



MCKV INSTITUTE OF ENGINEERING

NAAC Accredited "A" Grade Autonomous Institute under UGC Act 1956
Approved by AICTE & affiliated to Maulana Abul Kalam Azad University of Technology, West Bengal
243 G.T. Road (N), Liluah, Howrah- 711204, West Bengal, India
Ph: +91 33 26549315/17 Fax +91 33 26549318 Web: www.mckvie.edu.in

Curriculum for Undergraduate Degree (B.Tech.) in Electronics and Communication (VLSI Design) (w.e.f. AY: 2020-21)

Part I: Introduction, Theme & Category wise Credit Distribution

A. Definition of Credit:

Sl. No.	Description	Credit
1	1 Hr. Lecture (L) Per Week	1.0
2	1 Hr. Tutorial (T) Per Week	1.0
3	1 Hr. Practical/ Lab (P) Per Week	0.5
4	2 Hrs. Practical/ Lab (P) Per Week	1.0

B. Range of Credits:

As per AICTE, a student covering 160 credits during 4 years of studies as per curriculum of the Institute will be eligible to get Under Graduate B.Tech. degree. A student will be eligible to get B.Tech. degree with Honours, if he/ she completes an additional 20 credits. These could be acquired through MOOCs prescribed by the Institute. Every student admitted to the 4 years B.Tech programme is required to earn a minimum of 100 Activity Points under Mandatory Additional Requirement (MAR), in addition to the required academic grades, for getting B.Tech./ B.Tech. (Honours) degree.

C. Category wise Credit Distribution:

Sl. No.	Category	Credit Allotted	Credit as per AICTE
1	Humanities and Social Sciences including Management Courses	12	12
2	Basic Science Courses	24	25
3	Engineering Science Courses including Workshop, Drawing, Basics of Electrical/ Mechanical/ Computer etc.	24	24
4	Professional Core Courses	53	48
5	Professional Elective Courses relevant to chosen specialization/ branch	19	18
6	Open Elective Courses from other technical and / or emerging subjects	14	18
7	Project Work, Seminar and Internship in Industry or elsewhere	14	15
8	Mandatory Courses [Environmental Sciences, Induction Training, Indian Constitution, Essence of Indian Traditional Knowledge, Aptitude Skill]	0	Non-Credit
Total		160	160



MCKV INSTITUTE OF ENGINEERING

NAAC Accredited "A" Grade Autonomous Institute under UGC Act 1956
 Approved by AICTE & affiliated to Maulana Abul Kalam Azad University of Technology, West Bengal
 243 G.T. Road (N), Liluah, Howrah- 711204, West Bengal, India
 Ph: +91 33 26549315/17 Fax +91 33 26549318 Web: www.mckvie.edu.in

D. Course Code and Definition:

Sl. No.	Course Code	Definitions
1	L	Lecture
2	T	Tutorial
3	P	Practical
4	BS	Basic Science Courses
5	ES	Engineering Science Courses
6	HM	Humanities and Social Sciences including Management Courses
7	PC	Professional Core Courses
8	PE	Professional Elective Courses
9	OE	Open Elective Courses
10	MC	Mandatory Courses
11	PW	Project/ Internships/ Sessional

E. Courses in different Category:

Humanities and Social Sciences including Management Courses							
Sl No.	Semester	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	I	HM-HU101	English	2	0	0	2
2	V	HM-HU502	Value and Ethics in Profession	2	0	0	2
3	VII	HM-HU701	Economics for Engineers	3	0	0	3
4	VIII	HM-HU801	Organizational Behaviour	3	0	0	3
<i>Total Theory</i>				10	0	0	10
Practical/ Sessional							
1	II	HM-HU291	Language Laboratory	0	0	2	1
2	IV	HM-HU491	Soft Skill Development Lab	0	0	2	1
<i>Total Practical/ Sessional</i>				0	0	4	2
Total				10	0	4	12

Basic Science Courses							
Sl No.	Semester	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	I	BS-PH101	Physics	3	1	0	4
2	I	BS-M101	Mathematics-I	3	1	0	4
3	II	BS-CH201	Chemistry	3	1	0	4



MCKV INSTITUTE OF ENGINEERING

NAAC Accredited "A" Grade Autonomous Institute under UGC Act 1956
Approved by AICTE & affiliated to Maulana Abul Kalam Azad University of Technology, West Bengal

243 G.T. Road (N), Liluah, Howrah- 711204, West Bengal, India

Ph: +91 33 26549315/17 Fax +91 33 26549318 Web: www.mckvie.edu.in

4	II	BS-M201	Mathematics-II	3	1	0	4
5	III	BS-M304	Numerical Methods	2	0	0	2
6	IV	BS-BIO401	Biology	2	0	0	2
<i>Total Theory</i>				16	4	0	20
Practical/ Sessional							
1	I	BS-PH191	Physics Laboratory	0	0	3	1.5
2	II	BS-CH291	Chemistry Laboratory	0	0	3	1.5
3	III	BS-M394	Numerical Methods Lab	0	0	2	1
<i>Total Practical/ Sessional</i>				0	0	8	4
Total				16	4	8	24

Engineering Science Courses including Workshop, Drawing, Basics of Electrical/ Mechanical/ Computer etc.							
Sl No.	Semester	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	I	ES-EE101	Basic Electrical and Electronics Engineering	3	1	0	4
2	II	ES-CS201	Programming for Problem Solving	3	0	0	3
3	III	ES-CS301	Data Structure and Algorithm	3	0	0	3
4	III	ES-CS302	Discrete Mathematics	3	0	0	3
<i>Total Theory</i>				12	1	0	13
Practical/ Sessional							
1	I	ES-EE191	Basic Electrical and Electronics Engineering Laboratory	0	0	4	2
2	I	ES-ME191	Engineering Graphics and Design	1	0	4	3
3	II	ES-CS291	Programming for Problem Solving Lab	0	0	4	2
4	II	ES-ME291	Workshop/Manufacturing Practices	1	0	4	3
5	III	ES-CS391	Data Structure Lab	0	0	2	1
<i>Total Practical/ Sessional</i>				2	0	18	11
Total				14	1	18	24



MCKV INSTITUTE OF ENGINEERING

NAAC Accredited "A" Grade Autonomous Institute under UGC Act 1956
Approved by AICTE & affiliated to Maulana Abul Kalam Azad University of Technology, West Bengal

243 G.T. Road (N), Liluah, Howrah- 711204, West Bengal, India

Ph: +91 33 26549315/17 Fax +91 33 26549318 Web: www.mckvie.edu.in

Professional Core Courses							
Sl No.	Semester	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	III	PC-EC302	Analog Electronic Circuits	3	0	0	3
2	III	PC-EC303	Signals and Systems	3	0	0	3
3	III	PC-EC304	Network Theory	3	0	0	3
4	IV	PC-EC402	Digital System Design	3	0	0	3
5	IV	PC-EC403	Microprocessors and Microcontrollers	3	0	0	3
6	IV	PC-EC(V)401	Analog and Digital Communication	3	0	0	3
7	IV	PC-EC(V)402	Control System	3	0	0	3
8	V	PC-EC(V)501	Analog VLSI Circuits	3	0	0	3
9	V	PC-EC(V)502	Computer Architecture	3	0	0	3
10	V	PC-EC501	Electromagnetic Waves and Transmission Line	3	0	0	3
11	V	PC-EC504	Digital Signal Processing	3	0	0	3
12	VI	PC-EC(V)601	Microelectronics Fabrication	3	0	0	3
13	VI	PC-EC(V)602	Digital VLSI	3	0	0	3
14	VII	PC-EC(V)701	Embedded Systems	3	0	0	3
<i>Total Theory</i>				42	0	0	42
Practical/ Sessional							
1	III	PC-EC392	Analog Electronic Circuits Lab.	0	0	2	1
2	III	PC-EC394	Network Theory lab	0	0	2	1
3	IV	PC-EC492	Digital System Design Lab.	0	0	2	1
4	IV	PC-EC493	Microprocessors and Microcontrollers Lab	0	0	2	1
5	IV	PC-EC(V)491	Analog and Digital Communication Lab	0	0	2	1
6	V	PC-EC(V)591	Analog VLSI Circuits Lab	0	0	2	1
7	V	PC-EC(V)592	Computer Architecture Lab	0	0	2	1
8	V	PC-EC591	Electromagnetic Waves and Transmission Line Lab	0	0	2	1
9	V	PC-EC594	Digital Signal Processing Lab	0	0	2	1
10	VI	PC-EC(V)692	Digital VLSI Lab	0	0	2	1
11	VII	PC-EC(V)791	Embedded Systems laboratory	0	0	2	1
<i>Total Practical/ Sessional</i>				0	0	22	11
Total				42	0	22	53



MCKV INSTITUTE OF ENGINEERING

NAAC Accredited "A" Grade Autonomous Institute under UGC Act 1956
Approved by AICTE & affiliated to Maulana Abul Kalam Azad University of Technology, West Bengal

243 G.T. Road (N), Liluah, Howrah- 711204, West Bengal, India

Ph: +91 33 26549315/17 Fax +91 33 26549318 Web: www.mckvie.edu.in

Professional Elective Courses relevant to chosen specialization/ branch							
Sl No.	Semester	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	V	PE-EC(V)501	Professional Elective-I	3	0	0	3
2	VI	PE-EC(V)601	Professional Elective-II	3	0	0	3
3	VI	PE-EC(V)602	Professional Elective-III	3	0	0	3
4	VII	PE-EC(V)701	Professional Elective-IV	3	0	0	3
5	VIII	PE-EC(V)801	Professional Elective-V	3	0	0	3
6	VIII	PE-EC(V)802	Professional Elective-VI	3	0	0	3
<i>Total Theory</i>				18	0	0	18
Practical/ Sessional							
1	VI	PE-EC(V)691	Professional Elective-II (Lab)	0	0	2	1
<i>Total Practical/ Sessional</i>				0	0	2	1
Total				18	0	2	19

Open Elective Courses from other technical and / or emerging subjects							
Sl No.	Semester	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	IV		Open Elective-I	3	0	0	3
2	VI		Open Elective-II	3	0	0	3
3	VII		Open Elective-III	3	0	0	3
4	VIII		Open Elective-IV	3	0	0	3
<i>Total Theory</i>				12	0	0	12
Practical/ Sessional							
1	IV		Open Elective -I (Lab)	0	0	2	1
2	VI		Open Elective-II (Lab)	0	0	2	1
<i>Total Practical/ Sessional</i>				0	0	4	2
Total				12	0	4	14



MCKV INSTITUTE OF ENGINEERING

NAAC Accredited "A" Grade Autonomous Institute under UGC Act 1956
 Approved by AICTE & affiliated to Maulana Abul Kalam Azad University of Technology, West Bengal
 243 G.T. Road (N), Liluah, Howrah- 711204, West Bengal, India
 Ph: +91 33 26549315/17 Fax +91 33 26549318 Web: www.mckvie.edu.in

Project Work, Seminar and Internship in Industry or elsewhere							
Sl No.	Semester	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
<i>Total Theory</i>				0	0	0	0
Practical/ Sessional							
1	VI	PW-EC(V)681	Mini Project	0	0	3	1.5
2	VII	PW-EC(V)781	Design Laboratory	0	0	4	2
3	VII	PW-EC(V)782	Project-I	0	0	6	3
4	VII	PW-EC(V)783	Seminar	0	0	2	1
5	VII	PW-EC(V)784	Industrial Training	During Semester Break(6 th & 7 th)			1
6	VIII	PW-EC(V)881	Project-II	0	0	9	4.5
7	VIII	PW-EC(V)882	Comprehensive Viva Voce				1
<i>Total Practical/ Sessional</i>				0	0	24	14
Total				0	0	24	14

Mandatory Courses [Environmental Sciences, Induction Training, Indian Constitution, Essence of Indian Traditional Knowledge, Aptitude Skill]							
Sl No.	Semester	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
<i>Total Theory</i>				0	0	0	0
Practical/ Sessional							
1	III	MC371	Environmental Sciences	2	0	0	0
2	IV	MC472	Constitution of India	2	0	0	0
3	V	MC571	Aptitude Skill Development-I	2	0	0	0
4	V	MC573	Essence of Indian Traditional Knowledge	2	0	0	0
5	VI	MC671	Aptitude Skill Development-II	2	0	0	0
<i>Total Practical/ Sessional</i>				10	0	0	0
Total				10	0	0	0