

### 13. Courses of Study and Scheme of Assessment

#### ME VLSI DESIGN

(2015 REGULATIONS)  
(Minimum No. of credits to be earned: 74)

Course Code	Course Title	Hours/Week			Credits	Maximum Marks			CAT
		Lecture	Tutorial	Practical		CA	FE	Total	
<b>I SEMESTER</b>									
15LV01	Graph Theory and Optimization Techniques	2	2	-	3	50	50	100	FC
15LV02	Digital Design Principles	3	-	-	3	50	50	100	FC
15LV03	Device Modeling	3	-	-	3	50	50	100	PC
15LV04	Digital IC Design	3	-	-	3	50	50	100	PC
15LV05	Designing with FPGAs	3	2	-	4	50	50	100	PC
15LV51	VLSI Design Laboratory	-	-	2	1	100	-	100	PC
15LV61	Industry Visit & Technical Seminar	-	-	4	2	100	-	100	EEC
<b>Total 24 Hrs</b>		<b>14</b>	<b>4</b>	<b>6</b>	<b>19</b>	<b>450</b>	<b>250</b>	<b>700</b>	
<b>II SEMESTER</b>									
15LV06	Low Power VLSI Design	3	-	-	3	50	50	100	PC
15LV07	Analog VLSI Circuits	3	2	-	4	50	50	100	PC
15LV08	Testing and Testability	3	-	-	3	50	50	100	PC
15LV09	Computer aided design of VLSI systems	3	-	-	3	50	50	100	PC
15LV10	VLSI Signal Processing	3	2	-	4	50	50	100	PC
15LV__	Professional Elective - 1	3	-	-	3	50	50	100	PE
15LV52	Advanced VLSI Design Laboratory	-	-	2	1	100	-	100	PC
<b>Total 24 Hrs</b>		<b>18</b>	<b>4</b>	<b>2</b>	<b>21</b>	<b>400</b>	<b>300</b>	<b>700</b>	
<b>III SEMESTER</b>									
15LV__	Professional Elective - 2	3	2	-	4	50	50	100	PE
15LV__	Professional Elective - 3	3	-	-	3	50	50	100	PE
15LV__	Professional Elective - 4	3	-	-	3	50	50	100	PE
15LV__	Professional Elective - 5	3	-	-	3	50	50	100	PE
15LV__	Professional Elective - 6	3	-	-	3	50	50	100	PE
15LV53	High level verification and Testing Laboratory	-	-	2	1	100	-	100	PC
15LV71	Project Work I	-	-	6	3	100	-	100	EEC
<b>Total 25 Hrs</b>		<b>15</b>	<b>2</b>	<b>8</b>	<b>20</b>	<b>450</b>	<b>250</b>	<b>700</b>	
<b>IV SEMESTER</b>									
15LV72	Project Work II	-	-	28	14	50	50	100	EEC
<b>ELECTIVE THEORY COURSES(SIX to be opted)</b>									
15LV21	Mixed Signal VLSI Design	3	-	-	3	50	50	100	PE
15LV22	Hardware Verification Techniques	3	-	-	3	50	50	100	PE
15LV23	Semiconductor Memory Design and Testing	3	-	-	3	50	50	100	PE
15LV24	VLSI Technology	3	-	-	3	50	50	100	PE
15LV25	RF Circuit Design	3	-	-	3	50	50	100	PE
15LV26	VLSI for Wireless Communication	3	-	-	3	50	50	100	PE
15LV27	System level Hardware Software Co-design	3	-	-	3	50	50	100	PE
15LV28	System on Chip Design	3	-	-	3	50	50	100	PE
15LV29	Synthesis and Optimization of Digital Circuits	3	-	-	3	50	50	100	PE
15LV30	High Speed Digital Design	3	-	-	3	50	50	100	PE
15LV31	Microsensors and MEMS	3	-	-	3	50	50	100	PE
15LV32	Nano Scale Devices	3	-	-	3	50	50	100	PE
15LV33	Advanced Computer Architecture and Parallel Processing	3	-	-	3	50	50	100	PE
15LV34	Biomedical Signal Processing	3	-	-	3	50	50	100	PE
15LV35	Genetic Algorithms for VLSI Design	3	-	-	3	50	50	100	PE
15LV36	VLSI for Biomedical Applications	3	-	-	3	50	50	100	PE
15LV37	Hardware security	3	-	-	3	50	50	100	PE
15LV38	Network-on-Chip	3	-	-	3	50	50	100	PE
15LV39	Electronic packaging Technologies	3	-	-	3	50	50	100	PE
15LV44	Modeling and Simulation of Nanoscale Transistors	2	2	-	3	50	50	100	PE
<b>LIST OF COURSES FOR ELECTIVE -2</b>									
15LV40	FPGA Based Implementation of Signal Processing Systems	3	2	-	4	50	50	100	PE

15LV41	RF Circuits and measurements	3	2	-	4	50	50	100	PE
15LV42	Wireless Technologies and Measuring Tools	3	2	-	4	50	50	100	PE
15LV43	Embedded System Design	3	2	-	4	50	50	100	PE

\* Indicated is the minimum number of credits to be earned by a student.

**CAT – Category; FC – Foundation Course; PC – Professional Core; PE - Professional Elective  
EEC – Employability Enhancement Course**

### ONE CREDIT COURSES

15LK01	Hardware Software Co-design
15LK02	Scripting Languages
15LK03	Reconfigurable Computing
15LK04	RTOS and its Applications
15LK05	Digital Signal / Image Processing Applications
15LK06	LTE and the Evolution to 4G Wireless Communications
15LK07	Advanced Aircraft Mission and Communication Systems

### SCIENCE ELECTIVES

15ID01	Micro Electro Mechanical Systems (MEMS)
15ID02	Sensors for Engineering Applications
15ID03	Laser Processing of Materials
15ID04	Plasma Technology
15ID05	Nanosensor and its Applications
15ID06	Nano Magnetism and Spintronics
15ID07	Corrosion Science and Engineering
15ID08	Instrumental Methods of Chemical Analysis
15ID09	Polymer Science and Technology
15ID10	Nanomaterials and Nanotechnology
15ID11	Thin Film Technology

### HUMANITIES AND LANGUAGES ONE CREDIT COURSES

15OK01	Research Writing in Engineering Sciences
15OK02	Indian Ethos and Human Values
15OK03	Personality Development
15OK04	Financial Accounting and Cost Accounting