



Maulana Azad

**NATIONAL INSTITUTE OF TECHNOLOGY, Bhopal-462003**  
**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

**M. Tech. in ELECTRONICS AND COMMUNICATION ENGINEERING**

***With Specialization in: VLSI & Embedded System Design***

**SCHEME OF STUDY (Revised April 2020)**

**First Semester**

Course No.	Subject	Scheme of Studies Periods per week			Total Credits
		L	T	P	
MTH 101 VE	Computational Techniques	3	1	-	4
VE 102	VLSI Design	3	1	-	4
VE 103	Computer Aided Design of Digital Systems	3	1	-	4
VE 104	Embedded Systems	3	1	-	4
	Elective 1(A)	3	1	-	4
	Elective 2(B)	3	1	-	4
VE 105	Lab-I (Embedded and System Design Lab)	-	-	2	1
VE 106	Seminar-I	-	-	2	1
VE 107	NPTEL/MOOC Communication Skills	2	-	-	2
<b>Total Hours 30</b>		<b>Total Credit</b>			<b>28</b>
<b>Total Credits (Cumulative) 28</b>					

**Second Semester**

Course No.	Subject	Scheme of Studies Periods per week			Total Credits
		L	T	P	
VE 201	Low power VLSI Design	3	1	-	4
VE 202	VLSI Technology	3	1	-	4
VE 203	Testing of VLSI circuits	3	1	-	4
	Elective 3(A)	3	1	-	4
	Elective 4(A)	3	1	-	4
	Elective 5(C)	3	1	-	4
VE 204	Laboratory – II (VLSI Design Lab)	-	-	2	1
VE 205	Research Methodology, Technical Report and Paper Writing	-	2	-	2
VE 206	Seminar-II	-	-	2	1
<b>Total Hours 30</b>		<b>Total Credit</b>			<b>28</b>
<b>Total Credits (Cumulative) 56</b>					

**Third Semester**

<b>Course No.</b>	<b>Subject</b>	<b>Scheme of Studies Periods per week</b>			<b>Total Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	
<b>VE 301</b>	Dissertation Phase - I	-	-	24	12
<b>Total Hours 24 Total Credits (Cumulative) 68</b>		<b>Total Credit</b>			<b>12</b>

**Fourth Semester**

<b>Course No.</b>	<b>Subject</b>	<b>Scheme of Studies Periods per week</b>			<b>Total Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	
<b>VE 401</b>	Dissertation Phase – II	-	-	24	12
<b>Total Hours 24 Total Credits (Cumulative) 80</b>		<b>Total Credit</b>			<b>80</b>

**List of Electives:**

<b>Subject Code</b>	<b>Group A Program Electives</b>
VE 501	Digital System Design
VE 502	Mixed Signal Design
VE 503	Design for Testability
VE 504	Design of Semiconductor Memories
VE 505	CMOS Active Filter Design
VE 506	Design of Analog IC
VE 507	CMOS RF Circuit Design
VE 508	Device Modeling and Simulation
VE 509	Physical Design Automation
VE 510	High Speed System Design

<b>Subject Code</b>	<b>Group B Department Electives (for other programs of same department only)</b>
VE 601	Optimization Techniques
VE 602	Fuzzy Logic
VE 603	Queuing Theory
VE 604	Biomedical Signal Processing
VE 605	Operation Research
VE 606	Wavelet Transforms

<b>Subject Code</b>	<b>Group C Institute Electives (for other departments only)</b>
VE 701	Optimization Techniques
VE 702	Fuzzy Logic
VE 703	Neural Networks
VE 704	Queuing Theory
VE 705	Operation Research
VE 706	Wavelet Transforms



*Maulana Azad*

**NATIONAL INSTITUTE OF TECHNOLOGY, Bhopal-462003**

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

**M. Tech. in ELECTRONICS AND COMMUNICATION ENGINEERING**

*With Specialization in: Digital Communication*

**SCHEME OF STUDY (Revised April 2020)**

**First Semester**

Course No.	Subject	Scheme of Studies Periods per week			Total Credits
		L	T	P	
MTH 101 DC	Computational Techniques	3	1	-	4
DC 102	Digital Signal Processing & Its Applications	3	1	-	4
DC 103	Digital Communication Techniques	3	1	-	4
DC 104	Micro strip Antenna Design	3	1	-	4
	Elective 1 (A)	3	1	-	4
	Elective 2 (B)	3	1	-	4
DC 105	Lab-I (Communication System Design Lab-I)	-	-	2	1
DC 106	Seminar-I	-	-	2	1
DC 107	NPTEL/MOOC Communication Skills	2	-	-	2
<b>Total Hours 30</b>		<b>Total Credit</b>			<b>28</b>
<b>Total Credits (Cumulative) 28</b>					

**Second Semester**

Course No.	Subject	Scheme of Studies Periods per week			Total Credits
		L	T	P	
DC 201	Detection and Estimation Theory	3	1	-	4
DC 202	Optical Communication	3	1	-	4
DC 203	Digital Image Processing	3	1	-	4
	Elective 3 (A)	3	1	-	4
	Elective 4 (A)	3	1	-	4
	Elective 5 (C)	3	1	-	4
DC 204	Laboratory – II (Communication System Design Lab-II)	-	-	2	1
DC 205	Research Methodology, Technical Report and Paper Writing	-	2	-	2
DC 206	Seminar-II	-	-	2	1
<b>Total Hours 30</b>		<b>Total Credit</b>			<b>28</b>
<b>Total Credits (Cumulative) 56</b>					

**Third Semester**

Course No.	Subject	Scheme of Studies Periods per week			Total Credits
		L	T	P	
DC 301	Dissertation Phase -I	-	-	24	12
<b>Total Hours 24</b> <b>Total Credits (Cumulative) 68</b>		<b>Total Credit</b>			<b>12</b>

**Fourth Semester**

Course No.	Subject	Scheme of Studies Periods per week			Total Credits
		L	T	P	
DC 401	Dissertation Phase –II	-	-	24	12
<b>Total Hours 24</b> <b>Total Credits (Cumulative) 80</b>		<b>Total Credit</b>			<b>12</b>

**List of Electives**

<b>Subject Code</b>	<b>Group A Program Electives</b>
DC 501	Signal Theory
DC 502	Mobile Communication
DC 503	Optical Networks
DC 504	Video Signal Processing
DC 505	Statistical Signal processing
DC 506	Satellite Communication
DC 507	Modern Telecom Switching Systems
DC 508	Data Compression & Cryptography
DC 509	Wireless Communication
DC 510	Microwave Communication
DC 511	Computer vision and pattern recognition
DC 512	Communication Networks
DC 513	Information Theory and Coding
DC 514	Multi rate Signal Processing

<b>Subject Code</b>	<b>Group B Department Electives (for other programs of same department only)</b>
DC 601	Optimization Techniques
DC 602	Fuzzy Logic
DC 603	Neural Networks
DC 604	Queuing Theory
DC 605	Biomedical Signal Processing
DC 606	Operation Research
DC 607	Wavelet Transforms

<b>Subject Code</b>	<b>Group C Institute Electives (for other departments only)</b>
DC 701	Optimization Techniques
DC 702	Fuzzy Logic
DC 703	Neural Networks
DC 704	Queuing Theory
DC 705	Operation Research
DC 706	Wavelet Transforms