SEMESTER IV				
1	ELD 401	PROJECT	8	P
2	ELC 401	LASER SYSTEM ENGINEERING	4	L
3	ELC 402	ELECTRONICS PRACTICALS - IV	4	P
4	ELD 481	**SWAYAM-IV** (Wireless Sensors Network/Data Analytics Programming)	4	L
5	ELD 402	NANOELECTRONICS & NANOSYSTEMS	4	L
6	ELD 403	PHARMACEUTICAL INSTRUMENTATION	4	L
7	ELD 404	COMMUNICATION AND TECHNICAL SKILLS **(FLIPPED CLASSROOM)**	4	T+P
		TOTAL	16	

Programe: M. Sc. (Electronics)

SEMESTER I

Course Code: ELC101 **Title of the Course:** MICROELECTRONICS AND VLSI DESIGN
Number of Credits: 4

Prerequisites for the course:	Should have graduate level knowledge in analog and digital electronics	
Objective:	This subject will introduce to the VLSI Technology , various fabrications processes involved in IC design , Electrical and Electronics analysis of few circuits, Some Design examples of VLSI circuits, Circuit Optimization techniques, Advance circuits designs examples of Memory, Registers, Synchronous circuits etc.	
Content:	An overview of VLSI, Modern CMOS Technology Silicon Logic, Logic design with MOSFET. Physical structure of CMOS Integrated circuits Fabrication Technologies of CMOS Integrated Circuits Elements of Physical Design Electrical characteristics of MOSFETS Electronic analysis of CMOS Logic gates Advanced Techniques in CMOS Logic Circuits	4 5 4 7 3 6 5 6

	System specifications using HDL, General VLSI components Memories and Programmable Logic Tutorials: 1.2nd order Butterworth filter using P-Spice student version. 2 Current Mirrors using P-Spice student version. 3.CMOS based Op-Amp using P-Spice student version. 4.Study of Lithography. 5.Compares various Static memories.	4 4
	Total	48
Pedagogy:	Lectures/ tutorials/assignments/self-study	
References/Readings	1. Introduction to VLSI Circuits and Systems, John P. Uyemura, WILLEY. 2. Principles of CMOS VLSI Design, N.H.E. W. & Eshahiraghian, Addison Wesley 3. Modern VLSI Design System on Silicon, Pearson Education Asia. By W. Wolf. 4. VLSI Technology, S.M. Sze, McGraw -Hill (1995). 5.Basic VLSI Design, Douglas Pucknell, K. Eshraghian, Prentice Hall India.	
Learning Outcomes	Students should able to designed fundamental gates and customize them for specific electrical and electronics application, Should understand the fabrications processes involved in VLSI technology, Write the Hardware descriptive form of circuits, Synchronize the combinational and sequential circuits, design a static and dynamic memory cell , Understand the Programmable logics building blocks.	

Course Code: ELD101
Title of the Course: ADVANCED DIGITALCOMMUNICATION SYSTEMS
Number of Credits: 4

Prerequisites for the course:	Graduate level understanding in basics of Electronic Communications	
Objective:	This course is intended to introduce to students into the basics of wireless systems – concepts, theory. It covers various modulation techniques, to enable the student to synthesize and analyze wireless and mobile cellular communication systems over a stochastic fading channel	
Content:	**Introduction to Mobile and Cellular Communication Systems:** Main Definitions, impact of Mobile and Cellular	6