact No:7358747803
Email id : sowmiyamanoj.ece@bharathuniv.ac.in

(Dr.M.Sangeetha)
HOD/ECE

DEPT of ECE

To,
Copy to ECE Department,
Copy to EEE Department,
Department Notice Board

Bharath
INSTITUTE OF HIGHER EDUCATION AND RESEARCH
Declared as Deemed-to-be-University u/s 3 of the UGC Act, 1956

SCHOOL OF ELECTRICAL ENGINEERING

Fundamentals of Micro and NanoFabrication

SCHEDULE

Contact Hours : 31 hrs

DATE	SESSION	Contact Hours	TOPICS	Resource person
01.03.2018	FN	9.00 am to 12.30 pm	Tunnel junction and applications of tunneling, Tunneling Through a Potential Barrier, Metal—Insulator, Metal-Semiconductor, and Metal-Insulator-Metal Junctions, Coulomb Blockade, Tunnel Junctions	Ms.B.Hemalatha
	AN	1.30 pm to 4 pm	Tunnel Junction Excited by a Current Source. Spintronics and Foundations of nano-photonics.	Ms.S.Saravana
02.03.2018	FN	9.00 am to 12.30 pm	Field Emission, Gate—Oxide Tunneling and Hot Electron Effects in nano MOSFETs, Theory of Scanning Tunneling Microscope, Double Barrier Tunneling and the Resonant Tunneling Diode.	Ms.B.Hemalatha
	AN	1.30 pm to 4 pm	Introduction to lithography- Contact, proximity printing and Projection Printing, Resolution Enhancement techniques, overlay-accuracies, Mask-Error enhancement factor (MEEF), Positive and negative photoresists, Electron Lithography, Projection Printing, Direct	Ms.K.Subbulakshmi

			writing,	
03.03.2018	FN	9.00 am to 12.30 pm	Electron resists. Lithography based on Surface Instabilities: Wetting, De-wetting, Adhesion, Limitations, Resolution and Achievable / line widths etc. Lift off process, Bulk Micro machining.	Ms.S.Saravana
	AN	1.30 pm to 4 pm	Introduction to MEMS and NEMS, working principles, as micro sensors (acoustic wave sensor, biomedical and biosensor, chemical sensor, optical sensor, capacitive sensor, pressure sensor and thermal sensor), micro actuation (thermal actuation, piezoelectric actuation and electrostatic actuation–micro gripers, motors, valves, pumps, accelerometers	Ms.K.Subbulakshmi
06.03.2018	FN	9.00 am to 12.30 pm	fluidics and capillary electrophoresis, active and passive micro fluidic devices, Pizoresistivity,Pizoelectricity and thermoelectricity, MEMS/NEMS design, processing, Oxidation, Sputter deposition, Evaporation, Chemical vapor deposition etc.	Ms.B.Hemalatha
	AN	1.30 pm to 4 pm	Introduction – Scaling of physical systems – Geometric scaling & Electrical system scaling.	Ms.S.Saravana
07.03.2018	FN	9.00 am to 12.30 pm	The Single-Electron Transistor: The Single- Electron Transistor Single-Electron Transistor Logic, Other SET and FET Structures,	Ms.K.Subbulakshmi
	AN	1.30 pm to 5 pm	Carbon Nanotube Transistors (FETs and SETs), Semiconductor Nanowire FETs and SETs,Coulomb Blockade in a Nanocapacitor, Molecular SETs and Molecular Electronics.	Ms.S.Saravana

VALUE ADDED COURSE

SCHOOL OF ELECTRICAL ENGINEERING

Fundamentals of Micro and NanoFabrication

List Of Participants

Date:01.03.2018

Sl.no	REG.NO	NAME OF THE CANDIDATE
1	U15EC002	AKHIL CHELLUBOINA
2	U15EC003	AKULA SUJITH KRISHNA
3	U15EC004	ALOK KUMAR
4	U15EC005	ALUVALA ARUN KUMAR GOUD
5	U15EC006	AMAYA E
6	U15EC007	AMBULA DEVI GOWTHAM
7	U15EC009	AMMISETTI AVINASH
8	U15EC010	ANKIT KUMAR DUBEY
9	U15EC015	ATTAR MOHAMMED TOUSIF
10	U15EC016	ATUKURI AVINASSH
11	U15EC017	BASETTY HIMABINDU
12	U15EC018	BOJJA PHANINDHRA REDDY
13	U15EC019	C. SHIVARAMAN SRIKANTH
14	U15EC020	CHANDAN PANDAY
15	U15EC021	CHAPARTHI KARTHIK
16	U15EC022	CHEKKA KESAVA PRAJWAL
17	U15EC023	CHITTIBOMMA SWATHI
18	U15EC024	DASARI HARI SAI KUMAR

19	U15EC025	DUDEKULA FAYAZ
20	U15EC026	DUDEKULA NOORNIYAZ
21	U15EC027	DUGYALA PREETHI
22	U15EC028	FAHIMA NASREEN S
23	U15EC030	GADE MOUNIKA
24	U15EC042	JAKKU MANIDEEP
25	U15EC044	JETTY SAI SUDHEER
26	U15EC046	JONNALAGADDA VENKATA MANOJ KUMAR
27	U15EC047	K O HARICHANDANA
28	U15EC050	KARICHETI BALAKRISHNA
29	U15EC051	KARNAM MOHITH
30	U15EC053	KELAM PHANI SHANKAR
31	U15EC056	KOMURAVELLI ABHILASH
32	U15EC057	KONDA ANANTH REDDY
33	U15EC058	KONDA SANDEEP
34	U15EC059	KONDAMURI VENKATESH
35	U15EC061	KONREDDY HARITHA

(Dr.M.Sangeetha)

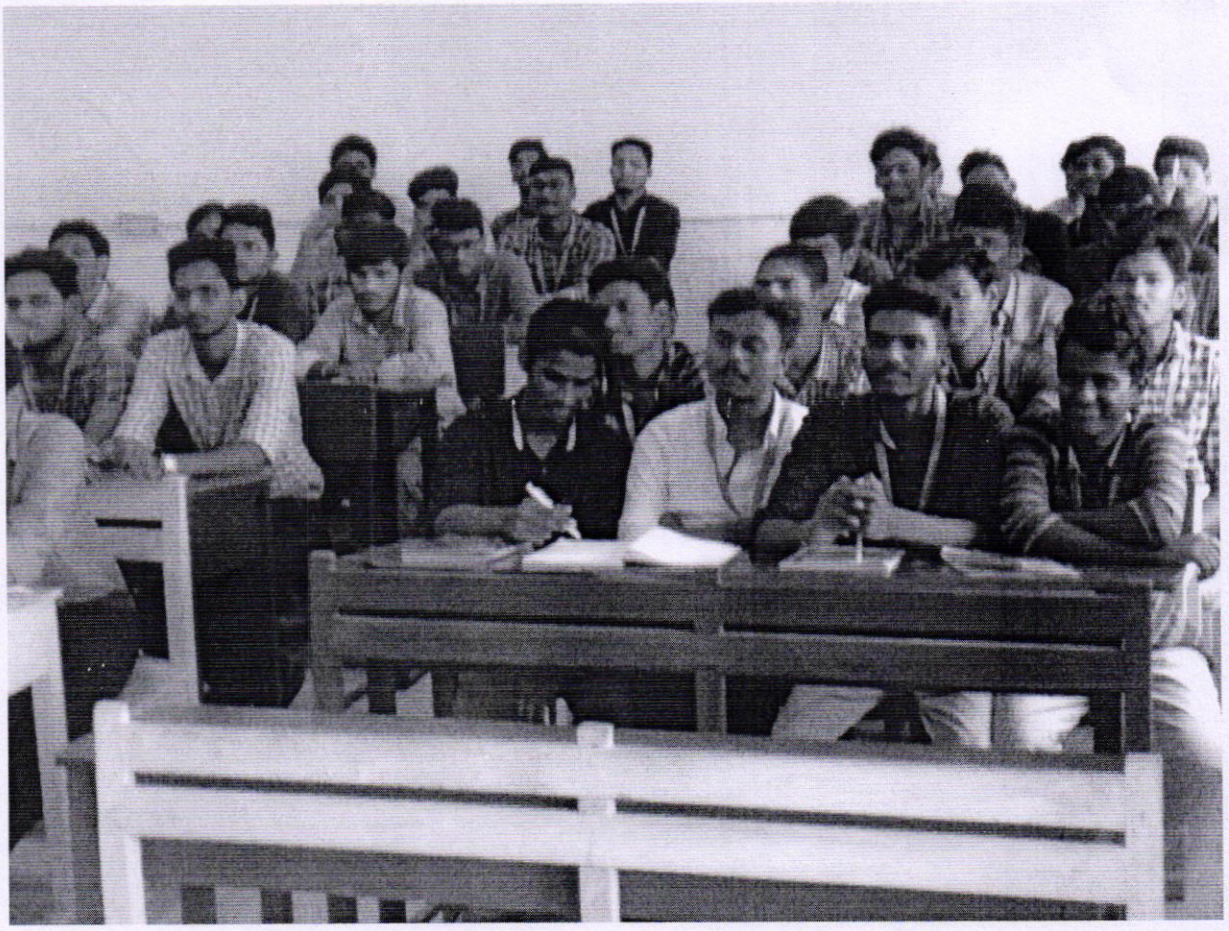
HOD/ECE

DEPT of ECE

Bharath
INSTITUTE OF HIGHER EDUCATION AND RESEARCH
Declared as Deemed-to-be-University u/s 3 of the UGC Act, 1956

SCHOOL OF ELECTRICAL ENGINEERING

Course on Fundamentals of Micro and NanoFabrication dated on 01.03.2018 conducted by School of Electrical Engineering



Bharath

INSTITUTE OF HIGHER EDUCATION AND RESEARCH

(Declared as Deemed - to - be - University under section 3 of UGC Act 1956)

NAAC

ABET

SCHOOL OF ELECTRICAL ENGINEERING

CERTIFICATE OF PARTICIPATION

This is to certify that Mr / Ms **KONREDDY HARITHA(U15EC061)** has attended Value added Course On ***"Fundamentals Of Micro And NanoFabrication"*** organized by the School of Electrical Engineering, BIHER conducted from 01-03-2018 to 07-03-2018.

M.SOWMIYA MANOJ
COURSE COORDINATOR

Dr.M.SANGEETHA
CONVENOR

Bharath
INSTITUTE OF HIGHER EDUCATION AND RESEARCH
Declared as Deemed-to-be-University u/s 3 of the UGC Act, 1956

SCHOOL OF ELECTRICAL ENGINEERING

VALUE ADDED COURSE

Fundamentals of Micro and NanoFabrication

FEED BACK FORM **Date:** 07/3/2018

Name	KO. Harichandana
Register number	U15EC047
Phone number	9176415710
Email address	Hari_123@gmail.com

	Poor	Fair	Good	Very Good	Excellent
Overall Program					✓
TheSpeaker				✓	
Audio,Visual Aids Technology used					✓
Presentation hand outs				✓	

Student Signature

Bharath
INSTITUTE OF HIGHER EDUCATION AND RESEARCH
Declared as Deemed-to-be-University u/s 3 of the UGC Act, 1956

SCHOOL OF ELECTRICAL ENGINEERING

VALUE ADDED COURSE

Fundamentals of Micro and NanoFabrication

FEED BACK FORM **Date:** 07/3/2018

Name	Jayant kumar
Register number	V15EE014
Phone number	9416578901
Email address	kumarbudoly@yahoo.com

	Poor	Fair	Good	Very Good	Excellent
Overall Program				✓	✓
TheSpeaker					✓
Audio,Visual Aids Technology used				✓	
Presentation hand outs					✓

Student Signature