



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 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	25	25
3	Engineering Science Courses including Workshop, Drawing, Basics of Electrical/ Mechanical/ Computer etc.	25	24.5
4	Professional Core Courses	46	47.5
5	Professional Elective Courses relevant to chosen specialization/ branch	18	18
6	Open Elective Courses from other technical and /or emerging subjects	18	18
7	Project Work, Seminar and Internship in Industry or elsewhere	15	15



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8	Mandatory Courses [Environmental Sciences, Induction Training, Indian Constitution, Essence of Indian Traditional Knowledge, Aptitude Skill]	Non-Credit	Non-Credit
Total		160	160

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	III	HM-HU301	Introduction to Industrial Management	2	0	0	2
3	V	HM-HU501	Economics for Engineers	3	0	0	3
4	VII	HM-HU702	Project Management and Entrepreneurship	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	V	HM-HU591	Soft Skill Development Lab	0	0	2	1
<i>Total Practical/ Sessional</i>				0	0	4	2
Total				10	0	4	12



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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
4	II	BS-M201	Mathematics-II	3	1	0	4
5	III	BS-AIML301	Linear Algebra	2	0	0	2
6	IV	BS-BIO401	Biology	2	0	0	2
7	V	BS-M501	Probability and Statistics	2	0	0	2
<i>Total Theory</i>				18	4	0	22
Practical/ Sessional							
1	I	BS-PH191	Physics Laboratory	0	0	3	1.5
2	II	BS-CH291	Chemistry Laboratory	0	0	3	1.5
<i>Total Practical/ Sessional</i>				0	0	6	3
Total				18	4	6	25

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-EC303	Analog and Digital Electronics	3	0	0	3
4	IV	ES-IT401	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 Lab	0	0	4	2
2	I	ES-ME191	Engineering Graphics and Design Lab	1	0	4	3
3	II	ES-CS291	Programming for Problem Solving Lab	0	0	4	2
4	II	ES-ME292	Workshop/	1	0	4	3



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			Manufacturing Practices				
5	III	ES-EC393	Analog and Digital Electronics Lab	0	0	3	1.5
<i>Total Practical/ Sessional</i>				2	0	19	11.5
Total				14	1	19	24.5

Professional Core Courses							
Sl No.	Semester	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	III	PC-IT301	Data Structure and Algorithms	3	1	0	4
2	III	PC-IT302	Computer Organization and Architecture	3	0	0	3
3	IV	PC-IT402	Design and Analysis of Algorithm	3	0	0	3
4	IV	PC-AIML401	Artificial Intelligence	3	0	0	3
5	IV	PC-AIML402	Machine Learning Foundations	3	0	0	3
6	V	PC-AIML501	Database Management System	3	0	0	3
7	V	PC-AIML502	Data Science	3	0	0	3
8	VI	PC-AIML601	Advanced Machine Learning	3	0	0	3
9	VI	PC-AIML602	Soft Computing	3	0	0	3
<i>Total Theory</i>				27	1	0	28
Practical/ Sessional							
1	III	PC-IT391	Data Structure and Algorithms Lab	0	0	4	2
2	III	PC-IT392	Computer Organization and Architecture Lab	0	0	4	2
3	III	PC-IT393	IT Workshop	0	0	4	2
4	IV	PC-IT492	Design and Analysis of Algorithm Lab	0	0	4	2
5	IV	PC-AIML491	Artificial Intelligence Lab	0	0	4	2
6	IV	PC-AIML492	Advanced Computing Lab	0	0	3	1.5



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7	V	PC-AIML591	Database Management System Lab	0	0	4	2
8	V	PC-AIML592	Data Science Lab	0	0	4	2
9	VI	PC-AIML691	Advanced Machine Learning Lab	0	0	4	2
10	VI	PC-AIML692	Soft Computing	0	0	4	2
<i>Total Practical/ Sessional</i>				0	0	39	19.5
Total				27	2	39	47.5

Professional Elective Courses relevant to chosen specialization/ branch

SIN o.	Semester	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	V	PE-AIML501	Professional Elective-I	2	0	0	2
2	VI	PE-AIML601	Professional Elective-II	3	0	0	3
3	VII	PE-AIML701	Professional Elective-III	3	0	0	3
4	VII	PE-AIML702	Professional Elective-IV	3	0	0	3
5	VIII	PE-AIML801	Professional Elective-V	3	0	0	3
<i>Total Theory</i>				14	0	0	14
Practical/ Sessional							
1	V	PE-AIML591	Professional Elective-I Lab	0	0	4	2
2	VI	PE-AIML691	Professional Elective-II Lab	0	0	4	2
<i>Total Practical/ Sessional</i>				0	0	8	4
Total				14	0	8	18

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	V	OE-	Open Elective-I	3	0	0	3



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		CS/EC501					
2	VI	OE- CS/M601	Open Elective-II	3	0	0	3
3	VI	OE-CS601	Open Elective-III	3	0	0	3
4	VII	OE- CS/ME701	Open Elective-IV	3	0	0	3
5	VIII	OE- HU/CS801	Open Elective-V	3	0	0	3
6	VIII	OE- CS/EC/HU8 01	Open Elective-VI	3	0	0	3
<i>Total Theory</i>				18	0	0	18
Practical/ Sessional							
1							
<i>Total Practical/Sessional</i>							NIL
Total				18	0	0	18

Project Work, Seminar and Internship in Industry or elsewhere							
Sl No.	Semester	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1							
<i>Total Theory</i>							NIL
Practical/ Sessional							
1	V	PW- AIML581	Project I	0	0	2	1
2	VI	PW- AIML681	Project-II	0	0	2	1
3	VII	PW- AIML781	Project III	0	0	12	6
4	VII	PW- AIML782	Practical Training Evaluation	0	0	0	1
5	VIII	PW- AIML881	Project-IV	0	0	12	6
<i>Total Practical/ Sessional</i>				0	0	28	15
Total				0	0	28	15



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Sl No.	Semester	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
<i>Total Theory</i>							NIL
Practical/ Sessional							
1	IV	MC471	Environmental Sciences	2	0	0	0
2	V	MC571	Aptitude Skill Development-I	2	0	0	0
3	V	MC572	Constitution of India	2	0	0	0
4	VI	MC671	Aptitude Skill Development -II	2	0	0	0
<i>Total Practical/ Sessional</i>				8	0	0	0
Total				8	0	0	0