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 Computer Science and Engineering (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-CH101	Chemistry	3	1	0	4
2	BS	BS-M101	Mathematics-I	3	1	0	4
3	ES	ES-CS101	Programming for Problem Solving	3	0	0	3
			Total Theory	**9**	**2**	**0**	**11**
Practical/ Sessional/ Mandatory Course							
1	BS	BS-CH191	Chemistry Laboratory	0	0	3	1.5
2	ES	ES-CS191	Programming for Problem Solving Laboratory	0	0	4	2
3	ES	ES-ME192	Workshop/Manufacturing Practices	1	0	4	3
4	HM	HM-HU191	Language Laboratory	0	0	2	1
		Total Practical/ Sessional/ Mandatory Course		**1**	**0**	**13**	**7.5**
		Total of First Semester		**10**	**2**	**13**	**18.5**

Second Semester (First Year)

Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	BS	BS-PH201	Physics	3	1	0	4
2	BS	BS-M201	Mathematics-II	3	1	0	4
3	ES	ES-EE201	Basic Electrical and Electronics Engineering	3	1	0	4
4	HM	HM-HU201	English	2	0	0	2
			Total Theory	**11**	**3**	**0**	**14**
Practical/ Sessional/ Mandatory Course							
1	BS	BS-PH291	Physics Laboratory	0	0	3	1.5
2	ES	ES-EE291	Basic Electrical and Electronics Engineering Laboratory	0	0	4	2
3	ES	ES-ME291	Engineering Graphics & Design	1	0	4	3
		Total Practical/ Sessional/ Mandatory Course		**1**	**0**	**11**	**6.5**
		Total of Second Semester		**12**	**3**	**11**	**20.5**

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Third Semester (Second Year)

Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	ES	ES-EC301	Communication Engineering	3	0	0	3
2	ES	ES-EC302	Digital Electronics	3	0	0	3
3	BS	BS-M301	Mathematics-III	3	0	0	3
4	PC	PC-CS301	Data Structures and Algorithms	3	0	0	3
5	BS	BS-BIO301	Biology	2	0	0	2
6	HM	HM-HU301	Introduction to Industrial Management	2	0	0	2
			Total Theory	**16**	**0**	**0**	**16**
Practical/ Sessional/ Mandatory Course							
1	ES	ES-EC392	Digital Electronics Lab	0	0	3	1.5
2	PC	PC-CS391	Data Structures and Algorithms Lab	0	0	3	1.5
3	PC	PC-CS392	IT Workshop (Using Python) Lab	0	0	3	1.5
4	MC	MC371	Environmental Sciences	2	0	0	0
			Total Practical/ Sessional/ Mandatory Course	**2**	**0**	**9**	**4.5**
			Total of Third Semester	**18**	**0**	**9**	**20.5**

Fourth Semester (Second Year)

Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	BS	BS-M404	Numerical Methods	2	0	0	2
2	PC	PC-CS401	Computer Organization	3	0	0	3
3	PC	PC-CS402	Operating System	3	0	0	3
4	PC	PC-CS403	Design and Analysis of Algorithm	3	0	0	3
5	PC	PC-CS404	Discrete Mathematics	3	0	0	3
			Total Theory	**14**	**0**	**0**	**14**
Practical/ Sessional/ Mandatory Course							
1	BS	BS-M494	Numerical Methods Lab	0	0	2	1
2	PC	PC-CS491	Computer Organization Lab	0	0	3	1.5
3	PC	PC-CS492	Operating System Lab	0	0	3	1.5
4	PC	PC-CS493	Design and Analysis of Algorithm Lab	0	0	3	1.5
5	MC	MC472	Constitution of India	2	0	0	0
			Total Practical/ Sessionall Mandatory Course	**2**	**0**	**11**	**5.5**
			Total of Fourth Semester	**16**	**0**	**11**	**19.5**

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				Fifth Semester (Third Year)				
Sl No.	**Category**	**Course Code**	**Course Name**		**Contact Hours**			**Credits**
					L	**T**	**P**	
Theory								
1	PC	PC-CS501	Computer Architecture		3	0	0	3
2	PC	PC-CS502	Object Oriented Programming		3	0	0	3
3	PC	PC-CS503	Formal Language and Automata Theory		3	0	0	3
4	PC	PC-CS504	Microprocessor and Microcontroller		2	0	0	2
5	HM	HM-HU501	Economics for Engineers		3	0	0	3
6	PE	PE-CS501	Professional Elective-I		3	0	0	3
			Total Theory		**17**	**0**	**0**	**17**
Practical/ Sessional/ Mandatory Course								
1	PC	PC-CS591	Advanced IT Workshop (Using Python)		0	0	3	1.5
2	PC	PC-CS592	Object Oriented Programming Lab		0	0	3	1.5
3	HM	HM-HU591	Soft Skill Development Lab		0	0	2	1
4	MC	MC571	Aptitude Skill Development-I		2	0	0	0
			Total Practical/ Sessionall Mandatory Course		**2**	**0**	**8**	**4**
			Total of Fifth Semester		**19**	**0**	**8**	**21**

PE-CS501	**Professional Elective-I**
PE-CS501A	Machine Learning
PE-CS501B	Advanced Algorithm
PE-CS501C	Computer Graphics

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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-CS601	Compiler Design	3	0	0	3
2	PC	PC-CS602	Database Management System	3	0	0	3
3	PC	PC-CS603	Computer Networks	3	0	0	3
4	PC	PC-CS604	Software Engineering	3	0	0	3
5	PE	PE-CS601	Professional Elective-II	3	0	0	3
6	PE	PE-CS602	Professional Elective-III	3	0	0	3
			Total Theory	**18**	**0**	**0**	**18**
Practical/ Sessional/ Mandatory Course							
1	PC	PC-CS692	Database Management System Lab	0	0	3	1.5
2	PC	PC-CS693	Computer Networks Lab	0	0	3	1.5
3	PC	PC-CS694	Software Development and IT Operations Lab	0	0	2	1
4	PW	PW-CS681	Project-I	0	0	6	3
5	MC	MC671	Aptitude Skill Development-II	2	0	0	0
		Total Practical/ Sessional/ Mandatory Course		**2**	**0**	**14**	**7**
		Total of Sixth Semester		**20**	**0**	**14**	**25**

List of Elective Courses

PE-CS601	**Professional Elective-II**
PE-CS601A	Data Mining
PE-CS601B	Pattern Recognition
PE-CS601C	Image Processing
PE-CS602	**Professional Elective-III**
PE-CS602A	Distributed Computing
PE-CS602B	Soft Computing
PE-CS602C	Data Analysis and Visualization

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Seventh Semester (Fourth Year)							
Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	PE	PE-CS701	Professional Elective-IV	3	0	0	3
2	PE	PE-CS702	Professional Elective-V	3	0	0	3
3	OE	OE 701	Open Elective-I	3	0	0	3
4	OE	OE 701	Open Elective-II	3	0	0	3
			Total Theory	**12**	**0**	**0**	**12**
Practical/ Sessional/ Mandatory Course							
1	PW	PW-CS781	Project-II	0	0	8	4
2	PW	PW-CS782	Summer Internship	0	0	4	2
		Total Practical/ Sessionall Mandatory Course		**0**	**0**	**12**	**6**
		Total of Seventh Semester		**12**	**0**	**12**	**18**

List of Elective Courses	
PE-CS701	**Professional Elective-IV**
PE-CS701A	Quantum Computing
PE-CS701B	Cloud Computing
PE-CS701C	Neural Networks and Deep Learning
PE-CS702	**Professional Elective-V**
PE-CS702A	Natural Language Processing
PE-CS702B	Block Chain Technology
PE-CS702C	Artificial Intelligence
OE-701	**Open Elective-I**
OE-EC701A	Adhoc and Sensor Network
OE-EE701B	Control Systems
OE-IT701D	Multimedia Systems
OE-M701A	Operations Research and Optimizing Technique
OE-ME701B	Mechatronic Systems
OE-701	**Open Elective-II**
OE-EC701C	Mobile Computing
OE-HU701B	Human Resource Development and Organizational Behaviour
OE-IT701A	Introduction to Bioinformatics
OE-IT701B	Cyber law and Security Policy
OE-ME701D	Robotics

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Eighth Semester (Fourth Year)							
Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	HM	HM-HU802	Professional Ethics and Project Management	2	0	0	2
2	PE	PE-CS801	Professional Elective-VI	3	0	0	3
3	OE	OE 801	Open Elective-III	3	0	0	3
4	OE	OE 801	Open Elective-IV	3	0	0	3
			Total Theory	**11**	**0**	**0**	**11**
Practical/ Sessional/ Mandatory Course							
1	PW	PW-CS881	Project-III	0	0	12	6
			Total Practical/ Sessional/ Mandatory Course	**0**	**0**	**12**	**6**
		Total of Eighth Semester		**11**	**0**	**12**	**17**

List of Elective Courses	
PE-CS801	**Professional Elective-VI**
PE-CS801A	Big Data Analytics
PE-CS801B	Cryptography and Network Security
PE-CS801C	Web and Internet Technology
OE-801	**Open Elective-III**
OE-AUE801A	Electric Vehicle
OE-HU801G	Introduction to Philosophical Thoughts
OE-IT801B	E-Commerce
OE-IT801C	Internet of Things
OE-ME801A	3D Printing and Design
OE-801	**Open Elective-IV**
OE-EC801A	Information and Coding Theory
OE-EC801B	Micro-Electronics and VLSI Design
OE-EE801A	Renewable Energy
OE-HU801A	Business Analytics and Entrepreneurship