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 Information Technology (w.e.f. AY: 2020-21)

Part II: Course Structure & Semester wise Credit Distribution

First Semester (First Year)							
Mandatory Induction Program- 3 Weeks Duration							
Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	BS	BS-PH101	Physics	3	1	0	4
2	BS	BS-M101	Mathematics-I	3	1	0	4
3	ES	ES-EE101	Basic Electrical and Electronics Engineering	3	1	0	4
4	HM	HM-HU101	English	2	0	0	2
		Total Theory		**11**	**3**	**0**	**14**
Practical/ Sessional/ Mandatory Course							
1	BS	BS-PH191	Physics Laboratory	0	0	3	1.5
2	ES	ES-EE191	Basic Electrical and Electronics Engineering Lab	0	0	4	2
3	ES	ES-ME191	Engineering Graphics and Design Lab	1	0	4	3
		Total Practical/ Sessional/ Mandatory Course		**1**	**0**	**11**	**6.5**
Total of First Semester				**12**	**3**	**11**	**20.5**

Second Semester (First Year)							
Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	BS	BS-CH201	Chemistry	3	1	0	4
2	BS	BS-M201	Mathematics-II	3	1	0	4
3	ES	ES-CS201	Programming for Problem Solving	3	0	0	3
Total Theory				**9**	**2**	**0**	**11**
Practical/ Sessional/ Mandatory Course							
1	BS	BS-CH291	Chemistry Laboratory	0	0	3	1.5
2	ES	ES-CS291	Programming for Problem Solving Lab	0	0	4	2
3	ES	ES-ME292	Workshop/ Manufacturing Practices	1	0	4	3

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4	HM	HM-HU291	Language Laboratory	0	0	2	1
Total Practical/ Sessional/ Mandatory Course				**1**	**0**	**13**	**7.5**
Total of Second Semester				**10**	**2**	**13**	**18.5**

Third Semester (Second Year)							
Sl No.	**Category**	**Course Code**	**Course Name**	**Contact Hours**			**Credits**
				L	**T**	**P**	
Theory							
1	ES	ES-EC303	Analog and Digital Electronics	3	0	0	3
2	PC	PC-IT301	Data Structure and Algorithms	3	1	0	4
3	PC	PC-IT302	Computer Organization and Architecture	3	0	0	3
4	BS	BS-M301	Mathematics-III	3	0	0	3
5	HM	HM-HU301	Introduction to Industrial Management	2	0	0	2
Total Theory				**14**	**1**	**0**	**15**
Practical/ Sessional/ Mandatory Course							
1	ES	ES-EC393	Analog and Digital Electronics Lab	0	0	3	1.5
2	PC	PC-IT391	Data Structure and Algorithms Lab	0	0	4	2
3	PC	PC-IT392	Computer Organization and Architecture Lab	0	0	4	2
4	PC	PC-IT393	IT Workshop (Sci. Lab/MATLAB/Python/R)	0	0	4	2
Total Practical/ Sessional/ Mandatory Course				**0**	**0**	**15**	**7.5**
Total of Third Semester				**14**	**1**	**15**	**22.5**

Fourth Semester (Second Year)							
Sl No.	**Category**	**Course Code**	**Course Name**	**Contact Hours**			**Credits**
				L	**T**	**P**	
Theory							
1	ES	ES-IT401	Discrete Mathematics	3	0	0	3
2	PC	PC-IT401	Database Management System	3	0	0	3
3	PC	PC-IT402	Design and Analysis of Algorithms	3	1	0	4
4	PC	PC-IT403	Formal Language and Automata Theory	3	0	0	3
5	BS	BS-M404	Numerical Methods	2	0	0	2
6	BS	BS-BIO401	Biology	2	0	0	2

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			Total Theory	16	1	0	17
Practical/ Sessional/ Mandatory Course							
1	PC	PC-IT491	Database Management System Lab	0	0	4	2
2	PC	PC-IT492	Design and Analysis of Algorithms Lab	0	0	4	2
3	BS	BS-M494	Numerical Methods Lab	0	0	2	1
4	MC	MC471	Environmental Sciences	2	0	0	0
			Total Practical/ Sessional/ Mandatory Course	2	0	10	5
			Total of Fourth Semester	18	1	10	22

Fifth Semester (Third Year)							
Sl No.	**Category**	**Course Code**	**Course Name**	**Contact Hours**			**Credits**
				L	**T**	**P**	
Theory							
1	PC	PC-IT501	Compiler Design	2	0	0	2
2	PC	PC-IT502	Operating Systems	3	0	0	3
3	PC	PC- IT503	Object Oriented Programming	3	0	0	3
4	HM	HM-HU501	Economics for Engineers	3	0	0	3
5	PE	PE-IT501	Professional Elective-I	3	0	0	3
			Total Theory	14	0	0	14
Practical/ Sessional/ Mandatory Course							
1	PC	PC-IT591	Compiler Design Lab	0	0	3	1.5
2	PC	PC-IT592	Operating Systems Lab	0	0	4	2
3	PC	PC-IT593	Object Oriented Programming Lab	0	0	4	2
4	HM	HM-HU591	Soft Skill Development Lab	0	0	2	1
5	PW	PW-IT581	Project-I	0	0	2	1
6	MC	MC571	Aptitude Skill Development-I	2	0	0	0
7	MC	MC572	Constitution of India	2	0	0	0
			Total Practical/ Sessional	4	0	15	7.5
			Total of Fifth Semester	18	0	15	21.5

List of Elective Courses	
PE-IT501	**Professional Elective-I**
PE-IT501A	Theory of Computation
PE-IT501B	Machine Learning
PE-IT501C	Data Mining
PE-IT501D	Distributed Systems

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Sixth Semester (Third Year)							
Sl No.	**Category**	**Course Code**	**Course Name**	**Contact Hours**			**Credits**
				L	**T**	**P**	
Theory							
1	PC	PC-IT601	Software Engineering	3	0	0	3
2	PC	PC-IT602	Computer Networks	3	0	0	3
3	PE	PE-IT601	Professional Elective-II	3	0	0	3
4	PE	PE-IT602	Professional Elective-III	3	0	0	3
5	OE	OE-CS/EC601	Open Elective-I	3	0	0	3
			Total Theory	**15**	**0**	**0**	**15**
Practical/ Sessional/ Mandatory Course							
1	PC	PC-IT691	Software Engineering Lab	0	0	3	1.5
2	PC	PC-IT692	Computer Networks Lab	0	0	4	2
3	PE	PE-IT691	Professional Elective-II Lab	0	0	3	1.5
4	PW	PW-IT681	Project-II	0	0	2	1
5	MC	MC671	Aptitude Skill Development -II	2	0	0	0
			Total Practical/ Sessional	**2**	**0**	**12**	**6**
			Total of Sixth Semester	**17**	**0**	**12**	**21**

List of Elective Courses	
PE-IT601	**Professional Elective-II**
PE-IT601A	Advanced Algorithms
PE-IT601B	Data Analytics and Big Data
PE-IT601C	Computer Graphics
PE-IT601D	Advanced Computer Architecture
PE-IT691	**Professional Elective-II Lab**
PE-IT691A	Advanced Algorithms Lab
PE-IT691B	Data Analytics and Big Data Lab
PE-IT691C	Computer Graphics Lab
PE-IT691D	Advanced Computer Architecture Lab
PE-IT602	**Professional Elective-III**
PE-IT602A	Artificial Intelligence
PE-IT602B	Introduction to Information Security
PE-IT602C	Internet of Things
PE-IT602D	Signals and System

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OE-CS/EC601	Open Elective-I
OE-CS601H	E-Commerce and ERP
OE-EC601D	Microprocessor
OE-EC601F	Wireless Communication

Seventh Semester (Fourth Year)							
Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	PE	PE-IT701	Professional Elective-IV	3	0	0	3
2	PE	PE-IT702	Professional Elective-V	3	0	0	3
3	OE	OE-HU/CS701	Open Elective-II	3	0	0	3
4	HM	HM-HU703	Project Management and Entrepreneurship	3	0	0	3
			Total Theory	**12**	**0**	**0**	**12**
Practical/ Sessional/ Mandatory Course							
1	PW	PW-IT781	Project-III	0	0	12	6
2	PW	PW-IT782	Practical Training Evaluation	0	0	0	1
			Total Practical/ Sessional/ Mandatory Course	**0**	**0**	**12**	**7**
		Total of Seventh Semester		**12**	**0**	**12**	**19**

List of Elective Courses	
PE-IT701	**Professional Elective-IV**
PE-IT701A	Internet Technology
PE-IT701B	Quantum Computing
PE-IT701C	Cloud Computing
PE-IT702	**Professional Elective-V**
PE-IT702A	Multimedia Technology
PE-IT702B	Soft Computing
PE-IT702C	Ad-Hoc and Sensor Networks
PE-IT702D	Information and Coding Theory
PE-IT702E	Human Computer Interaction
PE-IT702F	Block Chain and its Applications
OE-HU/CS701	**Open Elective-II**
OE-HU701B	Human Resource Development and Organizational Behavior

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OE-HU701C	Introduction to Philosophical Thoughts
OE-CS701H	Remote Sensing and GIS

Eighth Semester (Fourth Year)							
SlN o.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	PE	PE- IT801	Professional Elective-VI	3	0	0	3
2	OE	OE-CS/ME801	Open Elective-III	3	0	0	3
3	OE	OE-HU/M801	Open Elective-IV	3	0	0	3
Total Theory				9	0	0	9
Practical/ Sessional							
1	PW	PW- IT881	Project-IV	0	0	12	6
Total Practical/ Sessional/ Mandatory Course				0	0	12	6
Total of Eighth Semester				9	0	12	15

List of Elective Courses	
PE-IT801	**Professional Elective-VI**
PE-IT801A	Mobile Computing
PE-IT801B	Cryptography and Network Security
PE-IT801C	Natural Language Processing
PE-IT801D	Embedded System with IOT
PE-IT801E	Image Processing
PE-IT801F	Augmented Reality and Virtual Reality
OE-CS/ME801	**Open Elective-III**
OE-CS801F	Cyber Law and Ethics
OE-CS801D	Bioinformatics
OE-ME801D	Robotics
OE-CS801E	Computational Biology
OE-HU/M801	**Open Elective-IV**
OE-HU801F	Introduction to Business Analytics
OE-HU801C	Economic Policies in India
OE-M801A	Operations Research and Optimizing Technique