राष्ट्रीय प्रौद्योगिकी संस्थान मिजोरम

NATIONAL INSTITUTE OF TECHNOLOGY MIZORAM

(An Institute of National Importance under Ministry of Education, Govt. of India)
CHALTLANG, AIZAWL, MIZORAM – 796012

Course Structure & Syllabus for
Minor in VLSI and Semiconductor Technology

for existing BTech in ECE and BTech in CSE
ACADEMIC SESSION: 2023-24 onwards

अंतःविषय अनुसंधान केंद्र

CENTER OF INTERDISCIPLINARY RESEARCH (CIR)

Course Structure & Syllabus for Minor in VLSI and Semiconductor Technology

Classification of Credits Points:

1 Hr Lecture (L) per week	**1.0 Credit**	**1 Hr Tutorial (T) per week**	**1.0 Credit**
1 Hr Laboratory (P) per week	**0.5 Credit**	**AUDIT Course**	**NO Credit**

Course Code	Course Name	Category	L-T-P	Credit
CIRL 1X01	Compound Semiconductors	DC	3-0-0	3
CIRL 1X02	VLSI Technology	DC	3-0-0	3
CIRL 1X03	Physics of Semiconductor Devices	DC	3-0-0	3
CIRL 1X04	Analog VLSI Circuits	DC	3-0-0	3
CIRL 1XXX	Program Elective – I	DE	3-0-0	3
CIRL 1XXX	Program Elective – II	DE	3-0-0	3
CIRL 1XXX	Program Elective – III	DE	3-0-0	3
CIRL 1XXX	Program Elective – IV	DE	3-0-0	3
CIRP 1X01/ CIRP 1X02	Analog VLSI Laboratory / VLSI Design Laboratory	DC	0-0-2	1
CIRP 1X03	VLSI Device Modelling Laboratory	DC	0-0-2	1
		TOTAL	24-0-4	**26**

PROGRAM ELECTIVES

Sl. No.	Course Code	Course Name
1	CIRL 1X05	VLSI Physical Design
2	CIRL 1X06	Semiconductor Device Modelling
3	CIRL 1X07	VLSI DSP
4	CIRL 1X08	Low power VLSI Design
5	CIRL 1X09	VHDL Modelling
6	CIRL 1X10	Mixed Signal VLSI
7	CIRL 1X11	Semiconductor Materials and Systems
8	CIRL 1X12	Semiconductor Optoelectronics: Theory and Design
9	CIRL 1X13	Digital VLSI Circuits
10	CIRL 1X14	Testing and Verification approaches in VLSI
11	CIRL 1X15	RF Integrated Circuits

CORE COURSES

CIRL 1X05	**Compound Semiconductors**
L-T-P: 3-0-0	**Credits: 3**
As per the syllabus prescribed by Dept. of Electronics and Communication Engineering of ECL 4101.	

CIRL 1X02	**VLSI Technology**
L-T-P: 3-0-0	**Credits: 3**
As per the syllabus prescribed by Dept. of Electronics and Communication Engineering of ECL 2202.	

CIRL 1X03	**Physics of Semiconductor Devices**
L-T-P: 3-0-0	**Credits: 3**
As per the syllabus prescribed by Dept. of Electronics and Communication Engineering of ECL 1X16.	

CIRL 1X04	**Analog VLSI Circuits**
L-T-P: 3-0-0	**Credits: 3**
As per the syllabus prescribed by Dept. of Electronics and Communication Engineering of ECL 2102.	

CIRP 1X01	**Analog VLSI Laboratory**
L-T-P: 0-0-2	**Credits: 1**
As per the syllabus of ECP 2101.	

CIRP 1X02	**VLSI Design Laboratory**
L-T-P: 0-0-2	**Credits: 1**
As per the syllabus of ECP 1603.	

CIRP 1X03	**VLSI Device Modelling Laboratory**
L-T-P: 0-0-3	**Credits: 1**
As per the syllabus of ECP 2202.	

Program Elective(s)

CIRL 1X01	**VLSI Physical Design**
L-T-P: 3-0-0	**Credits: 3**
As per the syllabus prescribed by Dept. of Electronics and Communication Engineering of ECL 2201.	

CIRL 1X06	**Semiconductor Device Modelling**
L-T-P: 3-0-0	**Credits: 3**
As per the syllabus prescribed by Dept. of Electronics and Communication Engineering of ECL 2104.	

CIRL 1X07	**VLSI DSP**
L-T-P: 3-0-0	**Credits: 3**
As per the syllabus prescribed by Dept. of Electronics and Communication Engineering of ECL 2X04.	

CIRL 1X08	**Low power VLSI Design**
L-T-P: 3-0-0	**Credits: 3**
As per the syllabus prescribed by Dept. of Electronics and Communication Engineering of ECL 1X08.	

CIRL 1X09	**VHDL Modelling**
L-T-P: 3-0-0	**Credits: 3**
As per the syllabus prescribed by Dept. of Electronics and Communication Engineering of ECL 1X18.	

CIRL 1X10	**Mixed Signal VLSI**
L-T-P: 3-0-0	**Credits: 3**
As per the syllabus prescribed by Dept. of Electronics and Communication Engineering of ECL 2X01.	

CIRL 1X11	**Semiconductor Materials and Systems**
L-T-P: 3-0-0	**Credits: 3**
As per the syllabus prescribed by Dept. of Electronics and Communication Engineering of ECL 1X21.	

CIRL 1X12	**Semiconductor Optoelectronics: Theory and Design**
L-T-P: 3-0-0	**Credits: 3**
As per the syllabus prescribed by Dept. of Electronics and Communication Engineering of ECL 4XXX.	

CIRL 1X13	**Digital VLSI Circuits**
L-T-P: 3-0-0	**Credits: 3**
As per the syllabus prescribed by Dept. of Electronics and Communication Engineering of ECL 2103.	

CIRL 1X14	**Testing and Verification approaches in VLSI**
L-T-P: 3-0-0	**Credits: 3**
As per the syllabus prescribed by Dept. of Electronics and Communication Engineering of ECL 2X05.	

CIRL 1X15	**RF and Integrated Circuits**
L-T-P: 3-0-0	**Credits: 3**
As per the syllabus prescribed by Dept. of Electronics and Communication Engineering of ECL 2X07.	