



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 Artificial Intelligence & Machine Learning (w.e.f. AY: 2021-22)

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
<i>Total Theory</i>				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
<i>Total Practical/ Sessional/ Mandatory Course</i>				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
<i>Total Theory</i>				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	0	0	4	2



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			Solving Lab				
3	ES	ES-ME292	Workshop/ Manufacturing Practices	1	0	4	3
4	HM	HM-HU291	Language Laboratory	0	0	2	1
<i>Total Practical/ Sessional/ Mandatory Course</i>				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-AIML301	Linear Algebra	2	0	0	2
5	HM	HM-HU301	Introduction to Industrial Management	2	0	0	2
<i>Total Theory</i>				13	1	0	14
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	0	0	4	2
<i>Total Practical/ Sessional/ Mandatory Course</i>				0	0	15	7.5
Total of Third Semester				13	1	15	21.5

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-IT402	Design and Analysis of Algorithms	3	1	0	4
3	PC	PC-	Artificial Intelligence	3	0	0	3



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		AIML401					
4	PC	PC-AIML402	Machine Learning Foundations	3	0	0	3
5	BS	BS-BIO401	Biology	2	0	0	2
<i>Total Theory</i>				14	1	0	15
Practical/ Sessional/ Mandatory Course							
1	PC	PC-IT492	Design and Analysis of Algorithms Lab	0	0	4	2
2	PC	PC-AIML491	Artificial Intelligence Lab	0	0	4	2
3	PC	PC-AIML492	Advanced Computing Lab	0	0	3	1.5
4	MC	MC471	Environmental Sciences	2	0	0	0
<i>Total Practical/ Sessional/ Mandatory Course</i>				0	0	11	5.5
Total of Fourth Semester				16	1	11	20.5

Fifth Semester (Third Year)							
Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	BS	BS-M501	Probability and Statistics	2	0	0	2
2	PC	PC-AIML501	Database Management System	3	0	0	3
3	PC	PC-AIML502	Data Science	3	0	0	3
4	PE	PE-AIML501	Professional Elective-I	2	0	0	2
5	OE	OE-CS/EC501	Open Elective-I	3	0	0	3
6	HM	HM-HU501	Economics for Engineers	3	0	0	3
<i>Total Theory</i>				16	0	0	16
Practical/ Sessional/ Mandatory Course							
1	PC	PC-AIML591	Database Management System Lab	0	0	4	2
2	PC	PC-AIML592	Data Science Lab	0	0	4	2
3	PE	PE-AIML591	Professional Elective-I Lab	0	0	4	2
4	PW	PW-AIML581	Project I	0	0	2	1



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5	HM	HM-HU591	Soft Skill Development Lab	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
<i>Total Practical/ Sessional</i>				4	0	16	8
Total of Fifth Semester				20	0	16	24

List of Elective Courses

PE-AIML501	Professional Elective-I
PE-AIML501A	Object Oriented Programming
PE-AIML501B	Operating Systems
PE-AIML501C	Image Processing
PE-AIML501D	Statistical Programming
PE-AIML591	Professional Elective-I Lab
PE-AIML591A	Object Oriented Programming Lab
PE-AIML591B	Operating Systems Lab
PE-AIML591C	Image Processing Lab
PE-AIML591D	Statistical Programming Lab
OE-CS/EC501	Open Elective-I
OE-EC501D	Mobile Computing
OE-CS501B	Neural Network
OE-CS501C	Pattern Recognition
OE-CS501D	Graph Algorithm

Sixth Semester (Third Year)

Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	PC	PC-AIML601	Advanced Machine Learning	3	0	0	3
2	PC	PC-AIML602	Soft Computing	3	0	0	3
3	PE	PE-AIML601	Professional Elective-II	3	0	0	3
4	OE	OE-CS/M601	Open Elective-II	3	0	0	3
5	OE	OE-CS601	Open Elective-III	3	0	0	3



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<i>Total Theory</i>				15	0	0	15
Practical/ Sessional/ Mandatory Course							
1	PC	PC-AIML691	Advanced Machine Learning Lab	0	0	4	2
2	PC	PC-AIML692	Soft Computing Lab	0	0	4	2
3	PE	PE-AIML691	Professional Elective-II Lab	0	0	4	2
4	PW	PW-AIML681	Project-II	0	0	2	1
5	MC	MC671	Aptitude Skill Development -II	2	0	0	0
<i>Total Practical/ Sessional</i>				2	0	14	7
Total of Sixth Semester				17	0	14	22

List of Elective Courses	
PE-AIML601	Professional Elective-II
PE-AIML601A	Computer Networks
PE-AIML601B	Data Visualization
PE-AIML601C	Deep Learning
PE-AIML601D	Advanced Algorithm
OE-CS/M601	Open Elective-II
OE-CS601C	Big Data
OE-M601A	Operations Research and Optimizing Technique
OE-CS601G	Distributed System
OE-CS601I	Game Theory
OE-CS601	Open Elective-III
OE-CS601K	Multimedia Technology
OE-CS601J	Human Computer Interaction
OE-CS601D	Cloud Computing
OE-CS601E	Cryptography and Network Security

Seventh Semester (Fourth Year)							
Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	PE	PE-AIML701	Professional Elective-III	3	0	0	3
2	PE	PE-AIML702	Professional Elective-IV	3	0	0	3



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3	OE	OE- CS/ME701	Open Elective-IV	3	0	0	3
4	HM	HM-HU702	Project Management and Entrepreneurship	3	0	0	3
<i>Total Theory</i>				12	0	0	12
Practical/ Sessional/ Mandatory Course							
1	PW	PW- AIML781	Project III	0	0	12	6
2	PW	PW- AIML782	Practical Training Evaluation	0	0	0	1
<i>Total Practical/ Sessional/ Mandatory Course</i>				0	0	12	7
Total of Seventh Semester				12	0	12	19

List of Elective Courses

PE-AIML701	Professional Elective-III
PE-AIML701A	Social Network Analysis
PE-AIML701B	Computer Vision
PE-AIML701C	Quantum Computing
PE-AIML701D	Multi Agent System
PE-AIML702	Professional Elective-IV
PE-AIML702A	Ecommerce and ERP
PE-AIML702B	Information and Coding Theory
PE-AIML702C	Internet of Things
PE-AIML702D	Digital Signal Processing
OE-CS/ME701	Open Elective-IV
OE-ME701A	Computer Aided Design
OE-CS701B	Bio Informatics
OE-ME701D	Robotics
OE-CS701D	Compiler Design

Eighth Semester (Fourth Year)

SIN o.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	PE	PE- A IML801	Professional Elective-V	3	0	0	3
2	OE	OE-	Open Elective-V	3	0	0	3



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		HU/CS801					
3	OE	OE- CS/EC/HU80 1	Open Elective-VI	3	0	0	3
<i>Total Theory</i>				9	0	0	9
Practical/ Sessional							
1	PW	PW- AIML881	Project-IV	0	0	12	6
<i>Total Practical/ Sessional/ Mandatory Course</i>				0	0	12	6
Total of Eighth Semester				9	0	12	15

List of Elective Courses	
PE-AIML801	Professional Elective-V
PE-AIML801A	Natural language Processing
PE-AIML801B	Software Engineering
PE-AIML801C	Geographic Information System
OE-HU/CS801	Open Elective-V
OE-HU801C	Economic Policies in India
OE-HU801J	Soft skill and Interpersonal Communication
OE-CS801F	Cyber Law and Ethics
OE-CS/EC/HU801	Open Elective-VI
OE-HU801H	Organizational Behaviour
OE-CS801G	Research Methodology
OE-EC801B	Microelectronics and VLSI