



# **NEW HORIZON COLLEGE OF ENGINEERING**

New Horizon Knowledge Park, Ring Road, Marathalli  
Autonomous College Permanently Affiliated to VTU, Approved by AICTE & UGC  
Accredited by NAAC with 'A' Grade, Accredited by NBA

**Academic Year 2020-21**

**List of Courses and the Proposed Scheme**

**of**

**Bachelor of Engineering (B.E)**

**In**

**Artificial Intelligence and Machine Learning**

**(Third to Eighth Semesters)**

## List of Core Courses, Professional Electives and Open Electives

### Core Courses

Sl.No	Course Code	Course Name
1	AIM31	Mathematical Foundations of Computing
2	AIM33	Introduction to AI with Python-1
3	AIM34	Data Structures using C
4	AIM35	Logic Design
5	AIL36	Introduction to AI with Python Lab-1
6	AIL37	Data Structures using C Lab
7	AIL38	Logic Design Lab
8	AIM39	Mini Project-1
9	AIM41	Introduction to AI with Python-2
10	AIM43	Statistics-1
11	AIM44	Strategic Reasoning for AI
12	AIM45	Parallel and Sequential Data Structures
13	AIL46	Introduction to AI with Python-2 Lab
14	AIL47	Parallel and Sequential Data Structures Lab
15	AIM48	Mini Project-2
16	AIM51	Automatic Control Systems
17	AIM52	Design and Analysis of Algorithms-1
18	AIM53	Machine Learning with R
19	AIM54	Modern Regression
20	AIM55x	Professional Elective - 1
21	AIL56	Design and Analysis of Algorithms-1 Lab
22	AIL57	Machine Learning with R Lab
23	AIM58	Mini Project-3
24	AIM61	Cyber-Physical Systems
25	AIM62	Computer Networks
26	AIM63	Deep Learning with TensorFlow
27	AIM64x	Professional Elective-2
28	AIL65	Cyber Physical Systems Lab
29	AIL66	Deep Learning with TensorFlow- Lab
30	AIM67	Mini Project-4
31	AIM71	Natural Language Processing
32	AIM72	Human AI Interaction
33	AIM73	Data Analytics
34	AIM74X	Professional Elective-3
35	AIL75	Natural Language Processing Lab
36	AIL76	Data Analytics Lab
37	AIM77	Main Project Phase-1
38	AIM81	Robotics-Algorithms and Control
39	AIM82	Unsupervised Learning
40	AIM83	Main Project

### **Professional Electives**

<b>Sl. No</b>	<b>Course Code</b>	<b>Professional Electives</b>
1	AIM551	Advanced Deep Computing
2	AIM552	Soft Computing
3	AIM553	Linear and Non-Linear Programming
4	AIM554	Autonomous Learning Systems in IOT
5	AIM555	Advanced Data Mining
6	AIM556	Pattern Recognition
7	AIM641	Decision Tree Learning
8	AIM642	Network Security and AI
9	AIM643	Advanced Cloud Computing
10	AIM644	Advanced Statistical Regression
11	AIM645	Recommendation Systems
12	AIM646	Support Vector Machine and ML
13	AIM741	Quantum Computing
14	AIM742	Usability Engineering
15	AIM743	Advanced Algorithms for AI
16	AIM744	Cryptography and ML
17	AIM745	IIOT and ML
18	AIM746	Fault Tolerant Computing

## **OPEN ELECTIVES**

<b>SL. No</b>	<b>Course Code</b>	<b>Course</b>
1	NHOP01	HP - Big Data Analytics 1
2	NHOP02	VM Ware Virtualization 1
3	NHOP03	ADOBE Experience Manager 1
4	NHOP04	HP - Big Data Analytics 2
5	NHOP05	VM Ware Virtualization 2
6	NHOP06	ADOBE Experience Manager 2
7	NHOP07	SAP
8	NHOP08	SCHNEIDER- INDUSTRY AUTOMATION
9	NHOP09	CISCO- Routing and Switching -1
10	NHOP10	Data Analytics
11	NHOP11	Machine Learning
12	NHOP12	CISCO- Routing and Switching -2
13	NHOP13	Industrial IOT- Embedded Systems
14	NHOP14	Blockchain

**B.E INARTIFICIAL INTELLIGENCE AND MACHINE LEARNING****THIRD SEMESTER-SCHEME**

S. No	Course Code	Course	BOS	Credit Distribution			Overall Credits	Contact Hours	Marks		
				L	T	P			CIE	SEE	TOTAL
1	AIM31	Mathematical foundations of Computing	BS	2	1	0	3	4	50	50	100
2	19HSS322	Life skills for Engineers	HSS	3	0	0	3	3	50	50	100
3	AIM33	Introduction to AI with Python-1	AIM	3	0	0	3	3	50	50	100
4	AIM34	Data Structures using C	AIM	3	0	0	3	3	50	50	100
5	AIM35	Logic Design	AIM	3	0	0	3	3	50	50	100
6	AIL36	Introduction to AI with Python Lab-1	AIM	0	0	2	2	4	25	25	50
7	AIL37	Data Structures using C Lab	AIM	0	0	2	2	4	25	25	50
8	AIL38	Logic Design Lab	AIM	0	0	2	2	4	25	25	50
9	AIM39	Mini Project-1	AIM	-	-	-	2	-	25	25	50
<b>Total</b>							<b>23</b>	<b>28</b>	<b>350</b>	<b>350</b>	<b>700</b>

**B.E IN ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING****FOURTH SEMESTER-SCHEME**

S. No	Course Code	Course	BOS	Credit Distribution			Overall Credits	Contact Hours	Marks		
				L	T	P			CIE	SEE	TOTAL
1	AIM41	Introduction to AI with Python-2	BS	2	1	0	3	4	50	50	100
2	19HSS421	Economics for Engineers	HSS	2	0	0	2	2	25	25	50
3	19HSS423	Environmental Science and Awareness	HSS	1	0	0	1	1	25	25	50
4	AIM43	Statistics-1	AIM	3	1	0	4	5	50	50	100
5	AIM44	Strategic Reasoning for AI	AIM	3	0	0	3	3	50	50	100
6	AIM45	Parallel and Sequential Data Structures	AIM	4	0	0	4	4	50	50	100
7	AIL46	Introduction to AI with Python-2 Lab	AIM	0	0	2	2	4	25	25	50
8	AIL47	Parallel and Sequential Data Structures Lab	AIM	0	0	2	2	4	25	25	50
9	AIM48	Mini Project-2	AIM	-	-	-	2	-	25	25	50
<b>Total</b>							<b>23</b>	<b>27</b>	<b>325</b>	<b>325</b>	<b>650</b>

## B.E IN ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

### FIFTH SEMESTER-SCHEME

S. No	Course Code	Course	Credit Distribution			Overall Credits	Contact hours Weekly (Theory)	Marks		
			L	T	P			CIE	SEE	Total
1	AIM51	Automatic Control Systems	4	0	0	4	4	50	50	100
2	AIM52	Design and Analysis of Algorithms-1	3	0	0	3	3	50	50	100
3	AIM53	Machine Learning with R	4	0	0	4	4	50	50	100
4	AIM54	Modern Regression	4	0	0	4	4	50	50	100
5	AIM55x	Professional Elective - 1	4	0	0	4	4	50	50	100
6	AIL56	Design and Analysis of Algorithms-1 Lab	0	0	1.5	1.5	3	25	25	50
7	AIL57	Machine Learning with R Lab	0	0	1.5	1.5	3	25	25	50
8	AIM58	Mini Project-3	-	-	-	2	0	25	25	50
<b>TOTAL</b>						<b>23</b>	<b>25</b>	<b>325</b>	<b>325</b>	<b>650</b>

Course Code	Professional Electives (Group 1)
AIM551	Advanced Deep Computing
AIM552	Soft Computing
AIM553	Linear and Non-Linear Programming
AIM554	Autonomous Learning Systems in IOT
AIM555	Advanced Data Mining
AIM556	Pattern Recognition

**B.E IN ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING****SIXTH SEMESTER-SCHEME**

S. No	Course Code	Course	Credit Distribution			Overall Credits	Contact hours Weekly	Marks		
			L	T	P			CIE	SEE	Total
1	AIM61	Cyber-Physical Systems	4	0	0	4	4	50	50	100
2	AIM62	Computer Networks	4	0	0	4	4	50	50	100
3	AIM63	Deep Learning with TensorFlow	3	0	0	3	3	50	50	100
4	AIM64x	Professional Elective-2	4	0	0	4	4	50	50	100
5	AIL65	Cyber Physical Systems Lab	0	0	1.5	1.5	3	25	25	50
6	AIL66	Deep Learning with TensorFlow- Lab	0	0	1.5	1.5	3	25	25	50
7	AIM67	Mini Project-4	0	0	2	2	0	25	25	50
8	NHOPxx	Open Elective	3	0	0	3	3	50	50	100
<b>Total</b>						<b>23</b>	<b>24</b>	<b>325</b>	<b>325</b>	<b>650</b>

Course Code	Professional Electives (Group 2)
AIM641	Decision Tree Learning
AIM642	Network Security and AI
AIM643	Advanced Cloud Computing
AIM644	Advanced Statistical Regression
AIM645	Recommendation Systems
AIM646	Support Vector Machine and ML



**B.E IN ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING****SEVENTH SEMESTER-SCHEME**

S. No	Course Code	Course	Credit Distribution			Overall Credits	Contact hours Weekly (Theory)	Marks		
			L	T	P			CIE	SEE	Total
1	AIM71	Natural Language Processing	3	0	0	3	3	50	50	100
2	AIM72	Human AI Interaction	3	0	0	3	3	50	50	100
3	AIM73	Data Analytics	3	0	0	3	3	50	50	100
4	AIM74X	Professional Elective-3	4	0	0	4	4	50	50	100
5	AIL75	Natural Language Processing Lab	0	0	1.5	1.5	3	25	25	50
6	AIL76	Data Analytics Lab	0	0	1.5	1.5	3	25	25	50
7	AIM77	Main Project Phase-1	-	-	-	4	-	50	50	100
8	AIM75X	Open Elective	3	0	0	3	3	50	50	100
<b>TOTAL</b>						<b>23</b>	<b>16</b>	<b>350</b>	<b>350</b>	<b>700</b>

<b>COURSE CODE</b>	<b>PROFESSIONAL ELECTIVE</b>
AIM741	Quantum Computing
AIM742	Usability Engineering
AIM743	Advanced Algorithms for AI
AIM744	Cryptography and ML
AIM745	IIOT and ML
AIM746	Fault Tolerant Computing

**B.E IN ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING****EIGHTH SEMESTER-SCHEME**

S. No	Course Code	Course	Credit Distribution				Overall Credits	Contact hours Weekly (Theory)	Marks		
			L	P	T	S			CIE	SEE	Total
1	AIM81	Robotics-Algorithms and Control	4	0	0	1	4	4	50	50	100
2	AIM82	Unsupervised Learning	4	0	0	0	4	4	50	50	100
3	AIM83	Main Project	0	12	0	0	12	-	150	150	300
<b>TOTAL</b>							<b>20</b>	<b>8</b>	<b>250</b>	<b>250</b>	<b>500</b>