



University of Engineering and Management
Institute of Engineering & Management, Salt Lake Campus
Institute of Engineering & Management, New Town Campus
University of Engineering & Management, Jaipur



4th Semester Syllabus for Business Analytics
Admission Batch 2023

Syllabus Structure:

COURSE 2nd Year Course Structure: 2025 – Even Semester

BBA BA Course structure									
SEMESTER 4									
SL NO	TYPES OF COURSE	SUB CODE	SUB NAME	L	T	P	S	TOTAL CONTACT HRS	CREDI T POINT S
THEORY									
1.	CC	BBABB401	Strategic Management	3	1	0	0	4	4
2.	CC	BBABB402	Sales and Distribution Management	3	1	0	0	4	4
3.	CC	BBABB403	Cost Accounting	3	1	0	0	4	4
4.	CC	BBABB404	Data Analysis using Advanced Technology	3	1	0	0	4	4
5.	CC	BBABA405	Predictive Analytics	3	1	0	0	4	4
6.	AEC	BBAESP401	General Studies & Current Affair - IV	2	0	0	0	2	2
PRACTICAL									
1	VAC	BBABB491	Strategic Management -Laboratory	0	0	2	0	2	2
2	VAC	BBABB492	Sales and Distribution Management - Laboratory	0	0	2	0	2	2
3	VAC	BBABB493	Cost Accounting - Laboratory	0	0	2	0	2	2
4	VAC	BBABB494	Data Analysis using Advanced Technology - Laboratory	0	0	2	0	2	2
5	VAC	BBABA495	Predictive Analytics- Laboratory	0	0	2	0	2	2
6	VAC	BBABB481	Project	1	0	0	0	1	1
SESSIONAL									
1	SEC	BBASDP481	Competitive Aptitude & Training -IV	1	0		0	1	1
MOOCS/MAR/IFC									
1		IFC	Industry & Foreign Certification						
2		MAR	Mandatory Additional Requirements						
3		MOOCs	At least 1 MOOCs course from Swayam Platform						



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Syllabus for BBA Admission Batch 2023

Subject Name: Strategic Management

Credit: 4

Lecture Hours: 40 Subject

Code: BBABB401

[Study Material](#)

[MIT Open courseware](#)

[NPTEL](#)

[LinkedIn Learning](#)

COURSE OBJECTIVES:

1. To enable the students to understand the fundamental concept of strategy in business.
2. To enable the students to understand the fundamental techniques of formulating strategy.
3. To enable the students to understand the relevance of strategy to sustain in a competitive scenario.
4. To understand the logic of designing an effective strategy for effective growth of a corporate.

COURSE OUTCOMES:

- 1: Students can examine the fundamentals of strategic issues of business.
- 2: Students can assess the various techniques of business.
- 3: Students can analyze the importance and logic of formulation of the business strategy.
- 4: Students can apply and implement strategy in corporate for business growth.

Module number	Topic	Sub-topics	Text Book as per Syllabus	Mapping with Industry and International Academia	Lecture Hours	Corresponding Lab/Case Study Assignment
1	Introduction, Strategic Intent-Vision, Mission & Objectives (VMO)	<ul style="list-style-type: none"> • Definition and meaning of strategy & strategic management; Objectives & role of strategic management. • Benefits and importance of strategic management; Causes for failure of strategic management; the strategic management process. • Vision – concept & importance; Mission – concept & relevance; Objectives & goals – concept & relevance; Components of mission statement, • Formulation of mission & objectives and their specificity; Examples of VMO. 	<p>Strategic Management Azhar Kazmi, Adela Kazmi McGrawHill.</p> <p>Chapter – 1</p>	<p><i>International Academia:</i> MIT Open Course: https://ocw.mit.edu/courses/15-902-strategic-management-i-fall-2006/</p> <p><i>Industry Mapping:</i> <i>Industry Lecture</i></p>	12	Case study on “Establishing the Strategic Intent at Dabur India Limited”
2	Environmental Analysis	<ul style="list-style-type: none"> • Concept of environment, environmental analysis and appraisal, • Need for & component of external environment analysis; • Tools & techniques of environment analysis – PESTEL, ETOP; Porter’s Five Forces Model • Concept of Internal analysis; Value chain analysis; Factors of internal analysis; • Strategic & Situational Analysis – SWOT Analysis, TOWS Matrix 	<p>Strategic Management Azhar Kazmi, Adela Kazmi McGrawHill.</p> <p>Chapter - 3</p>	<p><i>International Academia:</i> MIT Open Course: https://ocw.mit.edu/courses/15-902-strategic-management-i-fall-2006/</p> <p><i>Industry Mapping:</i></p>	11	Case study on “The Ecosystem for the Retailing Industry in India”
3	Strategic Planning	<ul style="list-style-type: none"> • Meaning & Stages of Strategic Planning; Corporate goal setting, functional goal setting, managerial goal setting, positioning organization • Strategy Formulation I - Corporate level strategies: Concept, scope, types and significance of corporate level strategies; Generic Growth/expansion strategies - characteristics, forms, applicability; Ansoff matrix • Strategy Formulation II - Business level strategies: Concept of business level strategies; Competitive advantage 	<p>Strategic Management Azhar Kazmi, Adela Kazmi McGrawHill.</p> <p>Chapter – 5, 7(7.1, 7.2, 7.3)</p>	<p><i>International Standards:</i> MIT Open Course: https://ocw.mit.edu/courses/15-902-strategic-management-i-fall-2006/</p> <p><i>Industry Mapping:</i></p>	12	“ <i>Campaign Design- Green Walk</i> ”

		and Core competencies; Cost leadership, differentiation & focus; Porter's framework of competitive strategies; Concept of SBU				
4	Strategic Analysis, Choice and Implementation	<ul style="list-style-type: none"> • Concept of strategic analysis and choice; BCG Matrix & GE-Nine Cell Planning grid. • Issues in strategy implementation, Integrating the functional plan and policies; Role of managers, Leadership, strategic control system & measurement; • Strategic Actions - Mergers, Acquisitions & Diversification 	<p>Strategic Management Azhar Kazmi, Adela Kazmi McGrawHill.</p> <p>Chapter – 5, 8(8.1, 8.3, 8.3), 14</p>	<p>International Standards: MIT Open Course: https://ocw.mit.edu/courses/15-902-strategic-management-i-fall-2006/</p> <p>Industry Mapping:</p>	15	Customer satisfaction survey: Questionnaire design.

**Submitted by Dr. Soumik Gangopadhyay, IEM Saltlake campus*

TEXTBOOK:

1. Strategic Management Azhar Kazmi, Adela Kazmi McGrawHill.

Reference Book:

1. Strategic Management Theory & Cases. An Integrated Approach Charles W.L. Hill/ Melissa A. Schilling, Gareth Jones, Cengage.



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Syllabus for BBA Admission Batch 2023

Subject Name: Strategic Management-Laboratory

Credit: 2

Lecture Hours: 20 Subject

Code: BBABB491

[Study Material](#)

[MIT Open courseware](#)

[NPTEL](#)

[LinkedIn Learning](#)

Module number	Topic	Sub-topics	Text Book as per Syllabus	Mapping with Industry and International Academia	Lecture Hours	Corresponding Lab/Case Study Assignment
1	Case study analysis	<ul style="list-style-type: none">Case study presentation	Strategic Management Azhar Kazmi, Adela Kazmi McGrawHill.	<i>International Academia:</i> MIT Open Course: https://ocw.mit.edu/courses/15-902-strategic-management-i-fall-2006/ <i>Industry Mapping:</i> <i>Industry Lecture</i>	12	Case study on “Establishing the Strategic Intent at Dabur India Limited” Case study on “Aurvind Eyecare”
2	Strategy design	<ul style="list-style-type: none">Green walk and to measure its impact on stake holders	Strategic Management Azhar Kazmi, Adela Kazmi McGrawHill.	<i>International Academia:</i> MIT Open Course: https://ocw.mit.edu	11	To be designed and executed by students.

				u/courses/15-902-strategic-management-i-fall-2006/Industry Mapping: Industry Lecture		
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TEXTBOOK:

1. Strategic Management Azhar Kazmi, Adela Kazmi McGrawHill.

Reference Book:

1. Strategic Management Theory & Cases. An Integrated Approach Charles W.L. Hill/ Melissa A. Schilling, Gareth Jones, Cengage.

Lesson plan

UNIT –I Introduction, Introduction, Strategic Intent- Vision, Mission & Objectives (VMO)

- Definition and meaning of strategy & strategic management; Objectives & role of strategic management.
- Benefits and importance of strategic management; Causes for failure of strategic management; the strategic management process.
- Vision – concept & importance; Mission – concept & relevance; Objectives & goals – concept & relevance; Components of mission statement,
- Formulation of mission & objectives and their specificity; Examples of VMO.

WORKINGDAY	DAY ORDER	LESSON PLAN – DESCRIPTION
1	I	Introduction, Strategic Intent- Vision, Mission & Objectives (VMO) – Definition and meaning of strategy & strategic management; Objectives & role of strategic management.
2	II	Benefits and importance of strategic management; Causes for failure of strategic management; the strategic management process.
3	III	Vision – concept & importance; Mission – concept & relevance.
4	IV	Objectives & goals – concept & relevance; Components of mission statement.
5	V	Formulation of mission & objectives and their specificity; Examples of VMO.

UNIT II Environmental Analysis

- Concept of environment, environmental analysis and appraisal,
- Need for & component of external environment analysis;

- Tools & techniques of environment analysis – PESTEL, ETOP; Porter’s Five Forces Model
- Concept of Internal analysis; Value chain analysis; Factors of internal analysis;

Strategic & Situational Analysis – SWOT Analysis, TOWS Matrix

WORKINGDAY	DAY ORDER	LESSON PLAN – DESCRIPTION
1	I	Environmental Analysis – Concept of environment, environmental analysis and appraisal.
2	II	Need for & component of external environment analysis.
3	III	Tools & techniques of environment analysis – PESTEL, ETOP; Porter’s Five Forces Model.
4	IV	Concept of Internal analysis; Value chain analysis.
5	V	Factors of internal analysis; Strategic & Situational Analysis – SWOT Analysis, TOWS Matrix.
6		Holiday
7		Holiday

UNIT III Strategic Planning

- Meaning & Stages of Strategic Planning; Corporate goal setting, functional goal setting, managerial goal setting, positioning organization
- Strategy Formulation I - Corporate level strategies: Concept, scope, types and significance of corporate level strategies; Generic Growth/expansion strategies - characteristics, forms, applicability; Ansoff matrix

Strategy Formulation II - Business level strategies: Concept of business level strategies; Competitive advantage and Core competencies; Cost leadership, differentiation & focus; Porter's framework of competitive strategies; Concept of SBU

WORKINGDAY	DAY ORDER	LESSON PLAN – DESCRIPTION
1	I	Strategic Planning – Meaning & Stages of Strategic Planning.
2	II	Corporate goal setting, functional goal setting, managerial goal setting, positioning organization.
3	III	Strategy Formulation I - Corporate level strategies: Concept, scope, types and significance of corporate level strategies.
4	IV	Generic Growth/expansion strategies – characteristics, forms, applicability; Ansoff matrix.
5	V	Strategy Formulation II - Business level strategies: Concept of business level strategies.
6		Holiday
7		Holiday
8	I	Competitive advantage and Core competencies; Cost leadership, differentiation & focus.
9	II	Porter’s framework of competitive strategies; Concept of SBU.

UNIT IV- Strategic Analysis, Choice and Implementation

- Concept of strategic analysis and choice; BCG Matrix & GE-Nine Cell Planning grid.
- Issues in strategy implementation, Integrating the functional plan and policies; Role of managers, Leadership, strategic control system & measurement;

Strategic Actions - Mergers, Acquisitions & Diversification

WORKINGDAY	DAY ORDER	LESSON PLAN – DESCRIPTION
1	I	Strategic Analysis, Choice and Implementation – Concept of strategic analysis and choice.
2	II	BCG Matrix & GE-Nine Cell Planning grid.
3	III	Issues in strategy implementation, Integrating the functional plan and policies.
4		Holiday
5		Holiday
6	I	Role of managers, Leadership, strategic control system & measurement.
7	II	Strategic Actions - Mergers, Acquisitions & Diversification.
8	III	Recap of all modules, Review and preparation for assessments.
9	IV	Exam preparation or case study discussion.
10	V	Final review and Q&A session.
11		Holiday
12		Holiday

13	I	Additional case studies discussion.
14	II	Group discussions or presentations.
15	III	Comprehensive revision session.
16	IV	Practice exams.
17	V	Final wrap-up and exam preparation.
18		Holiday
19		Holiday
20	I	Assessment Week - Review of exam preparation and strategies.
21	II	Practice exam and final Q&A session.
22	III	Final exam review and feedback session.
23	IV	Recap and conclusion of the course.
24	V	Last day for questions, feedback, and course wrap-up.

**Submitted by Dr. Soumik Gangopadhyay, IEM Saltlake campus*

TEXTBOOK:

1. Strategic Management Azhar Kazmi, Adela Kazmi McGrawHill.

Reference Book:

1. Strategic Management Theory & Cases. An Integrated Approach Charles W.L. Hill/ Melissa A. Schilling, Gareth Jones, Cengage.



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Syllabus for BBA Admission Batch 2023

Subject Name: Sales and Distribution Management Credit: 4 Lecture Hours: 40

Subject Code: BBABB402

Relevant Links:

[Study Material](#)

[Coursera](#)

[NPTEL](#)

[LinkedIn Learning](#)

COURSE OBJECTIVES:

1. To outline key Sales & Distribution Management concepts and their application in Businesses
2. To equip students with skills to develop and implement sales strategies, including planning, forecasting, and territory management.
3. To introduce students to various distribution channels and the role of intermediaries, including wholesalers, retailers, and distributors, in bringing products to market.
4. To enhance students' problem-solving and decision-making abilities in managing complex sales and distribution challenges in diverse business environments.

COURSE OUTCOMES:

CO 1: Students will understand the basic concepts of sales and distribution management

CO 2: Students will be able to apply the knowhow of sales and distribution management

CO 3: Students will be able to analyze the issue of sales and distribution management

CO4: Students will be able to understand the integration of the issues of sales and distribution management with knowhow

Module number	Topic	Sub-topics	Textbook as per syllabus	Mapping with Industry and International Academia	Lecture Hours	Corresponding LabAssignment
1.	Introduction to Sales Management	Nature & scope of personal selling & sales management, Roles, and functions of a sales manager, Types of selling situations, Buyer-seller dyad, Theories of selling, Personal selling process (pre approach, approach, presentation, handling objections, closing a sale, follow-up)	Sales and Distribution Management, Tapan K. Panda, Sunil Sahadev (Third Edition), Oxford University Press Chapters: 1,2,3	International Academia: https://ocw.mit.edu/courses/15-387-entrepreneurial-sales-spring-2015/pages/syllabus/ Industry Mapping: Sales campaign design, Personal sales campaign design	10	<ul style="list-style-type: none"> • Case Study on DP Ltd. (Sales and Distribution Management, Krishna K Havaldar, Vasant M Cavale), 3rd Edition, Mc Graw Hill, Pg. 32 • Case Study on MRF Tyres (Sales and Distribution Management, Tapan K. Panda, Sunil Sahadev), Third Edition, Oxford University Press, Pg. 51
2	Strategic Sales Planning and Managing the Sales Force	Unit-I: Sales Strategic Planning and Budgeting Strategic planning and sales organization, Developing sales forecast, Types of sales forecasting, Methods of Sales forecasting, Sales Budget, Sales department relations, Supervision and management of territory, Management of sales quota	Sales and Distribution Management, Tapan K. Panda, Sunil Sahadev (Third Edition), Oxford University Press Chapters: 6,7,8,9,10,11,12	International Academia: https://ocw.mit.edu/courses/15-387-entrepreneurial-sales-spring-2015/pages/syllabus/ Industry Mapping: Nature of sales organization, different types of organizational design, sales	10	<ul style="list-style-type: none"> • Case study on Holden Electrical Supplies Company – Case 3-2 (Sales and Distribution Management, Richard R. Still, Edward W. Cundiff, Norman A.P. Govini, Sandeep Puri), Seventh Edition, Pearson, Pg.374

		<p>Unit-II: Sales Force Development</p> <p>Recruitment and selection of the sales force, Training the sales force, Designing a training program, ACMEE model, Sales meeting and Sales contest, Sales force motivation, and Sales force compensation and evaluation</p>		<p>territory, principles, and procedures of quota setting, various types of quotas, recruitment, selection and socialization process, various methods of training, various principles of motivation, designing a motivational program for a sales organization, emerging trends in sales force compensation, Application of Artificial Intelligence (AI) in sales management</p>		<ul style="list-style-type: none"> • Case Study on DuNon Chemicals, Case 4-1 (Sales and Distribution Management, Richard R. Still, Edward W. Cundiff, Norman A.P. Govini, Sandeep Puri), Seventh Edition, Pearson, Pg .482
3	<p>Introduction to Distribution Management</p>	<p>Unit-I: Marketing Channels Structure, functions and advantages, types of channel intermediaries (wholesalers, distributors, sales agents, brokers, franchisers, C&F agents, and retailers) channel migration & emergent channels, wholesaling, and mass distribution.</p> <p>Unit-II: Channel Design and Management: Channel objectives & constraints, Identification, evaluation and selection of channel alternatives, power and conflict in channel management, physical distribution & logistics</p>	<p>Sales and International Distribution Management, Tapan K. Panda, Sunil Sahadev (Third Edition), Oxford University Press</p> <p>Chapters: 14,15,16</p>	<p>International Academia: https://ocw.mit.edu/courses/15-387-entrepreneurial-sales-spring-2015/pages/syllabus</p> <p>Industry Mapping: Process of channel management, functions of distribution management, channel flows in channel design, logistics strategy and logistics planning</p>	10	<ul style="list-style-type: none"> • Case Study on Shamita Tobacco Company, Case 5-7 (Sales and Distribution Management, Richard R. Still, Edward W. Cundiff, Norman A.P. Govini, Sandeep Puri), Seventh Edition, Pearson, Pg. 592 • Case Study on Gem Soaps and Detergents (Sales and Distribution Management, Krishna K Havaldar, Vasant M Cavale), 3rd Edition, Mc Graw Hill, Pg. 639

4	Retail Management	Retail strategies, location, Types of retail formats, stores layout, visual merchandising techniques, planning of assortment, servicing, and buying of merchandise	Sales and Distribution Management, Tapan K. Panda, Sunil Sahadev (Third Edition), Oxford University Press Chapter:21	International Academia: https://ocw.mit.edu/courses/15-387-entrepreneurial-sales-spring-2015/pages/syllabus/ Industry Mapping: Retail marketing process, merchandising strategy, various retail formats	10	<ul style="list-style-type: none"> • Case Study on Chaitanya Retail (Sales and Distribution Management, Krishna K Havaldar, Vasant M Cavale), 3rd Edition, Mc Graw Hill, Pg.492 • Case Study on Santosh Kirana (Sales and Distribution Management, Krishna K Havaldar, Vasant M Cavale), 3rd Edition, Mc Graw Hill, Pg. 493

Submitted by Prof. Joysri Datta and Prof. Sananda Halder; Department of Business Administration, IEM Salt Lake, Kolkata Campus

TEXT BOOK: 1. Sales and Distribution Management; Tapan K. Panda, Sunil Sahadev (Third Edition)

[Chapters: 1,2,3,6,7,8,9,10,11,12,14,15,16,21]

2. Sales and Distribution Management; Krishna K Havaldar, Vasant M Cavale (Third Edition)

REFERENCE BOOKS: 1. Sales and Distribution Management (Decisions, Strategies, and Cases); Richard R. Still, Edward W. Cundiff, Norman A.P. Govini, Sandeep Puri

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Syllabus for BBA Admission Batch 2023

Subject Name: Sales and Distribution Management – Laboratory Credit: 2 Lecture Hours: 20

Subject Code: BBABB492

Module number	Topic	Sub-topics	Text Book	Mapping with Industry and International Academia	Lecture Hours
1	Module I	<ul style="list-style-type: none"> Sales Role Play Exercises CRM Software: How to use Salesforce for lead generation, pipeline management, and customer service. 	Sales and Distribution Management, Tapan K. Panda, Sunil Sahadev (Third Edition), Oxford University Press	International Academia: https://ocw.mit.edu/courses/15-387-entrepreneurial-sales-spring-2015/pages/syllabus/	10
II	Module II	<ul style="list-style-type: none"> Sales analytics and forecasting using Advanced Excel tools Setting sales targets and measuring Key Performance Indicators (KPIs). 	Sales and Distribution Management, Tapan K. Panda, Sunil Sahadev (Third Edition), Oxford University Press	International Academia: https://ocw.mit.edu/courses/15-387-entrepreneurial-sales-spring-2015/pages/syllabus/	10

Submitted by Prof. Joysri Datta and Prof. Sananda Halder; Department of Business Administration, IEM Salt Lake, Kolkata Campus

TEXT BOOK: 1. Sales and Distribution Management; Tapan K. Panda, Sunil Sahadev (Third Edition)

[Chapters: 1,2,3,6,7,8,9,10,11,12,14,15,16,21]

2. Sales and Distribution Management; Krishna K Havaldar, Vasant M Cavale (Third Edition)

REFERENCE BOOKS: 1. Sales and Distribution Management (Decisions, Strategies, and Cases); Richard R. Still, Edward W. Cundiff, Norman A.P. Govini, Sandeep Puri

Lesson Plan (Theory)

Module 1: Introduction to Sales Management, 2nd Year, Faculty: Prof. Joysri Datta

WORKING DAY	DAY	Lesson Plan - Description
1	1	Syllabus discussion
2	2	Evolution of Sales Management: Various marketing concepts, Emerging trends in sales management.
3	3	Overview of Sales Management: Understand the nature and scope of sales management, Definition, and importance of sales management. Assignment: Write a brief report on the role of sales management in a chosen industry.
4	4	Roles and Functions of a Sales Manager: Core functions: planning, organizing, directing, and controlling sales activities. Assignment: Research and present the daily responsibilities of a sales manager in a specific company.
5	5	Types of Selling Situations: Identify different types of selling situations and their characteristics. Assignment: Prepare a sales pitch for a hypothetical product in a chosen selling situation.

6	6	Buyer-Seller Dyad: Definition and significance of the buyer-seller dyad, Factors influencing successful interactions. Assignment: Analyze and summarize the buyer-seller dyad in a specific advertisement.
7	7	Personal Selling Process (Part 1): Pre-approach and approach phases, understanding customer needs and preparing for sales interactions.
8	8	Personal Selling Process (Part 2): Crafting effective sales presentations, Techniques for handling objections and doubts
9	9	Personal Selling Process (Part 3): Techniques for closing a sale, Importance of post-sale follow-up in building relationships.
10	10	Recap and Evaluation: Module recap and open Q&A session, Graded quiz.

Module 2: Strategic Sales Planning and Managing the Sales Force, 2nd Year, Faculty: Prof. Sanada Halder

WORKING DAY	DAY	Lesson Plan - Description
1	1	Strategic Sales Planning and Sales Organization: Importance of strategic planning in sales, Sales organization structure and responsibilities.
2	2	Sales Forecasting – Concepts and Types: Overview of sales forecasting, Types of sales forecasting (e.g., qualitative, quantitative).
3	3	Methods of Sales Forecasting: Methods of sales forecasting and their applications.
4	4	Sales Budgeting and Department Relations: Preparing a sales budget, Coordination between sales, marketing, and operations departments.
5	5	Territory Management and Sales Quotas: Supervising and managing sales territories, Types, and methods of setting sales quotas.
6	6	Recruitment and Training of the Sales Force: Recruitment and selection techniques, Importance of training programs in sales development.
7	7	Designing a Sales Training Program (ACMEE Model): Components of an effective training program, Detailed explanation of the ACMEE model.
8	8	Sales Meetings and Contests: Planning and conducting sales meetings, organizing sales contests to boost performance.
9	9	Sales Force Motivation and Compensation: Monetary and non-monetary motivation strategies, Commission-based, salary-based, and incentive compensation plans.

10	10	Sales Force Evaluation: Key performance indicators (KPIs) for sales evaluation, Tools and techniques for sales performance analysis.
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Module 3: Introduction to Distribution Management, 2nd Year, Faculty: Prof. Joysri Datta

WORKING DAY	DAY	Lesson Plan - Description
11	11	Introduction to Marketing Channels: Definition and structure of marketing channels, Functions and advantages of marketing channels. Assignment: Research and present the marketing channel structure of a specific industry.
12	12	Types of Channel Intermediaries (Part 1): Roles of various intermediaries in marketing channels, Wholesalers, distributors, and sales agents.
13	13	Types of Channel Intermediaries (Part 2): Brokers, franchisers, C&F (Carrying and Forwarding) agents, and retailers.
14	14	Emergent Channels: Emergent channels such as e-commerce and direct-to-consumer models.
15	15	Functions and importance of each intermediary: Functions and importance of each intermediary, Compare and contrast amongst the different intermediaries.
16	16	Channel Objectives and Constraints: Setting channel objectives based on business goals, Identifying and addressing constraints.
17	17	Identifying and Selecting Channel Alternatives: Identification and evaluation of channel alternatives, Criteria for selecting effective distribution channels.
18	18	Power and Conflict in Channel Management: Causes and resolution of conflicts in channels.

19	19	Physical Distribution and Logistics: Transportation, warehousing, and inventory management, Importance of physical distribution and logistics in channel management.
20	20	Recap and Evaluation: Graded Quiz: Covering the entire module.

Module 4: Retail Management, 2nd Year, Faculty: Prof. Joysri Datta

WORKING DAY	DAY	Lesson Plan - Description
21	21	Introduction to Retail Management and Retail Strategies: Definition and significance of retail management, Basics of retail management.
22	22	Trends in Retailing in India: Organized retailing, Unorganized retailing, Role of a Retailer.
23	23	Retail Location and Site Selection: Importance of location in retail success, Types of retail locations: standalone, mall-based, online stores.
24	24	Types of Retail Formats (Part 1): Overview of retail formats: supermarkets, hypermarkets, convenience stores, department stores.
25	25	Types of Retail Formats (Part 2): E-commerce, pop-up stores, direct selling, and omnichannel retailing.
26	26	Various retail formats: Comparison chart of retail formats and their key features.
27	27	Merchandising Techniques: Basics of merchandising and its impact on sales, Visual merchandising.
28	28	Assortment Planning: Principles of planning merchandise assortment, Steps of assortment.
29	29	Retail Servicing and Customer Experience: Role of customer service in retail success, Enhancing customer experience through retail servicing.
30	30	Recap and Evaluation: Graded Quiz: Covering the entire module.

QUESTION PAPER PATTERN AND DATES:

EXAMINATION	Dates	PART – A	PART – B	PART – C	TOTAL MARKS
Mid Term 1	February 10, 2025 to February 21, 2025	Attempt 5 out of 10 questions; Each question carries 2 marks (2 × 5)	Attempt 2 out of 4 questions; Each question carries 5 marks (5 × 2)	Attempt 1 out of 2 questions; Each question carries 10 marks (10 × 1)	30
Mid Term 2	March 24, 2025 to April 2, 2025	Attempt 5 out of 10 questions; Each question carries 2 marks (2 × 5)	Attempt 2 out of 4 questions; Each question carries 5 marks (5 × 2)	Attempt 1 out of 2 questions; Each question carries 10 marks (10 × 1)	30
End Semester Examination	April 21, 2025 to May 9, 2025	Attempt 10 out of 15 questions; Each question carries 2 marks (2 × 10)	Attempt 6 out of 9 questions; Each question carries 5 marks (5 × 6)	Attempt 5 out of 8 questions; Each question carries 10 marks (10 × 5)	100

Examination Rules & Regulations:

https://iemcollege-my.sharepoint.com/:b/g/personal/iemcoe_office_iem_edu_in/EXrcoe3d6oxIogHKO074XeUBC9qm3XNaf_qUeSiVTNh50Q?e=MMQn40



**University of Engineering and Management
Institute of Engineering & Management, Salt Lake Campus**

Syllabus for BBA Admission Batch 2023

Subject Name: Cost Accounting

Credit: 4

Lecture Hours: 40

Subject Code: - BBABB403

[Study Material](#)

[MIT Opencourseware](#)

[NPTEL](#)

[LinkedIn Learning](#)

[Coursera](#)

COURSE OBJECTIVES:

1. To help the students to develop cognizance of the importance of cost accounting, alongside cost sheet preparation.
2. To provide the students to analyze material cost and develop course of action related to financial policies.
3. To enable students to decipher cost allocation and cost utilization effectively and also aid in decision making process as a consultant.
4. To enable students to make them understand the relevance of cost accounting in the market and how crucial they are for deeply understanding the performance of a business.

COURSE OUTCOMES:

CO 1: Students will be able to comprehend the importance of cost accounting along with its need in everyday life.

CO 2: Students will be involved in the ascertainment of material costs, and will be able to decipher results out of them.

CO 3: Students will develop an understanding on proper resource utilization and how to arrive at the costs in the manufacturing industry.

CO 4: Students will be well aware of the functions, rules and relevance of cost accounting and how to put it into industrial use, covering the area of contract

costing.

Module number	Topic	Sub-topics	Text Book as per syllabus	Mapping with Industry and International Academia	Lecture Hours	Corresponding Lab Assignment
1	Introduction to Cost Accounting	Meaning of costing and cost accounting, Objectives and functions of cost accounting, Cost ascertainment and cost estimation, classification of cost, advantages and limitations of cost accounting, Significance and preparation of cost sheet.	Cost Accounting (Principles and Practice) Ch- 1 Study Mat Mod I	<i>International Academia: MIT.Edu</i> <i>Industry Mapping: Understanding the relevance of cost accounting in the industry and its need.</i>	10	1. Discussion on practical implementation of cost accounting
2	Material Costing	Inventory control, ABC Technique (selective control), Stock Level, Stock Keeping, LIFO, FIFO, Weighted average store records, EOQ, Waste/ Scraps/ spoilage and defectives, slow/ non-moving and obsolete materials.	Cost Accounting (Principles and Practice) Ch- 2 Study Mat Mod II	<i>International Academia: MIT.Edu</i> <i>Industry Mapping: Preparing store ledger accounts, inspection of store ledger accounts, implementation of inventory control system.</i>	10	2. Practical Examples from Industry: How store ledger is kept Case Study: G G Toys on Product Costing By: Dennis Campbell (Harvard Business School Publication) Link: https://www.hbs.edu/faculty/Pages/item.aspx?num=31493

3	Labour Costing	Labour turnover, Labour remuneration, methods of remuneration (system of wage payment: Piece-rate, Halsey and Rowan schemes), incentive plan, Overtime, Group bonus plans, Non-monetary incentives.	Cost Accounting (Principles and Practice) Ch- 3 Study Mat Mod III	<i>International Standards</i> MIT.Edu <i>Industry Mapping: Deciding on policies in relation to wage payment system.</i>	10	3. Case Study on How Cost Accounting is Improving Healthcare in Rural Haiti By: Carmen Nobel (HBS Publications) Link: https://hbswk.hbs.edu/item/how-cost-accounting-is-improving-health-care-in-rural-haiti 4. Case Study on Rethinking Activity-Based Costing (HBS Publication) By: Robert S. Kaplan and Steven R. Anderson Link: https://hbswk.hbs.edu/item/rethinking-activity-based-costing
4	Contract Costing	Features of contract costing, contract costing procedure, Payment based on architect's certificate, Work Certified and Work Uncertified, Profits on uncompleted contracts, Extra Work, concept of Notional Profit, Estimated Profit, Problems of costing in a construction Industry	Cost Accounting (Principles and Practice) Ch- 8 Study Mat Mod IV	<i>International Standards : MIT.Edu</i> <i>Industry Mapping: Carrying out contract costing, ascertainment of profit or loss, assessing each of the projects when taking up the contract.</i>	10	4. Assessing the annual reports of construction companies, commenting on how they performed.

Submitted by Suchandra Bose, IEM Ashram campus

TEXTBOOK: 1. Cost Accounting (Principles and Practice) by M N Arora; Vikas Publications: Chapter Nos. 1, 2, 3 and 8

REFERENCE BOOKS:

1. Cost and Management by Basu & Das by Rabindra Publications.

University of Engineering and Management
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Institute of Engineering & Management, New Town Campus
University of Engineering & Management, Jaipur

Syllabus for BBA in Business Analytics Admission Batch 2023

Subject Name: Cost Accounting – Laboratory

Credit: 2

Lecture Hours: 20

Subject Code: BBABA493

Module number	Topic	Sub-topics	TextBook as per syllabus	Mapping with Industry and International Academia	Lecture Hours
2	Module II:	Maintaining store ledger in MS-Excel, finding EOQ	Cost Accounting (Principles and Practice) by M N Arora; Vikas Publications	International Standards https://online.stanford.edu/courses/mse226-fundamentals-data-science-prediction-inference-causality Industry Mapping: Handling of Inventory	10
3	Module III:	Applying Rowan and Halsey Scheme with the help of MS-Excel. Market study: Going through share market; identification of bullish/ bearish trend.	Cost Accounting (Principles and Practice) by M N Arora; Vikas Publications	International Standards : https://ocw.mit.edu/courses/15-097-prediction-machine-learning-and-statistics-spring-2012/pages/lecture-notes/ Industry Mapping: Developing policies for wage payment	10

Cost Accounting (Principles and Practice) by M N Arora; Vikas Publications

(Cost Accounting) Lesson Plan

Module 1: Introduction to Cost Accounting: 2nd Year, (Faculty : Prof. Ajanta Ghosh)

WORKING DAY	DAY	LESSON PLAN – DESCRIPTION
1	1	Syllabus discussion
2	2	Meaning of Cost Accounting
3	3	Objectives of Cost Accounting
4	4	Functions of Cost Accounting
5	5	Cost Ascertainment and Cost Estimation
6	6	Classification of Cost
7	7	Advantages of Cost Accounting
8	8	Limitations of Cost Accounting
9	9	Discussion on Cost centres and Cost units
10	10	Significance and preparation of Cost Sheet; Practical sums on Cost Sheet

Module 2: Material Costing: 2nd Year, (Faculty : Prof. Suchandra Bose)

WORKING DAY	DAY	LESSON PLAN – DESCRIPTION
1	1	Meaning of Inventory
2	2	Relevance of Inventory Control
3	3	Introduction to ABC Technique
4	4	Discussion on ABC Technique- Practical Implications
5	5	Introduction to EOQ; sums on EOQ, Stock keeping, minimum level and maximum level
6	6	FIFO, LIFO and weighted average methods of store keeping
7	7	Dealing with waste and scrap material
8	8	Spoilage and defectives, slow/ non-moving and obsolete materials
9	9	Practical Implication of Material Costing
10	10	Revision and Practice Day

Module 3: Labour Costing: 2nd Year, (Faculty : Prof. Abhijit Ghose)

WORKING DAY	DAY	LESSON PLAN – DESCRIPTION
1	1	Introduction to Labour Costing
2	2	Meaning of Labour Remuneration
3	3	Piece Rate wage payment system
4	4	Introduction to Halsey Scheme and practical sums
5	5	Introduction to Rowan Scheme and practical sums
6	6	Computation of Incentive Plan
7	7	Meaning of Bonus
8	8	Group Bonus Plans
9	9	Kinds of Incentives
10	10	Revision and Practice Day

Module 4: Contract Costing: 2nd Year, (Faculty : Prof. Suchandra Bose)

WORKING DAY	DAY	LESSON PLAN – DESCRIPTION
1	1	Introduction to Contract Costing
2	2	Features of contract costing
3	3	contract costing procedure
4	4	Payment based on architect's certificate
5	5	Work Certified and Work Uncertified
6	6	Profits on uncompleted contracts
7	7	Extra Work, concept of Notional Profit
8	8	Estimated Profit, Problems of costing in a construction Industry
9	9	Implementation of Contract Costing in the real world
10	10	Revision and Practice Day

Text Books:

1. Cost Accounting (Principles and Practice) by M N Arora; Vikas Publications (Chapters 1, 2, 3, 8)

Reference Books:

1. 1. Cost and Management by Basu & Das by Rabindra Publications

QUESTION PAPER PATTERN AND DATES

EXAMINATION	Dates	PART – A	PART – B	PART – C	TOTAL MARKS
Mid Term 1	February 10, 2025 to February 21, 2025	Attempt 5 out of 10 questions; Each question carries 2 marks (2 × 5)	Attempt 2 out of 4 questions; Each question carries 5 marks (5 × 2)	Attempt 1 out of 2 questions; Each question carries 10 marks (10 × 1)	30
Mid Term 2	March 24, 2025 to April 2, 2025	Attempt 5 out of 10 questions; Each question carries 2 marks (2 × 5)	Attempt 2 out of 4 questions; Each question carries 5 marks (5 × 2)	Attempt 1 out of 2 questions; Each question carries 10 marks (10 × 1)	30
End Semester Examination	April 21, 2025 to May 9, 2025	Attempt 10 out of 15 questions; Each question carries 2 marks (2 × 10)	Attempt 6 out of 9 questions; Each question carries 5 marks (5 × 6)	Attempt 5 out of 8 questions; Each question carries 10 marks (10 × 5)	100

Examination Rules & Regulations:

<https://iemcollege->

[my.sharepoint.com/:b/g/person/iemcoe_office_iem_edu_in/EXrcoe3d6oxIogHKO074XeUBC9qm3XNaf_qUeSiVTNh5OQ?e=MMQn40](https://iemcollege-my.sharepoint.com/:b/g/person/iemcoe_office_iem_edu_in/EXrcoe3d6oxIogHKO074XeUBC9qm3XNaf_qUeSiVTNh5OQ?e=MMQn40)



**University of Engineering and Management
Institute of Engineering & Management, Salt Lake Campus
University of Engineering & Management, Jaipur**



Syllabus for BBA Admission Batch 2023

Subject Name: Data Analysis using Advanced Technologies

Credit:4,

Lecture Hours: 40

Subject Code: BBABB404

Pre-requisite: Basic knowledge of Mathematics and Statistics

Relevant Links:

[Study Material](#) [Coursera](#) [NPTEL](#) [LinkedIn Learning](#) [MIT Open courseware](#)

COURSE OBJECTIVES:

1. To enable the students to understand fundamental concepts, terms and terminologies involved in data analytics, and to relate themselves with importance, role and application of data analytics in business domain.
2. To help the students understand data collection and data pre-processing strategies through the incorporation of case studies.
3. To enable students to identify three core types data analytical techniques i.e. exploratory, descriptive, and causal along with its nature and application.
4. To enable the students classify the application of appropriate analytical techniques in appropriate situation.

COURSE OUTCOMES:

CO1: Students will learn the basic & fundamental concepts of Data Analytics and its applications in different domains of business.

CO2: Students will be able to understand the intricacies of Data Analytics such as how it works, different statistical methods of Data Analytics, identify three core types of data analytical techniques i.e. exploratory, descriptive, and causal along with their application, how to deal with the critical issues related to data.

CO3: Students will be able to apply their knowledge of Data Analytics in dealing with the contemporary real world business problems effectively.

CO4: Students will be able to analyze business problems involving Data Analytics.

Course content:

Module Number	Topic	Sub-topics	Text Book	Mapping with Industry and International Academia	Lecture Hours	Corresponding Lab Assignment
M1	Introduction to Data Analysis	Definition of Data Analysis – Importance of Data analysis in decision making – Importance of data analysis in research – Different tools and techniques used for analyzing data – Different types of data (as per source, time and volume) and their handling - Sources of primary data – Important sources of secondary data especially HR, Finance,	Business Research Methods: HK Dangi, Shruti Dewen, Vikas Publishing House	International Academia: https://ocw.mit.edu/courses/14-310x-data-analysis-for-social-scientists-spring-2023/	5	1. Assignments on real life data processing. 2. Assignments on application of data analytics in business.

		Economics, Marketing etc.				
M2	Descriptive and Inferential Statistics	Descriptive Statistics – Definition, relevance and usage, numerical on measures of central tendency and dispersion – application of each using MS excel and SPSS with business data – interpretation of the output; Inferential Statistics – Definition, relevance and usage – Types (point estimation and estimation) – Basic concepts of testing of hypothesis	Business Research Methodology : Srivastava and Rego, McGraw Hill Publisher	International Academia: https://ocw.mit.edu/courses/18-443-statistics-for-applications-spring-2015/pages/syllabus/	5	1. Assignments on Central Tendency 2. Assignments on Dispersion
M3	One sample hypothesis testing	Definition – concept of z test for one sample - concept of t test for one sample – degrees of freedom – different types of t tests (student’s t, fisher’s t and paired t-test) – relevance, applicability and difference between the t test and z test – numerical – application of different tests using	Research Methodology, Methods and Techniques - Dr. CR Kothari and Dr. Gaurav Garg, NEW AGE International Publishers.	International Academia: Business Statistics - Course Business Applications of Hypothesis Testing and Confidence Interval Estimation Coursera Statistics and Data Analysis with Excel, Part 2 Coursera	8	1. Assignments on z test 2. Assignments on t test

		business data in MS Excel and SPSS and interpretation of the test output		https://youtu.be/-l2Y3L7Rz-o?si=4dyXlCThq4PTCtXn (NPTEL)		
M4	Two sample hypothesis testing	Definition – concept of z test for two sample - concept of student’s t test for two sample – numerical – concept of p-values – application of the two tests using business data in MS Excel and SPSS and interpretation of the test output	Business Research Methods: HK Dangi, Shruti Dewen, Vikas Publishing House	International Academia: Business Statistics - Course Business Applications of Hypothesis Testing and Confidence Interval Estimation Coursera Statistics and Data Analysis with Excel, Part 2 Coursera	8	1. Assignments on z test 2. Assignments on t test
M5	F – test and Chi-square	Definition – Comparison of the variances of two population – F-statistic – Model fit – Chi – square test of independence – pearsonian chi-square for categorical variables – chi-square test of variance – Numerical – Application using MS Excel and SPSS and interpretation of the test output	Research Methodology, Methods and Techniques - Dr. CR Kothari and Dr. Gaurav Garg, NEW AGE International Publishers.	International Academia: NPTEL :: Management - NOC:Business Statistics Statistics and Data Analysis with Excel, Part 2 Coursera	8	1. Assignments on F - test 2. Numericals on chi-square tests and goodness of fit
M6	Regression Analysis	Multiple Linear Regression Model (MLRM) – Definition and examples using real – life data – regression coefficients – R-square	Business Research Methodology : Srivastava and	International Academia: Linear Regression and Modeling Coursera	5	1. Assignments on regression 2. Assignments on interpreting results using softwares

		and adjusted R-square – Difference between Simple Linear Regression and Multiple Linear Regression – Numerical – Application using MS-Excel and SPSS – Interpretation of the regression output	Rego, McGraw Hill Publisher	Statistics and Data Analysis with Excel, Part 2 Coursera		
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Submitted by Prof. Kamalika Dasgupta, Dr. Debarati Ghosh, Prof. Sayan Karmakar & Prof. Peu Das, IEM, Saltlake.

TEXT BOOK:

Research Methodology, Methods and Techniques - Dr. CR Kothari and Dr. Gaurav Garg, NEW AGE International Publishers.

REFERENCE BOOKS:

1. Business Research Methods: HK Dangi, Shruti Dewen, Vikas Publishing House
2. Business Research Methodology : Srivastava and Rego, McGraw Hill Publisher



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Syllabus for B.B.A. Admission Batch 2023

Subject Name: Data Analysis using Advanced Technologies -Laboratory

Credit:2

Lecture Hours: 20

Subject Code: BBABB494

Pre-requisite: Basic knowledge of Mathematics and Statistics

Module number	Topic	Sub-topics	TextBook	Mapping with Industry and International Academia	Lecture Hours
1	Basic Excel Operations	<ul style="list-style-type: none">SUM, AVERAGE, MAX, MIN functions.COUNT, COUNTA, and COUNTBLANK functions. Data VisualizationFilter, custom filter, sort, replace, find	Business Research Methods: HK Dangi, Shruti Dewen, Vikas Publishing House	<i>International Standards:</i> Introduction to Applied Statistics Course I Stanford Online <i>Industry Mapping:</i> Data handling using excel and basic excel operations	8 Hours Page

		<ul style="list-style-type: none"> • Pivot chart, pivot table • VLOOKUP, HLOOKUP 			
2	Advanced Excel Operations	<ul style="list-style-type: none"> • Excel Add-ins – Data analysis • Descriptive statistics using MS-Excel • Inferential statistics using MS-Excel <ul style="list-style-type: none"> - Z test and t test for equal and unequal variances - CHISQ.DIST, CORREL, PEARSON - Regression analysis 	Business Research Methods: HK Dangi, Shruti Dewen, Vikas Publishing House	International Standards Excel Advanced: Working Smarter With Your Data University IT Industry Mapping: Analysis of real time data using MS-Excel	12 Hours

Submitted by Prof. Kamalika Dasgupta, Dr. Debarati Ghosh, Prof. Sayan Karmakar & Prof. Peu Das, IEM, Saltlake.

TEXT BOOK:

Research Methodology, Methods and Techniques - Dr. CR Kothari and Dr. Gaurav Garg, NEW AGE International Publishers.

REFERENCE BOOKS:

3. Business Research Methods: HK Dangi, Shruti Dewen, Vikas Publishing House
4. Business Research Methodology : Srivastava and Rego, McGraw Hill Publisher

Lesson Plan: Faculty – Prof. Kamalika Dasgupta

Day	Lesson Plan Description
Module 1: Introduction to Data Analysis	
Day 1	Introduction to Data Analysis: Overview of data types (quantitative vs. qualitative) and data collection methods.
Day 2	Data Types and Data Structures: Nominal, ordinal, interval, and ratio scales. Introduction to structured and unstructured data.
Day 3	Introduction to Statistical Software: Tools like Excel, SPSS, R, or Python for data analysis. Overview of data import, cleaning, and transformation.
Day 4	Data Summarization: Overview of summarizing data (mean, median, mode). Data visualization (bar charts, histograms, pie charts).
Day 5	Data Cleaning and Preprocessing: Handling missing data, outliers, and normalizing data.
Day 6	Exploratory Data Analysis (EDA): Visualizing data with scatter plots, box plots, and understanding data distributions.
Day 7	Sampling Methods: Introduction to sampling techniques (random, stratified, cluster) and sample size determination.
Day 8	Overview of Basic Statistical Concepts: Population vs. sample, parameter vs. statistic.
Day 9	Introduction to Probability: Basic probability concepts, events, conditional probability, and Bayes' theorem.
Day 10	Case Study: Hands-on project on Data Analysis using a real dataset to apply concepts.
Module 2: Descriptive and Inferential Statistics	
Day 11	Descriptive Statistics: Measures of central tendency (mean, median, mode), measures of variability (range, variance, standard deviation).
Day 12	Descriptive Statistics Continued: Percentiles, quartiles, interquartile range, and visualization using boxplots.

Day	Lesson Plan Description
Day 13	Probability Distributions: Normal distribution, binomial distribution, Poisson distribution.
Day 14	Introduction to Inferential Statistics: Overview of population inference, confidence intervals, and margin of error.
Day 15	Central Limit Theorem (CLT): Understanding the concept and its importance in hypothesis testing and sampling.
Day 16	Hypothesis Testing Basics: Introduction to hypothesis testing, null hypothesis, alternative hypothesis, Type I & Type II errors.
Day 17	Confidence Intervals: Understanding confidence intervals, interpreting margins of error, and how to calculate them.
Day 18	Point Estimation and Interval Estimation: Difference between point estimates and confidence intervals.
Day 19	Testing for Means: Introduction to t-tests (one-sample and two-sample).
Day 20	Case Study: Hands-on project using descriptive and inferential statistics.
Module 3: One-Sample Hypothesis Testing	
Day 21	One-Sample Hypothesis Testing: Introduction, setting up hypotheses, critical value approach, and p-value approach.
Day 22	t-Test for One Sample: Applying one-sample t-test to real-world data, interpreting results.
Day 23	Assumptions of One-Sample t-Test: Normality, sample size, and how to handle violations.
Day 24	Comparing Results: t-Test vs. Z-Test for one sample, when to use each.
Day 25	Power of a Test: Understanding test power, significance level (alpha), and sample size determination.
Day 26	Case Study: Hands-on application of one-sample hypothesis testing.
Lesson Plan: Faculty – Prof. Peu Das	
Module 4: Two-Sample Hypothesis	Page

Day	Lesson Plan Description
Testing	
Day 27	Two-Sample Hypothesis Testing: Introduction, comparing two means (independent samples).
Day 28	t-Test for Two Independent Samples: Assumptions, pooled variance, and interpreting results.
Day 29	Paired t-Test: When to use paired t-test, assumptions, and interpreting results.
Day 30	Comparing Variances: F-test for comparing two variances, assumptions, and interpretation of results.
Day 31	Case Study: Hands-on application of two-sample hypothesis testing with real data.
Lesson Plan: Faculty – Prof. Sayan Karmakar	
Module 5: F-Test and Chi-Square Test	
Day 32	Introduction to F-Test: Overview, when to use the F-test for comparing variances, assumptions.
Day 33	F-Test for Equal Variances: Calculating and interpreting the F-statistic, using F-distribution.
Day 34	Introduction to Chi-Square Test: Overview, types (goodness of fit, test of independence), and assumptions.
Day 35	Chi-Square Goodness of Fit Test: Setting up hypotheses, calculating the chi-square statistic, and interpreting results.
Day 36	Chi-Square Test for Independence: Applying chi-square for testing relationships between categorical variables.
Day 37	Chi-Square Assumptions and Limitations: Ensuring the chi-square test's assumptions are met.
Day 38	Case Study: Hands-on application of F-test and Chi-square test using real datasets.
Lesson Plan: Faculty – Prof. (Dr.) Debarati Ghosh	

Day	Lesson Plan Description
Module 6: Regression Analysis	
Day 39	Introduction to Regression Analysis: Overview of regression, types (simple, multiple), and applications.
Day 40	Simple Linear Regression: Model building, assumptions, interpreting coefficients, R-squared, and conducting hypothesis tests for regression parameters.



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Syllabus for BBA in Business Analytics Admission Batch 2023

[Study Material](#)

MIT/StandFord OpenCourseware

[NPTEL](#)

[LinkedIn Learning](#)

Subject Name: Predictive Analytics

Credit: 4

Lecture Hours: 40

Subject Code: BBABA405

Course Objective:

1. Master data pre-processing techniques to prepare raw datasets for machine learning, including handling missing values and scaling features.
2. Understand and apply regression models to predict continuous outcomes, evaluating performance with appropriate metrics.

3. Implement classification algorithms to predict categorical outcomes and assess model effectiveness using metrics like accuracy and F1-score.
4. Gain proficiency in model evaluation and tuning to optimize machine learning models for better performance and generalization.

Course Outcome:

1. Students will be able to understand the importance of data handling & apply it to real world dataset
2. Students will be able to understand and apply simple & multiple linear regression model along with evaluation and validation techniques.
3. Students will be able to understand and apply Logistic regression model along with evaluation and validation techniques.
4. Students will be able to understand and apply tree based classification model along with evaluation and validation techniques.

Module number	Topic	Sub-topics	TextBook	Mapping with Industry and International Academia	Lecture Hours	Corresponding Lab / Case-Study Assignment
1	Introduction to Predictive Modelling	<ul style="list-style-type: none"> • What is predictive modelling; Human vs machine learning; Types of machine learning techniques; Applications in business studies. • Data Pre-processing – Data acquisition, types; Data quality; 	<ol style="list-style-type: none"> 1. Machine Learning by Saikat Dutt, Subramanian Chandramouli, Amit Kumar Das, Pearson 2. Study Material – Module 1 	<p>International Standards: https://online.stanford.edu/courses/xdgt212-turn-data-insights-predictive-modeling</p> <p>Industry Mapping: Data Preparation & handling</p>	10	Data Acquisition, cleaning & sampling using Python

		<p>Dimensionality reduction; model training, Interpretability</p> <ul style="list-style-type: none"> • Feature Engineering - Feature extraction, construction, conversion; Feature redundancy; feature selection approaches. 				
2	Simple & Multiple Linear Regression	<ul style="list-style-type: none"> • Concept of Regression, Types, concept of SLR, MLR • Assumptions, limitation; Data preparation. • Model building, validation, accuracy; model improvement. • Concept of Ridge & Lasso regression 	<p>1. Machine Learning by Saikat Dutt, Subramanian Chandramouli, Amit Kumar Das, Pearson</p> <p>2. Study Material – Module 2</p>	<p>International Standards https://online.stanford.edu/courses/mse226-fundamentals-data-science-prediction-inference-causality <i>Industry Mapping:</i> Predictive model building & assesment</p>	10	Building regression model & checking accuracy using python
3	Binary Logistic Regression	<ul style="list-style-type: none"> • Definition & concept of Logistic Regression, • Logistic Model Interpretation, • Logistic Model Deployment. Validation; 	<p>1. Machine Learning by Saikat Dutt, Subramanian Chandramouli, Amit Kumar Das, Pearson</p> <p>2. Study Material – Module 3</p>	<p>International Standards : https://ocw.mit.edu/courses/15-097-prediction-machine-learning-and-statistics-spring-2012/pages/lecture-notes/ <i>Industry Mapping:</i> Classification Model Building & assesment</p>	10	Building logistic model & checking accuracy

		Assumptions & Limitation <ul style="list-style-type: none"> • Concept of Ordinal Logistic regression 				
4	Tree Based Classification Algorithm	<ul style="list-style-type: none"> • Definition & types of tree based classifiers • Advantages over other classifiers • Decision Tree • Model Building, Validation, Accuracy; Assumptions & limitation • Concept of Random Forest Classifier 	<ol style="list-style-type: none"> 1. Machine Learning by Saikat Dutt, Subramanian Chandramouli, Amit Kumar Das, Pearson 2. Study Material – Module 4 	<i>International Standards :</i> https://ocw.mit.edu/courses/15-097-prediction-machine-learning-and-statistics-spring-2012/resources/mit15_097s12_lec08/ <i>Industry Mapping:</i> Classification Model Building & assessment	10	Building tree based classifier & checking accuracy

Submitted by Sreeparna Guha, IEM Saltlake campus

TextBook:

1. Saikat Dutt , Subramanian Chandramouli , Amit Kumar Das: **Machine Learning**, Pearson

Reference Books:

1. Munmun Ghosh: Business Statistics Using Excel, SPSS, and R, Cengage
2. J.Josph Francis: Business Statistics, Cengage
3. Jiawei Han, Micheline Kamber, Jian Pei: Data mining: Concepts & Techniques, Elsevie.



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Syllabus for BBA in Business Analytics Admission Batch 2023

Subject Name: Predictive Analytics – Laboratory

Credit: 2

Lecture Hours: 20

Subject Code: BBABA491

Module number	Topic	Sub-topics	TextBook	Mapping with Industry and International Academia	Lecture Hours
1	Module I:	<ul style="list-style-type: none"> • Data Import, Manipulation • Data Cleaning, Conversion • Data Visualization • Feature Selection Using Python IDE	Machine Learning using Python by Manaranjan Pradhan, U Dinesh Kumar, Wiley , Wiley	<i>International Standards:</i> https://online.stanford.edu/courses/xdgt212-turn-data-insights-predictive-modeling <i>Industry Mapping:</i> Data Preparation & handling	6 Hours
2	Module II:	<ul style="list-style-type: none"> • Data Pre-processing for building SLR/MLR model • Checking Correlation/multi-collinearity • MLR model building • Evaluation Using Python IDE	Machine Learning using Python by Manaranjan Pradhan, U Dinesh Kumar, Wiley	<i>International Standards</i> https://online.stanford.edu/courses/mse226-fundamentals-data-science-prediction-inference-causality <i>Industry Mapping:</i> Predictive model building & assessment	6 Hours

3	Module III:	<ul style="list-style-type: none"> • Data Pre-processing for building Classification model • Decision Tree model building • Model evaluation using confusion matrix • Random forest model building • Model validation & comparison Using Python IDE	Machine Learning using Python by Manaranjan Pradhan, U Dinesh Kumar, Wiley	<i>International Standards :</i> https://ocw.mit.edu/courses/15-097-prediction-machine-learning-and-statistics-spring-2012/pages/lecture-notes/ <i>Industry Mapping:</i> Classification Model Building & assessment time.	8 Hours
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Suggested Readings:

1. Manaranjan Pradhan, U Dinesh Kumar :**Machine Learning using Python**, Wiley
2. R.Sujatha: **Intoduction to Data Science: Practical Approach with R & Python**, Wiley
3. Saikat Dutt , Subramanian Chandramouli , Amit Kumar Das: **Machine Learning**, Pearson

Lesson Plan (Theory)

Module 1: Introduction to Predictive Modelling, Section E, Faculty: Prof. Sreeparna Guha

WORKING DAY	DAY	Lesson Plan - Description
1	1	Introduction to Predictive Modelling: Definition, importance, and basic concepts of predictive modeling. Compare human learning and machine learning.
2	2	Types of Machine Learning Techniques: Discuss supervised, unsupervised, and reinforcement learning with real-life examples.
3	3	Applications in Business Studies: Explore how predictive modeling is applied in finance, marketing, operations, and HR analytics.
4	4	Data Acquisition - Types: Explain data acquisition techniques and types of data (structured, unstructured, semi-structured).
5	5	Data Quality: Discuss the importance of data quality, missing data handling, and outlier treatment.
6	6	Dimensionality Reduction: Introduction to dimensionality reduction techniques (PCA, LDA). Explain their importance in reducing computation.

7	7	Model Training and Interpretability: Explain the process of model training and importance of interpretability in predictive modeling.
8	8	Feature Engineering - Feature Extraction and Construction: Define feature extraction and construction techniques.
9	9	Feature Conversion and Redundancy: Discuss conversion techniques (e.g., encoding) and identify redundant features.
10	10	Feature Selection Approaches: Explore methods like Filter, Wrapper, and Embedded techniques for feature selection.

Module 2: Simple & Multiple Linear Regression, Section E, Faculty: Prof. Sreeparna Guha

WORKING DAY	DAY	Lesson Plan - Description
11	11	Introduction to Regression: Define regression, types of regression (linear, non-linear), and its importance in prediction.
12	12	Concept of SLR (Simple Linear Regression): Discuss the equation, assumptions, and real-world examples of SLR.
13	13	Concept of MLR (Multiple Linear Regression): Introduce MLR with equation, variables, and applications.
14	14	Assumptions of Linear Regression: Explore key assumptions like linearity, independence, homoscedasticity, and normality.
15	15	Limitations of Linear Regression: Discuss the limitations and challenges of SLR and MLR in real-life applications.
16	16	Data Preparation for Regression: Data cleaning, scaling, and splitting into training and testing sets.
17	17	Model Building and Validation: Step-by-step building of SLR and MLR models with validation using metrics like R^2 and RMSE.
18	18	Model Accuracy and Improvement: Techniques for improving accuracy using transformations or feature engineering.
19	19	Concept of Ridge Regression: Explain Ridge Regression for tackling multicollinearity.
20	20	Concept of Lasso Regression: Define Lasso Regression and compare it with Ridge Regression.

Module 3: Binary Logistic Regression, Section E, Faculty: Prof. Sreeparna Guha

WORKING DAY	DAY	Lesson Plan - Description
21	21	Introduction to Logistic Regression: Definition, importance, and differences between logistic and linear regression.
22	22	Concept of Binary Logistic Regression: Understand binary classification problems and their applications.
23	23	Logistic Model Interpretation: Explain the logistic regression equation, odds ratio, and probability estimation.
24	24	Model Building for Binary Logistic Regression: Step-by-step implementation of binary logistic regression.

25	25	Model Validation: Explain validation techniques like accuracy, confusion matrix, precision, recall, and ROC-AUC curve.
26	26	Assumptions of Logistic Regression: Discuss key assumptions like independence of observations and multicollinearity.
27	27	Limitations of Logistic Regression: Explore challenges like overfitting and when logistic regression may fail.
28	28	Model Deployment: Discuss how to deploy a logistic regression model into production.
29	29	Introduction to Ordinal Logistic Regression: Define and explain the concept of ordinal logistic regression with examples.
30	30	Review of Logistic Regression: Solve practical problems covering binary and ordinal logistic regression models.

Module 4: Tree-Based Classification Algorithm, Section E, Faculty: Prof. Sreeparna Guha

WORKING DAY	DAY	Lesson Plan - Description
31	31	Introduction to Tree-Based Classification: Define tree-based algorithms and their importance in predictive modeling.
32	32	Types of Tree-Based Classifiers: Discuss decision trees, random forests, and boosting algorithms.
33	33	Advantages of Tree-Based Classifiers: Highlight advantages over regression-based models and other classifiers.
34	34	Decision Tree Algorithm - Concept: Explain the working of decision tree algorithms (Gini Index, Information Gain).
35	35	Model Building for Decision Trees: Build a decision tree classifier step-by-step using real-world datasets.
36	36	Validation and Accuracy for Decision Trees: Discuss metrics like accuracy, precision, recall, and confusion matrix for decision trees.
37	37	Assumptions and Limitations of Decision Trees: Explore overfitting issues and pruning techniques.
38	38	Introduction to Random Forest Classifier: Define random forests and their advantages over single decision trees.
39	39	Model Building with Random Forest: Train and validate a random forest model with hands-on examples.
40	40	Review and Comparison: Compare decision trees and random forests. Recap all topics with a practice session and address queries.

QUESTION PAPER PATTERN AND DATES

EXAMINATION	Dates	PART – A	PART – B	PART – C	TOTAL MARKS
Mid Term 1	February 10, 2025 to February 21, 2025	Attempt 5 out of 10 questions; Each question carries 2 marks (2 × 5)	Attempt 2 out of 4 questions; Each question carries 5 marks (5 × 2)	Attempt 1 out of 2 questions; Each question carries 10 marks (10 × 1)	30

Mid Term 2	March 24, 2025 to April 2, 2025	Attempt 5 out of 10 questions; Each question carries 2 marks (2×5)	Attempt 2 out of 4 questions; Each question carries 5 marks (5×2)	Attempt 1 out of 2 questions; Each question carries 10 marks (10×1)	30
End Semester Examination	April 21, 2025 to May 9, 2025	Attempt 10 out of 15 questions; Each question carries 2 marks (2×10)	Attempt 6 out of 9 questions; Each question carries 5 marks (5×6)	Attempt 5 out of 8 questions; Each question carries 10 marks (10×5)	100

Examination Rules & Regulations:

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