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 (AI and ML) (w.e.f. AY: 2022-23)

Part II: Course Structure & Semester wise Credit Distribution

Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
First Semester (First Year)							
Mandatory Induction Program- 3 Weeks Duration							
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 & 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 & Electronics Engineering Lab	0	0	4	2
3	ES	ES-ME191	Engineering Graphics & 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**

Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Second Semester (First Year)							
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 Lab	1	0	4	3
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**

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/

Third Semester (Second Year)

Sl No.	Category	Course Code	Course Name	L	T	P	Credits
Theory							
1	ES	ES-EC302	Digital Electronics	3	0	0	3
2	ES	ES-EC303	Signals and Systems	3	0	0	3
3	BS	BS-M305	Mathematics III	3	0	0	3
4	HM	HM-HU301	Introduction to Industrial Management	2	0	0	2
5	PC	PC-CS301	Data Structures and Algorithms	3	0	0	3
6	BS	BS-BIO301	Biology	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
5	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	L	T	P	Credits
Theory							
1	PC	PC-CS(D)401	Computer Organization and Architecture	3	0	0	3
2	PC	PC-CS402	Operating System	3	0	0	3
3	PC	PC-CS403	Design and Analysis of Algorithm	3	0	0	3
4	PC	PC-CS404	Discrete Mathematics	3	0	0	3
5	PC	PC-CS405	Formal Languages and Automata Theory	3	0	0	3
6	HM	HM-HU 401	Economics for Engineers	3	0	0	3
			Total Theory	**18**	**0**	**0**	**18**
Practical/ Sessional / Mandatory Course							
1	PC	PC-CS(AM) 491	Object Oriented Programming Lab	0	1	2	2
2	PC	PC-CS(AM)492	Operating System Lab	0	0	2	1
3	PC	PC-CS493	Design and Analysis of Algorithm Lab	0	0	3	1.5
4	HM	HM-HU491	Soft Skill Development Lab	0	0	2	1
5	MC	MC472	Constitution of India	2	0	0	0
		Total Practical/ Sessional/ Mandatory Course		**2**	**1**	**9**	**5.5**
		Total of Fourth Semester		**20**	**1**	**9**	**23.5**

Curriculum for Undergraduate Degree (B.Tech.) in Computer Science and Engineering (AI and ML) (w.e.f. AY: 2022-23)

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/

**Fifth Semester (Third Year)**							
Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
**Theory**							
1	BS	BS-M504	Numerical Methods	2	0	0	2
2	PC	PC-CS(D)501	Machine Learning	3	0	0	3
3	PC	PC-CS(AM)502	Artificial Intelligence	3	0	0	3
4	PC	PC-CS(AM)503	Computer Networks	3	0	0	3
5	PC	PC-CS(AM)504	High Performance Computing	3	0	0	3
6	PE	PE-CS501	Professional Elective-I	3	0	0	3
\multicolumn{4}{c}{*Total Theory*}	17	0	0	17
**Practical/ Sessional/ Mandatory Courses**							
1	PC	PC-CS(D)591	Machine Learning Lab	0	0	3	1.5
2	PC	PC-CS(AM)592	Artificial Intelligence Lab	0	0	3	1.5
3	PC	PC-CS(AM)593	Computer Networks Lab	0	0	3	1.5
4	MC	MC571	Aptitude Skill Development-I	2	0	0	0
\multicolumn{4}{c}{*Total Practical/ Sessional/ Mandatory Courses*}	2	0	9	4.5
\multicolumn{4}{c}{**Total of Fifth Semester**}	19	0	9	21.5

PE-CS(D)501	Professional Elective-I
PE-CS(D)501A	Software Engineering
PE-CS501B	Advanced Algorithm
PE-CS(AM)501C	Compiler Design

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/

Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	**T**	**P**	
Sixth Semester (Third Year)							
Theory							
1	PC	PC-CS(AM)601	Neural Network and Deep Learning	3	0	0	3
2	PC	PC-CS602	Database Management System	3	0	0	3
3	PC	PC-CS(AM)603	Cloud Computing	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				**15**	**0**	**0**	**15**
Practical/ Sessional/ Mandatory Courses							
1	PC	PC-CS692	Database Management System Lab	0	0	3	1.5
2	PC	PC-CS694	Software Development and IT Operations Lab	0	0	2	1
3	PW	PW-CS681	Project-I	0	0	6	3
4	MC	MC671	Aptitude Skill Development-II	2	0	0	0
Total Practical/ Sessional/ Mandatory Courses				**2**	**0**	**11**	**5.5**
Total of Sixth Semester				**17**	**0**	**11**	**20.5**

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

Curriculum for Undergraduate Degree (B.Tech.) in Computer Science and Engineering (AI and ML) (w.e.f. AY: 2022-23)

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/

Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Seventh Semester (Fourth Year)							
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							
1	PW	PW-CS781	Project-II	0	0	8	4
2	PW	PW-CS782	Summer Internship	0	0	4	2
			Total Practical/ Sessional	**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-CS(D)701A	Data Security and Authentication
PE-CS701B	Computer Graphics
PE-CS702	**Professional Elective-V**
PE-CS702A	Natural language Processing
PE-CS702B	Block Chain Technology
PE-CS(D)702C	Uncertainty Modelling and Multi-value Logic
OE 701	**Open Elective-I**
OE 701	**Open Elective-II**

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/

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								
1	PW	PW-CS881	Project-II	0	0	12	6
Total Practical/ Sessional				**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 801	**Open Elective-IV**

Curriculum for Undergraduate Degree (B.Tech.) in Computer Science and Engineering (AI and ML) (w.e.f. AY: 2022-23)