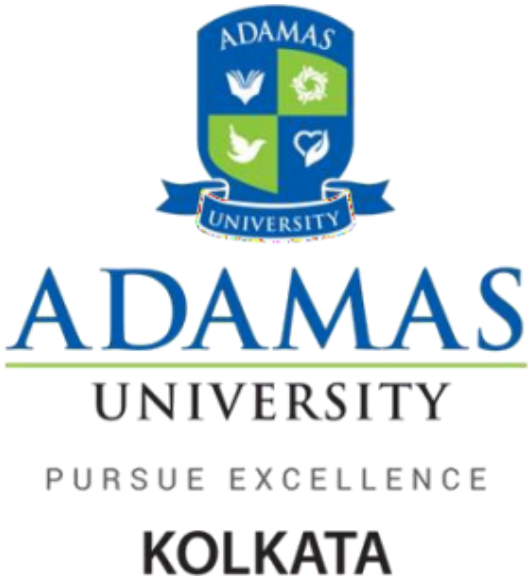

ADAMAS UNIVERSITY

SCHOOL OF ENGINEERING & TECHNOLOGY

Department of Computer Science and Engineering

Masters of Computer Applications

Course File (Theory)

Course Code & Name: CSE21922 & Data Warehousing and Data Analytics

Course Coordinator: Ms. Tanaya Das

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course** **: Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program** **: Master of Computer Applications** **T: 0**
9. **Target** **: 60%** **P: 0**
C: 3

THEORY COURSE FILE CONTENTS

Check list Course Outcomes Attainment

S. No.	Contents	Available (Y/N/NA)	Date of Submission	Signature of HOD
1.	Authenticated Syllabus Copy	Y		
2.	Individual Time Table	Y		
3.	Students' Name List (Approved Copy)	Y		
4.	Course Plan, PO, PSO, COs, CO-PO Mapping, COA Plan, Session Plan and Periodic Monitoring	Y		
5.	Previous Year End Semester Question Papers	Y		
6.	Question Bank (All Units - Part A, Part B & C)	Y		
7.	Dissemination of Syllabus and Course Plan to Students	Y		
8.	Lecture Notes - Unit I, II & III	Y		
9.	**Sample Documents and Evaluation Sheet for Internal Assessment** – Tutorials / Assignments / Class Test / Open Book Test / Quiz / Project / Seminar / Role Play if any (Before Mid Term)			
10.	**Mid Term Examination** A. Question Paper / Any Other Assessment Tools Used B. Sample Answer Scripts (Best, Average, Poor) if required C. Evaluation Sheet D. Slow Learners List and Remedial Measures			
11.	Lecture Notes – Unit IV & V			
12.	**Sample Documents and Evaluation Sheet for Internal Assessment** – Tutorials / Assignments / Class Test /Open Book Test / Quiz / Project / Seminar / Role Play if any (After Mid Term)			
13.	Course End Survey (Indirect Assessment) & Consolidation			
14.	**End Term Examination** A. Question Paper & Answer Key B. Sample Answer Scripts (Best, Average, Poor) if required C. Evaluation Sheet			

Year: 2021-22
Semester: III

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C: 3

	D. Slow Learners List and Remedial Measures.			
15.	Content Beyond the Syllabus (Proof)			
16.	Innovative Teaching Tools Used for TLP			
17.	Details of Visiting Faculty Session / Industry Expert / Guest Lecture / Seminar / Field Visit / Webinars / Flipped Class Room / Blended Learning / Online Resources etc.			
18.	Consolidated Mark Statement			
19.	CO Attainment (Mid Term + Internal Assessment + End Term)			
20.	Gap Analysis & Remedial Measures			
21.	CO - PO Attainment			
22.	Class Record (Faculty Logbook)			

Signature of HOD/ Dean **Signature of Faculty**

Date: **Date:**

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course : Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program : Master of Computer Applications** **T: 0**
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C: 3

Syllabus Copy

CSE21918	Artificial Intelligence and Machine Learning(Elective -I)	L	T	P	C
Version 1.0		3	0	0	3
Pre-requisites/Exposure	Introduction to Artificial Intelligence				
Co-requisites	Basics concepts of Statistics , Linear Algebra and Probability				

Course Objectives

- To help the student to acquire knowledge of basics of artificial intelligent computing.
- To enable students to gain basic knowledge of machine learning.
- To incorporate the evolutionary computational knowledge.
- To enable students to acquire various problem solving, learning, and planning ability.
- To enable students to apply machine learning models to solve real-life problems.

Course Content

Unit I: **08 lecture hours**

Introduction, Agents, Problem formulation, Uninformed search strategies, Heuristics, Informed search strategies, Satisfying constraints

Logical agents, Propositional logic, Inference rules, First-order logic, Inferences in first order logic

Unit II: **10 lecture hours**

Planning with state-space search, Partial-order planning, planning graphs, Planning and acting in the real world Forward and backward chaining, Unification, Resolution.

Introduction to Machine Learning: Overview of machine learning, related areas, applications, software tools, course objectives.

Basics of Machine Learning: Learning Topologies: Training-Testing-Validation; Error: Actual Output; Target Output; Error Optimization: Gradient Descent (SGD, Minibatch); Parameter Update; Dataset and cleaning, Normalization; Bias and Variance; Hypothesis Testing;

Unit III: **06 lecture hours**

Regression: Linear Regression: Single, Polynomial Regression, Gradient Descent, ANOVA, Logistic Regression, Generalization: Ridge and Lasso regression.

Case Study: Media Company Case Study; Cynlate Bank Loan Disbursement.

Unit IV: **11 lecture hours**

Neural networks: The perceptron algorithm, various activation functions and their differentiability, multilayer perceptrons, back-propagation, nonlinear regression, multiclass discrimination, training procedures,

Bayesian Learning, Decision Tree

Unsupervised Learning: Uses of Unsupervised Learning; Data Clustering: K-means and Kernel K-means;

Year: 2021-22
Semester: III

6. Name of the Faculty: Tanaya Das **Course Code: CSE21918**

7. Course	**: Artificial Intelligence and Machine Learning (Elective-I)**	**L: 3**
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9. Target	**: 60%**	**P: 0**
		C: 3

Unit V: **10 lecture hours**

Support vector machines: Functional and geometric margins, optimum margin classifier, constrained optimization, Lagrange multipliers, KKT conditions, soft margins, kernels.

Dimensionality Reduction: Feature Selection, Principle Component Analysis (PCA).

Text Books:

1. Artificial Intelligence – A Modern Approach, Second Edition, S. Russel and P. Norvig Pearson Education, 2003.
2. Artificial Intelligence, Ritch& Knight, TMH
3. "Machine Learning", 1st Edition, Tom M. Mitchell, McGraw-Hill Series In Computer Science

Reference Books:

1. Artificial Intelligence; Structures for Complex Problem Solving, Fourth edition, G. Lugar, Pearson Education, 2002
2. Artificial Intelligence: A New Synthesis, Nils J. Nilsson, Morgan Kaufmann Publishing, Inc., Year 1998
3. "INTRODUCTIONTOMACHINE LEARNING", 2005 Edition, Nils J Nillsson, Morgan Kaufmann
4. "Foundations of Machine Learning", 2012 Edition, Mehryar Mohri, Afshin Rostamezadeh, Ameet Talwalkar, The MIT Press
5. Python Data Science Handbook Essential Tools for Working with Data", 1st Edition, Jake Vander Plas, O'Reilly

Year: 2021-22
Semester: III

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C: 3

Faculty Individual Time Table

ADAMAS UNIVERSITY, KOLKATA

SCHOOL OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Programme: MASTER OF COMPUTER APPLICATION

Course Code & Course: CSE21918 & Artificial Intelligence and Machine Learning
Faculty Coordinator: Tanaya Das

Day & Time	09.40 - 10.30	10.30 - 11.20	11.20 - 12.10	12.10 - 01.00	01.00 - 01.50	01.50 - 02.40	02.40 – 03.30	03.30 - 04.20	04:20-05:10
Monday				LUNCH					
Tuesday		AI and ML							
Wednesday		AI and ML							
Thursday					AI and ML				
Friday									

Signature of HOD **Signature of Class Coordinator**

Date: **Date:**

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course** : **Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program** : **Master of Computer Applications** **T: 0**
9. **Target** : **60%** **P: 0**
C: 3

Students Name List

Roll Number	Registration Number	Name of the Student
PG/02/MCA/2020/002	AU/2020/0004534	Sayani Das
PG/02/MCA/2020/004	AU/2020/0004551	J Sagar Singh
PG/02/MCA/2020/006	AU/2020/0004585	Oliva Roy
PG/02/MCA/2020/008	AU/2020/0004592	Sumita Choubey
PG/02/MCA/2020/009	AU/2020/0004594	Ankit Kumar Shah

Signature of HOD/Dean

Date:

Signature of Class Coordinator

Date:

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course : Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program : Master of Computer Applications** **T: 0**
9. **Target : 60%** **P: 0**
C: 3

COURSE PLAN

Target	60% (marks)
Level-1	50% (population)
Level-2	60% (population)
Level-3	70% (population)

1. Method of Evaluation

UG	**PG**
Internal Assessment (30%) (Quizzes/Tests, Assignments & Seminars etc.)	Internal Assessment (30%) (Quizzes/Tests, Assignments & Seminars etc.)
Mid Semester Examination (20%)	Mid Semester Examination (20%)
End Semester Examination (50%)	End Semester Examination (50%)

*Keep as per Program (UG/PG)

2. Passing Criteria

Scale	**PG**	**UG**
Out of 10 Point Scale	CGPA – "5.00" Min. Individual Course Grade – "C" Passing Minimum – 40	CGPA – "5.00" Min. Individual Course Grade – "C" Passing Minimum – 35

*Keep as per Program (UG/PG)

3. Pedagogy

- **Direct Instruction**
- Kinesthetic Learning
- **Flipped Classroom**
- Differentiated Instruction
- Expeditionary Learning
- Inquiry Based Learning
- Game Based Learning
- Personalized Learning

4. Topics introduced for the first time in the program through this course

- (New Topics Related to this Course – Syllabus Revision if any/Content Beyond Syllabus)

5. References:

Text Books	Web Resources	Journals	Reference Books
3	0	0	5

Signature of HOD/Dean **Signature of Faculty**

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course** : **Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program** : **Master of Computer Applications** **T: 0**
9. **Target** : **60%** **P: 0**
C: 3

Date: **Date:**

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course** **: Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program** **: Master of Computer Applications** **T: 0**
9. **Target** **: 60%** **P: 0**
C: 3

GUIDELINES TO STUDY THE SUBJECT

Instructions to Students:

1. Go through the 'Syllabus' in the LMS in order to find out the Reading List.
2. Get your schedule and try to pace your studies as close to the timeline as possible.
3. Get your on-line lecture notes (Content, videos) at Lecture Notes section. These are our lecture notes. Make sure you use them during this course.
4. check your LMS regularly
5. go through study material
6. check mails and announcements on blackboard
7. keep updated with the posts, assignments and examinations which shall be conducted on the blackboard
8. Be regular, so that you do not suffer in any way
9. C**ell Phones and other Electronic Communication Devices:** Cell phones and other electronic communication devices (such as Blackberries/Laptops) are not permitted in classes during Tests or the Mid/Final Examination. Such devices MUST be turned off in the class room.
10. **E-Mail and online learning tool:** Each student in the class should have an e-mail id and a pass word to access the LMS system regularly. Regularly, important information – Date of conducting class tests, guest lectures, via online learning tool. The best way to arrange meetings with us or ask specific questions is by email and prior appointment. All the assignments preferably should be uploaded on online learning tool. Various research papers/reference material will be mailed/uploaded on online learning platform time to time.
11. **Attendance:** Students are required to have minimum attendance of 75% in each subject. Students with less than said percentage shall NOT be allowed to appear in the end semester examination.

This much should be enough to get you organized and on your way to having a great semester! If you need us for anything, send your feedback through e-mail tanaya.das@adamasuniversity.ac.in Please use an appropriate subject line to indicate your message details.

There will no doubt be many more activities in the coming weeks. So, to keep up to date with all the latest developments, please keep visiting this website regularly.

Year: 2021-22
Semester: III

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C: 3

RELATED OUTCOMES

1. **The expected outcomes of the Program are:**

PO1	**Computational Knowledge:** Understand and apply mathematical foundation, computing and domain knowledge for the conceptualization of computing models from defined problems.
PO2	**Problem Analysis:** Ability to identify, critically analyze and formulate complex computing problems using fundamentals of computer science and application domains.
PO3	**Design / Development of Solutions:** Ability to transform complex business scenarios and contemporary issues into problems, investigate, understand and propose integrated solutions using emerging technologies.
PO4	**Conduct Investigations of Complex Computing Problems:** Ability to devise and conduct experiments, interpret data and provide well informed conclusions.
PO5	**Modern Tool Usage:** Ability to select modern computing tools, skills and techniques necessary for innovative software solutions.
PO6	**Professional Ethics**: Ability to apply and commit professional ethics and cyber regulations in a global economic environment.
PO7	**Life-long Learning**: Recognize the need for and develop the ability to engage in continuous learning as a computing professional.
PO8	**Project Management and Finance:** Ability to understand, management and computing principles with computing knowledge to manage projects in multidisciplinary environments
PO9	**Communication Efficacy:** Communicate effectively with the computing community as well as society by being able to comprehend effective documentations and presentations
PO10	**Societal & Environmental Concern:** Ability to recognize economic, environmental, social, health, legal, ethical issues involved in the use of computer technology and other consequential responsibilities relevant to professional practice.
PO11	**Individual & Team Work:** Ability to work as a member or leader in diverse teams in multidisciplinary environment.
PO12	**Innovation and Entrepreneurship:** Identify opportunities, entrepreneurship vision and use of innovative ideas to create value and wealth for the betterment of the individual and society.

2. **The expected outcomes of the Specific Program are: (up to 3)**

PSO1	Globally expertise the technological planning and development of software applications in the usage of the modern era.

Year: 2021-22
Semester: III

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C: 3

PSO2	Expertise to communicate in both oral and written forms, demonstrating the practice of professional ethics and the concerns for social welfare.
PSO3	Ability to enhance and develop techniques for independent and lifelong learning in computer application.

3. **The expected outcomes of the Course are: (minimum 4 and maximum 6)**

CO1	**Define** solution according to real problem, apply search proper strategies for a particular problem, and construct logical propositions to conclude a proof statement.
CO2	**Construc**t and differentiate plan for specific problem solution using various planning strategies.
CO3	**Implement** predictive and classification model using regression method.
CO4	**Design** and deploy Multilayer Artificial Neural Network using backpropagation algorithm for different dataset, probabilistic model using conditional probability (Baye's Theorem).
CO5	**Construct** SVM for linearly and non-linearly (kernel method) separable data. Generate Ability to select best features from the dataset using PCA.

4. **Co-Relationship Matrix**
Indicate the relationships by 1- Slight (Low) 2- Moderate (Medium) 3-Substantial (High)

Program Outcomes / Course Outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3
CO1	3	3	-	3	-	-	-	-	-	-	-	-	3		3
CO2	3	3	-	3	-	-	-	-	-	-	-	-	3		3
CO3	3	3	-	3	-	-	-	-	-	-	-	-	3		3
CO4	-	-	-	-	2	-	-	-	-	-	-	1	3		-
CO5	-	-	-	-	2	-	-	-	-	-	-	-	3	1	-

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
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9. **Target** : **60%** **P: 0**
C: 3

Average	**3**	**3**	**-**	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**3**	**1**	**3**

5. **Course Outcomes Assessment Plan (COA):**

Course Outcomes	**Internal Assessment* (30 Marks)**		**Mid Term Exam (20 Marks)**	**End Term Exam (50 Marks)**	**Total (100 Marks)**
	Before Mid Term	**After Mid Term**			
CO1	5	NA	7	8	20
CO2	5	NA	7	8	20
CO3	3	3	6	8	20
CO4	NA	7	NA	13	20
CO5	NA	7	NA	13	20
Total	13	17	20	50	100

* Internal Assessment – Tools Used: Tutorial, Assignment, Seminar, Class Test etc.

Year: 2021-22
Semester: III

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9. **Target** : **60%** **P: 0**
C: 3

OVERVIEW OF COURSE PLAN OF COURSE COVERAGE

Course Activities:

S. No.	Description	Planned			Actual			Remarks
		From	To	No. of Session	From	TO	No. of Session	
1.	Introduction	05.10.2021	25.10.2021	17	05.10.2021	25.10.2021	17	
2.	State space search Basics of ML	26.10.2021	16.11.2021	17	26.10.2021	16.11.2021	12	Durga Puja and Diwali holidays
3.	Regression with Case studies	17.11.2021	30.11.2021	12	17.11.2021	30.11.2021	12	
4.	Neural Network	01.12.2021	22.01.2022	10	01.12.2021	22.01.2022	10	Christmas holidays
5.	Support Vector Machines	04.01.2022	02.02.2022	11	04.01.2022	02.02.2022	11	

Total No. of Instructional periods available for the course: __45__ Sessions

Signature of HOD/Dean **Signature of Faculty**

Date: **Date:**

Year: 2021-22
Semester: III

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9. **Target : 60%** **P: 0**
C: 3

SESSION PLAN

Session Plan				Actual Delivery			
Lect.	Date	Topics to be Covered	CO Mapped	Lect.	Date	Topics Covered	CO Achieved
1	05.10.2021	Introduction, Agents, Problem formulation,	CO1	1	05.10.2021	Introduction, Agents, Problem formulation,	CO1
2	07.10.2021	Uninformed search strategies	CO1	2	07.10.2021	Uninformed search strategies	CO1
3	08.10.2021	Heuristics	CO1	3	08.10.2021	Heuristics	CO1
4	19.10.2021	Informed search strategies	CO1	4	19.10.2021	Informed search strategies	CO1
5	21.10.2021	Satisfying constraints	CO1	5	21.10.2021	Satisfying constraints	CO1
6	22.10.2021	Propositional logic	CO1	6	22.10.2021	Propositional logic	CO1
7	23.10.2021	Inference rules, First-order logic	CO1	7	23.10.2021	Inference rules, First-order logic	CO1
8	25.10.2021	Inferences in first order logic	CO1	8	25.10.2021	Inferences in first order logic	CO1

UNIT-I

Remarks:

Signature of Faculty

Date:

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course : Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program : Master of Computer Applications** **T: 0**
9. **Target : 60%** **P: 0**
C: 3

SESSION PLAN
UNIT-II

Session Plan				Actual Delivery			
Lect.	Date	Topics to be Covered	CO Mapped	Lect.	Date	Topics Covered	CO Achieved
1	26.10.2021	Planning with state-space search	CO2	1	26.10.2021	Planning with state-space search	CO2
2	28.10.2021	Partial-order planning, planning graphs	CO2	2	28.10.2021	Partial-order planning, planning graphs	CO2
3	29.10.2021	Planning and acting in the real world Forward and backward chaining,	CO2	3	29.10.2021	Planning and acting in the real world Forward and backward chaining,	CO2
4	02.11.2021	Unification, Resolution.	CO2	4	02.11.2021	Unification, Resolution.	CO2
5	04.11,2021	Introduction to Machine Learning: Overview of machine learning	CO2	5	04.11,2021	Introduction to Machine Learning: Overview of machine learning	CO2
6	05.11.2021	Related areas, applications, software tools,	CO2	6	05.11.2021	Related areas, applications, software tools,	CO2
7	09.11.2021	Learning Topologies: Training-Testing-Validation	CO2	7	09.11.2021	Learning Topologies: Training-Testing-Validation	CO2
8	10.11.2021	Error: Actual Output; Target Output; Error Optimization:	CO2	8	10.11.2021	Error: Actual Output; Target Output; Error Optimization:	CO2
9	11.11.2021	Gradient Descent (SGD, Minibatch); Parameter Update; Dataset and cleaning,	CO2	9	11.11.2021	Gradient Descent (SGD, Minibatch); Parameter Update; Dataset and cleaning,	CO2
10	16.11.2021	Hypothesis Testing;	CO2	10	16.11.2021	Hypothesis Testing;	CO2

Remarks:

Signature of Faculty

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course : Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program : Master of Computer Applications** **T: 0**
9. **Target : 60%** **P: 0**
C: 3

SESSION PLAN
UNIT-III

Session Plan				Actual Delivery			
Lect.	Date	Topics to be Covered	CO Mapped	Lect.	Date	Topics Covered	CO Achieved
1	17.11.2021	Linear Regression: Single,	CO3	1	17.11.2021	Linear Regression: Single,	CO3
2	18.11.2021	Polynomial Regression	CO3	2	18.11.2021	Polynomial Regression	CO3
3	23.11.2021	Gradient Descent, ANOVA	CO3	3	23.11.2021	Gradient Descent, ANOVA	CO3
4	24.11.2021	Logistic Regression,	CO3	4	24.11.2021	Logistic Regression,	CO3
5	25.11.2021	Generalization: Ridge and Lasso regression.	CO3	5	25.11.2021	Generalization: Ridge and Lasso regression.	CO3
6	30.11.2021	**Case Study:** Media Company Case Study; Cynlate Bank Loan Disbursement.	CO3	6	30.11.2021	**Case Study:** Media Company Case Study; Cynlate Bank Loan Disbursement.	CO3

Remarks:

Signature of Faculty

Date

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course : Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program : Master of Computer Applications** **T: 0**
9. **Target : 60%** **P: 0**
C: 3

SESSION PLAN
UNIT-IV

Session Plan				Actual Delivery			
Lect.	Date	Topics to be Covered	CO Mapped	Lect.	Date	Topics Covered	CO Achieved
1	01.12.2021	The perceptron algorithm	CO4	1	01.12.2021	The perceptron algorithm	CO4
2	02.12.2021	various activation functions	CO4	2	02.12.2021	various activation functions	CO4
3	07.12.2021	multilayer perceptrons	CO4	3	07.12.2021	multilayer perceptrons	CO4
4	08.12.2021	back-propagation, nonlinear regression	CO4	4	08.12.2021	back-propagation, nonlinear regression	CO4
5	09.12.2021	, multiclass discrimination	CO4	5	09.12.2021	, multiclass discrimination	CO4
6	14.12.2021	training procedures,	CO4	6	14.12.2021	training procedures,	CO4
7	15.12.2021	Bayesian Learning	CO4	7	15.12.2021	Bayesian Learning	CO4
8	16.12.2021	Decision Tree	CO4	8	16.12.2021	Decision Tree	CO4
9	21.12.2021	Uses of Unsupervised Learning;	CO4	9	21.12.2021	Uses of Unsupervised Learning;	CO4
10	22.12.2021	Data Clustering: K-means	CO4	10	22.12.2021	Data Clustering: K-means and Kernel K-means;	CO4

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course** : **Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program** : **Master of Computer Applications** **T: 0**
9. **Target** : **60%** **P: 0**
C: 3

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course : Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program : Master of Computer Applications** **T: 0**
9. **Target : 60%** **P: 0**
C: 3

11	23.12.2021	Kernel K-means;	CO4	11	23.12.2021	Kernel K-means;	CO4

Remarks:

Signature of Faculty

Date:

SESSION PLAN
UNIT-V

Session Plan				Actual Delivery			
Lect.	Date	Topics to be Covered	CO Mapped	Lect.	Date	Topics Covered	CO Achieved
1	04.01.2022	Functional and geometric margins	CO5	1	04.01.2022	Functional and geometric margins	CO5
2	05.01.2022	optimum margin classifier	CO5	2	05.01.2022	optimum margin classifier	CO5
3	06.01.2022	constrained optimization	CO5	3	06.01.2022	constrained optimization	CO5
4	18.01.2022	Lagrange multipliers	CO5	4	18.01.2022	Lagrange multipliers	CO5
5	19.01.2022	KKT conditions	CO5	5	19.01.2022	KKT conditions	CO5
6	20.01.2022	soft margins, kernels.	CO5	6	20.01.2022	soft margins, kernels.	CO5
7	25.01.2022	Dimensionality Reduction: Feature Selection	CO5	7	25.01.2022	Dimensionality Reduction: Feature Selection	CO5

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course : Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program : Master of Computer Applications** **T: 0**
9. **Target : 60%** **P: 0**
C: 3

8	27.01.2022	Principle Component Analysis (PCA	CO5	8	27.01.2022	Principle Component Analysis (PCA	CO5
9	01.02.2022	Application of ML in various sectors-I	CO5	9	01.02.2022	Application of ML in various sectors-I	CO5
10	02.02.2022	Application of ML in various sectors-II	CO5	10	02.02.2022	Application of ML in various sectors-II	CO5

Remarks:

Signature of Faculty

Date:

Year: 2021-22
Semester: III

6. Name of the Faculty: Tanaya Das Course Code: CSE21918
7. Course : Artificial Intelligence and Machine Learning (Elective-I) L: 3
8. Program : Master of Computer Applications T: 0
9. Target : 60% P: 0
C: 3

PERIODIC MONITORING

Actual date of completion and remarks, if any

Components		From	To	From	To
Duration (Mention from and to Dates)		05.10.2021	06.01.2022	18.01.2022	02.02.2022
Percentage of Syllabus covered		50%		50%	
Lectures	Planned	1	23	24	45
	Taken	1	23		
Tutorials	Planned	1		1	
	Taken	1			
Test/Quizzes/ Mid Semester/ End Semester	Planned	1	1(MID)	1	1(END)
	Taken	1	1	1	1
	CO's Addressed	CO1 & CO2	CO1, CO2	CO3, CO4 & CO5	CO1, CO2, CO3, CO4 & CO5
	CO's Achieved	CO1 & CO2	CO1, CO2	CO3, CO4 & CO5	CO1, CO2, CO3, CO4 & CO5
Assignments	Planned	1	1	1	1
	Taken	1	1	1	1
	CO's Addressed	CO1	CO2 & CO3	CO4	CO5
	CO's Achieved	CO1	CO2 & CO3	CO4	CO5
Signature of Faculty					
Head of the Department					
OBE Coordinator					

Signature of HOD/ Dean

Date

Signature of Faculty

Date

Year: 2021-22
Semester: III

6. Name of the Faculty: Tanaya Das Course Code: CSE21918
7. Course : Artificial Intelligence and Machine Learning (Elective-I) L: 3
8. Program : Master of Computer Applications T: 0
9. Target : 60% P: 0
C: 3

PERIODIC MONITORING

Attainment of the Course (Learning) Outcomes:

Components	Attainment level	Action Plan	Remarks
Assignment	CO1:	29.09.2021	Assignment Questions on CO1
	CO2:	27.10.2021	Assignment Questions on CO2
	CO3:	25.11.2021	Practice Question on CO3, CO4 and CO5
	CO4:		
	CO5:		
Quiz/Test etc.	CO1:		
	CO2:		
	CO3:		
	CO4:		
	CO5:		
Mid Semester	CO1:	10.01.2022-15.01.2022	Mid Semester Question given to understand CO1,CO2
	CO2:		
	CO3:		
	CO4:	---	
	CO5:	---	
End Semester	CO1:	07.03.2022-24.03.2022	Question paper given to understand all COs
	CO2:		
	CO3:		
	CO4:		
	CO5:		
Any Other	CO1:		
	CO2:		
	CO3:		
	CO4:		
	CO5:		

Signature of HOD/ Dean

Date

Signature of Faculty

Date

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course** **: Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program** **: Master of Computer Applications** **T: 0**
9. **Target** **: 60%** **P: 0**
C: 3

School: School of Engineering & Technology **Department: CSE**
Course Code: CSE21922 **Course Name: Data warehousing & Data Analytics**
Program: MCA **Semester: I**

Sl. No.	Question (Unit 1)	Level of Difficulty (Easy/ Medium/ Difficult)	Knowledge Level (Bloom's Taxonomy)	Course Outcome (CO)
	Part A (Multiple Choice Questions) (1 mark each)			
1.	What is the full form of AI? a) Artificially Intelligent b) Advance Intelligent c) Artificially Intelligence d) Artificial Intelligence	**Easy**	**R**	**CO1**
2.	----------is the goal of AI a) To solve artificial problems b) To extract scientific uses c) To express various sort of intelligence d) To solve real world problems	**Medium**	**U**	**CO1**
3.	Which of the following is not a type of AI agent? a) Learning Agent b) Goal based agent c) Simplex reflex agent d) Unity based agent	**Difficult**	R	**CO1**
	Part B (Definition/Naming Questions) (2 marks each)			
1.	Define agent.	**Easy**	**U**	**CO1**
2.	Define heuristics.	**Difficult**	**U**	**CO1**
3.	Define inferences.	**Difficult**	**U**	**CO1**
	Part C (Short Questions) (3-4 marks each)			
1.	List any five applications of Artificial Intelligence	**Easy**	R	**CO1**
2.	What are the various areas of Artificial Intelligence?	**Medium**	**R**	**CO1**

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course : Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program : Master of Computer Applications** **T: 0**
9. **Target : 60%** **P: 0**
C: 3

3.	What is Natural Language Processing?	**Difficult**	**U**	**CO1**
Part D (Explanation Based Questions) (5 marks each)				
1.	Explain state space.	**Easy**	R	**CO1**
2.	Explain planning graph.	**Medium**	**U**	**CO1**
3.	Explain first order logic.	**Difficult**	**U**	**CO1**
Part E (Questions Based on Reasoning) (5 marks each)				
1.	NA	**Easy**		
2.	NA	**Easy**		
3.	NA	**Difficult**		
Part F (Application Based Questions) (5-10 marks each)				
1.	What is the difference between supervised and unsupervised machine learning?	**Easy**	**U**	**CO1**
2.	Why is “Naive” Bayes naive?	**Medium**	**U**	**CO1**
3.	Define precision and recall	**Difficult**	**U**	**CO1**
Part G (Short Notes) (5 marks each)				
1.	Write short notes on a) Simple Random Sampling	**Easy**	**U**	**CO1**
2.	b) Gradient Descent	**Medium**	**U**	**CO1**
3.	c) Regression	**Difficult**	**U**	**CO1**

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course : Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program : Master of Computer Applications** **T: 0**
9. **Target : 60%** **P: 0**
C: 3

School: School of Engineering & Technology **Department: CSE**
Course Code: CSE21922 **Course Name: Data warehousing & Data Analytics**
Program: MCA **Semester: I**

Sl. No.	Question (Unit 2)	Level of Difficulty (Easy/ Medium/ Difficult)	Knowledge Level (Bloom's Taxonomy)	Course Outcome (CO)
	Part A (Multiple Choice Questions) (1 mark each)			
1.	Machine Learning is an application of a) Blockchain b) Artificial Intelligence c) Both a and b d) None of the above	**Easy**	**R**	**CO2**
2.	The categories in which Machine learning approaches can be traditionally categorized are _____ a) supervised b) unsupervised c) reinforcement d) all of the above	**Medium**	**U**	**CO2**
3.	The Real-world machine learning use cases are _____ a) digital assistants b) chatbots c) fraud detection d) all of the above	**Difficult**	R	**CO2**
	Part B (Definition/Naming Questions) (2 marks each)			
1.	Define unification.	**Easy**	**U**	**CO2**
2.	Define resolution	**Difficult**	**U**	**CO2**
3.	Define statistical testing.	**Difficult**	**U**	**CO2**
	Part C (Short Questions) (3-4 marks each)			
1.	What's the trade-off between bias and variance?	**Easy**	R	**CO2**

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course : Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program : Master of Computer Applications** **T: 0**
9. **Target : 60%** **P: 0**
C: 3

2.	What is training testing?	**Medium**	**R**	**CO2**
3.	Explain overview of machine learning.	**Difficult**	**U**	**CO2**
Part D (Explanation Based Questions) (5 marks each)				
1.	Explain forward and backward chaining.	**Easy**	R	**CO2**
2.	Explain error optimization.	**Medium**	**U**	**CO2**
3.	What's the difference between Type I and Type II error?	**Difficult**	**U**	**CO2**
Part E (Questions Based on Reasoning) (5 marks each)				
1.	NA	**Easy**		
2.	NA	**Easy**		
3.	NA	**Difficult**		
Part F (Application Based Questions) (5-10 marks each)				
1.	Explain partial order planning.	**Easy**	**U**	**CO2**
2.	What cross-validation technique would you use on a time series dataset?	**Medium**	**U**	**CO2**
3.	Write advantages of data warehouse.	**Difficult**	**U**	**CO2**
Part G (Short Notes) (5 marks each)				
1.	Write short notes on a) Supervised	**Easy**	**U**	**CO2**
2.	b) Reinforcement	**Medium**	**U**	**CO2**
3.	c) Unsupervised	**Difficult**	**U**	**CO2**

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course** **: Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program** **: Master of Computer Applications** **T: 0**
9. **Target** **: 60%** **P: 0**
C: 3

School: School of Engineering & Technology **Department: CSE**
Course Code: CSE21922 **Course Name: Data warehousing & Data Analytics**
Program: MCA **Semester: I**

Sl. No.	Question (Unit 3)	Level of Difficulty (Easy/ Medium/ Difficult)	Knowledge Level (Bloom's Taxonomy)	Course Outcome (CO)
	Part A (Multiple Choice Questions) (1 mark each)			
1.	Among the given options, which is also known as inference rule? a) Reference b) Reform c)Resolution d)None of the above	**Easy**	**R**	**CO3**
2.	Which of the following machine requires input from the humans but can interpret the outputs themselves? a) Actuators b) Sensor c) Agents d) AI system	**Medium**	**U**	**CO3**
3.	Regression trees are often used to model a) linear b) non linear c) categorical d) symmetrical	**Difficult**	**R**	**CO3**
	Part B (Definition/Naming Questions) (2 marks each)			
1.	Define Regression.	**Easy**	**U**	**CO3**
2.	Define types of regression.	**Difficult**	**U**	**CO3**
3.	Define Polynomial regression.	**Difficult**	**U**	**CO3**
	Part C (Short Questions) (3-4 marks each)			
1.	List any five case studies of regression.	**Easy**	**R**	**CO3**

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course : Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program : Master of Computer Applications** **T: 0**
9. **Target : 60%** **P: 0**
C: 3

2.	What is PCA?	**Medium**	**R**	**CO3**
3.	What is logistic regression?	**Difficult**	**U**	**CO3**
Part D (Explanation Based Questions) (5 marks each)				
1.	Which is more important to you: model accuracy or model performance?	**Easy**	**R**	**CO3**
2.	When should you use classification over regression?	**Medium**	**U**	**CO3**
3.	How would you evaluate a logistic regression model?	**Difficult**	**U**	**CO3**
Part E (Questions Based on Reasoning) (5 marks each)				
1.	How do you handle missing or corrupted data in a dataset?	**Easy**		**CO3**
2.	Describe a hash table.	**Easy**		
3.	Where do you usually source datasets?	**Difficult**		
Part F (Application Based Questions) (5-10 marks each)				
1.	How do you interpret a linear regression model?	**Easy**	**U**	**CO3**
2.	How can learning curves help create a better model?	**Medium**	**U**	**CO3**
3.	Explain Ridge and Lasso Regression.	**Difficult**	**U**	**CO3**
Part G (Short Notes) (5 marks each)				
1.	Write short notes on a) Regression Analysis	**Easy**	**U**	**CO3**
2.	b) Coefficients and Intercept	**Medium**	**U**	**CO3**
3.	c) ROC Curve	**Difficult**	**U**	**CO3**

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course** : **Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program** : **Master of Computer Applications** **T: 0**
9. **Target** : **60%** **P: 0**
C: 3

School: School of Engineering & Technology **Department: CSE**
Course Code: CSE21922 **Course Name: Data warehousing & Data Analytics**
Program: MCA **Semester: I**

Sl. No.	Question (Unit 4)	Level of Difficulty (Easy/ Medium/ Difficult)	Knowledge Level (Bloom's Taxonomy)	Course Outcome (CO)
	Part A (Multiple Choice Questions) (1 mark each)			
1.	Supervised learning differs from unsupervised learning in that supervised learning requires a) at least one input attribute b) input attributes to be categorical c) at least one output attribute d) output attributes to be categorical	**Easy**	**R**	**CO4**
2.	It is one of the major challenges of NLP Is _____ . a)Handling Tokenization b)The Handling Ambiguity of Sentences c)Handling POS-Tagging d)All of the above	**Medium**	**U**	**CO4**
3.	A hybrid Bayesian Network consist____. a)Discrete variables only b)Discontinuous Variable c)Both Discrete and Continuous variables d)Continuous Variable only	**Difficult**	R	**CO4**
	Part B (Definition/Naming Questions) (2 marks each)			
1.	Define Neural Network	**Easy**	**U**	**CO4**
2.	Define activation functions.	**Difficult**	**U**	**CO4**
3.	Define naïve bayes.	**Difficult**	**U**	**CO4**
	Part C (Short Questions) (3-4 marks each)			

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course : Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program : Master of Computer Applications** **T: 0**
9. **Target : 60%** **P: 0**
C: 3

1.	List any five applications of neural network in various domain.	**Easy**	R	**CO4**
2.	What is data clustering?	**Medium**	**R**	**CO4**
3.	Write differences between neural network and ANN.	**Difficult**	**U**	**CO4**
Part D (Explanation Based Questions) (5 marks each)				
1.	How is hypothesis testing used in linear regression?	**Easy**	R	**CO4**
2.	How do you know that linear regression is suitable for any given data?	**Medium**	**U**	**CO4**
3.	Explain overfitting and underfitting.	**Difficult**	**U**	**CO4**
Part E (Questions Based on Reasoning) (5 marks each)				
1.	NA	**Easy**		**CO4**
2.	NA	**Easy**		**CO4**
3.	NA	**Difficult**		**CO4**
Part F (Application Based Questions) (5-10 marks each)				
1.	Explain decision tree as classification and prediction model.	**Easy**	**U**	**CO4**
2.	Explain dimensional modelling.	**Medium**	**U**	**CO4**
3.	Explain Mean square error.	**Difficult**	**U**	**CO4**
Part G (Short Notes) (5 marks each)				
1.	Write short notes on a) Bayesian Learning	**Easy**	**U**	**CO4**
2.	b)Decision Tree	**Medium**	**U**	**CO4**
3.	c) back propagation algorithm	**Difficult**	**U**	**CO4**

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course** : **Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program** : **Master of Computer Applications** **T: 0**
9. **Target** : **60%** **P: 0**
C: 3

School: School of Engineering & Technology **Department: CSE**
Course Code: CSE21922 **Course Name: Data warehousing & Data Analytics**
Program: MCA **Semester: I**

Sl. No.	Question (Unit 5)	Level of Difficulty (Easy/ Medium/ Difficult)	Knowledge Level (Bloom's Taxonomy)	Course Outcome (CO)
	Part A (Multiple Choice Questions) (1 mark each)			
1.	The process of capturing the inference process as Single Inference Rule is known as: a)Clauses b)Ponens c)Generalized Modus Ponens d)Variables	**Easy**	**R**	**CO5**
2.	Which is true for neural networks? a)It has a set of nodes and connections b)Each node computes its weighted input c)A node could be in an excited state or non-excited state d)All of the mentioned	**Medium**	**U**	**CO5**
3.	Regression is the dependence of one variable on one or more is known as--------- a) dependant b) predictant c) regressors d) none of these	**Difficult**	R	**CO5**
	Part B (Definition/Naming Questions) (2 marks each)			
1.	Define support vector machine.	**Easy**	**U**	**CO5**
2.	Define infinite dimensions.	**Difficult**	**U**	**CO5**
3.	Define kernels.	**Difficult**	**U**	**CO5**

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course** : **Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program** : **Master of Computer Applications** **T: 0**
9. **Target** : **60%** **P: 0**
C: 3

Part C (Short Questions) (3-4 marks each)				
1.	List down characteristics of regression analysis.	**Easy**	R	**CO5**
2.	What is association rules?	**Medium**	**R**	**CO5**
3.	Write differences between regression and prediction?	**Difficult**	**U**	**CO5**
Part D (Explanation Based Questions) (5 marks each)				
1.	How are Artificial Neural Networks different from Normal Computers?	**Easy**	R	**CO5**
2.	How human brain works?	**Medium**	**U**	**CO5**
3.	Explain the concept where T-test can be used.	**Difficult**	**U**	**CO5**
Part E (Questions Based on Reasoning) (5 marks each)				
1.	Explain the importance of coefficients in regression analysis.	**Easy**	**R**	**CO5**
2.	How Artificial Neurons learns?	**Easy**	**U**	**CO5**
3.	Why use Artificial Neural Networks?	**Difficult**		**CO5**
Part F (Application Based Questions) (5-10 marks each)				
1.	What are the advantages of ANN in healthcare?	**Easy**	**U**	**CO5**
2.	How Artificial Neural Networks can be applied in future?	**Medium**	**U**	**CO5**
3.	List some commercial practical applications of Artificial Neural Networks.	**Difficult**	**U**	**CO5**
Part G (Short Notes) (5 marks each)				
1.	Write short notes on a) ANN	**Easy**	**U**	**CO5**
2.	b) SVM	**Medium**	**U**	**CO5**
3.	c) Feature selection	**Difficult**	**U**	**CO5**

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course** : **Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program** : **Master of Computer Applications** **T: 0**
9. **Target** : **60%** **P: 0**
C: 3

Evaluation Sheet – Internal Assessment

Roll Number	Registration Number	Name of the Student	Internal Assessment (30)				
			Assignment	Class Test	Case Study	etc.	Total
PG/02/MCA/2020/002	AU/2020/0004534	Sayani Das					
PG/02/MCA/2020/004	AU/2020/0004551	J Sagar Singh					
PG/02/MCA/2020/006	AU/2020/0004585	Oliva Roy					
PG/02/MCA/2020/008	AU/2020/0004592	Sumita Choubey					
PG/02/MCA/2020/009	AU/2020/0004594	Ankit Kumar Shah					

Signature of HOD/Dean **Signature of Faculty**

Date: **Date:**

Evaluation Sheet – Mid Semester

Roll Number	Registration Number	Name of the Student	Marks (20)
PG/02/MCA/2020/002	AU/2020/0004534	Sayani Das	
PG/02/MCA/2020/004	AU/2020/0004551	J Sagar Singh	
PG/02/MCA/2020/006	AU/2020/0004585	Oliva Roy	
PG/02/MCA/2020/008	AU/2020/0004592	Sumita Choubey	
PG/02/MCA/2020/009	AU/2020/0004594	Ankit Kumar Shah	

Signature of HOD/Dean **Signature of Faculty**

Date: **Date:**

Year: 2021-22
Semester: III

6. Name of the Faculty: Tanaya Das Course Code: CSE21918
7. Course : Artificial Intelligence and Machine Learning (Elective-I) L: 3
8. Program : Master of Computer Applications T: 0
9. Target : 60% P: 0
C: 3

Planning for Remedial Classes – Mid Semester

Sl. No.	Name of Student	Roll No.	Reg. No.	Mid Sem Marks	Remedial Classes Held							Class test on the basis of Remedial Classes	End Sem Marks	Improvement (Y/N)
					Date									
					Venue									
					Time									
1.														
2.														

Signature of HOD/ Dean Signature of Faculty

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course** **: Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program** **: Master of Computer Applications** **T: 0**
9. **Target** **: 60%** **P: 0**
C: 3

Date: **Date:**

COURSE END SURVEY

INDIRECT ASSESSMENT

Sample format for Indirect Assessment of Course outcomes:

NAME:
ROLL NO.:
REG. NO..:
COURSE:
PROGRAM:

Please rate the following aspects of course outcomes of

Use the scale 1-5 (Poor – Excellent)

Course Outcomes	Statement	1	2	3	4	5
CO1						
CO2						
CO3						
CO4						
CO5						

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course** : **Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program** : **Master of Computer Applications** **T: 0**
9. **Target** : **60%** **P: 0**
C: 3

INDIRECT ASSESSMENT CONSOLIDATION

ADAMAS UNIVERSITY, KOLKATA **SCHOOL OF** **DEPARTMENT OF** **CO Indirect Assessment**		
Programme: **Academic Year:2020-21** **Batch: 2020-22**		
Course Code & **Name:**		
Course Outcome	**Students Feed Back (5)**	**Attainment (100)**
CO1		
CO2		
CO3		
CO4		
CO5		
etc.		
Signature of HOD/Dean **Date:**		**Signature of Faculty** **Date:**

Evaluation Sheet (End Semester)

Roll Number	**Registration Number**	**Name of the Student**	**Marks (50)**
PG/02/MCA/2020/002	AU/2020/0004534	Sayani Das	

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course** : **Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program** : **Master of Computer Applications** **T: 0**
9. **Target** : **60%** **P: 0**
C: 3

PG/02/MCA/2020/004	AU/2020/0004551	J Sagar Singh	
PG/02/MCA/2020/006	AU/2020/0004585	Oliva Roy	
PG/02/MCA/2020/008	AU/2020/0004592	Sumita Choubey	
PG/02/MCA/2020/009	AU/2020/0004594	Ankit Kumar Shah	

Signature of HOD/Dean **Signature of Faculty**

Date: **Date:**

Planning for Remedial Classes – End Semester

Sl. No.	Name of Student	Roll No.	Reg. No.	End Sem Marks	Remedial Classes Held							Class test on the basis of Remedial Classes	Supple Exam Marks	Improvement (Y/N)
					Date									
					Venue									
					Time									
1.														
2.														

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course** **: Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program** **: Master of Computer Applications** **T: 0**
9. **Target** **: 60%** **P: 0**
C: 3

Signature of HOD/ Dean **Signature of Faculty**

Date **Date**

Consolidated Mark Statement

Roll Number	Registration Number	Name of the Student	Total Marks			
			Mid Semester (20)	Internal Assessment (30)	End Semester (50)	Total (100)
PG/02/MCA/2020/002	AU/2020/0004534	Sayani Das				
PG/02/MCA/2020/004	AU/2020/0004551	J Sagar Singh				
PG/02/MCA/2020/006	AU/2020/0004585	Oliva Roy				
PG/02/MCA/2020/008	AU/2020/0004592	Sumita Choubey				
PG/02/MCA/2020/009	AU/2020/0004594	Ankit Kumar Shah				

Signature of Dean/HOD **Signature of Faculty**

Date: **Date:**

Year: 2021-22
Semester: III

6. Name of the Faculty: Tanaya Das Course Code: CSE21918
7. Course : Artificial Intelligence and Machine Learning (Elective-I) L: 3
8. Program : Master of Computer Applications T: 0
9. Target : 60% P: 0
C: 3

CO ATTAINMENT – GAP ANALYSIS & REMEDIAL MEASURES

ADAMAS UNIVERSITY, KOLKATA
SCHOOL OF
DEPARTMENT OF
CO ATTAINMENT - GAP ANALYSIS & REMEDIAL MEASURES

Batch :	2020-22		Academic Year: 2020-21
Course Code & Name		Name of the Coordinator	Year & Semester
			I & I

CO	Direct Assessment	Indirect Assessment	CO Attainment	Target	CO Attainment Gaps	Action for Bridge the Gap	Target Modification
CO1							
CO2							
CO3							
CO4							
CO5							

Signature of HOD/Dean **Signature of Faculty**

Date: **Date:**

Year: 2021-22
Semester: III

6. Name of the Faculty: Tanaya Das Course Code: CSE21918
7. Course : Artificial Intelligence and Machine Learning (Elective-I) L: 3
8. Program : Master of Computer Applications T: 0
9. Target : 60% P: 0
C: 3

CO-PO ATTAINMENT

ADAMAS UNIVERSITY, KOLKATA
SCHOOL OF
DEPARTMENT OF
CO-PO ATTAINMENT

Programme :	Year & Sem: I & I	Academic Year: 2020-21	Batch:2020-22

Course Code	Course Name	CO-PO	PO 1	PO 2	PO 3	PO4	PO5	PO6	PO 7	PO8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
		Relationship															
		Mapping Value															
		Attainment															

Signature of HOD/Dean

Date:

Signature of Faculty

Date:

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course** : **Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program** : **Master of Computer Applications** **T: 0**
9. **Target** : **60%** **P: 0**
C: 3

PO ATTAINMENT OF THE COURSE

Signature of HOD/Dean

Date:

Signature of Faculty

Date:

Year: 2021-22
Semester: III

6. **Name of the Faculty: Tanaya Das** **Course Code: CSE21918**
7. **Course** **: Artificial Intelligence and Machine Learning (Elective-I)** **L: 3**
8. **Program** **: Master of Computer Applications** **T: 0**
9. **Target** **: 60%** **P: 0**
C: 3

INSTRUCTIONS FOR FACULTY

Instructions for Faculty

- Faculty should keep track of the students with low attendance and counsel them regularly.
- Course coordinator will arrange to communicate the short attendance (as per University policy) cases to the students and their parents monthly.
- Topics covered in each class should be recorded in the table of RECORD OF CLASS TEACHING (Suggested Format).
- Internal assessment marks should be communicated to the students twice in a semester.
- The file will be audited by respective Academic Monitoring and Review Committee (AMRC) members for theory as well as for lab as per AMRC schedule.
- The faculty is required to maintain these files for a period of at least three years.
- This register should be handed over to the head of department, whenever the faculty member goes on long leave or leaves the Colleges/University.
- For labs, continuous evaluation format (break-up given in the guidelines for result preparation in the same file) should be followed.
- Department should monitor the actual execution of the components of continuous lab evaluation regularly.
- Instructor should maintain record of experiments conducted by the students in the lab weekly.
- Instructor should promote students for self-study and to make concept diary, due weightage in the internal should be given under faculty assessment for the same.
- Course outcome assessment: To assess the fulfilment of course outcomes two different approaches have been decided. Degree of fulfillment of course outcomes will be assessed in different ways through direct assessment and indirect assessment. In Direct Assessment, it is measured through quizzes, tests, assignment, Mid-term and/or End-term examinations. It is suggested that each examination is designed in such a way that it can address one or two outcomes (depending upon the course completion). Indirect assessment is done through the student survey which needs to be designed by the faculty (sample format is given below) and it shall be conducted towards the end of course completion. The evaluation of the achievement of the Course Outcomes shall be done by analyzing the inputs received through Direct and Indirect Assessments and then corrective actions suggested for further improvement.
- **Submission Targets of Course Contents:**
  - **S. No. 1 to 8 : Before Starting the Course**
  - **S. No. 9 & 10 : After Mid Semester Examination**
  - **S. No. 11 to 18 : Immediately After End Semester Examination**
  - **S. No. 19 to 22 : After Declaration of Result of the Course**