



Syllabus

Introduction of Data Science, Artificial Intelligence, & Machine Learning

Duration: 32 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, Big Data 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

BCA-III-B

Duration:32 hours			
Session	Content	Time	Date
S 1	Definition and description of Data Science	3:00-4:00	17-Aug-21
S 2	history and development of Data Science,	3:00-4:00	19-Aug-21
S 3	terminologies related with Data Science	3:00-4:00	24-Aug-21
S 4	basic framework and architecture	3:00-4:00	26-Aug-21
S 5	difference between Data Science and business analytics	3:00-4:00	30-Aug-21
S 6	importance of Data Science in today's business world	3:00-4:00	2-Sep-21
S 7	primary components of Data Science	3:00-4:00	7-Sep-21
S 8	Opportunities in Data Science	3:00-4:00	9-Sep-21
S 9	Data Scientist	3:00-4:00	14-Sep-21
S 10	Data Analyst.	3:00-4:00	16-Sep-21
S 11	Revision	3:00-4:00	21-Sep-21
S 12	Data Mining	3:00-4:00	23-Sep-21
S 13	Data Warehouse	3:00-4:00	28-Sep-21
S 14	Difference between database and data warehouse	3:00-4:00	30-Sep-21
S 15	Definition of Artificial Intelligence	3:00-4:00	5-Oct-21
S16	Importance of Artificial Intelligence	3:00-4:00	7-Oct-21
S17	Machine Learning	3:00-4:00	12-Oct-21
S18	deep Learning	3:00-4:00	19-Oct-21
S19	Introduction to Big Data Analytics	3:00-4:00	21-Oct-21
S20	Big Data technologies	3:00-4:00	26-Oct-21
S21	Hadoop.	3:00-4:00	28-Oct-21
S22	Revision	3:00-4:00	2-Nov-21
S23	Machine learning basic concepts	3:00-4:00	9-Nov-21
S24	Perspectives and Issues in Machine Learning	3:00-4:00	11-Nov-21
S25	Types of Machine Learning	3:00-4:00	16-Nov-21
S26	supervised – unsupervised – reinforcement,	3:00-4:00	18-Nov-21
S27	Supervised learning: Linear Regression,	3:00-4:00	23-Nov-21
S28	Gradient Descent (GD)	3:00-4:00	25-Nov-21
S29	Classification- Logistic regression	3:00-4:00	30-Nov-21
S30	k-nearest neighbor classifier	3:00-4:00	2-Dec-21
S31	Unsupervised Learning: k-means clustering	3:00-4:00	7-Dec-21
S32	Association	3:00-4:00	9-Dec-21



	Report
Name of Activity	Introduction of Data Science, Artificial Intelligence & Machine Learning
Date	17 th August 2021 to 09 th December 2021
Venue	BCA Classroom
Organized by	Computer Application Department
Resource Person	Mr. Suraj Shukla ,Assistant Professor, MIMT
Beneficiary	BCA 3rd Semester Sec-B (43 students)
Coordinator	Mr. Himanshu Rastogi , Assistant Professor, MIMT
Objective	<ul style="list-style-type: none">• AI and ML course aims to indulge knowledge in not only the core technologies such as artificial intelligence, data mining and data modelling and also make ready students expertise in thrust areas such as machine learning, and deep learning.• Graduates will have the ability to adapt, contribute and innovate new technologies and systems in the key domains of Artificial Intelligence and Machine Learning.
Content	<p>With the initiative of IQAC, Mangalmai Institute of Management and Technology organized an 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.</p> <p>Day 2: In this session, the resource person were discussed about the history and development of data science.</p> <p>Day 3: In this interactive session, students knew about the new terminologies related with data science.</p> <p>Day 4: In this session, students learnt about the basic framework and architecture of data science.</p> <p>Day 5: The resource persons started to differentiate between data science and business analytics.</p> <p>Day 6: In this session, learnt about the importance of data science in</p>



	<p>today's world.</p> <p>Day 7: students learnt about the primary components of data science.</p> <p>Day 8: In this session, the resource persons discussed about opportunities in data science.</p> <p>Day 9: The resource persons discussed about the data scientist.</p> <p>Day 10: This session starts with the discussion of data analyst.</p> <p>Day 11: In this session, revision of first module is scheduled.</p> <p>Day 12: In the next session, data mining were discussed.</p> <p>Day 13: Now come to the data warehousing in data science.</p> <p>Day 14: The resource person now comes to differentiate between database and data warehouse.</p> <p>Day 15: In this session, resource person starts with the artificial intelligence.</p> <p>Day 16: Resource person discussed about the importance of artificial intelligence.</p> <p>Day 17: The Resource person discussed about the introduction of machine learning.</p> <p>Day 18: The session was about the deep learning.</p> <p>Day 19: In this session, introduction to big data analytics were explain.</p> <p>Day 20: New technologies of big data were discussed.</p> <p>Day 21: The resource person now comes to the Hadoop.</p> <p>Day 22: The resource person revised or discussed the whole session</p>
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	<p>of module 2.</p> <p>Day 23: In this session Students learnt the basic concepts of machine learning.</p> <p>Day 24: Students learnt about the perspectives and issues in machine learning.</p> <p>Day 25: This session discussed about the types of machine learning.</p> <p>Day 26: This session discussed about the terms such as supervised, unsupervised and reinforcement.</p> <p>Day 27: Students learnt more about the supervised learning like linear regression.</p> <p>Day 28: The resource person discussed gradient descent.</p> <p>Day 29: In this session, classification of machine learning were discussed.</p> <p>Day 30: The session is based on the K- nearest neighbor classifier.</p> <p>Day 31: Now come to the unsupervised learning means K- means clustering.</p> <p>Day 32: At the last, association was discussed.</p>
Outcome of Activity	<ul style="list-style-type: none">• Implement AI frameworks and platforms to improve business, organizational, and technology outcomes.• Design user interfaces to improve human–AI interaction and real-time decision-making.



List of Beneficiaries

BCA- 3rd Sem-B

Sr. No.	Roll No.	Student Name
1	R200992106007	AFNAN RASHID
2	R200992106014	ANIKET SAHU
3	R200992106015	ANISH RAJ
4	R200992106016	ANKIT ANAND
5	R200992106018	ANKIT KUMAR
6	R200992106021	ANKUSH KUMAR
7	R200992106023	ASHISH KUMAR
8	R200992106025	AYUSHI RAJORIA
9	R200992106032	DEVENDRA KUMAR
10	R200992106033	DHIRENDRA KUMAR
11	R200992106034	DIVYAM KANOJIA
12	R200992106043	HARSHITA JAYANT
13	R200992106045	JAY VATS
14	R200992106047	KUNAL KUMAR
15	R200992106048	KUSHAL SHARMA
16	R200992106062	MOHIT KUMAR
17	R200992106063	MOHIT SINGH
18	R200992106067	NITIN KUMAR
19	R200992106070	PRANJAL KUMAR SINGH
20	R200992106071	PRASHANT SINGH
21	R200992106072	PRERNA VERMA
22	R200992106074	PUSHPENDRA SINGH PAL
23	R200992106075	RAVI RAJ
24	R200992106081	ROHIT SHRIVASHTAVA
25	R200992106096	SAURAV SUMAN
26	R200992106097	SHAGUN KUMAR AMBASTA
27	R200992106098	SHASHANK SINGH CHHONKAR
28	R200992106099	SHIVAM RAJ
29	R200992106100	SHIVAM KUMAR
30	R200992106102	SHIVAM KUMAR
31	R200992106103	SHUBHAM KUMAR
32	R200992106104	SHWETANK KUMAR
33	R200992106106	SONI
34	R200992106107	SPARSH VERMA
35	R200992106108	SUFIYAN IQBAL



Mangalmai Institute of Management Technology
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36	R200992106110	SUNIL KUMAR
37	R200992106118	UMDESH SINGH
38	R200992106123	VINIT KUMAR
39	R200992106125	VISHAL KUMAR
40	R200992106128	VISHAL SHARMA
41	R200992106130	VIVEK KUMAR
42	R200992106133	YUVRAJ
43	R200992106134	YUVRAJ YADAV



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



Resource Person Profile

Name: Mr. Suraj Shukla , Assistant Professor

Organization: MIMT, Greater Noida

Qualification: MCA, PhD (P)

Experience: 6 years

Research Area: Data Science, Machine Learning, Deep Learning



Certificate Template:

 **MANGALMAY**
INSTITUTE OF MANAGEMENT & TECHNOLOGY

Certificate No. BCA/21-22/SP-302/006

CERTIFICATE OF COURSE COMPLETION

This is to certify that
Ashish Kumar

Student of BCA, Batch (2020-23) has successfully completed 30 Hours
Specialization Course on AI And ML
from Aug 2021 to Dec 2021 with Grade A


Course Coordinator


Head of the Department


Chairman

 