SCHEME OF EXAMINATION

&

SYLLABI

OF

2-YEAR

MASTER OF BUSINESS ADMINISTRATION

(ARTIFICIAL INTELLIGENCE & DATA SCIENCE)

(Based on Curriculum and Credit Framework and formative assessment guidelines for UG Programs under NEP 2020)

MAHARSHI DAYANAND UNIVERSITY
ROHTAK (HARYANA)

To be applicable on the students w.e.f. session 2024-25 (3rd Semester onwards) and on the students w.e.f. session 2025-26 (1st semester onwards)

SCHEME OF EXAMINATION OF
2-YEAR
MASTER OF BUSINESS ADMINISTRATION
(Artificial Intelligence & Data Science)
PROGRAMME
(Based on National Education Policy (NEP) - 2020)
WITH EFFECT FROM THE ACADEMIC SESSION 2025-26

PROGRAM-SPECIFIC OUTCOMES (PSOS)

The program-specific learning outcomes of the 2-Year (Four Semester) MBA (Artificial Intelligence & Data Science) program are as follows:

PSO1: Demonstrate mastery of AI and data science tools in solving business problems.

PSO2: Integrate strategic, ethical, and sustainable thinking in data-driven decision-making.

PSO3: Exhibit global industry-readiness with technical and leadership capabilities.

PSO4: Apply Python, ML, cloud, and analytics platforms for business transformation.

PSO5: Perform advanced research, data visualization, and statistical analysis.

PSO6: Exhibit communication, innovation, and collaboration skills in diverse settings.

PSO7: Analyze, interpret, and present actionable insights from structured and unstructured datasets.

PSO8: Develop ethical, responsible, and impactful AI-based solutions for business and society.

The formative assessment criteria for ***Skill-Enhancement Courses*** will be as follows:

Written Test (2X10)	= 20 Marks
Lab Work (Practical File)/ Field Work (Report)/ Portfolio	= 30 Marks
Case Study/ Mini Project (1X15)	= 15 Marks
Assignment/ Seminar/ Presentation (3X10)	= 30 Marks
Attendance (Criteria as mentioned above in 2(c))	= 05 Marks

Structure for 2-Year MBA Programme (AI&DS)

First Year of 2-Year MBA Program (AI&DS) (NHEQF-Level 6): First Semester

Course Code	Title of the Course (s)	Summative Assessment	Formative Assessment	Practicum/ Viva-Voce	Total Marks	Credits (L-T-P)
Discipline-Specific Courses – Major (DSC 1)						
25IMAI201DS01	Management Process and Organizational Behaviour	70	30	-	100	3-1-0
25IMAI201DS02	Statistics for Managerial Decision Making	70	30	-	100	3-1-0
25IMAI201DS03	Accounting for Managers	70	30	-	100	3-1-0
25IMAI201DS04	Data Science & Python	50	--	50	100	2-0-2
25IMAI201DS05	Database Management & SQL	50	--	50	100	2-0-2
Skill-Enhancement Course (SEC 1)						
25IMAI201SE01	Business Ethics and Communication Skills	-	100	-	100	2-0-2
Vocational Course (VOC 1)						
25IMAI201MV01	AI Tools for Business Applications	50	-	50	100	2-0-2
Internship 1						
25IMAI201IN01	Internship Report	-	--	100	100	4
Total Credits						**24**

Note:

1. The duration of all the end-term theory examinations shall be 3 hours.
2. The Criteria for awarding the formative assessment of 30 marks throughout the Programme shall be as under:
   a) Sessional Examination : 20 marks.
   b) Assignments/Presentations/Seminars and Class Participation : 5 marks
   c) Attendance : 5 marks
   (Less than 65%- 0 marks; Upto 70%- 2 marks; Upto 75%- 3 marks; Upto 80%- 4 marks; Above 80%- 5 marks)
3. The Criteria for awarding the formative assessment of 15 marks for a practicum examination of (15+35=50) fifty marks throughout the Programme shall be as under:
   a) Practicum Assignments/Practicum File : 10 marks
   b) Attendance (Criteria as mentioned above in 2(c)) : 5 marks
4. The panel of examiners for end-semester theory examinations shall be prepared and approved by the PG BOS of IMSAR of the internal/external examiners based on their expertise/specialization/area of interest.
5. The panel of examiners based on the examiners' expertise/ specialization/ area of interest for practicum/ viva-voce examination shall be recommended by the PG BOS of IMSAR. In case of unavailability of external examiners due to unavoidable circumstances, the Controller of Examinations may allow the conduct of practicum examinations by the internal examiners.
6. The students are required to choose either SEC 1 or VOC 1 or Internship 1.
7. In the 1st and 2nd Semester, students shall be offered three optional papers (Skill-Enhancement Course/ Vocational Course/ Internship) in each semester. Each student must choose one subject in each semester. The subject opted in the 2nd semester shall be the continuation of the subject opted in the 1st semester.
8. The formative assessment criteria for ***Skill-Enhancement Courses*** will be as follows:
   Written Test (2X10) = 20 Marks
   Lab Work (Practical File)/ Field Work (Report)/ Portfolio = 30 Marks
   Case Study/ Mini Project (1X15) = 15 Marks
   Assignment/ Seminar/ Presentation (3X10) = 30 Marks
   Attendance (Criteria as mentioned above in 2(c)) = 05 Marks
9. The criteria for ***Internship Evaluation*** will be as follows:
   After completion of internship, students need to prepare a comprehensive report highlighting their learning and takeaways during the internship period as per MDUR Internship Regulations 2025. The report shall be signed by the Internship Supervisor from respective UTD/ Centre/ College and Mentor from internship providing organisations. Evaluation of internship report and viva-voce will be jointly conducted by Internship Supervisor and Mentor on the time and date notified by the concerned HoDs/ Directors/ Principals. The mentor from host organization may participate in the evaluation through online/ offline mode. In case of non-availability of respective mentor, the available relevant mentor as decided by the concerned HoD/ Director/ Principal may be utilized for the purpose of evaluation.
   Suggested distribution of marks will be as below:
   Assessment by Mentor - 30 Marks (Skills learned- 15 Marks; Regularity- 10 Marks; Conduct- 5 Marks)
   Internship Report - 40 Marks
   Viva-Voce - 30 Marks

First Year of 2-Year MBA Program (AI&DS) (NHEQF-Level 6): Second Semester

Course Code	Title of the Course (s)	Summative Assessment	Formative Assessment	Practicum/ Viva-Voce	Total Marks	Credits (L-T-P)
Discipline-Specific Courses – Major (DSC 2)						
25IMAI202DS01	Machine Learning for Business Applications	70	30	-	100	3-0-1
25IMAI202DS02	Financial Analytics	70	30	-	100	3-1-0
25IMAI202DS03	Marketing Analytics	70	30	-	100	3-1-0
25IMAI202DS04	Human Resource Analytics	70	30	-	100	3-1-0
25IMAI202DS05	Business Research Methods	70	30	-	100	3-1-0
Skill-Enhancement Course (SEC 2)						
25IMAI202SE01	Personality and Soft Skills Development	-	100	-	100	2-0-2
Vocational Course (VOC 2)						
25IMAI202MV02	AI in Fintech & Investment Decisions	50	-	50	100	2-0-2
Internship 2						
25IMAI202IN01	Internship Report	-	--	100	100	4
Total Credits						**24**

Note:

1. Students exiting the programme after the second semester i.e. after the first year on completion of 48 credits will be awarded PG Diploma in Business Administration (AI&DS).
2. The students are required to choose either SEC 2 or VOC 2 or Internship 2. In the 1st and 2nd Semester, students shall be offered three optional papers (Skill-Enhancement Course/ Vocational Course/ Internship) in each semester. Each student must choose one subject in each semester. The subject opted in the 2nd semester shall be the continuation of the subject opted in the 1st semester.
3. Immediately after completing the second semester, the students shall proceed to their Summer Internship (SI). The duration of the internship is 120 hours during summer vacation. The Summer Internship Report (SIR) prepared after SI completion shall be assessed in the third Semester as an **OPTIONAL** course.

Total Credits (24+24=48) for PG Diploma in Business Administration (AI&DS)	**48**

Second year of 2-Year MBA Program (AI&DS) (NHEQF Level 6.5)
(STUDENT SHOULD SELECT ANY ONE OPTION FOR THE SECOND YEAR OF 2 YEAR PG PROGRAM)
Option 1: (Only Course Work)
Second year of 2-Year MBA Program (AI&DS) (NHEQF Level 6.5): Third Semester

Course Code	Title of the Course (s)	Summative Assessment	Formative Assessment	Practicum/ Viva-Voce	Total Marks	Credits (L-T-P)
Discipline-Specific Courses (DSC) – Major						
26IMAI203DS01	Strategic Management	70	30	-	100	3-1-0
26IMAI203DS02	Deep Learning & Neural Networks	70	30	-	100	3-0-1
26IMAI203DS03	Natural Language Processing	70	30	-	100	3-1-0
26IMAI203DS04	Big Data & Cloud Computing	50	--	50	100	2-0-2
26IMAI203DS05	Data Visualization using Tableau & Power BI	50	--	50	100	2-0-2
Skill-Enhancement Course (SEC3)						
26IMAI203SE01	Advanced Excel using AI Tools	-	100	-	100	2-0-2
Internship 3						
26IMAI203IN01	Summer Internship Report	-	--	100	100	4
Project Work 1						
26IMAI203PD01	Project Report	-	-	100	100	4
Note: 1. The students are required to choose either SEC3 or Internship 3 or Project Work 1. 2. In case of Project Work1, the topic of the Research Project to be submitted for evaluation in the third Semester shall be submitted by the student along with a brief synopsis after finalization within first month of the Semester in consultation with the faculty member allotted as Research Supervisor by the Director. 3. In case of the Project reports/ Dissertation/ Research Project, the assessment shall be jointly carried out by the internal and external examiners. There shall be no Internal assessment component for Dissertation/ Project Report. External examiners shall be invited from amongst the panel of examiners (ordinarily not below the rank of Associate Professor) recommended by PG BOS of IMSAR.						
Total Credits						**24**

Second year of 2-Year MBA Program (AI&DS) (NHEQF Level 6.5): Fourth Semester

Course Code	Title of the Course (s)	Summative Assessment	Formative Assessment	Practicum/ Viva-Voce	Total Marks	Credits (L-T-P)
Discipline-Specific Courses (DSC) – Major						
26IMAI204DS01	Entrepreneurship Development	70	30	-	100	3-1-0
26IMAI204DS02	Generative AI & Future Tech Applications	70	30	-	100	3-0-1
26IMAI204DS03	Blockchain and IoT for Intelligent Business	70	30	-	100	3-0-1
26IMAI204DS04	Business Strategy Simulation & AI Ethics	50	--	50	100	2-0-2
26IMAI204DS05	AI & ML in Functional Disciplines	70	30	-	100	3-1-0
Skill-Enhancement Course (SEC4)						
26IMAI204SE01	Leadership and Decision-Making in AI-	-	100	-	100	2-0-2

	Driven Organizations					
Internship 4						
26IMAI204IN01	Summer Internship Report	-	--	100	100	4
Project Work 2						
26IMAI204PD01	Project Report	-	-	100	100	4

Note:

1. The students are required to choose either SEC 4 or Internship 4 or Project Work 2.
2. In the case of Project Work2, the topic of the Research Project to be submitted for evaluation in the fourth Semester shall be submitted by the student along with a brief synopsis after finalization within first month of the Semester in consultation with the faculty member allotted as Research Supervisor by the Director.
3. Each student in the course of Entrepreneurship Development will present a business idea developed during the semester and the same will be evaluated by a panel of external examiner(s) comprising one from industry and the other from academia recommended by the PG BOS of IMSAR along with one internal examiner recommended by the Director of IMSAR.
4. In case of the Project reports/ Dissertation/ Research Project, the assessment shall be jointly carried out by the internal and external examiners. There shall be no Internal assessment component for Dissertation/ Project Report. External examiners shall be invited from amongst the panel of examiners (ordinarily not below the rank of Associate Professor) recommended by PG BOS of IMSAR.

The formative assessment criteria for ***Skill-Enhancement Courses*** will be as follows:

Written Test (2X10)	= 20 Marks
Lab Work (Practical File)/ Field Work (Report)/ Portfolio	= 30 Marks
Case Study/ Mini Project (1X15)	= 15 Marks
Assignment/ Seminar/ Presentation (3X10)	= 30 Marks
Attendance (Criteria as mentioned above in 2(c))	= 05 Marks

The criteria for ***Internship Evaluation*** will be as follows:

After completion of internship, students need to prepare a comprehensive report highlighting their learning and takeaways during the internship period as per MDUR Internship Regulations 2025. The report shall be signed by the Internship Supervisor from respective UTD/ Centre/ College and Mentor from internship providing organisations. Evaluation of internship report and viva-voce will be jointly conducted by Internship Supervisor and Mentor on the time and date notified by the concerned HoDs/ Directors/ Principals. The mentor from host organization may participate in the evaluation through online/ offline mode. In case of non-availability of respective mentor, the available relevant mentor as decided by the concerned HoD/ Director/ Principal may be utilized for the purpose of evaluation.

Suggested distribution of marks will be as below:

Assessment by Mentor - 30 Marks (Skills learned- 15 Marks; Regularity- 10 Marks; Conduct- 5 Marks)
Internship Report - 40 Marks
Viva-Voce - 30 Marks

Total Credits	**24**
Total Credits (24+24+24+24) for 2-Year MBA (AI&DS)	**96**

Option 2: (Coursework and Research)

Second year of 2-Year MBA Program (AI&DS) (NHEQF Level 6.5): Third Semester

Course Code	Title of the Course (s)	Summative Assessment	Formative Assessment	Practicum/ Viva-Voce	Total Marks	Credits (L-T-P)
Discipline-Specific Courses (DSC) – Major						
26IMAI203DS01	Strategic Management	70	30	-	100	3-1-0
26IMAI203DS02	Deep Learning & Neural Networks	70	30	-	100	3-0-1
26IMAI203DS03	Natural Language Processing	70	30	-	100	3-1-0
26IMAI203DS04	Big Data & Cloud Computing	50	--	50	100	2-0-2
26IMAI203DS05	Data Visualization using Tableau & Power BI	50	--	50	100	2-0-2
Skill-Enhancement Course (SEC3)						
26IMAI203SE01	Advanced Excel using AI Tools	-	100	-	100	2-0-2
Internship 3						
26IMAI203IN01	Summer Internship Report	-	--	100	100	4
Project Work 1						
26IMAI203PD01	Project Report	-	-	100	100	4
Note: 1. The students are required to choose either SEC3 or Internship 3 or Project Work 1. 2. In case of Project Work1, the topic of the Research Project to be submitted for evaluation in the third Semester shall be submitted by the student along with a brief synopsis after finalization within first month of the Semester in consultation with the faculty member allotted as Research Supervisor by the Director. 3. In case of the Project reports/ Dissertation/ Research Project, the assessment shall be jointly carried out by the internal and external examiners. There shall be no Internal assessment component for Dissertation/ Project Report. External examiners shall be invited from amongst the panel of examiners (ordinarily not below the rank of Associate Professor) recommended by PG BOS of IMSAR.						
Total Credits						**24**

Second year of 2-Year MBA Program (AI&DS) (NHEQF Level 6.5): Fourth Semester

Course Code	Title of the Course (s)	Summative Assessment	Formative Assessment	Practicum/ Viva-Voce	Total Marks	Credits (L-T-P)
Skill-Enhancement Course (SEC4)						
26IMAI204SE01	Leadership and Decision-Making in AI-Driven Organizations	-	100	-	100	2-0-2
Internship 4						
26IMAI204IN01	Summer Internship Report	-	--	100	100	4
Research Thesis/Project						
26IMAI204PD01	Research Thesis/Project	--	--	500	500	20
Note: 1. The students are required to choose either SEC4 or Internship 4. 2. In case of the Project reports/ Dissertation/ Research Project, the assessment shall be jointly carried out by the internal and external examiners. There shall be no Internal assessment component for Dissertation/ Project Report. External examiners shall be invited from amongst the panel of examiners (ordinarily not below the rank of Associate Professor) recommended by PG BOS of IMSAR.						
Total Credits						**24**
Total Credits (24+24+24+24) for 2-Year MBA (AI&DS)						**96**

Option 3: (Only research work-only the students who have completed 3 years Bachelor's Programme)

Second year of 2-Year MBA Program (AI&DS) (NHEQF Level 6.5): Third Semester

Course Code	Title of the Course (s)	Summative Assessment	Formative Assessment	Practicum/ Viva-Voce	Total Marks	Credits (L-T-P)
Skill-Enhancement Course (SEC 3)						
26IMAI203SE01	Advanced Excel using AI Tools	-	100	-	100	2-0-2
Internship 3						
26IMAI203IN01	Summer Internship Report	-	--	100	100	4
Research Thesis/ Project						
26IMAI203PD01	Research Thesis/ Project	--	--	500	500	20

Note:

1. The students are required to choose either SEC3 or Internship 3.
2. Students who opted for option 3 should submit a project report/synopsis of at least 50 pages comprising of literature survey, identification of research problem, plan of work, methodology as well as practical work (if any) at the end of the third semester and the same will be evaluated by internal and external examiners.
3. In case of the Project reports/ Dissertation/ Research Project, the assessment shall be jointly carried out by the internal and external examiners. There shall be no Internal assessment component for Dissertation/ Project Report. External examiners shall be invited from amongst the panel of examiners (ordinarily not below the rank of Associate Professor) recommended by PG BOS of IMSAR.

Total Credits	**24**

Second year of 2-Year MBA Program (AI&DS) (NHEQF Level 6.5): Fourth Semester

Course Code	Title of the Course (s)	Summative Assessment	Formative Assessment	Practicum/ Viva-Voce	Total Marks	Credits (L-T-P)
Skill-Enhancement Course (SEC 4)						
26IMAI204SE01	Leadership and Decision-Making in AI-Driven Organizations	-	100	-	100	2-0-2
Internship 4						
26IMAI204IN01	Summer Internship Report	-	--	100	100	4
Research Thesis/ Project						
26IMAI204PD01	Research Thesis/ Project	--	--	500	500	20

Note:

1. The students are required to choose either SEC4 or Internship 4.
2. Students who opted for option 3 should submit a project report/synopsis of at least 50 pages comprising of literature survey, identification of research problem, plan of work, methodology as well as practical work (if any) at the end of the third semester and the same will be evaluated by internal and external examiners.
3. The student should continue the research work in the fourth semester based on the project work/synopsis submitted at the end of the third semester. The final thesis/project report will be evaluated by the internal and external examiners.
4. In case of the Project reports/ Dissertation/ Research Project, the assessment shall be jointly carried out by the internal and external examiners. There shall be no Internal assessment component for Dissertation/ Project Report. External examiners shall be invited from amongst the panel of examiners (ordinarily not below the rank of Associate Professor) recommended by PG BOS of IMSAR.

Total Credits	**24**
Total Credits (24+24+24+24) for 2-Year MBA (AI&DS)	**96**

Instructions for the conduct of Practicum and Viva-Voce of the 2-Year Master of Business Administration (AI&DS) Programme

A Board of Examiners shall conduct computer Practicum and Viva Voce, wherever applicable, on an invitation of the concerned Principal/Director of the affiliated College/Institute of the University. The Practicum/viva voce examination(s) of the courses (relating to IT/Computer or wherever specified) other than assessment of the Project reports/Dissertation/Research Project shall be conducted by a Board of Examiners, consisting of one internal faculty member to be appointed by the Principal/Director of the concerned College/Institute and one external examiner out of the panel recommended by the PG BOS of IMSAR. In case of unavailability of external examiners due to unavoidable circumstances, the Controller of Examinations may allow the conduct of practicum examinations by the internal examiners.

The viva voce in respect of the Research Project/Dissertation shall be conducted by a Board of Examiners, consisting of one internal faculty member to be appointed by the Director and two external examiners from the Industry and Academic field (ordinarily not below the rank of Associate Professor and/or any professional working at a senior position from industry) out of the panel proposed/recommended by the PG BOS of IMSAR (two members shall form the quorum).

The concerned Principal/Director of the College/Institute shall request the examiner(s) at his level and make necessary arrangements for the smooth conduct of the examinations as stipulated in the Ordinances. The Principal/Director shall ensure to upload the marks awarded by the examiner(s) on the University website and also submit the hard copy of the award list along with the attendance of the candidates and eligibility proof of examiner duly signed by both the examiner(s) and Principal/Director to the office of the Controller of Examinations within 15 days of the conduct of examinations.

The concerned Principal/Director is also required to make payment of TA/DA, and examination remuneration to the examiner on the spot as per University norms, and the University will reimburse the same after submitting the bills to the Controller of Examinations duly verified by the concerned Principal/Director of the College/Institute. The Colleges/Institutes are also advised to invite the examiners from nearby stations only. In case the examiner(s) is/are invited beyond 100 km distance (one way), the permission of the Controller of Examination, Maharshi Dayanand University, may be sought.

SYLLABI

OF

2-YEAR

MASTER OF BUSINESS ADMINISTRATION

(ARTIFICIAL INTELLIGENCE & DATA SCIENCE)

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To be applicable on the students w.e.f. session 2024-25 (3rd Semester onwards) and on the students w.e.f. session 2025-26 (1st semester onwards)

First Year of 2-Year MBA Program (AI&DS) (NHEQF-Level 6): First Semester

Management Process and Organizational Behaviour
Paper code: 25IMAI201DS01

L-T-P
3-1-0

External Marks: 70
Internal Marks: 30
Time: 3 Hours

Course Objectives

1. To aid students in understanding human behavior in organizations,
2. To provide students with a comprehensive exposure to organizational behavior theories, research and workplace issues.
3. The course also provides an overview of the theories and practices of management in organizational contexts.

Course Outcomes

After completing the course, students would be able to:

1. Analyze the behavior of individuals and groups in organizations in terms of the key factors that influence organizational behavior.
2. identify the core competencies, managerial roles and significance of emotional intelligence at work.
3. assess the potential effects of organizational factors on organizational behavior.
4. explain the organizational culture and describe its dimensions and to examine various organizational designs

UNIT- I

Nature, Scope and Evolution of Management, Functions, Skills, Roles of Management; Managerial Competencies, Core competencies, Emotional intelligence at work place, Dynamics in social Milieu.

UNIT- II

Motivation: Nature and Theories; Content and Process Theories Leadership: Nature and Theories: Trait, Behavioral and Contingency approach, Leadership development for learning organizations.

UNIT- III

Foundations and Background of Organizational behavior, Interpersonal: Group behavior, Dynamics Formation and stages, Team building and Intrapersonal process: Attitude, Personality, Perception

UNIT- IV

Organizational process and structure: Work Innovation and Job design, Organization climate and culture, Organization change and development and control.

Recommended Readings:

1. Robbins, S.P. and Decenzo, D.A. Fundamentals of Management, Pearson Education
2. Hellreigel, Management, Thomson Learning, Bombay
3. Koontz, H and Wechrich, H; Management, Tata McGraw Hill
4. Stoner, J et. al, Management, Pearson Education
5. Robbins and Coulter, Management, Pearson Education
6. Pravin Durai, Principles of Management, Pearson Education.
7. Satya Raju, Management – Text and Cases , PHI, New Delhi
8. Richard L. Daft, Management, Thomson South-Western
9. Nelson, Debra L and James C Quick, Organizational Behavior, Thomson Learning
10. Hellgiegel, D and J.W. Slocum, Organizational Behavior, Thomson Learning
11. Luthans, Fred, Organizational Behavior, McGraw Hill, New York
12. New Storm and Keith Davis, Organization Behavior , TMH, New Delhi

Instructions for External Examiner: The question paper shall be divided in two sections. Section A shall comprise of seven short answer type questions from whole of the syllabus carrying two marks each, which shall be compulsory. Answer to each question should not exceed 50 words normally. Section B shall comprise 8 questions (2 questions from each unit). The students will be required to attempt four questions selecting one question from each unit. All questions will carry equal marks.

Statistics for Managerial Decision Making
Paper code: 25IMAI201DS02

L-T-P
3-1-0

External Marks: 70
Internal Marks: 30
Time: 3 Hours

Course Objectives

1. To provide students with a foundational understanding of statistical tools for effective managerial decision-making.
2. To enable students to apply quantitative methods in analyzing business problems, forecasting, and drawing meaningful conclusions.

Course Outcomes

On successful completion of the course, the students will be able to:

1. Construct and interpret frequency distributions and compute measures of central tendency, dispersion, and skewness.
2. Apply correlation and regression analysis to examine relationships between variables and support business forecasting.
3. Understand and apply probability theory and probability distributions such as Binomial, Poisson, and Normal in business contexts.
4. Conduct hypothesis testing and use statistical techniques like Chi-square test, t-test, and ANOVA to make informed decisions.

Unit-I

Statistics: Meaning, evolution, scope, limitations and applications; data classification; tabulation and presentation: meaning, objectives and types of classification, formation of frequency distribution, role of tabulation, parts, types and construction of tables, significance, types and construction of diagrams and graphs.

Unit-II

Measures of Central Tendency and Dispersion: Meaning and objectives of measures of central tendency, characteristics, types: arithmetic mean, median, mode, geometric mean and harmonic mean.
Measures of dispersion: meaning, objectives and types of these measures; measure of variation viz. range, quartile deviation, mean deviation and standard deviation, co-efficient of variation and skewness.

Unit-III

Index Numbers and Time Series: Index number and their uses in business; construction of simple and weighted price, quantity and value index numbers; test for an ideal index number, components of time series viz. secular trend, cyclical, seasonal and irregular variations, methods of estimating secular trend and seasonal indices; use of time series in business forecasting and its limitations, calculating growth rate in time series.

Unit-IV

Probability: basic concepts and approaches, addition, multiplication and Bayes' theorem. Probability distributions - meaning, types and applications, Binomial, Poisson and Normal distributions.
Tests of significance; Hypothesis testing; Large samples, Small samples: Chi-square test, Analysis of variance.

Recommended Readings:

1. Levin & Rubin, *Statistics for Business*, Prentice Hall of India, N.Delhi.
2. Gupta S.P. & Gupta M.P. ', Sultan Chand & Sons, Delhi.
3. Anderson, *Quantitative Methods in Business*, Thomson Learning, Bombay.
4. Anderson, *Statistics for Business & Economics*, Thomson Learning, Bombay.
5. Chandan, J.S. *An Introduction to Statistical Methods*, Vikas Publishing House, New Delhi.
6. Bhardwaj, R.S, *Business Statistics*, Excel Books, 2000
7. Gupta C.B. & Gupta, Vijay, *Business Statistics*, S.Chand & Co. Delhi.
8. Kothari C.R., *Quantitative Techniques*, Vikas Publishing House, New Delhi
9. Hooda.R.P., *Statistics for Business & Economics*, McMillan India Ltd.
10. Sharma, J.K., *Business Statistics*, Vikas Publication House Pvt. Ltd.
11. Bajpai, Naval, *Business Statistics*, Pearson Education
12. Davis and Pecar, *Business Statistics using Excel*, Oxford University Press

Instructions for External Examiner: The question paper shall be divided in two sections. Section A shall comprise of seven short answer type questions from whole of the syllabus carrying two marks each, which shall be compulsory. Answer to each question should not exceed 50 words normally. Section B shall comprise 8

questions (2 questions from each unit). The students will be required to attempt four questions selecting one question from each unit. All questions will carry equal marks.

Accounting for Managers
Paper code: 25IMAI201DS03

L-T-P
3-1-0

External Marks: 70
Internal Marks: 30
Time: 3 Hours

Course Objectives

1. To provide students with a foundational understanding of financial, cost, and management accounting concepts relevant to business decision-making.
2. To enable students to analyze and interpret financial statements, cost structures, and budgeting tools for effective managerial planning and control.

Course Outcomes

On successful completion of the course, the students will be able to:

1. Understand basic accounting principles and prepare financial statements including journal, ledger, trial balance, and final accounts.
2. Analyze financial statements using ratio analysis, fund flow, and cash flow techniques.
3. Apply cost accounting principles including cost classification, cost sheet preparation, and elementary activity-based costing.
4. Utilize management accounting tools such as budgetary control, standard costing, variance analysis, and marginal costing for decision-making.

Unit-I

Financial Accounting-concept, importance and scope, accounting principles, journal, ledger, trial balance, depreciation (straight line and diminishing balance methods), preparation of final accounts with adjustments.

Unit-II

Analysis and interpretation of financial statements – meaning, importance and techniques, ratio analysis; fund flow analysis; cash flow analysis (AS-3)

Unit-III

Cost accounting-meaning, importance, methods, techniques; classification of costs and cost sheet; inventory valuation; an elementary knowledge of activity based costing

Unit-IV

Management accounting- concept, need, importance and scope; Budgetary control- meaning, need, objectives, essentials of budgeting, different types of budgets; standard costing and variance analysis (materials, labour); marginal costing and its application in managerial decision making.

Recommended Readings:

1. Singhal, A.K. and Ghosh Roy, H.J., *Accounting for Managers*, JBC Publishers and Distributors, New Delhi
2. Pandey, I.M., *Management Accounting*, Vikas Publishing House, New Delhi
3. Horngren, Sundem and Stratton, *Introduction to Management Accounting*, Pearson Education, New Delhi.
4. Anthony R.N. and Reece J.S., *Management Accounting Principles*, Homewood, Illinois, Richard D. Irwin, 1995.
5. Hansen & Mowen, *Cost Management*, Thomson Learning
6. Mittal, S.N., *Management Accounting and Financial Management*, Shree Mahavir Book Depot, NewDelhi.
7. Jain, S.P and Narang, K.L., *Advanced Cost Accounting* , Kalyani Publishers, Ludhiana.
8. Khan, M.Y. and Jain, P.K., *Management Accounting*, TMH, New Delhi.

Instructions for External Examiner: The question paper shall be divided in two sections. Section A shall comprise of seven short answer type questions from whole of the syllabus carrying two marks each, which shall be compulsory. Answer to each question should not exceed 50 words normally. Section B shall comprise 8 questions (2 questions from each unit). The students will be required to attempt four questions selecting one question from each unit. All questions will carry equal marks.

Data Science & Python
Paper code: 25IMAI201DS04

L-T-P
2-0-2

External Marks: 50
Internal Marks: 50
Time: 3 Hours

Course Objectives

1. To equip students with the fundamentals of data science and its application in solving real-world business problems.
2. To develop industry-relevant skills in Python programming, data handling, visualization, and basic machine learning using practical assignments and business cases.

Course Outcomes

On successful completion of the course, the students will be able to:

1. Understand the data science lifecycle and use Python for data cleaning, analysis, and visualization.
2. Work with popular Python libraries such as NumPy, Pandas, Matplotlib, and Seaborn.
3. Apply statistical tools and machine learning models for predictive business analytics.
4. Build and present data-driven solutions through case studies, Jupyter Notebooks, and dashboarding tools.

Unit-I

Overview of Data Science and its relevance in business decision-making; Data Science workflow: problem definition to insight communication

Introduction to Python: variables, data types, loops, conditionals, functions; Python IDEs: Jupyter Notebook, Anaconda

Unit-II

Working with NumPy arrays and Pandas dataframes; Importing, cleaning, merging, and transforming datasets; Data visualization using Matplotlib and Seaborn; Exploratory Data Analysis (EDA) for business decisions

Unit-III

Descriptive statistics and data distributions; Correlation, regression, and hypothesis testing; Introduction to supervised learning: linear regression, logistic regression, decision trees; Model evaluation: confusion matrix, accuracy, precision, recall

Unit-IV

Case studies: marketing analytics, financial forecasting, customer segmentation; Time series analysis basics: trends, seasonality, forecasting; Introduction to dashboards using Plotly/Streamlit; Ethical considerations in data science and data privacy

Recommended Readings:

1. Joel Grus, *Data Science from Scratch*, O'Reilly
2. Jake VanderPlas, *Python Data Science Handbook*, O'Reilly
3. Wes McKinney, *Python for Data Analysis*, O'Reilly
4. Aurélien Géron, *Hands-On Machine Learning with Scikit-Learn, Keras & TensorFlow*, O'Reilly
5. Cathy O'Neil and Rachel Schutt, *Doing Data Science*, O'Reilly
6. Allen B. Downey, *Think Stats*, O'Reilly

Instructions for External Examiner: The question paper shall be divided in two sections. Section A shall comprise of five short answer type questions from whole of the syllabus carrying two marks each, which shall be compulsory. Answer to each question should not exceed 50 words normally. Section B shall comprise 8 questions (2 questions from each unit). The students will be required to attempt four questions selecting one question from each unit. All questions will carry equal marks.

Database Management & SQL
Paper code: 25IMAI201DS05

L-T-P
2-0-2

External Marks: 50
Internal Marks: 50
Time: 3 Hours

Course Objectives

1. To introduce students to the fundamental concepts and architecture of Database Management Systems (DBMS).
2. To enable students to design, query, and manage relational databases using Structured Query Language (SQL), with practical applications in business environments.

Course Outcomes

On successful completion of the course, the students will be able to:

1. Understand the principles and components of relational database systems.
2. Design database schemas using Entity-Relationship (ER) models and normalization techniques.
3. Write and execute SQL queries for data definition, manipulation, and control.
4. Apply database concepts for business applications such as CRM, inventory, HR, and analytics.

Unit-I

Introduction to data, databases, and DBMS; Advantages over traditional file systems; Components of DBMS and database users; Three-level architecture, data abstraction, data independence
Data models: Hierarchical, Network, Relational

Unit-II

Relational model concepts: relations, attributes, tuples, domains; Keys: primary, foreign, candidate, and composite keys; E-R modeling and ER diagrams; Functional dependencies and normalization (1NF to BCNF)

Unit-III

SQL basics: DDL, DML, DCL, and TCL commands; Querying single and multiple tables: SELECT, WHERE, JOINs; Aggregations, GROUP BY, HAVING, ORDER BY clauses; Subqueries, views, indexes, stored procedures (intro)

Unit-IV

Transaction management and ACID properties; Concurrency control and recovery techniques; Introduction to NoSQL and modern database trends
Applications of DBMS in business domains: marketing, operations, HR, and finance

Recommended Readings:

1. Elmasri & Navathe, *Fundamentals of Database Systems*, Pearson
2. Silberschatz, Korth & Sudarshan, *Database System Concepts*, McGraw-Hill
3. Ivan Bayross, *SQL, PL/SQL – The Programming Language of Oracle*, BPB
4. Rob & Coronel, *Database Systems: Design, Implementation, & Management*, Cengage
5. Saini, S.P.S., *Database Management System*, Vayu Education
6. Ben Forta, *SQL in 10 Minutes, Sams Teach Yourself*, Pearson

Instructions for External Examiner: The question paper shall be divided in two sections. Section A shall comprise of five short answer type questions from whole of the syllabus carrying two marks each, which shall be compulsory. Answer to each question should not exceed 50 words normally. Section B shall comprise 8 questions (2 questions from each unit). The students will be required to attempt four questions selecting one question from each unit. All questions will carry equal marks.

Business Ethics and Communication Skills
Paper code: 25IMAI201SE01

Note: The formative assessment criteria for this Skill-Enhancement Course will be as follows:

Written Test (2X10)	20 Marks
Lab Work (Practical File)/ Field Work (Report)/ Portfolio	30 Marks
Case Study/ Mini Project (1X15)	15 Marks
Assignment/ Seminar/ Presentation (3X10)	30 Marks
Attendance	05 Marks
TOTAL	100 Marks

L-T-P
2-0-2

Course Objectives

To make the students understand the importance of ethical behavior.

1. To expose the students to the ethical practices to be followed in business.
2. To sensitize the students to become responsible persons who will uphold ethics in business when they pursue their careers.
3. To make the students understand the ethical practices towards consumers and other stakeholders of business.

Course Outcomes

On successful completion of the course, the students will be able to:

1. Demonstrate an understanding of various ethical theories and principles, including their application to business contexts.
2. Articulate the need for organizational ethics programs and develop codes of conduct.
3. Master the concepts, features, and importance of business communication.
4. Develop advanced skills in written communication.
5. Integrate ethical considerations into their communication practices.

Unit-I

Business Ethics: Importance and need for Business Ethics, Theories of Ethics, Ethical Issues in Business, Ethics and Management. Ethics and values, Norms, Beliefs, Morality; Ethical Decision Making process. Framework for ethical decision making.

Unit-II

Ethical Dilemma and Values: Concept of ethical dilemma, resolving ethical dilemmas, Ethical dilemmas in different business areas. Professional values for business. Managerial values.

Unit-III

Business Communication– Concept, Process, Importance and Limitations, Types of Communication- written oral and non-verbal, formal and informal communication, 7 Cs of Communication, Process of Communication; Barriers to Communication.

Unit-IV

Written communication: Report writing-process of report writing, structures of business reports, business letter components and layout, types of letters; memos, notices and circulars; agenda and minutes of meeting, resume and curriculum vitae.

Recommended Readings:

1. Murthy CSV, *Business Ethics*, Himalaya Publishing House
2. Hartman L, Chatterjee, *A Perspectives in Business Ethics*, McGraw Hill Publishing Co. Ltd
3. Ananda Das Gupta, *Business Ethics –An Indian Perspective*, Springer Publications
4. Chaturvedi, P.D., and Mukesh Chaturvedi, *Business Communication*, Pearson Education
5. McGrath, E.H., *Basic Managerial Skills for All*, PHI, New Delhi
6. K. K. Sinha *Business Communication* Galgotia Publishing Company Ltd.
7. R.S.N. Pillai and Bagavathi, *Commercial Correspondence and Office Management*; S. Chand & Company Ltd.

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AI Tools for Business Applications
Paper code: 25IMAI201MV01

L-T-P
2-0-2

External Marks: 50
Internal Marks: 50
Time: 3 Hours

Course Objectives

1. To familiarize students with widely used Artificial Intelligence tools for enhancing decision-making, productivity, and automation in business functions.
2. To enable students to apply AI tools across domains such as marketing, operations, HR, and customer experience through hands-on assignments and real-world use cases.

Course Outcomes

On successful completion of the course, the students will be able to:

1. Understand the scope and relevance of AI tools in modern business environments.
2. Utilize popular no-code/low-code AI platforms (e.g., ChatGPT, Power BI, Tableau, Google AutoML) for business analysis.
3. Design simple business solutions using AI tools for automation, prediction, and personalization.
4. Interpret outputs from AI tools for effective managerial decision-making.
5. Identify ethical, legal, and data privacy considerations when deploying AI solutions.

Unit-I

Introduction to Artificial Intelligence and business relevance; Types of AI tools: no-code, low-code, and open-source; AI tool adoption in different industries: marketing, finance, HR, operations; Basics of automation, prediction, and decision support

Unit-II

ChatGPT, Microsoft Copilot, Google Bard: applications in content generation, data summarization, communication; Grammarly, Jasper, Writesonic: business communication, marketing content, email writing; Canva AI and design tools for visual content

Unit-III

Introduction to Power BI and Tableau: dashboards and KPIs; Google Data Studio: real-time reports; Integration with Excel/Google Sheets and databases; Case-based visualization exercises

Unit-IV

Google AutoML, Microsoft Azure ML Studio: basics of automated model building; Zapier, Make (Integromat): task automation across business apps; Use of AI tools in CRM (HubSpot, Zoho AI), HR (HireVue, Pymetrics), and customer support (chatbots, AI assistants)

Recommended Readings:

1. Bernard Marr – *Artificial Intelligence in Practice*
2. Dinesh Bhatt – *AI for Managers*
3. Microsoft Learn – *Power BI Modules*
4. Tableau *Public Learning Resources*
5. OpenAI, Zapier, Canva, Google AutoML, Azure ML – *Official documentation and tutorials*
6. Articles & case studies from *McKinsey, BCG, and Harvard Business Review on AI adoption*

Instructions for External Examiner: The question paper shall be divided in two sections. Section A shall comprise of five short answer type questions from whole of the syllabus carrying two marks each, which shall be compulsory. Answer to each question should not exceed 50 words normally. Section B shall comprise 8 questions (2 questions from each unit). The students will be required to attempt four questions selecting one question from each unit. All questions will carry equal marks.

First Year of 2-Year MBA Program (AI&DS) (NHEQF-Level 6): Second Semester

Machine Learning for Business Applications
Paper code: 25IMAI202DS01

L-T-P
3-0-1

External Marks: 70
Internal Marks: 30
Time: 3 Hours

Course Objectives

1. To provide students with a conceptual and practical foundation in machine learning techniques applicable to business decision-making.
2. To develop the ability to frame business problems as machine learning tasks, and to build, evaluate, and interpret models using real-world data.

Course Outcomes

On successful completion of the course, the students will be able to:

1. Understand core concepts and techniques of supervised and unsupervised learning.
2. Apply machine learning algorithms for solving business problems in areas such as marketing, finance, HR, and operations.
3. Use Python libraries (scikit-learn, pandas, matplotlib) to build and evaluate predictive models.
4. Interpret model outputs and communicate results to stakeholders for actionable insights.
5. Recognize limitations of machine learning and ensure ethical deployment in business scenarios.

Unit-I

Introduction to machine learning and its applications in business; Machine learning vs. traditional programming vs. statistics; Types of learning: supervised, unsupervised, reinforcement (brief intro); ML workflow: data preprocessing, training, testing, evaluation

Unit-II

Linear regression, multiple regression; Logistic regression for classification; Decision trees and random forests; Model performance metrics: accuracy, precision, recall, F1-score

Unit-III

Clustering: k-means, hierarchical clustering; Dimensionality reduction: PCA; Use cases in customer segmentation, market basket analysis, and anomaly detection

Unit-IV

ML applications in finance, marketing, HR, and operations; Model validation and cross-validation techniques; Introduction to model deployment (conceptual) using Streamlit or Flask; Responsible AI: ethics, fairness, interpretability, and bias

Recommended Readings:

1. Aurélien Géron – *Hands-On Machine Learning with Scikit-Learn*, Keras & TensorFlow
2. Tom Mitchell – *Machine Learning,* McGraw-Hill
3. Jason Brownlee – *Machine Learning Mastery Series*
4. *Online resources from Google AI, Kaggle, Analytics Vidhya*
5. *Python libraries: scikit-learn, pandas, matplotlib, seaborn, Streamlit*

Instructions for External Examiner: The question paper shall be divided in two sections. Section A shall comprise of seven short answer type questions from whole of the syllabus carrying two marks each, which shall be compulsory. Answer to each question should not exceed 50 words normally. Section B shall comprise 8 questions (2 questions from each unit). The students will be required to attempt four questions selecting one question from each unit. All questions will carry equal marks.

Financial Analytics
Paper code: 25IMAI202DS02

L-T-P
3-1-0

External Marks: 70
Internal Marks: 30
Time: 3 Hours

Course Objectives

1. To equip students with analytical tools and techniques for financial decision-making using real-time data.
2. To enable students to apply statistical and machine learning methods for forecasting, portfolio analysis, and risk management in financial contexts.

Course Outcomes

On successful completion of the course, the students will be able to:

1. Understand the fundamentals of financial statements, markets, and instruments through a data analytics lens.
2. Analyze and interpret financial data using tools such as Excel, Python, and Power BI.
3. Apply predictive modeling and machine learning for financial forecasting and portfolio optimization.
4. Perform risk analysis, credit scoring, and fraud detection using real-world datasets.
5. Communicate data-driven insights effectively for strategic financial decisions.

Unit-I

Overview of financial markets, instruments, and statements; Key financial ratios and metrics for performance analysis; Introduction to financial databases (e.g., NSE, Yahoo Finance, Quandl); Excel-based financial modeling and dashboards

Unit-II

Introduction to Python for financial data analysis (pandas, numpy, matplotlib); Time value of money, NPV, IRR using Python and Excel; Visualization of financial trends using Power BI/Tableau; Basics of time series analysis in finance

Unit-III

Regression models for forecasting revenues, profits, and costs; Introduction to ARIMA and exponential smoothing models; Credit risk modeling and loan default prediction; Use of classification techniques (logistic regression, decision trees, random forest)

Unit-IV

Portfolio theory and performance metrics (Sharpe ratio, beta, alpha); Monte Carlo simulation for risk assessment; Value at Risk (VaR) and scenario analysis; Introduction to algorithmic trading (conceptual only)

Recommended Readings:

1. Yves Hilpisch – *Python for Finance*
2. Rupesh Goyal – *Financial Analytics: A Practitioner's Guide*
3. James Ma Weiming – *Data Science for Financial Econometrics*
4. Wes McKinney – *Python for Data Analysis*
5. Khan & Jain – *Financial Management,* TMH
6. Access to platforms: *Yahoo Finance, NSE, Quandl, Kaggle, Google Finance*

Instructions for External Examiner: The question paper shall be divided in two sections. Section A shall comprise of seven short answer type questions from whole of the syllabus carrying two marks each, which shall be compulsory. Answer to each question should not exceed 50 words normally. Section B shall comprise 8 questions (2 questions from each unit). The students will be required to attempt four questions selecting one question from each unit. All questions will carry equal marks.

Marketing Analytics
Paper code: 25IMAI202DS03

L-T-P
3-1-0

External Marks: 70
Internal Marks: 30
Time: 3 Hours

Course Objectives

1. To provide students with analytical techniques for extracting insights from marketing data for better strategic and tactical decision-making.
2. To enable students to apply statistical models and machine learning tools to understand consumer behavior, optimize campaigns, and improve marketing ROI.

Course Outcomes

On successful completion of the course, the students will be able to:

1. Understand the role of data-driven decision-making in marketing strategy.
2. Analyze customer and market data using tools like Excel, Python, and Power BI/Tableau.
3. Apply regression, segmentation, and predictive models to solve marketing problems.
4. Evaluate campaign effectiveness, pricing strategies, and channel performance.
5. Communicate marketing insights through dashboards and visual storytelling.

Unit-I

Overview of marketing analytics and its role in modern business; Types of marketing data: CRM, digital, POS, survey data; Customer lifetime value (CLV), RFM analysis, and churn prediction; Data cleaning and preparation for marketing analysis

Unit-II

Descriptive statistics for customer profiling; Cluster analysis for segmentation (k-means, hierarchical); Persona creation and targeting strategies; Applications of segmentation in product positioning and campaign design

Unit-III

Linear and logistic regression for marketing predictions; Marketing mix modeling and ROI measurement; A/B testing for digital campaigns; Attribution models for digital marketing effectiveness

Unit-IV

Data visualization using Tableau/Power BI; Real-world case studies: e-commerce analytics, retail pricing, social media listening; KPI tracking and real-time dashboards; Ethical use of customer data and privacy compliance

Recommended Readings:

1. Wayne L. Winston – *Marketing Analytics*
2. Stephan Sorger – *Marketing Analytics: Strategic Models and Metrics*
3. Rajkumar Venkatesan – *Cutting Edge Marketing Analytics*
4. Python libraries: *pandas, scikit-learn, matplotlib, seaborn*
5. *Tableau Public, Power BI, Google Analytics, Facebook Ads Manager*

Instructions for External Examiner: The question paper shall be divided in two sections. Section A shall comprise of seven short answer type questions from whole of the syllabus carrying two marks each, which shall be compulsory. Answer to each question should not exceed 50 words normally. Section B shall comprise 8 questions (2 questions from each unit). The students will be required to attempt four questions selecting one question from each unit. All questions will carry equal marks.

Human Resource Analytics
Paper code: 25IMAI202DS04

L-T-P
3-1-0

External Marks: 70
Internal Marks: 30
Time: 3 Hours

Course Objectives

1. To provide students with the knowledge and tools to apply analytics in solving real-world human resource management problems.
2. To develop competencies in interpreting HR data to support evidence-based decision-making related to recruitment, retention, performance, and workforce planning.

Course Outcomes

On successful completion of the course, the students will be able to:

1. Understand the scope, importance, and ethical implications of HR analytics in modern organizations.
2. Analyse workforce data using tools like Excel, Python, and Power BI to gain insights into HR functions.
3. Apply descriptive, predictive, and prescriptive analytics in HR contexts such as hiring, performance management, and attrition.
4. Design HR dashboards and reports to support strategic talent decisions.
5. Translate HR metrics into actionable insights for improving organizational outcomes.

Unit-I

Concept, scope, and need for HR analytics; Role of analytics in strategic HRM; Types of HR analytics: descriptive, predictive, prescriptive; HR metrics and KPIs: headcount, turnover, absenteeism, time-to-fill

Unit-II

Recruitment analytics: source effectiveness, cost-per-hire, time-to-hire; Workforce planning and capacity forecasting; Attrition analysis and employee lifecycle modelling; Predictive models for hiring success and turnover risk

Unit-III

Performance appraisal data analysis; Identifying high performers and flight risks; Training effectiveness analytics: ROI, learning curve; Employee engagement survey analytics and text analysis basics

Unit-IV

Compensation analytics: pay equity, benchmarking, reward optimization; HR dashboards for decision support; Communicating findings to HR leadership; Ethical considerations and data privacy in HR analytics

Recommended Readings:

1. Jean Paul Isson & Jesse Harriott – *People Analytics in the Era of Big Data*
2. Jac Fitz-enz – *The New HR Analytics*
3. Mark Huselid – *The Workforce Scorecard*
4. *Python libraries: pandas, matplotlib, seaborn*
5. Excel, Power BI, Tableau, Orange HRM (open-source HRMS for practice)
6. Kaggle datasets: *HR analytics, employee attrition, engagement surveys*

Instructions for External Examiner: The question paper shall be divided in two sections. Section A shall comprise of seven short answer type questions from whole of the syllabus carrying two marks each, which shall be compulsory. Answer to each question should not exceed 50 words normally. Section B shall comprise 8 questions (2 questions from each unit). The students will be required to attempt four questions selecting one question from each unit. All questions will carry equal marks.

Business Research Methods
Paper code: 25IMAI202DS05

L-T-P
3-1-0

External Marks: 70
Internal Marks: 30
Time: 3 Hours

Course Objectives

1. To develop an understanding of the basic framework of the research process.
2. To develop an understanding of various research designs and techniques.
3. To identify multiple sources of information for literature review and data collection.
4. Understand some basic concepts of research and its methodologies.

Course Outcomes

On successful completion of the course, the students will be able to:

1. acquire knowledge on various kinds of research questions and research designs.
2. distinguish between qualitative, quantitative and mixed methods of research
3. relate ethical and philosophical considerations
4. design a good quantitative purpose statement and good quantitative research
5. understand good practices in conducting a qualitative interview and observation.

Unit-I

Business research; its concept, nature, scope, need and managerial value of business research; components of theory – definitions, concepts, constructs, variables, hypothesis, process of research and structure of research proposal

Unit-II

Research design – concept and types – exploratory, descriptive, diagnostic and experimental; sampling design; techniques, factors influencing sample size, measurement – concept, measurement scales – types and construction of scales and reliability and validity aspects in measurement

Unit-III

Methods of data collection – questionnaire/ schedule; questionnaire designing, interview and observational methods; data analysis and interpretation, editing, coding, content analysis and tabulation; hypothesis testing- an overview of parametric and non-parametric tests (Analysis of Variance, X test, Wilcoxon Matched- pairs signed-rank test, Mann- Whitney test, Kruskal- Wallis H-test)

Unit-IV

An overview of dependent and interdependent methods (multiple regression, discriminant analysis, conjoint analysis, factor analysis, cluster analysis); ingredients and constructions of research report; procedure of preparation of reference and bibliography

Recommended Readings:

1. Naval Bajpai, *Business Research Methods*, Pearson Education
2. Zikmund, Millian G., *Business Research Methods*, Thomson Learning, Bombay
3. Cooper, Donald R- and Pamels Schindler, *Business Research Methods*, Tata McGraw Hills, New Delhi
4. Geode, Millian J. and Paul K. Hatl, *Methods in Research*, McGraw Hills, New Delhi
5. Sekran, Uma, *Business Research Method*, Miley Education, Singapore
6. Kothari, C.R., *Research Methodology*

Instructions for External Examiner: The question paper shall be divided in two sections. Section A shall comprise of seven short answer type questions from whole of the syllabus carrying two marks each, which shall be compulsory. Answer to each question should not exceed 50 words normally. Section B shall comprise 8 questions (2 questions from each unit). The students will be required to attempt four questions selecting one question from each unit. All questions will carry equal marks.

Personality and Soft Skills Development
Paper code: 25IMAI202SE01

Note: The formative assessment criteria for this Skill-Enhancement Course will be as follows:

Written Test (2X10)	20 Marks
Lab Work (Practical File)/ Field Work (Report)/ Portfolio	30 Marks
Case Study/ Mini Project (1X15)	15 Marks
Assignment/ Seminar/ Presentation (3X10)	30 Marks
Attendance	05 Marks
TOTAL	100 Marks

L-T-P

2-0-2

Course Objectives

1. To encourage the all-round development of students by focusing on soft skills.
2. To make the engineering students aware of the importance, the role, and the content of soft skills through instruction, knowledge acquisition, demonstration and practice.
3. To develop and nurture the soft skills of the students through individual and group activities.
4. To expose students to the right attitudinal and behavioral aspects and to build the same through activities.

Course Outcomes

After completing the course students would be able to:

1. Read on Soft skills and their importance in our lives
2. Explain SWOT analysis-learning to maximize success using SWOT, how to do a personal SWOT
3. Determine Communication styles-types with examples, perception of each type of communication, quiz
4. Focus on various communication skills/listening/ stress management etc.
5. Explain Etiquette-social and corporate-Types, Presentation skills, Interview techniques etc.

UNIT -I

Personality: Introduction to Personality; Understanding Self-Concept and Self-Esteem; Emotional Intelligence; Personal Values and Goal Setting; Stress Management and Resilience; Time Management

UNIT -II

Interpersonal Skills: Conflict Resolution and Negotiation; Teamwork and Collaboration; Leadership Skills; Professional Etiquette; Networking and Relationship Building

UNIT -III

Essential Soft Skills: Introduction to Soft Skills; Communication Skills; Problem-Solving and Critical Thinking; Creativity and Innovation; Work Ethics and Dependability; Emotional Intelligence and Self-Confidence, Managing emotions, empathy, and self-regulation.

UNIT -IV

Advanced Soft Skills: Team Dynamics and Collaboration; Professionalism and Work Ethics; Career Development and Networking; Cross-Cultural Communication; Cultivating optimism and a growth mindset.

Recommended Readings:

1. *"Personality Development and Soft Skills"* by Barun K. Mitra, Oxford University Press.
2. *"Soft Skills and Professional Communication"* by Peter S. J., Francis, Tata McGraw-Hill Education, 2011.
3. *Communication and soft skill development* "by Ashwini Deshpande, Career Publications.
4. *Communication Skills and Soft Skills: An Integrated Approach*, by Suresh Kumar, Sreehari and Savithri, Pearson India.
5. *Business Communication From Principles To Practice*, by Matthukutty m. Monippally, McGraw Hill

AI in Fintech & Investment Decisions
Paper code: 25IMAI202MV02

L-T-P
2-0-2

External Marks: 70
Internal Marks: 30
Time: 3 Hours

Course Objectives

1. To provide an understanding of the integration of Artificial Intelligence in the financial technology (Fintech) ecosystem.
2. To enable students to apply AI tools and techniques in making data-driven investment decisions and automating financial services.

Course Outcomes

1. On successful completion of the course, the students will be able to:
2. Understand the role of AI in transforming financial services, investment strategies, and Fintech innovations.
3. Apply machine learning techniques to credit scoring, fraud detection, and robo-advisory systems.
4. Analyze investment portfolios using predictive models and algorithmic trading concepts.
5. Use AI tools for customer profiling, sentiment analysis, and personalized financial services.
6. Evaluate ethical, regulatory, and risk-related implications in AI-enabled financial systems.

Unit-I

Overview of Fintech and digital disruption in finance; AI applications in banking, insurance, lending, and payments; Intelligent automation and chatbots in financial services; Introduction to robo-advisors and personal finance AI tools

Unit-II

Machine learning models for credit scoring; Supervised learning algorithms in loan risk assessment; Fraud detection using anomaly detection and neural networks; Case studies on AI in credit underwriting and AML (Anti-Money Laundering)

Unit-III

Portfolio optimization using AI (mean-variance and risk-return frameworks); Forecasting stock returns using time series and ML models; Sentiment analysis from financial news and social media (NLP-based); Basics of algorithmic and high-frequency trading

Unit-IV

Regulatory frameworks for AI in finance (SEBI, RBI guidelines, GDPR relevance); Bias and fairness in AI-driven financial decisions; AI risks: model overfitting, black-box models, and explainability; The future of AI in Fintech: blockchain, RegTech, and embedded finance

Recommended Readings:

1. Yves Hilpisch – *AI in Finance*
2. Sameer Dhanrajani – *AI and Analytics: Accelerating Business Decisions*
3. Andreas Antonopoulos – *Internet of Money*
4. Papers and blogs by McKinsey, World Economic Forum, and Deloitte on AI in Fintech
5. Python libraries: sklearn, statsmodels, yfinance, nltk, BeautifulSoup, Dash
6. Datasets: Kaggle (loan, credit, fraud), NSE/BSE API, Twitter Sentiment API

Instructions for External Examiner: The question paper shall be divided in two sections. Section A shall comprise of five short answer type questions from whole of the syllabus carrying two marks each, which shall be compulsory. Answer to each question should not exceed 50 words normally. Section B shall comprise 8 questions (2 questions from each unit). The students will be required to attempt four questions selecting one question from each unit. All questions will carry equal marks.