



Mangalmai Institute of Management Technology
Greater Noida (U.P.)



MANGALMAI
INSTITUTE OF MANAGEMENT TECHNOLOGY



CERTIFICATION PROGRAMME

On

Introduction of Data Science, Artificial Intelligence & Machine Learning

From

12th September - 06th December 2022

Convener: Dr. Himanshu Rastogi, Associate Professor, MIMT

For BCA IIIrd Semester

Resource Person

Mr. Abhay N Triapthi
Associate Professor, MIMT



Syllabus

Introduction of Data Science, Artificial Intelligence, & Machine Learning

Duration: 33 hours

Module I:

Introduction to Data Science: Definition and description of Data Science, history and development of Data Science, terminologies related with Data Science, basic framework and architecture, difference between Data Science and business analytics, importance of Data Science in today's business world, primary components of Data Science, Opportunities in Data Science, Data Scientist, Data Analyst.

Module II:

Overview: Data Mining, Data Warehouse, Difference between database and data warehouse. Definition of Artificial Intelligence, Importance of Artificial Intelligence, Machine Learning, deep Learning. Introduction to Big Data Analytics, BigData technologies, Hadoop.

Module III:

Introduction to Machine Learning: Machine learning basic concepts, Perspectives and Issues in Machine Learning, Types of Machine Learning, supervised–unsupervised–reinforcement,

Supervised learning: Linear Regression, Gradient Descent (GD), Classification- Logistic regression, k-nearest neighbor classifier

Unsupervised Learning: k-means clustering, Association

Text Book:

- Tom M. Mitchell, "Machine Learning", Tata McGraw-Hill Education.
- Alpaydin, E. "Introduction to machine learning", MIT press.
- Elaine Rich, Kevin Knight: Artificial Intelligence, Tata McGraw Hill.
- Data Smart: Using Data Science to Transform Information into Insight 1st Edition by John W. Foreman. (2015) Wiley Publication.
- Arun K Pujari, "Data Mining Techniques", 2nd Edition University Press, 2010

Reference Book:

- Dr. Anil Maheshwari, "Data Analytics", McGraw Hill Education (India) Private Limited
- Data Science For Dummies by Lillian Pierson
- Tom M Mitchell, —Machine Learning, First Edition, McGraw Hill Education.
- D.W. Patterson, "Introduction to AI and Expert Systems", PHI, 1999.



Schedule

Duration:33 hours			
Session	Content	Time	Date
S1	Definition, history & development of Data Science	3:00-4:30	12/09/22
S2	Terminologies related with Data Science	3:00-4:30	13/09/22
S3	Basic framework and architecture	3:00-4:30	19/09/22
S4	Difference between Data Science and Business analytics	3:00-4:30	20/09/22
S5	Importance of Data Science in today's Business world	3:00-4:30	26/09/22
S6	Primary components and opportunities of Data Science	3:00-4:30	27/09/22
S7	Revision	3:00-4:30	10/10/22
S8	Data Scientist and Data Analyst.	3:00-4:30	11/10/22
S9	Data Mining and Data Warehouse	3:00-4:30	17/10/22
S10	Difference between data base and data warehouse	3:00-4:30	18/10/22
S11	Definition of Artificial Intelligence and its importance	3:00-4:30	31/10/22
S12	Machine Learning & deep Learning	3:00-4:30	01/11/22
S13	Introduction to Big Data Analytics & technologies	3:00-4:30	07/11/22
S14	Hadoop.	3:00-4:30	08/11/22
S15	Machine learning basic concepts and issues	3:00-4:30	14/11/22
S16	Types of Machine Learning	3:00-4:30	15/11/22
S17	Supervised learning: Linear Regression,	3:00-4:30	21/11/22
S18	Gradient Descent (GD)	3:00-4:30	22/11/22
S19	Classification-Logistic regression	3:00-4:30	28/11/22
S20	k-nearest neighbor classifier	3:00-4:30	29/11/22
S21	Unsupervised Learning: k-means clustering	3:00-4:30	05/12/22
S22	Association	3:00-4:30	06/12/22



	Report
Name of Activity	Introduction of Data Science, Artificial Intelligence & Machine Learning
Date	12 th September 2022 to 06 th December 2022
Venue	BCA Classroom
Organized by	Computer Application Department
Resource Person	Mr. Abhay N Tripathi, Associate Professor, MIMT
Beneficiary	BCA 3 rd Semester (84 students)
Convener	Dr. Himanshu Rastogi, Associate Professor, MIMT
Objective	The aim of this certification course is to: <ul style="list-style-type: none">• Study the concepts of Artificial Intelligence.• Learn the methods of solving problems using Artificial Intelligence.• Learn the knowledge representation techniques, reasoning techniques and planning
Content	<p>With the initiative of IQAC, Mangalmai Institute of Management and Technology organized add on certification course on “Introduction Of Data Science, Artificial Intelligence & Machine Learning“ The course enabled the students to defining basics of AI & ML, what it comprises and its importance in modern day organization.</p> <p>Day1: The session started with the discussion on introduction of data science history and development of data science Day2: The students in this interactive lesson were aware of the new vocabulary or terminologies used in data science. Day 3: Students learned about the basic framework and architecture of data science during this lesson. Day4: The resource people began to draw distinctions between business analytics and data science. Day5: Students gained knowledge in this seminar regarding the value of data science in the modern society. Day6: The primary components & opportunities of data science were covered. Day 7: Revised the whole session from day-1 to day-7 Day8: The resource person discussed about the data scientist and data analyst. Day 9: This session has begun data mining & data warehousing. Day10: At this point, a resource person arrives to explain the differences between databases and data warehouses. Day11: Now come to the second part of subject that is Artificial Intelligence and its importance. Day12: The Resource person discussed about the introduction of machine learning and deep learning. Day13: The session was about introduction to bigdata analytics and terminologies. Day14: The resource person now comes to the Hadoop (technology) Day 15: Students learnt the basic concepts of machine learning and its issues or challenges. Day 16: Discuss about the Different types of machine learning.</p>



	<p>Day 17: During this session, linear regression technique was explored. Day 18: The resource person discussed gradient descent. Day 19: Classification of machine learning Was discussed. Day 20: The session commences K- nearest neighbor classifier. Day 21: During this session, K-means clustering technique was explored. Day 22: Last topic was discussed that is association.</p>
Outcome	<ul style="list-style-type: none">• Familiar with Artificial Intelligence, its foundation and principles.• Identify appropriate AI methods to solve a given problem.• Examine the useful search techniques, knowledge representation techniques.

Resource Person Profile

Name: Mr. Abhay N Tripathi
Organization: MIMT, Greater Noida
Qualification: MCA, PhD(P)
Experience: 22 years
Research Area: AI & ML



Figure 1 Mr. Abhay N Tripathi taking his lecture on Machine Learning.



Certificate Template:




 **MANGALMAY**
INSTITUTE OF MANAGEMENT TECHNOLOGY
Gr. NOIDA 

CERTIFICATE OF COURSE COMPELITION

This is to certified that **Aashish Kumar** student of BCA (Batch: 2021-24)
has successfully completed **33 Hours** course on “**Introduction of Data
Science, Artificial Intelligence, & Machine Learning**” from **12-
September-2022 to 06-December-2022**


PRINCIPAL
Mangalmay Institute of
Management & Technology


CONVENER
Mangalmay Institute of
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Course: BCA

ADD-ON COURSE QUIZ
Course Name: Introduction to DS AI, ML

Time: 30 Min
Date: 26/12/2022

Roll No:

Name: Vinet

Year/Sem: II/III

Invigilator's Sign:

Note: All questions are compulsory. Each question will carry '1' mark and there is no 'Negative Marking'

1) What is the full form of "AI"?

- a. Artificially Intelligent b. Artificial Intelligence
 c. Artificially Intelligence d. Advanced Intelligence

2) What is Artificial Intelligence?

- a. A field that aims to make humans more intelligent b. A field that aims to improve the security
 c. A field that aims to develop intelligent machines d. A field that aims to mine the data

3) Who is the inventor of Artificial Intelligence?

- a. Geoffrey Hinton b. Andrew Ng
 c. John McCarthy d. Jürgen Schmidhuber

4) Which of the following is the branch of Artificial Intelligence?

- a. Machine Learning b. Cyber forensics
 c. Full-Stack Developer d. Network Design

5) Which of the following is a component of Artificial Intelligence?

- a. Learning b. Training
 c. Designing d. Puzzling

6) What is true about data mining?

- a. Data Mining is defined as the procedure of extracting information from huge sets of data b. Data mining also involves other processes such as Data Cleaning, Data Integration, Data Transformation
 c. Data mining is the procedure of mining knowledge from data. d. All of the above

7) Data Mining System Classification consists of?

- a. Database Technology b. Machine Learning
 c. Information Science d. All of the above

8) Which of the following is correct application of data mining?

- a.) Market Analysis and Management
 b.) Corporate Analysis & Risk Management
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9) The first steps involved in the knowledge discovery are?

- a.) Data Integration
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- a.) Unsupervised Learning: Regression
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14) Targeted marketing, Recommended Systems, and Customer Segmentation are applications in which of the following

- a.) Supervised Learning: Classification
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15) Applications of NN (Neural Network)

- a.) Risk management
 b.) Data validation
 c.) Sales forecasting
 d.) All of the above

----- For Departmental use only -----

Max. Marks: 15

Marks Obtained: 14

Name of Evaluator:

Abhay N. Tripathi

Sign.



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Abhay. N. Tripathi



Course: BCA

ADD-ON COURSE QUIZ
Course Name: Introduction to DS AI, ML

Time: 30 Min
Date: 26/12/2022

Roll No:

Name: Tanvi Singh

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Course: BCA

ADD-ON COURSE QUIZ
Course Name: Introduction to DS AI, ML

Time: 30 Min
Date: 26/12/2022

Roll No:

Name: Shubham Mishra

Year/Sem: II/III

Invigilator's Sign:

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Time: 30 Min
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Roll No:

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Abhay N. Tripathi



Course: BCA

ADD-ON COURSE QUIZ
Course Name: Introduction to DS AI, ML

Time: 30 Min
Date: 26/12/2022

Roll No:

Name: Shivam Dubey

Year/Sem: II/III

Invigilator's Sign:

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Name of Evaluator:

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Course: BCA

ADD-ON COURSE QUIZ
Course Name: Introduction to DS AI, ML

Time: 30 Min
Date: 26/12/2022

Roll No:

Name: Manish Pal

Year/Sem: II/III

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Time: 30 Min
Date: 26/12/2022

Roll No:

Name: Jony

Year/Sem: II/III

Invigilator's Sign:

Note: All questions are compulsory. Each question will carry '1' mark and there is no 'Negative Marking'

- 1) What is the full form of "AI"?
 - a. Artificially Intelligent
 - b. Artificial Intelligence
 - c. Artificially Intelligence
 - d. Advanced Intelligence
- 2) What is Artificial Intelligence?
 - a. A field that aims to make humans more intelligent
 - b. A field that aims to improve the security
 - c. A field that aims to develop intelligent machines
 - d. A field that aims to mine the data
- 3) Who is the inventor of Artificial Intelligence?
 - a. Geoffrey Hinton
 - b. Andrew Ng
 - c. John McCarthy
 - d. Jürgen Schmidhuber
- 4) Which of the following is the branch of Artificial Intelligence?
 - a. Machine Learning
 - b. Cyber forensics
 - c. Full-Stack Developer
 - d. Network Design
- 5) Which of the following is a component of Artificial Intelligence?
 - a. Learning
 - b. Training
 - c. Designing
 - d. Puzzling
- 6) What is true about data mining?
 - a. Data Mining is defined as the procedure of extracting information from huge sets of data
 - b. Data mining also involves other processes such as Data Cleaning, Data Integration, Data Transformation
 - c. Data mining is the procedure of mining knowledge from data.
 - d. All of the above
- 7) Data Mining System Classification consists of?
 - a. Database Technology
 - b. Machine Learning
 - c. Information Science
 - d. All of the above

- 8) Which of the following is correct application of data mining?
a.) Market Analysis and Management b.) Corporate Analysis & Risk Management
c.) Fraud Detection d.) All of the above
- 9) The first steps involved in the knowledge discovery are?
a.) Data Integration b.) Data Selection
c.) Data Transformation d.) Data Cleaning
- 10) In which step of Knowledge Discovery, multiple data sources are combined?
a.) Data Cleaning b.) Data Integration
c.) Data Selection d.) Data Transformation
- 11) Which of the following is not type of learning?
a.) Unsupervised Learning b.) Supervised Learning
c.) Semi-supervised Learning d.) Reinforcement Learning
- 12) Father of Machine Learning (ML)
a.) Geoffrey Chaucer b.) Geoffrey Hill
c.) Geoffrey Everest Hinton d.) None of the above
- 13) Fraud Detection, Image Classification, Diagnostic, and Customer Retention are applications in which of the following
a.) Unsupervised Learning: Regression b.) Supervised Learning: Classification
c.) Unsupervised Learning: Clustering d.) Reinforcement Learning
- 14) Targeted marketing, Recommended Systems, and Customer Segmentation are applications in which of the following
a.) Supervised Learning: Classification b.) Unsupervised Learning: Clustering
c.) Unsupervised Learning: Regression d.) Reinforcement Learning
- 15) Applications of NN (Neural Network)
a.) Risk management b.) Data validation
c.) Sales forecasting d.) All of the above

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Max. Marks: 15

Marks Obtained: 13

Name of Evaluator:

Abhay N. Tripathi

Sign.



Course: BCA

ADD-ON COURSE QUIZ
Course Name: Introduction to DS AI, ML

Time: 30 Min
Date: 26/12/2022

Roll No:

Name: Agwind

Year/Sem: II/III

Invigilator's Sign:

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- 7/11 ✓
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Max. Marks: 15

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Name of Evaluator:

Abhay. N. Tripathi

Sign.



Course: BCA

ADD-ON COURSE QUIZ
Course Name: Introduction to DS AI, ML

Time: 30 Min

Date: 26/12/2022

Roll No:

Name: Abhishek Raj

Year/Sem: II/III

Invigilator's Sign: BW

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Name of Evaluator:

Sign.