

Course Structure
For
2-Years M. Tech. in Microelectronics and VLSI Design

Effective from 2019-2020 Academic Sessions



Department of Electronics and Communication Engineering
National Institute of Technology Sikkim
South Sikkim - 737 139

Sl. No.	Subject Code	Subject Name	L-T-P	Credit
1st Semester				
Theory Subjects				
1	EC21101	Analog MOS Integrated Circuits Design	3-0-0	3
2	EC21102	Computational Mathematical	3-0-0	3
3		Elective I	3-0-0	3
4		Elective II	3-0-0	3
5		Elective III	3-0-0	3
Practical Subjects				
6	EC21201	Analog MOS Integrated Circuits Lab	0-0-3	2
7		Laboratory I:	0-0-3	2
8		Laboratory II:	0-0-3	2
9		Laboratory III:	0-0-3	2
Total Credits			15-0-12	23
2nd Semester				
Theory Subjects				
1	EC22101	Device Modeling	3-0-0	3
2	EC22102	Testing and Verification of VLSI Circuits	3-0-0	3
4		Elective IV	3-0-0	3
5		Elective V	3-0-0	3
6		Elective VI	3-0-0	3
Practical Subjects				
7	EC22201	VLSI System Design Lab	0-0-3	2
8	EC22202	Advanced MOS Integrated Circuits Lab	0-0-3	2
9		Laboratory IV	0-0-3	2
10		Laboratory V	0-0-3	2
Total Credits			15-0-12	23
3rd Semester				
Subjects				
1	EC 23101	Literature Review and Report Writing	0-0-2	4
2	EC 23201	Dissertation related Tools and Technologies	0-0-2	3
3	EC 23202	Dissertation Part-I	-	6
Total Credits			-	13
4th Semester				
1	EC 24201	Dissertation Part-II	-	16
Total Credits			-	16

- Laboratory I to Laboratory V will be assigned in accordance to the elective subjects offered in that semester or may be related to some advanced software/hardware tools/techniques as decided by the department.
- Literature Review will be based on research papers / selected topics from books, etc as directed by the supervisor(s).
- Evaluation of the Dissertation consists of two parts, 1) internal evaluation- by the departmental committee, 2) external evaluation- the department committee shall consist of at least one external member. There should be at least two mid-term evaluations by the department and one external evaluation.

List of Electives			
EC2*111	Compound Semiconductors: Properties & Applications	3-0-0	3
EC2*112	MEMS and Microsystems and NEMS	3-0-0	3
EC2*113	Formal Verification of VLSI Circuits	3-0-0	3
EC2*114	Artificial Intelligence	3-0-0	3
EC2*115	Semiconductor Power Devices	3-0-0	3
EC2*116	Nanoelectronics	3-0-0	3
EC2*117	Low Power CMOS VLSI design	3-0-0	3
EC2*118	Mixed Signal RF IC design	3-0-0	3
EC2*119	CMOS RF circuit design	3-0-0	3
EC2*120	III-V semiconductors and High Speed electronic Devices	3-0-0	3
EC2*121	Biomedical Instrumentation	3-0-0	3
EC2*122	Advanced communication systems	3-0-0	3
EC2*123	Computer Architecture	3-0-0	3
EC2*124	VLSI Signal Processing	3-0-0	3
EC2*125	Semiconductor Materials and Device characterization	3-0-0	3
EC2*126	VLSI Technology and Processing	3-0-0	3
EC2*127	Introduction to VLSI Design	3-0-0	3
EC2*128	Analytical Techniques for VLSI	3-0-0	3
EC2*129	Signal Processing Technique	3-0-0	3
EC2*130	Embedded System	3-0-0	3
EC2*131	Internet of Things	3-0-0	3
EC2*132	Modeling of Digital Systems	3-0-0	3
EC2*133	Research Methodology	3-0-0	3

* The semester number in which the subject is offered.