

**Second Year B. Tech. Program in Computer Science & Engineering ( AI and ML) Semester – III**

Sr. No	Course Code	Course Type	Name of the Course	Teaching Scheme Per Week			Credits	Total Marks	Evaluation Scheme			
				Lecture Hours	Tutorial Hours	Practical Hours			Type	Max. Marks	Min. Marks for Passing	
1	201AIMLL201	BSC	Linear Algebra	3	-	-	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
2	201AIMLL202	BSC	Discrete Mathematics and Graph Theory	3	1	-	4	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
3	201AIMLL203	ESC	Computer Architecture and Microprocessors	3	-	-	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
4	201AIMLL204	PCC	Data Structures	3	-	-	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
5	201AIMLL205	PCC	Fundamentals of Networking	3	-	-	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
6	201AIMLP206	PCC	Python Programming Laboratory	2	-	2	3	50	ISE	25	10	20
									ESE-POE	25	10	
7	201AIMLP207	PCC	Data Structure Laboratory	-	-	2	1	75	ISE	25	10	30
									ESE-POE	50	20	
8	201AIMLP208	PCC	Networking Laboratory	-	-	2	1	50	ISE	25	10	20
									ESE-OE	25	10	
9	201AIMLMC209	MC	Environmental Studies (Mandatory Course-I)	2	-	-	-	50	ESE	50	20	20
Total				19	1	6	21	725	-	-	-	290
				26								

*ISE: In Semester Evaluation*

*MSE: Mid Semester Examination*

*ESE: End Semester Examination*

**Note 1 : Tutorials and practical shall be conducted in batches with batch strength not exceeding 20 students.**

**Note 2 : ESE will be conducted for 100 marks and converted to 50 marks**

**Second Year B. Tech. Program in Computer Science & Engineering ( AI and ML) Semester – IV**

Sr. No	Course Code	Course Type	Name of the Course	Teaching Scheme Per Week			Credits	Total Marks	Evaluation Scheme			
				Lecture Hours	Tutorial Hours	Practical Hours			Type	Max. Marks	Min. Marks for Passing	
1	201AIMLL210	BSC	Probability and Statistics	3	1	-	4	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
2	201AIMLL211	PCC	Operating Systems	3	-	-	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
3	201AIMLL212	PCC	Computer Algorithms	3	-	-	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
4	201AIMLL213	PCC	Fundamentals of AI	3	-	-	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
5	201AIMLL214	PCC	Formal Automata and Applications	3	-	-	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
6	201AIMLP215	PCC	R Programming Laboratory	2	-	2	3	50	ISE	25	10	20
									ESE-POE	25	10	
7	201AIMLP216	PCC	Artificial Intelligence Laboratory	-	-	2	1	75	ISE	25	10	30
									ESE-POE	50	20	
8	201AIMLP217	HMCS	Soft Skill Laboratory	-	-	2	1	50	ISE	25	10	20
									ESE-OE	25	10	
9	201AIMLMC218	MC	Economics and Management for IT (Mandatory Course-II)	2	-	-	-	50	ESE	50	20	20
Total				19	1	6	21	725	-	-	-	290
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**\*\*\* 4 to 6 weeks Internship is mandatory in summer vacation of SEM-IV or SEM-VI (Credits will be considered in VII semester)**

## Summer Internship

The students are expected to undergo **4 to 6 weeks Internship** in the industry and work on the relevant area as assigned by the Industry. The work done should be monitored and evaluated by the concerned industry expert based on the report prepared by the student. The department has to assign faculty mentors to a student who has to communicate with the industry and monitor the entire internship related work periodically.

The scheme of evaluation will be as under:-

**a) Industry expert/ supervisor: - 70%**

**b) Department & Faculty mentor: - 30%**

Faculty mentor includes "Presentation and Submission of Report", to the Department at the beginning of the subsequent semester.

- 1) The Internship can be availed by the students during the summer vacations after completion of semester IV or VI.
- 2) The Credit of the Internship will be considered in semester VII.
- 3) The Industry experts/ supervisor are expected to assign the work worth minimum 100 to 120 hours for 4 weeks duration and should monitor and evaluate periodically.
- 4) At the completion of Internship work, the student is expected to prepare a report on the work done and get it certified from the industry expert.

**Third Year B. Tech. Program in Computer Science & Engineering (AI and ML), Semester – V**

Sr. No	Course Code	Course Type	Name of the Course	Teaching Scheme Per Week			Credits	Total Marks	Evaluation Scheme			
				Lecture Hours	Tutorial Hours	Practical Hours			Type	Max. Marks	Min. Marks for Passing	
1	201AIMLL301	PCC	System Programming and Compilers.	3	-	-	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
2	201AIMLL302	PCC	Cloud Computing.	3	-	-	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
3	201AIMLL303	PCC	Introduction to Machine Learning.	3	-	-	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
4	201AIMLL304	PCC	Database Engineering.	3	-	-	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
5	201AIMLP306	PCC	Java Programming.	2	-	2	3	50	ISE	25	20	20
									ESE-POE	25		
6	201AIMLP307	PCC	Cloud Computing Laboratory.	-	-	2	1	25	ISE	25	10	10
7	201AIMLP308	PCC	Machine Learning Laboratory.	-	-	2	1	50	ISE	25	10	20
									ESE-OE	25	10	
8	201AIMLP309	PCC	Database Engineering Laboratory.	-	-	2	1	50	ISE	25	10	20
									ESE -POE	25	10	
9	201AIMLP310	PROJ	Project-I	-	-	2	2	50	ISE	50	20	20
10	201AIMLMC311	MC	Human Values and Ethics(Mandatory Course-III)	2	-	-	-	50	ESE	50	20	20
Total				16	0	10	20	675	-	-	-	270

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**Third Year B. Tech. Program in Computer Science & Engineering ( AI and ML), Semester – VI**

Sr. No	Course Code	Course Type	Name of the Course	Teaching Scheme Per Week			Credits	Total Marks	Evaluation Scheme			
				Lecture Hours	Tutorial Hours	Practical Hours			Type	Max. Marks	Min. Marks for Passing	
1	201AIMLL311	PCC	Advanced Database Systems.	3	-	-	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
2	201AIMLL312	PCC	Advanced Machine Learning.	3	-	-	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
3	201AIMLL313	PCC	Fundamentals of Data Science	3	-	-	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
4	201AIMLL305	ESC	Software Engineering	3	-	-	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
5	201AIMLL314	PEC	Professional Elective - I	3	-	-	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
6	201AIMLL315	OEC	Open Elective-I	3	-	-	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
7	201AIMLP316	PCC	Advanced Database System Laboratory	-	-	2	1	25	ISE	25	10	10
8	201AIMLP317	PCC	Fndamental of Data Science Laboratory	-	-	2	1	25	ISE	25	10	10
9	201AIMLP318	PROJ	Project-II	-	-	4	2	50	ISE	25	10	20
									ESE-POE	25	10	
10	201AIMLMOOC 319	MOOC	MOOC	-	-	-	1	25	ISE	25	10	10
Total				18	0	8	23	725	-	-	290	290
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**Professional Elective-I**

1. Internet of Things
2. Information Security
3. Digital Image Processing

**Open Elective-I**

1. Introduction to AI-ML
2. Object Oriented Programming with Java

**Final Year B. Tech. Program in Computer Science & Engineering (AI and ML), Semester – VII**

Sr. No	Course Code	Course Type	Name of the Course	Teaching Scheme Per Week			Credits	Total Marks	Evaluation Scheme			
				Lecture Hours	Tutorial Hours	Practical Hours			Type	Max. Marks	Min. Marks for Passing	
1	201AIMLL401	PCC	Deep Learning	3	-	-	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
2	201AIMLL402	PCC	Mobile Application Development	3	-	-	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
3	201AIMLL403	PEC	Professional Elective-II	3	1	-	4	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
4	201AIMLL404	OEC	Open Elective-II	3	-	-	3	100	ISE	30	20	40
									MSE	20		
									ESE	50	20	
5	201AIMLP405	PCC	Deep Learning Laboratory	-	-	2	1	50	ISE	25	10	20
									ESE- POE	25	10	
6	201AIMLP406	PCC	Mobile Application Development Laboratory	-	-	2	1	25	ISE	25	10	10
7	201AIMLP407	PROJ	Project - III	-	-	4	2	150	ISE	75	30	60
									ESE-POE	75	30	
8	201AIMLP408	PROJ	Internship	-	-	-	2	-	-	-	-	-
9	201AIMLMOOC 409	MOOC	MOOC	-	-	-	1	25	ISE	25	10	10
Total				12	1	8	20	650	-	-	-	260

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**Professional Elective II:**

1. Human Computer Interface
2. Blockchain Technology
3. Computer Vision

**Open Elective -II**

1. Introduction to Data Science
2. Web Development

**Final Year B. Tech. Program in Computer Science & Engineering (AI and ML), Semester – VIII**

Sr. No	Course Code	Course Type	Name of the Course	Teaching Scheme Per Week			Credits	Total Marks	Evaluation Scheme			
				Lecture Hours	Tutorial Hours	Practical Hours			Type	Max. Marks	Min. Marks for Passing	
1	201AIMLL410	PCC	Natural Language Processing	3	-	-	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
2	201AIMLL411	PCC	High Performnce Computing	3	-	-	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
3	201AIMLL412	PCC	Reinforcement Learning	3		-	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
4	201AIMLL413	PEC	Professional Elective-III	3	-	-	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
5	201AIMLP414	PCC	Natural Language Processing Laboratory	-	-	2	1	50	ISE	25	10	20
									ESE POE	25		
6	201AIMLP415	PCC	Reinforcement Learning Laboratory	-	-	2	1	25	ISE	25	10	10
7	201AIMLP416	HSMC	Community Services	-	-	2	1	25	ISE	25	10	10
8	201AIMLP417	PROJ	Project-IV	-	-	4	2	150	ISE	75	30	60
									ESE-POE	75	30	
Total				12	0	10	17	650	-	-	-	260
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**Professional Elective III:**

1. AI Applications in Healthcare & IOT.
2. Game Designing.
3. Optimization Techniques.

BSC-CS: Basic Science Course – Computer Science and Engineering are compulsory.
ESC-CS: Engineering Science Course - Computer Science and Engineering are compulsory.
PCC-CS: Professional Core Course – Computer Science and Engineering are compulsory.
HM-CS: Humanities and Management- Computer Science and Engineering are compulsory.
PW-CS: Project Work— Computer Science and Engineering are compulsory.
MC-CS: Mandatory Course -Environmental Studies which is compulsory for theory 70 marks and project work 30 marks

### **Proposed MOOC Courses for AI-ML**

MOOC Course carry 1 credit and Evaluation is through ISE (25 Marks)

Duration: 8 to 11 weeks

List of Websites which offers online certification courses:

1. Swayam- <https://swayam.gov.in/>
2. NPTEL- <https://onlinecourses.nptel.ac.in/>
3. Mooc- <http://mooc.org/>
4. Edx - <https://www.edx.org/>
5. Coursera- <https://www.coursera.org/>
6. Udacity - <https://in.udacity.com/>
7. Udemy - <https://www.udemy.com/>

Students should select any courses from above list in consultation with their project guide.

All the Certificates received by the students for MOOCs Courses from approved organization (listed above) is to be submitted to the Office of the Controller of Examination/Department prior to 7th and 8th Semester Examination and the Credit earned through MOOCs courses will be reflected in their Results.