

Bachelor of Business Administration (Decision Science)

School Overview

The School of Business and Management, CHRIST, was formed with a clearly defined approach for creating quality managers and entrepreneurs required to face the challenges of the business world. The School offers undergraduate programmes such as Bachelor of Business Administration (BBA), Bachelor of Business Administration in Decision Science (BBA DS), Bachelor of Business Administration- Honours (BBA Hon), Bachelor of Business Administration in FinTech Honours (BBA FinTech Hon), Bachelor of Business Administration in Business Analytics (BBA BA), Bachelor of Business Administration in Finance and International Business (BBA FIB), Bachelor of Hotel Management (BHM), Bachelor of Business Administration in Tourism and Travel Management (BBA TTM), Postgraduate Programmes such as Master of Business Administration (MBA), Master of Business Administration – Executive (MBA – Executive), Master of Business Administration (CHRIST) + Master of Business Administration (FHWS, Germany), Master of Business Administration (CHRIST) + Master of Science (VCU, USA), Master of Business Administration (CHRIST) + Master of Business Administration (WMU, USA), Master of Tourism and Travel Management (MTTM), and Doctoral Programmes such as Doctor of Philosophy (Management) and Doctor of Philosophy in Tourism which are specifically designed to enhance career opportunities and to develop well rounded managers, business leaders and researchers ready to effectively tackle a dynamic environment.

Vision

Our Vision is to be an institution of excellence developing leaders serving enterprises and society globally.

Mission Statement

“Our mission is to develop socially responsible business leaders with the spirit of inquiry through academic and industry engagement”.

Introduction to BBA Decision Science Programme:

The Undergraduate Programme in Bachelor of Business Administration in Decision Science (Industry Integrated) is offered by the School of Business and Management from 2021-22. The School believes in developing socially responsible business leaders with the spirit of inquiry through academic and industry engagement. The programme is designed based on the UGC Guidelines for Higher Education institutions to offer Apprenticeship/Internship embedded Degree Programme released in July 2020 to promote employability and active linkage between the higher education system and industry, non-commercial and commercial enterprises/organizations.

This program allows students to learn from the University and train as apprentices at Mu Sigma (a decision science company) simultaneously. This will be a three-year programme with six

semesters. The curriculum is jointly designed and delivered by CHRIST School of Business and Management and Mu Sigma.

Program Learning Goals

- The programme aims at forming students to be socially responsible and ethically sensitive
- The programme enables students to demonstrate knowledge of the business from a holistic and cross-functional perspective
- The programme aims to inculcate professional approach among students
- The programme focuses on equipping students to solve business problems in a scientific manner
- The programme prepares young minds to face challenges and convert them into opportunities with an entrepreneurial mindset

Bachelor of Business Administration (Decision Science)
Programme Structure for the Batch 2021 – 2024
I Semester

Course Code	Title	Theory/Practical	Type*	Hr/wk	Credits	CIA	ESE	Total	Duration of Exam
Common Core									
BBA131	Principles of Management	Theory	CC	4	4	70	30	100	2
BBA132	Financial Accounting	Theory	CC	4	4	70	30	100	2
BBA133	Microeconomics	Theory	CC	4	4	70	30	100	2
BBDS131	Corporate Accounting	Theory	PC	2	2	-	-	50	NA
Generic Elective (ANYONE)									
BBDS161A	Indian Financial System	Theory	GE	3	3	70	30	100	2
BBDS161B	Business Mathematics	Theory	GE						
Ability Enhancement Compulsory Courses (AECC)									
ENG121	English	Theory	AECC	3	3	70	30	100	2
AEN121	Additional English	Theory	AECC	3	3	50	50	100	2
Skill Enhancement Courses (SEC)									
HOL111	Holistic Education	Theory	SEC	1	1			Grade (50)	
BBDS111	Foundations of Managerial Effectiveness	Practical	SEC	2				Grade (100)	
	Total			26	24			650	

II Semester

Course Code	Title	Theory/Practical	Type*	Hr/wk	Credits	CIA	ES E	Total	Duration of Exam
Common Core									

BBA231	Organizational Behaviour	Theory	CC	4	4	70	30	100	2
BBA232	Business Statistics	Theory	CC	4	4	70	30	100	2
BBA233	Macro Economics	Theory	CC	4	4	70	30	100	2
Discipline Specific Elective (DSE)									
BBDS251	Foundations of Data Engineering	Practical	DSE	4	3	100	NA	100	NA
BBDS252	Foundations of Data Science	Practical	DSE	4	3	100	NA	100	NA
BBDS253	Foundations of Decision Science	Practical	DSE	4	3	100	NA	100	NA
Ability Enhancement Compulsory Course (AECC)									
EVS221	Environment Studies	Theory	AECC		2			50	
Skill Enhancement Courses (SEC)									
HOL211	Holistic Education	Theory	SEC	1	1			Grade (50)	
BBDS211	Problem Space I	Practical	SEC	4	3	100	NA	100	NA
	Total			29	27			750	

III Semester

Course Code	Title	Theory/ Practical	Type*	Hr/ wk	Cred its	CIA	ESE	Total	Duration of Exam
Common Core									
BBA331	Financial Management	Theory	CC	4	4	70	30	100	2
BBA332	Human Resource Management	Theory	CC	4	4	70	30	100	2
BBA333	Marketing Management	Theory	CC	4	4	70	30	100	2
Discipline Specific Elective (DSE)									

BBDS351	Beginner Level Data Engineering	Practical	DSE	4	3	100	NA	100	NA
BBDS352	Beginner Level Data Science	Practical	DSE	4	3	100	NA	100	NA
BBDS353	Beginner Level Decision Science	Practical	DSE	4	3	100	NA	100	NA
Skill Enhancement Courses (SEC)									
HOL311	Holistic Education	Theory	SEC	1	1			Grade (50)	
BBDS311	Problem Space II	Practical	SEC	4	3	100	NA	100	NA
	Total			29	25			700	

IV Semester

Course Code	Title	Theory/ Practical	Type*	Hr/ wk	Cr edi ts	CIA	ESE	Total	Duration of Exam
Common Core (CC)									
BBA431	Cost and Management Accounting	Theory	CC	4	4	70	30	100	2
BBA432	Entrepreneurship Development	Theory	CC	4	4	70	30	100	2
BBA433	Research Methodology	Theory	CC	4	4	70	30	100	2
Discipline Specific Elective (DSE)									
BBDS451	Intermediate Data Engineering	Practical	DSE	4	3	100	NA	100	NA
BBDS452	Intermediate Data Science	Practical	DSE	4	3	100	NA	100	NA
BBDS453	Intermediate Decision Science	Practical	DSE	4	3	100	NA	100	NA
Skill Enhancement Courses (SEC)									
HOL411	Holistic Education	Theory	SEC	1	1			Grade (50)	

BBDS411	Problem Space III	Practical	SEC	4	3	100	NA	100	NA
Total				29	25			700	

V Semester

Course Code	Title	Theory/ Practical	Type*	Hr/ wk	Cred its	CIA	ESE	Total	Duration of Exam
Common Core (CC)									
BBA531	Strategic Management	Theory	CC	4	4	70	30	100	2
BBA532	Taxation Laws	Theory	CC	4	4	70	30	100	2
Discipline Specific Elective (DSE)									
BBDS551	Advanced Data Engineering	Practical	DSE	4	3	100	NA	100	NA
BBDS552	Advanced Data Science	Practical	DSE	4	3	100	NA	100	NA
BBDS553	Advanced Decision Science	Practical	DSE	4	3	100	NA	100	NA
Generic Elective (GE) (ANYONE)									
BBDS561A	Knowledge Management	Theory	GE	3	3	70	30	100	2
BBDS561B	Cross Cultural Management	Theory	GE						
Skill Enhancement Course (SEC)									
BBDS511	Problem Space IV	Practical	SEC	4	3	100	NA	100	NA
Total				27	23			700	

VI Semester

Course Code	Title	Theory/P ractical	Type*	Hr/wk	Cred its	CIA	ESE	Total	Duration of Exam
Common Core (CC)									
BBA631	Operations Management	Theory	CC	4	4	70	30	100	2
BBA632	Business Laws	Theory	CC	4	4	70	30	100	2

Discipline Specific Elective (DSE)									
BBDS651	Practitioner Data Engineering	Practical	DSE	4	3	100	NA	100	NA
BBDS652	Practitioner - Data Science	Practical	DSE	4	3	100	NA	100	NA
BBDS653	Practitioner Decision Science	Practical	DSE	4	3	100	NA	100	NA
Skill Enhancement Courses (SEC)									
BBDS681	Problem Space V (Project)	Project	-	4	3	100	NA	100	NA
IC631	Indian Constitution Laws	Theory	AECC		1			Grade (50)	
Total				24	21			600	

Semester	Credits
I	24
II	27
III	25
IV	25
V	23
VI	21
Total	145

Course Name: Principles of Management	Course Code: BBA131
Total number of hours: 60 Hours	Credits: 4
<p>Course Description: The dynamic business environment compels managers to perform a challenging role in steering the organizations' success to new heights. This comprehensive introductory course has been designed to provide valuable insights into the functions of modern-day managers. By tracing the historical evolution of management thought, it explores the basic concepts, principles and theories of management. It orients the learners towards basic understanding of managerial functions like planning, organizing, staffing, motivation, communication, controlling and supervision. By focusing on the contemporary challenges faced by organizations in recent years, it enables the proponents to gather knowledge about skills which would have a real time application in the corporate world.</p>	
<p>Course Objectives:</p> <ul style="list-style-type: none"> ● To outline the fundamental activities of managers ● To explain the basic concepts, principles and theories of management ● To examine the broad functions of management ● To identify the contemporary issues and challenges in the field of management ● To identify ethical workplace practices 	
<p>Course Learning Outcomes: On having completed this course student should be able to:</p> <p>CLO1 Demonstrate understanding the role of managers in an organization CLO2 Summarize the elementary concepts, principles and theories of management CLO3 Examine the managerial functions having an impact on the organizational effectiveness CLO4 Identify the contemporary issues and challenges in management CLO5 Develop ethical workplace practices</p>	
<p>Pedagogy: This course uses multiple pedagogies like interactive lecture, students' discussions and PPTs, case studies, role plays, and form of experiential learning.</p>	
<p>UNIT I INTRODUCTION TO MANAGEMENT 10 Hrs Definition – nature, process and significance of management – Role of managers – Managerial Skills and Roles - Evolution of Management Thought: Classical Management Approaches, Behavioral Management Approaches, Quantitative Management Approach, Modern Management Approaches - Management as a Science or Art - Management as a profession- Administration and Management- Functions of Management – Functional Areas of Management.</p>	
<p>UNIT II PLANNING AND DECISION MAKING 10 Hrs Planning - Nature and Importance of Planning- Types of Plans - Levels of Planning - Steps in planning - Making Effective Plans- Objectives and Management By Objective (MBO) –Management By Exception (MBE) - Policy and Strategy- Forecasting and Decision Making - Nature of decision making - Types of decisions – Decision Making Process – Rational Perspectives and Behavioral Aspects of decision making.</p>	
<p>UNIT III ORGANIZING 10 Hrs Organizing - Nature and purpose - Principles of Organization - Types of Organization - Organizational Structure and Design – Line, Staff and functional authority – Conflict between Line and Staff – Overcoming the Line-Staff Conflict. Departmentation - Span of control – Authority, Responsibility and Accountability - Principles of Delegation - Steps - Centralization Vs Decentralization – Factors determining the degree of Decentralization of authority.</p>	

UNIT IV STAFFING**8 Hrs**

Staffing - Nature and Purpose of staffing – Importance of staffing – Components of Staffing - Manpower planning - Recruitment and Selection - Training and Development - Performance Appraisal.

UNIT V DIRECTING**10 Hrs**

Directing – Nature of Directing function - Principles – Importance of Effective Direction – Motivating people at work – Early motivational theories, Leadership and change - Effective Communication skills for directing – Barriers of communication.

UNIT VI CONTROLLING AND SUPERVISION**7 Hrs**

Controlling - Concept, Nature and Importance - Essentials of Control - Requirements of an Effective Control System – Behavioral Implications of Control – Techniques of Managerial control - Co-ordination – Need for coordination – Types of Coordination - Techniques of Coordination - Cooperation. Supervision – Position of a supervisor – Qualities of good – Essential requirements of effective supervision.

UNIT VII CONTEMPORARY ISSUES AND CHALLENGES IN MANAGEMENT OF 21st CENTURY**5 Hrs**

Total quality management, Workforce diversity, Globalization and innovation, Enterprise mobility, how to manage and control virtual teams, creating an ethical workplace.

Core Text:

1. Stoner, Freeman, Gilbert Jr. (2014). Management (6th edition), New Delhi: Prentice Hall India.

Reference Books:

2. Daft, R. L. (2009). Principles of Management (1st edition), Cengage Learning.
3. Gupta, R.S., Sharma, B.D., & Bhalla. N.S. (2011). Principles & Practices of Management (11th edition). New Delhi: Kalyani Publishers.
4. Williams. Management, (International edition) South-western Cengage Learning.
5. John R. Schermerhorn. Management, Wiley-India
6. Koontz, H., & Weihrich, H. Essentials of Management, McGraw Hill Publishers.
7. L M Prasad, (2007). Principles and Practices of Management, Himalaya Publishing House
8. Rao, P.S. (2009). Principles of Management, Himalaya Publishing House.
9. Moshal, B.S. Principles of Management, Ane Books.

Course Name: Financial Accounting	Course Code: BBA132
Total number of hours: 60 Hrs	Credits: 4
<p>Course Description: This course intends to introduce basic accounting principles and practices. It also deals with subsidiary books maintained in business organizations. The students will have knowledge about the fundamental accounting processes such as journalizing, ledger posting, preparation of trial balance and final accounts in sole trading business. It also deals with providing an overview of accounting standards and IFRS. This course will be useful for all those who are desirous of having an understanding and application of financial dynamics of the business and become successful financial managers/entrepreneurs.</p>	
<p>Course Objectives:</p> <ul style="list-style-type: none"> ● To provide an understanding of application of various principles and practice of Accounting. ● To demonstrate the knowledge on the process of accounting cycle and basic steps involved in Accounting. ● To extend the knowledge of systematic maintenance of books of accounts to real life business. ● To interpret Annual Financial statements of Sole proprietorship form of business. ● To outline the need for Accounting standards and IFRS. 	
<p>Course Learning Outcomes: On having completed this course student should be able to:</p> <p>CLO1 Identify the application of various principles and practice of Accounting in preparation of accounting statements.</p> <p>CLO2 Demonstrate the knowledge on the process of accounting cycle.</p> <p>CLO3 Extend the knowledge of systematic maintenance of books of accounts to real life business.</p> <p>CLO4 Interpret Annual Financial statements of Sole proprietorship form of business.</p> <p>CLO5 Outline the need for Accounting standards and IFRS</p>	
<p>Pedagogy: This course uses multiple pedagogies like interactive lecture, hands on preparation of financial statements, discussions & presentations, and experiential learning of cash book preparation for kirana shops of the locality.</p>	
<p>UNIT – I: Introduction to Accounting</p> <p>Level of Knowledge: Conceptual</p> <p>Meaning, Need for accounting, Internal and External users of accounting information, limitations of accounting, accounting Concepts and Conventions, Accounting Practices, Generally Accepted Accounting Principles.</p>	<p>6 Hrs</p>
<p>Unit – II: Accounting systems & process</p> <p>Level of Knowledge: Analytical</p> <p>Nature of Accounting, Accounting equation - Systems of Accounting, Process of Accounting transactions- types of Accounts, Rules of Accounting. Journal - Meaning, features, simple and compound entries, Including recording of GST transactions, Capital and revenue expenditures, Capital and revenue receipts, Contingent assets and contingent liabilities, Preparation of ledgers and Trial balance.</p>	<p>12 Hrs</p>
<p>Unit – III: Subsidiary books</p> <p>Level of Knowledge: Analytical</p> <p>Conceptual introduction to subsidiary books - Sales book, Sales return book, Purchases book, Purchase returns book, receivable book, payable book. Practical problems in Cash Book- Single column, double column, and three columnar cash book.</p>	<p>10 Hrs</p>

Unit – IV: Bank reconciliation statement**08 Hrs****Level of Knowledge: Analytical**

Need for reconciliation and preparation of bank reconciliation statement.

Unit – V: Rectification of Errors**08 Hrs****Level of Knowledge: Analytical**

Need for rectification of errors, types of errors, process of rectification and accounting entries of rectification.

Unit – VI: Final Accounts**12 Hrs****Level of Knowledge: Analytical**

Preparation of Trading and Profit and Loss account and Balance Sheet of sole trading concerns.

Unit – VII: Accounting standards and IFRS**04 Hrs****Level of Knowledge: Conceptual**

Types of Accounting standards Need for IFRS, Ind AS and IFRS.

Essential Reading:Jain S.P., & Narang K L. (2020). *Basic Financial Accounting I*, New Delhi, Kalyani publishers.**Recommended Reading:**

1. Maheshwari, S.N., Maheshwari, S.K. (2020). *Advanced Accountancy I*, New Delhi: Jain Book Agency.
2. Shukla, M. (2020). *Advanced Accounts*, New Delhi, S Chand Group
3. Radhaswamy, M & Gupta, R.L. (2020). *Advanced Accountancy 2*, New Delhi, Sultan Chand & Sons.
4. Reddy, A. (2020). *Fundamentals of Accounting*, New Delhi, Himalaya Publishing House
5. Gupta, A. (2020). *Financial Accounting for Management: An Analytical Perspective*, Noida, Pearson Education.
6. Raman, B. S. (2014). *Financial Accounting (1stedi). I & II*, New Delhi: United Publishers.
7. Porter, G.A., & Norton, C.L. (2013). *Financial Accounting (IFRS update) (6thedi)*, Cengage Learning.
8. Jawahar Lal & Seema Srivastava (2013). *Financial Accounting* New Delhi: Himalaya Publishing House.
9. Arora M. N. (2013). *Accounting for Management*. New Delhi: Himalaya Publishing House.
- Bhattacharya. (2013). *Essentials of Financial Accounting (Based on IFRS) (2ndedi)*, Prentice Hall India.

Course Name: Microeconomics	Course Code: BBA133
Total number of hours: 60 Hours	Credits: 4
Course Description: This course intends to provide the students understanding of various macroeconomic variables that determine business decisions and consumer's purchase decisions. Specifically, the syllabus aims to develop fundamental economic principles, theories and concepts useful to business managers.	
Course Objectives: <ul style="list-style-type: none"> ● To provide the students understanding of various macroeconomic variables ● To determine business decisions and consumer's purchase decisions ● To develop fundamental economic principles, theories and concepts useful to business managers. 	
Course Learning Outcomes: On having completed this course student should be able to: CLO1 Provide the students understanding of various macroeconomic variables CLO2 Determine business decisions and consumer's purchase decisions CLO3 Develop fundamental economic principles, theories and concepts useful to business managers	
Pedagogy: This course uses multiple pedagogies like interactive lecture, students' discussions and PPTs, case studies, role plays, and form of experiential learning.	
Unit I: Basic Concepts 10 Hrs Ten Principles of Economics: How People Make Decisions- How people Interact - How the Economy as a Whole Works; Thinking Like an Economist-Role of Observations, Theory and Assumptions in Economics; Role of Economic models- The Circular Flow Diagram-Production Possibility Frontier- Opportunity Cost; Central Problems of an Economy; Microeconomics and Macroeconomics.	
Unit II: Theory of Consumer Choice 09 Hrs Utility- Characteristics and Types-Cardinal and ordinal Utility analysis – Law of Diminishing Marginal utility; Budget Constraint; Indifference curves- Properties, Consumer's equilibrium- Price Effect- Income Effect and Substitution Effect.	
Unit III: Market Equilibrium 09 Hrs Markets and Competition; Demand- Law of Demand, Exceptions to the Law- Market Demand- Changes in Demand; Supply- Law of Supply, Exceptions to the Law-Market Supply- Changes in Supply; Equilibrium-Steps- Changes in Equilibrium.	
Unit IV: Elasticity and Its Application 07 Hrs Elasticity of Demand- Price Elasticity and Its Determinants- Methods of Measurement- Degrees of Price Elasticity-Total Revenue and Price elasticity; Income Elasticity Demand; Cross Elasticity Demand; Elasticity of Supply-Determinants-Measurement and Degrees.	

Unit V: Market Efficiency and Externalities**07 Hrs**

Consumers, Producers and the Efficiency of the Markets: Consumers surplus (Marshall)-Producer surplus and Market efficiency; Externalities and Market Inefficiency-Negative and Positive

Unit VI: Theory of Production and Cost**09 Hrs**

Production Function; Law of Variable Proportions; Law of returns, Economies of Scale; Iso-quants and Iso-cost lines. Cost Function - Important Cost Concepts; Short Run and Long Run Cost Analysis (traditional theory)- Modern theory of cost; Long Run and short Run Revenue analysis

Unit VII: Product Pricing**09 Hrs**

Market structure- Perfect competition-Price and Output Determination- Role of Time Element in Market Price Determination; Monopoly- Price and output determination, Price Discrimination; Monopolistic Competition- Price and Output determination-Selling Costs- Product Differentiation- Oligopoly- Duopoly example-Price Determination (Collusive Pricing, Price Leadership)

Essential references:

1. N. Gregory Mankiw (2015), Principles of Microeconomics, 7th Edition, Cengage Learning India.

Recommended references:

1. N. Gregory Mankiw (2019), Principles of Economics, 7th Edition, Cengage Learning India.
2. Lipsey, R.G. and K.A. Chrystal (1999), Principles of Economics (IX Ed.), Oxford University Press, Oxford
3. Ramsfield, E. (1997), Microeconomics (IX edition), W.W Norton and company, New York
4. Ray, N.C. (1975), An introduction to Microeconomics, Macmillan company of India Ltd. New Delhi
5. Samuelson, PA and W.D. Hague (1972), A textbook of Economic Theory, ELBS Longman group, London.
6. Pindyek and Rubinfeld (2017) Microeconomics (Pearson Education).
7. H. L Ahuja (2019) Principles of Microeconomics, S Chand Publishing, New Delhi

Course Name: Corporate Accounting	Course Code: BBDS131
Total number of hours: 30 Hours	Credits: 2
Course Description: This course aims at familiarizing the students with long term sources of capital and accounting practices followed by Corporate business houses in accordance with Companies Act 2013. The course also provides basic knowledge about the contemporary developments in the field of Accounting.	
Course Learning objectives:	
<ol style="list-style-type: none"> 1. To understand the process involved in issue of shares and debentures by corporate houses to raise finance. 2. To Summarize the financial performance of companies by preparing annual financial statements as per statutory requirements. 3 To Describe the contemporary developments and issues in Accounting. 	
Course Learning Outcomes: On having completed this course student should be able to:	
<p>CLO1 Identify and apply the process involved in raising of capital through issue of shares and debentures by corporate Houses.</p> <p>CLO2 Ability to Summarize the financial position of companies as per statutory requirements.</p> <p>CLO3 Knowledge and Understanding with regards to Amalgamation & Re structuring of companies.</p> <p>CLO4 Appraise the contemporary issues in Accounting.</p>	
Pedagogy: This course uses multiple pedagogies like interactive lecture, discussions & problem solving.	
Unit I: Share Capital:	06 Hours
Meaning of Capital and share capital. Raising of funds by issue of shares, Kinds of Shares, Recent developments in public issue of shares, Book building process. Bonus shares, Right issue of shares, issue of shares for consideration other than cash. Raising funds by issue of Debentures, Types of debentures. Difference between share and debentures.	
Unit II: Company Annual Financial Statements	14 Hours
Introduction to company annual Financial statements., Preparation of Income statement and Balance sheet as per Companies Act- 2013. Meaning and significance of Cash flow statement attached to Financial statements.	
Unit III: Accounting for Price Level Changes	05 Hours
Price Level Accounting, Limitations of Conventional Financial statements, Methods of Accounting for changing Prices, practical problems.	
Unit IV: Contemporary Issues in corporate Accounting:	05 Hours
Corporate restructuring and Merger, Environmental Accounting: Concept, Need, approach, mechanism, and reporting. Forensic Accounting: Meaning and significance. Green Accounting: Meaning and	

significance, rationale for adoption of green accounting, steps for incorporating green accounting, Green accounting in India.

Essential references:

Jain, S.P., & Narang, K.L. (2020). Advanced Accounting, Volume II, Kalyani Publishers. New Delhi.

Recommended references:

1. Gupta, R.L., & Radhaswamy, M. (2020). Corporate Accounting. New Delhi: Sultan Chand and Sons.
2. Shukla, M.C., Grewal, T.S., & Gupta, S.C. (2020). Advanced Accounts Vol-2 New Delhi: Jain Book Agency.
3. Maheshwari, S.N., & Maheshwari, S.K. (2020). Corporate Accounting. New Delhi: Jain Book Agency.

Course Name: Indian Financial System	Course Code: BBDS161A
Total number of hours: 45 Hrs	Credits: 3
<p>Course Description: This course is to make students familiarize with various components of Indian financial system and enable them to understand the mechanisms in exchange of funds among various players in the financial system. The course also imbibes knowledge on the independent regulators of the Capital market, insurance, banking, and various services sectors. The course also introduces students to the various financial instruments dealt in the Indian financial markets and provides an insight into the international financial markets.</p>	
<p>Course Objectives:</p> <ol style="list-style-type: none"> 1. To understand the structure, organization and working of the financial system in India. 2. To demonstrate the role of regulatory bodies in Indian financial system 3. To evaluate the impact of money market and capital market operations. 4. To assess the functions of the financial institutions and financial services. 5. To examine the importance of International financial markets 	
<p>Course Learning Outcomes: On having completed this course student should be able to:</p> <p>CLO1 Understand the components of Indian Financial System.</p> <p>CLO2 Demonstrates the role of regulatory authorities in the financial system.</p> <p>CLO3 Evaluate the impact of money market and capital market operations.</p> <p>CLO4 Assess the functions of various financial institutions and financial services</p> <p>CLO5 Examine the importance of International Financial markets.</p>	
<p>Pedagogy: This course uses multiple pedagogies like interactive lecture, discussions, and presentations, HBR case and article analysis, Guest sessions by experts and a field visit in the form of experiential learning.</p>	
Unit I: Introduction	03 Hrs
<p>Level of knowledge: Basic</p> <p>Meaning – Structure - Functions - Components of financial system - Financial system and economic development - Reforms in Financial Sector in India</p>	
Unit II: Capital Market	08 Hrs
<p>Level of knowledge: Conceptual</p> <p>Meaning – Classification - Functions – Types - Primary market - Secondary market -functioning of various stock exchanges - NSE, BSE, OTCEI - Financial instruments in capital market - Long term loans market -</p>	

Derivatives Market - Government Securities market - Capital market scams – SEBI - Reforms in capital markets.

Unit III: Money Market

08 Hrs

Level of knowledge: Conceptual

Meaning – Significance - Structure-Features of money market - Money market instruments - Reforms in money market – Monetary policy - Credit Policy

Unit IV: Regulators of financial system

07 Hrs

Level of knowledge: Analytical

Meaning – Functions - Banking institutions - Scheduled commercial banks and scheduled cooperative banks - Non-Banking Institutions – Regional Rural Banks - NBFCs and Development Finance institutions - Insurance and Housing Finance Companies – IRDA.

RBI Functions - Banking regulation and requirement - licensing and supervision, capital reserve, corporate governance, financial reporting and disclosures, Capital adequacy -Banking ombudsman scheme - Basel norms

Unit V: Banking compliance

07 Hrs

Level of knowledge: Analytical

Anti-money laundering: Prevention of money laundering act (PMLA) - Customer due diligence -Know your customer norms - International sanctioning -Financial Intelligence unit - fraud detection and management in banks - International banking scenario-Documentary letter of credit -Correspondent banking and NRI accounts - Bad banks

Unit VI: Financial instruments and Financial Services

07 Hrs

Level of knowledge: Conceptual

Financial Instruments: Shares - Mutual Funds – Debentures - Bonds - Money market instruments (Self learning) - Derivatives - Hedging instruments and others.

Financial services: Fund based services – Leasing – Hire Purchase – Consumer Credit – Bill Discounting – Factoring and Insurance.

Fee based services – Issue Management, Merchant Banking, Credit rating, Debt Restructuring and Stock Broking.

Unit VII: International Financial Markets**05 Hrs****Level of knowledge: Conceptual**

Forex market rate determination Nature, Organization and Participants- Offshore Financing Instruments- Foreign Exchange market – Foreign Direct Investment and Foreign Institutional Investment.

Needs Fulfillment: Employability/Entrepreneurship/Skill Enhancement

Employability: The content of the course enables the students to acquire knowledge required for starting a successful career as a financial advisor.

Skill Enhancement: The content of the course provides students with a comprehensive understanding of the Indian Financial System that provides knowledge on the various financial services available, financial instruments that are traded in Indian financial markets and the role of various regulators thus providing the basic conceptual foundation required to be a player in the India financial markets.

Essential references:

1. Pathak, B. V (2018). *Indian Financial System*. New Delhi: Pearson Education

Recommended references:

1. Desai, V. (2019). *The Indian Financial System and Development*. Mumbai: Himalaya Publishers.
2. Gordon, N. (2014). *Indian Financial System*. Mumbai: Himalaya publishers.
3. Khan, M.Y. (2019). *Indian Financial System*. New Delhi: McGraw-Hill.
4. Sharma, G. (2014). *Indian Financial System*. Ludhiana: Kalyani publishers.
5. Singh, P. (2018). *Dynamics of Indian Financial System: Markets, Institutions and Services*, ANE Books.

Course Name: Business Mathematics	Course Code: BBDS161B
Total number of hours: 45 Hrs	Credits: 3
<p>Course description: This course aims at aiding the students in reaching a level of increased competence in business mathematics and expands understanding of the importance of mathematical concepts in business applications. Emphasis is placed upon learning mathematical concepts by examining some basic business problems.</p>	
<p>Course Objectives: This course will help the learner to gain a familiarity with</p> <ul style="list-style-type: none"> ● To understand and extend the concept of Matrices and Determinants in the real time business ● To solve the problems related with Simple Interest, compound interest, annuities, sinking fund, etc. ● To build skills and ability to translate a given real life situation into a linear programming format ● To simplify and solve Transportation and Assignment of job-related issues with optimum solution ● To improve on service delivery system of a business concern with the help of Queuing model 	
<p>Course Learning Outcomes: On having completed this course student should be able to:</p> <p>CLO 1: Interpret concepts of Matrices and Determinants and apply in the applications of business.</p> <p>CLO 2: Solve problems on simple interest, compound interest, annuities, sinking funds, etc.,</p> <p>CLO 3: Apply the concept of Linear Programming to solve real life problem situation</p> <p>CLO 4: Assess business issues like Transportation of goods and Assignment of job and recommend the optimum solution</p> <p>CLO 5: Propose solutions related to service delivery and waiting time in a business environment with the usage of Queuing model</p>	
Pedagogy: Lecture and Problem-Solving approach.	
<p>Unit 1: Matrices and Determinants: 10 Hrs Matrices and Determinants – Types of matrices – addition of matrices – Multiplication of Matrices by a scalar – Multiplication of two matrices – Properties of Matrix Multiplication – Determinants – Properties of determinants (statement only) – Minors and cofactors – Inverse of a matrix (Simple Problems only) — Applications of Matrices and Determinants – Matrix representation of data – Applications on basic matrix operations– Solving system of linear equations – Matrix inverse method – Cramer’s Rule</p>	
<p>Unit 2: Commercial Arithmetic: 08 Hrs Simple interest - Compound interest – Equivalent rate – Effective rate - Depreciation – Accumulated value – Present value – Annuity – Types of Annuity – Annuity Immediate – Annuity Due – Deferred Annuity – Perpetuity – Sinking Fund.</p>	
<p>Unit 3 – Linear Programming: 08 Hrs Definition – Linear Programming Problem – Formulation – Solution by Graphical method – Simplex method – Minimization and Maximization problems</p>	
Unit 4: Transportation: 08 Hrs	

Nature and scope of transportation and allocation models - different methods for finding initial solution - N-W Corner Rule, Least Cost Method and VAM. Unbalanced TP – Test for optimality – MODI method

Unit 5: Assignment Problem

05 Hrs

Nature and Importance of Assignment Problem – Hungarian method – Restricted Assignment problems.

Unit 6 – Queuing Theory

06 Hrs

Scope and importance of Queuing theory, General Structure of Queuing System, The Queuing Models – Deterministic and Probabilistic Queuing Model

Essential references:

1. D.C. Sancheti and V.K. Kapoor, *Business Mathematics*, 11th ed., Sultan Chand and Sons, 2012.
2. U.K. Srivatsava, G.V. Shenoy and S. C. Sharma, *Quantitative Techniques for Managerial Decisions*, 3rd ed., New Age International Publishers, 2012.
3. N. D. Vohra, *Quantitative Techniques in Management*, 4th edition, Tata McGraw Hill Education Private Limited, 2010

Recommended references:

1. E. Don and J. J. Lerner, *Schaum's outlines of Basic Business Mathematics*, 2nd ed., McGraw-Hill, 2010.
2. J D Gupta, P K Gupta and M. Mohan, *Mathematics for Business and Economics*, Tata Mc Graw Hill Publishing Company Limited, 1987.
3. A.H. Mouhammed, *Quantitative methods for Business and Economics*, 3rd ed., Routledge, 2015.
4. D. R. Anderson, D. J. Sweeney, T. A. Williams, J. D. Camm, J. J. Cochran, M. J. Fry and J. W. Ohlmann, *Quantitative Methods for Business*, 12th ed., South-Western Cengage Learning, 2013.
5. Margaret L.Lial, Thomas W. Hungerford, John P. Holcomb, Jr, Bernadette Mullins, *Mathematics with Applications*, seventh edition, Pearson Education, 2015.

Course Name: English	Course Code: ENG121
Total number of hours: 45 Hrs	Credits: 2
<p>Course Description: This course focuses on preparing students to communicate in an effective manner by addressing all the four skills; listening, speaking, reading, and writing. The aim is to introduce students to communication in a professional environment. The application-based modules sensitize students to the function of English language in their careers. It is instrumental in learners comprehending the role of English in communication.</p>	
<p>Course Objectives:</p> <ul style="list-style-type: none"> ● To help learners learn advanced business vocabulary ● To help learners to understand how to use language skills to get necessary information from various sources classify ideologies and be able to express the same ● To understand the use of modern technologies and devices to solve communication problems ● To help the learner read and understand messages, letters, etc. and to respond appropriately ● To enhance business communication skills 	
<p>Course Learning Outcomes:</p> <ul style="list-style-type: none"> ● Develop business skills (giving presentations, negotiating, telephoning, giving teleconferences, etc.) ● Comprehend social and cultural differences in business communication ● Communicate efficiently with other people and understand social roles of other participants ● To develop different language skills useful in business communication (listening, reading, speaking). 	
<p>Pedagogy: This course uses multiple pedagogies like interactive lecture, student discussions and PPTs and role plays.</p>	
<p>Unit 1: The Art of Telling</p> <ul style="list-style-type: none"> ● Introductions ● Speeches ● Presentation Skills ● Story telling ● Talking about experiences/ Narrations ● Seminar/ Conference Presentations ● Telephone Conversations ● Body Language 	12 Hrs
<p>Unit 2: Developing Writing Skills</p> <ul style="list-style-type: none"> ● Sentence & Paragraph Writing ● Responding to emails ● Minutes of the meetings ● Writing proposals for projects ● Writing Executive Summaries ● Writing reports ● Editing & Proofreading 	12 Hrs
<p>Unit 3: Art of Listening</p>	12 Hrs

- Listening to Ted talks
- Conversations of business Giants
- Listening to story narration
- Guest Talk
- Listening to documentaries

Unit 4: Developing Reading Skills

9 Hrs

- Reading advertisements & news stories
- Skimming & Scanning
- Extensive & Intensive Reading
- Inferencing Skills
- Referencing Skills
- Reading strategies

Recommended References:

- 1 It's not what you know, it's who you know- [.https://www.psychologytoday.com/us/blog/fighting-fear/201406/its-not-what-you-know-its-who-you-know](https://www.psychologytoday.com/us/blog/fighting-fear/201406/its-not-what-you-know-its-who-you-know)
2. Training Leaders to connect the dots-<https://fliphtml5.com/mxta/bkpe/basic>
- 3.The danger of losing touch with reality by Ed Crooks
4. Wallwork, Adrian. English for Presentations at International Conferences, Springer Science + Business Media, LLC 2010. URL: <https://proxylibrary.hse.ru:2176/book/10.1007/978-1-4419-6591-2>. – Springer Books Online Database.

Course Name: Additional English - I	Course Code: AEN121
Total number of hours: 45 Hours	Credits: 3
<p>Course Description: The Additional English course is offered as a second language course and seeks to introduce the students to the nuances of English literature in its varied forms and genres. The students who choose Additional English are generally proficient in the English language. Hence, instead of focusing on introducing them to language, challenging texts in terms of ideas, form, and technique are chosen. The effort aims to familiarize the students with regional literatures in translation, Indian Writing in English (IWE) and literatures from Pakistan, Nepal and Sri Lanka, thereby, enabling the students to learn more about Indian culture and ethos through writings from different regions of the country.</p>	
<p>Course Objectives:</p> <ul style="list-style-type: none"> ● To expose students to the rich literary and cultural diversity of Indian literatures ● To sensitize students on the social, political, historical, and cultural ethos that has shaped the nation - India ● To enable to grasp and appreciate the variety and abundance of Indian writing, of which this compilation is just a passing glance ● To learn and appreciate India through association of ideas in the texts and the external contexts (BhashaUtsav will be an intrinsic help in this endeavor) 	
<p>Course Learning Outcomes: On having completed this course student should be able to:</p> <p>CLO1 Expose students to the rich literary and cultural diversity of Indian literatures</p> <p>CLO2 Sensitize students on the social, political, historical and cultural ethos that has shaped the nation - India</p> <p>CLO3 Enable to grasp and appreciate the variety and abundance of Indian writing, of which this compilation is just a passing glance</p> <p>CLO4 Learn and appreciate India through association of ideas in the texts and the external contexts (BhashaUtsav will be an intrinsic help in this endeavor)</p>	
<p>Pedagogy: Classroom discussion, role plays</p>	
<p>Syllabus</p>	
<p>UNIT I POETRY</p> <p>“Migrations” - Keki N Daruwala; “Forest Fire” - Kamala Das; “Snow on the Desert” - Agha Shahid Ali; “Marriages are Made” - Eunice D Souza</p>	<p>10 Hrs</p>
<p>UNIT II SHORT STORIES</p> <p>“Babus of Nayanjore” - Rabindranath Tagore; “He said it with Arsenic” - Ruskin Bond, “The Boss Came to Dinner” - Bhisham Sahni; “The Taste of Hilsa” - N. Kunjamohan Singh; “Post Script” - Mohan Thakuri</p>	<p>15 Hrs</p>
<p>UNIT III ESSAYS</p> <p>What is True Civilization?” (Excerpts from Hind Swaraj) - Mahatma Gandhi; “Organizing for Change” - Ela Bhatt; “Beyond the Ego: New Values for a Global Neighborhood” - Sitakant Mahapatra; “Waiting for A Visa” - B R Ambedkar</p>	<p>20 Hrs</p>
<p>Core Text:</p> <ol style="list-style-type: none"> 1. Forsdick, C., & Marson, S. (2000). Reading Diversity. University of Glasgow French & German Publications. 	

Course Name: Foundations of Managerial Effectiveness	Course Code: BBDS111
Total number of hours: 30 Hours	Grade
<p>Course Description: This course intended to provide a cohort experience and to help students acquire a range of useful strategies and skills for enhancing their managerial effectiveness, as well as for engaging productively with the undergraduate course concepts throughout their program. The three themes addressed are managing your learning, learning together, and managerial skill development.</p>	
<p>Course Objectives:</p> <ul style="list-style-type: none"> ● To explain and illustrate different barriers of professionalism and ethics as an attribute. ● To develop understanding between individuals within a team or in a group setting. ● To discover the importance of Team Building & Being a Team Member. ● To analyze and interpret the techniques and tools that will promote efficient utilization of time. ● To evaluate different reading strategies to improve effective reading. 	
<p>Course Learning Outcomes: On having completed this course student should be able to: CLO1 Explain and illustrate different barriers of professionalism and ethics as an attribute CLO2 Develop understanding between individuals within a team or in a group setting CLO3 Discover the importance of Team Building & Being a Team Member. CLO4 Analyze and interpret the techniques and tools that will promote efficient utilization of time CLO5 Evaluate different reading strategies to improve effective reading</p>	
<p>Pedagogy: This course uses multiple pedagogies like interactive lecture, students' discussions and PPTs, case studies, role plays, and form of experiential learning.</p>	
<p>Unit I: PROFESSIONALISM AND ETHICS 06 Hrs Level of Knowledge: Conceptual Professionalism in workplace, Ethics, Professionalism in sports, society, etc. Grooming</p>	
<p>Unit II: JOHARI WINDOW & TRANSACTIONAL ANALYSIS 06 Hrs Level of Knowledge: Conceptual JOHARI WINDOW - The four quadrants of JW, Advantages and disadvantages, Applications, TRANSACTIONAL ANALYSIS - Ego states, Type of transactions, Implications of TA</p>	
<p>Unit III: SELF AWARENESS 06 Hrs Level of Knowledge: Conceptual Introduction, importance, benefits, types and how to create a self-awareness, Understand yourself, Realize your strengths and weakness, Applicability of self-awareness in our lives.</p>	

Unit IV: TEAM BUILDING**06 Hrs****Level of Knowledge: Conceptual**

Introduction to meaning and concept of Teams, importance of Team in formal Set up. Importance of being a Team Member and Team Leader. Meaning, importance and Challenges of Team Building, Introduction as to how to build Teams.

Unit V: TIME MANAGEMENT**04 Hrs****Level of Knowledge: Conceptual**

Introduction to Time management, Benefits of time management, Prioritization of events, preparing schedules, Procrastination, Problems in time management and strategies for effective time management.

Unit VI: Reading & Comprehension Skills Usage of Library Resources**02 Hrs****Level of Knowledge: Conceptual**

Importance of Reading Skills, Ways to improve reading skills, building vocabulary, Techniques for Smart Reading: Surveying, Questioning, Reading, Skimming, Recalling and Reviewing.

Usage of Library Resources in University Campus.

REFERENCES:

1. <https://www.merriam-webster.com/dictionary/professionalism>
2. <https://www.linkedin.com/pulse/20140831053426-77080879-10-golden-rules-to-professional-ethics-in-the-workplace>
3. <https://www.youtube.com/watch?v=vj4hvpLYZ6M>

Course Name: Organizational Behavior	Course Code: BBA231
Total number of hours: 60 Hrs	Credits: 4
<p>Course Description: The course focuses on the basic elements that determine human behavior in an organizational context. It provides various theoretical frameworks to understand human behaviors at individual, group and organization level. The course provides insights into the foundation of human behaviors such as personality, learning, values, attitudes and perception. At the group level its characteristics in terms of size, status, norms, role and cohesiveness makes it functional or dysfunctional. Leaders who are able to influence the individual and group behaviors create a positive organization's culture. Thus, it is essential for managers to develop an understanding about human behaviors at the workplace and manage them for organizational effectiveness.</p>	
<p>Course Objectives:</p> <ol style="list-style-type: none"> 1. To examine the impact of globalization, diversity, and ethics on organizational behaviors. 2. To analyse the individual's work behaviors due to personality, attitudes and perceptions. 3. To assess the dynamics of group behaviors and its influence on group effectiveness. 4. To compare and contrast various leadership styles as in classic and modern theories. 5. To determine practices that creates positive organizational culture. 	
<p>Course Learning Outcomes: On having completed this course student should be able to:</p> <p>CLO1 Identifies the social and ethical issues emerging due to trends in the environment.</p> <p>CLO2 Propose initiative to address the social and ethical issues at individual and organizational level</p> <p>CLO3 Demonstrates understanding personality traits and suitable occupation/job.</p> <p>CLO4 Evaluate various leadership styles that enhance group effectiveness.</p> <p>CLO5 Discuss practices that create positive organizational culture.</p>	
<p>Pedagogy: This course uses multiple pedagogies like interactive lectures, classroom discussions & presentations, case studies, research papers, movie review and role plays.</p>	
<p>Unit I Introduction to Organizational Behavior 8 Hrs</p> <p>Definition of Organizational Behavior, OB as systematic study, Contribution from other disciplines, Challenges and Opportunities in organizational behavior, OB Model/Framework- Individual, Group and Organizational Level.</p>	
<p>Unit II Personality, Learning & Values 10 Hrs</p> <p>Defining and Measuring Personality, Determinants of Personality, The Big Five Personality Model, Myers-Briggs Type Indicator, and Other Personality Traits like Authoritarianism, Locus of Control, Machiavellianism, Self Esteem, Risk Taking, Self-Monitoring and Achievement Oriented. Importance of values- instrumental and terminal values.</p> <p>Meaning of Learning; Theories of Learning- Classical Conditioning, Operant conditioning, Cognitive theory, Social learning theory, Principles of learning, Schedule of Reinforcement.</p>	
<p>Unit III Attitude 8 Hrs</p> <p>Components of Attitude- ABC model, Function of Attitude, Cognitive Dissonance Changing Attitude, Work Attitudes- Job Satisfaction and Organization Commitment.</p>	

Unit IV Perception**6 Hrs**

Meaning, Factors influencing perception, Attribution Theory, Common short cuts in judging others.

Unit VI Group Dynamics**8 Hrs**

Define Group and different type of Groups, Stages of Group Development, Group Properties-Roles, Norms, Status, Size, Cohesiveness; Group Decision making, Groupthink and Group Shift

Unit VI Leadership**10 Hrs**

Concept of Leadership-Trait Theories-Behavioral Theories, Ohio & Michigan Studies - Managerial Grid; Contingency Theory-Situational Leadership and Path & Goal of leadership; Contemporary Theories-Transformational, Transactional, Charismatic Leadership, Ethical Leadership and Servant Leadership.

Unit VII Organization Culture**10 Hrs**

Definition of organizational culture and its characteristics, Strong versus Weak culture, Function and Dysfunction of Culture, Creating & Sustaining Culture, -How employees learn culture-Creating Positive organizational culture.

Essential Reading:

- Stephen P. Robbins, Timothy A. Judge and Neharika Vohra (2018), 18th Ed. *Organizational Behavior*. Pearson Education Asia.

Recommended Reading

- Aswathappa, K. (2016). *Organizational Behavior (Text, Cases and Games)*, 12th Ed. Bangalore: Himalaya Publication.
- Fred Luthans (2017). *Organizational Behavior: An Evidence - Based Approach*, 12th Ed. McGraw Hill Education.
- Gupta, C. B. (2014). *A textbook of organizational behavior: With text and cases*. New Delhi: S Chand & Company.

Course Name: Business Statistics	Course Code: BBA232
Total number of hours: 60 Hours	Credits: 4
<p>Course Description: Business Statistics helps us to make business decisions under uncertainties. Such decisions must be objective and unbiased and based on quantitative data. This necessitates an analysis of data as well as understanding of statistical tools and models. With the business entities keen on making data-driven decisions it is essential for individuals working in this environment to possess skills to use appropriate statistical tools and techniques in order to make decisions backed by data.</p>	
<p>Course Objectives:</p> <ul style="list-style-type: none"> ● To demonstrate data handling skills and summarize data with clarity. ● To extend an understanding of application of relevant concepts of Statistics to a given context/business scenario. ● To demonstrate the knowledge on the process of organizing a problem/data and conduct statistical tests/treatment. ● To solve real world business problems by evaluating data with appropriate statistical techniques ● To explain trends exhibited by data. 	
<p>Course Learning Outcomes: On having completed this course student should be able to: CLO 1 Demonstrate data handling skills with clarity. CLO2 Outline the relevant concepts of Statistics to a given context/business scenario CLO3 Organize a problem/business data and conduct statistical treatment. CLO4 Evaluate data with appropriate statistical techniques. CLO5 Explain data trends using time series analysis</p>	
<p>Pedagogy: This course uses multiple pedagogies like interactive lecture, students' discussions and PPTs, case studies, role plays, and form of experiential learning.</p>	
<p>UNIT – I: Introduction to Statistics 06 Hrs Meaning, Definition, Features, Importance and limitations of statistics. Meaning and difference between primary and secondary data, data collection methods. Classification and tabulation of data including tally marks, methods of classifying data - quantitative, qualitative, geographical, chronological, Discrete and continuous frequency distribution.</p>	
<p>Unit – II: Measures of Central Tendency 10 Hrs Meaning, measures of Central Tendency- Arithmetic Mean, Weighted Arithmetic Mean, median, mode, geometric mean and harmonic mean (only theory) and partition values- quartiles, deciles, percentiles.</p>	
<p>Unit – III: Measures of Dispersion and Skewness 10 Hrs Meaning, Definitions, Properties of dispersion - Range, Quartile Deviation, Mean Deviation from Mean and Median, Standard Deviation and coefficient of variation. Skewness-meaning, difference between dispersion and skewness, Karl Pearson's and Bowley's measures of skewness.</p>	

Unit – IV: Correlation and Regression**08 Hrs**

Meaning, Definition and Use of Correlation, Scatter diagram, Types of correlation, Karl Pearson's correlation coefficient, Spearman's Rank correlation, Probable Error. Regression- Meaning and utility of Regression analysis, Comparison between Correlation and Regression, regression lines –X on Y, Y on X, Regression Equations and Regression Coefficients. Introduction to Logistic regression

Unit – V: Time Series**06 Hrs**

Meaning, Components of time series, Calculation of Secular Trend-Moving Average method – odd and even period moving average and method of Least Squares.

Unit – VI: Probability and Probability distributions**08 Hrs**

Introduction to Probability, Basic Concepts of Probability, Probability Distributions – Binomial, Poisson and Normal distributions, Expected Value.

Unit–VII: Sampling Distribution and Introduction to Inferential statistics**12 Hrs**

Introduction to testing of Hypothesis: Procedure for testing hypothesis - Setting of Hypothesis -Null and alternative hypotheses, Estimation, Computation of Test statistics, - Types of errors in hypothesis testing - Level of significance - Critical region and value - Decision making. Test of significance for Large and small sample tests, Z and t tests for mean and proportion, one-way ANOVA, Chi-square test for goodness of fit and independence of attributes.

Essential Reading:

Sharma J.K (2020) *Business Statistics 5th edition* Delhi: Vikas Publishing House

Recommended Reading:

1. Levin R. I.& Rubin D. S. (2014). *Statistics for Management*. Delhi: Pearson.
2. Pillai & Bagavathi (2016) *Statistics, Theory and Practice*, S Chand Publishing
3. SP Gupta (2017). *Statistical Methods*, Sultan Chand and Sons
4. SC Gupta (2018). *Fundamentals of Statistics*, Himalaya Publishing House

Course Name: Macro Economics	Course Code: BBA233
Total number of hours: 60 Hours	Credits: 4
<p>Course Description: This course intends to provide the basics of macroeconomic theory and policies in order to understand the influence of the external environment in doing business. The students are expected to understand the various macroeconomic variables that determine income, output, and employment.</p>	
<p>Course Objectives:</p> <ul style="list-style-type: none"> ● To provide a strong base of macroeconomic principles and concepts relevant in managerial decision making. ● To enable the students to apply the knowledge in managerial decision-making process. ● To enable the students to prescribe policies in the light of changing macroeconomic scenario. 	
<p>Course Learning Outcomes: On having completed this course student should be able to:</p> <p>CLO1 Provide a strong base of macroeconomic principles and concepts relevant in managerial decision making.</p> <p>CLO2 Enable the students to apply the knowledge in managerial decision-making process.</p> <p>CLO3 Enable the students to prescribe policies in the light of changing macroeconomic scenario.</p>	
<p>Pedagogy: This course uses multiple pedagogies like interactive lecture, students' discussions and PPTs, case studies, role plays, and form of experiential learning.</p>	
<p>Unit I: Measuring a Nation's Income and Cost of Living 10 Hrs Economy's Income and Expenditure-Measurement of GDP- Components of GDP- Real versus Nominal GDP-The GDP Deflator; The Consumer Price Index (CPI)-Calculation of CPI- GDP Deflator versus CPI-Correcting economic variables for the effects of inflation- Real and Nominal Interest Rates-Limitations</p>	
<p>Unit II: Production and Growth 09 Hrs Economic Growth around the world: Productivity: Its Role and Determinants-Economic Growth and Public Policy- Investment-Human Capital</p>	
<p>Unit III: Goods and Money Market 09 Hrs Saving and Investment in the National Income Accounts- The Market for Loanable Funds- Policy Changes and Impact on the Loanable fund Market; Money- Meaning and Functions-Money Supply; Full Reserve Banking and Fractional Reserve Banking- Central Bank Tools of Monetary Control; Classical Theory of Inflation- Classical Dichotomy and Monetary Neutrality- Velocity and Quantity equation- Fisher Effect-Costs of Inflation.</p>	
<p>Unit IV: Unemployment 07 Hrs Identifying Unemployment-Labor Force- Unemployment Rate- Labor Force Participation- Types of Unemployment-Unemployment Insurance- Minimum Wage Laws.</p>	

Unit V: Aggregate Demand, Aggregate Supply and Influence of Monetary and Fiscal Policy on Aggregate Demand **09 Hrs**

Three Key Facts about Economic Fluctuations- Short run Economic Fluctuations-Aggregate Demand Curve, Aggregate Supply Curve, Two Causes of Economic Fluctuations; Monetary Policy Influence on Aggregate Demand- The Theory of Liquidity Preference; Fiscal Policy influence on Aggregate Demand- The Multiplier Effect- Crowding out effect- Stabilization Policy; Active Versus Automatic Stabilizers

Unit VI: Short Run Tradeoff between Inflation and Unemployment **08 Hrs**

The Philips Curve-Shifts in Philips Curve and the Role of Expectations-Shifts in Phillips Curve and The Role of Supply Shocks; The Cost of Reducing Inflation Rational Expectations and the Possibility of Costless Disinflation

Unit VII: Six Debates over Macroeconomic Policy **08 Hrs**

Economic Stabilization-Monetary vs. Fiscal Policy ; Handling Recession- Higher Spending vs. Tax Cuts; Monetary Policy-Rule vs. Discretion Based; Central Bank Goal: Zero vs. Non-zero Inflation; Government Budget- Balanced vs. Unbalanced; Tax Laws for Savings –Reformed vs. Not reformed

Essential references:

1. N. Gregory Mankiw (2015), *Principles of Macroeconomics*, 7th Edition, Cengage Learning India.

Recommended references:

1. N. Gregory Mankiw (2019), *Principles of Economics*, 7th Edition, Cengage Learning India
2. Ackley, G. (1976) *Macroeconomics, Theory and Policy*, Macmillan Publishing Company, New York.
3. Ackley, G. (1976) *Macroeconomics, Theory and Policy*, Macmillan Publishing Company, New York.
4. Stanley Fischer and Rudiger Dornbusch (1981) *Macro Economics*, London: Mcgraw-Hill.
5. D.N Dwivedi (2010) *Macroeconomics: Theory and Policy*, Mcgraw-Hill: New Delhi
6. C. Rangarajan and B.H Dholakia (1979) *Principles of Macroeconomics* Tata McGraw-Hill Education
7. Keynes, J.M. (1936), *The General Theory of Employment, Interest and Money*, Macmillan, London
H. L Ahuja (2019) *Principles of Microeconomics*, S Chand Publishing, New Delhi

Course Name: Foundations of Data Engineering	Course Code: BBDS251
Total number of hours: 60 Hrs	Credits: 3
<p>Course Description: Proper database management systems help increase organizational accessibility to data, which in turn helps the end users share the data quickly and effectively across the organization. The course seeks to teach database management using SQL which is a domain-specific language used in programming and designed for managing data held in a relational database management system, or for stream processing in a relational data stream management system. The course also includes Hadoop, which is a collection of open-source software utilities that facilitates using a network of many computers to solve problems involving massive amounts of data and computation. It provides a software framework for distributed storage and processing of big data using the MapReduce programming model.</p>	
<p>Course Objectives: The objective of the course is:</p> <ol style="list-style-type: none"> 1. Familiarize with foundations of data engineering 2. Understand the storage, access, and manipulation of large structured and unstructured data 3. Learn about the distributed storage of data and the process of working with such systems 4. Understand the basic terminologies and operators in SQL, use an SQL interface of a multi-user relational DBMS package to create, secure, populate, maintain, and query a database, formulate query using SQL, solutions to a broad range of query and data update problems 5. Learn the relational model and how it is supported by SQL and PL/SQL and use the PL/SQL code constructs of IF-THEN-ELSE and LOOP types as well as syntax and command functions 	
<p>Course Learning Outcomes: At the end of the course the students will be able to:</p> <p>CLO1 Learn what is a database, types of databases, different types of file systems and data models CLO2 Outline ER model concepts and different Data Base Management Systems (DBMS) functions and apply relational database theory and be able to describe relational algebra expression, tuple, and domain relation expression for queries CLO3 Identify the use of normalization and functional dependency, indexing and hashing technique used in database design CLO4 List the concept of transaction, concurrency control and recovery in database CLO5 Discuss recovery system and explain the introduction to web database, distributed databases, data warehousing and mining</p>	
<p>Pedagogy: This course uses multiple pedagogies like interactive lecture and students' discussions & lab sessions.</p>	
<p>Unit 1 – Introduction to Database Management Systems 03 hrs What is database, types of databases, what is RDBMS, DBMS vs RDBMS, DBMS vs file system, DBMS architecture, 3 schema architecture, data models, data model schema, data independence, DBMS language, ACID properties in DBMS</p>	

Unit 2 – Data Modelling & Relational data Model**05 hrs**

ER model concepts, notation for ER diagram, ER design issues, mapping constraints, DBMS keys, DBMS generalization, DBMS specialization, DBMS aggregation, convert ER into table, relationship of higher degree, relational algebra, join operation, integrity constraints, relational calculus

Unit 3 – Normalization**04 hrs**

Functional dependency, inference rule, DBMS normalization, DBMS 1NF, DBMS 2NF, DBMS 3NF, DBMS BCNF, DBMS 4NF, DBMS 5NF, relational decomposition, multivalued dependency, join dependency, inclusion dependency, canonical cover

Unit 4 – Transaction Processing**04 hrs**

Transaction, transaction property, states of transaction, DBMS schedule, testing of serializability, conflict schedule, view serializability, recoverability of schedule, failure classification, log-based recovery, DBMS checkpoint, deadlock in DBMS

Unit 5 – Concurrency Control & Data Warehousing**04 hrs**

Concurrency control, lock based protocol, time stamping protocol, validation-based protocol, Thomas Write rule, multiple granularities, recovery concurrent transaction, Overview of data warehousing, components/building blocks of data warehousing, difference between operational database and data warehouse, three-tier data warehouse architecture, ETL vs ELT, types of data warehouse, data warehouse design, terminologies, OLAP technology, design schemas, dimensional modelling, data warehouse security, backup

Unit 6 – SQL**25 hrs**

Introduction to Structured Query Language (SQL), SQL database, SQL Table, SQL Select, SQL Clause, SQL Order By, SQL Insert, SQL Update, SQL Delete, SQL Join, SQL Keys

Unit 7 – PL/SQL**15 hrs**

PL/SQL Tutorial, control statements, PL/SQL Procedure, PL/SQL Function, PL/SQL Cursor, PL/SQL Exception, PL/SQL Trigger

Recommended references:

1. Ramakrishnan,R ,Gehrke, J. Database Management Systems, McGraw Hill Publication
2. Elmsari, Navathe(2008). Fundamentals of Database Systems (5th Edition). Pearson Education
3. Jorgensen, A, Ball, B(2014). Professional Microsoft SQL Server 2014 Administration. Wiley

Course Name: Foundations of Data Science	Course Code: BBDS252
Total number of hours: 60 Hrs.	Credits: 3
<p>Course Description: Course introduces fundamentals of computer sciences and programming. This is followed by an introduction to data science, the significance, and foundational topics in Data Science. The course starts by introducing the basic data manipulation tool – Microsoft Excel. Post which R, the most used technology in Data Science will be introduced to the students. Followed by basics of Statistics as a mathematical science pertaining to data collection, analysis, interpretation, and presentation. Statistics is used to process complex problems in the real world so that Data Scientists and Analysts can look for meaningful trends and changes in data.</p>	
<p>Course Objectives: The objective of the course is to:</p> <ol style="list-style-type: none"> 1. Define the basic functioning of computers from a programmer’s perspective 2. Infer the basics of object-oriented programming 3. Experiment with Microsoft Excel, its interface and functionality & understand how data can be structured, manipulated, and summarized in Excel 4. Analyse the fundamentals of the R programming language 5. Understand the need for statistics, develop intuition about data and be able to use different visualization tools to understand it 	
<p>Course Learning Outcomes: At the end of the course the students will be able to:</p> <p>CLO1 Define the basics of computer software and hardware CLO2 Demonstrate the importance of problem solving, determine the logical sequence and diagrammatic representation of the steps CLO3 Identify the logic behind coding, identify the basics of coding and terminologies related to coding CLO4 Discover speed and efficiency in usage of Microsoft Excel and conduct exploratory and descriptive analyses on small to medium sized datasets using Microsoft Excel CLO5 Make use of R to efficiently explore, descriptive and summarize data and derive insights and estimate the feasibility of a business hypothesis using statistical methods</p>	
<p>Pedagogy: This course uses multiple pedagogies like interactive lecture and students’ discussions & lab sessions.</p>	
<p>Unit 1 – Introduction to Computer Hardware and Software Concepts</p> <p>Block diagram of computer – memory and its types – input / output devices, introduction to software – overview and classification of software</p>	3 hrs
<p>Unit 2: Problem solving techniques</p> <p>Introduction to problem solving, logic and importance of logic in problem solving, computational problem and its classification, introduction to algorithms and flowcharts, introduction to programming paradigms and methodologies.</p>	5 hrs
<p>Unit 3: Introduction to Basics of Programming</p>	12 hrs

Basics of coding, binary character set, code hygiene, identifiers and keywords, data types, variables, declarations, best practices for programming – naming variables according to standards, importance of following coding standards- program structure, input and output operations

Unit 4: Learning with Spreadsheets

8 hrs

Introduction to Microsoft Excel, basic functions (string, logic, aggregate functions), conditional formatting, lookup & referencing, pivot charts & pivot table

Unit 5: Basics of R Programming

12 hrs

Introduction to R, using Jupyter notebook, data handling, data frame handling, string and date manipulations, visualizations and apply functions

Unit 6: Introduction to EDA

20 hrs

Why do we need EDA? Summary Statistics, Visualization, Missing value treatment, Outliers and Outlier treatment, Normalization and standardization of data. Dimension reduction by feature selection and feature extraction.

Reading Materials for reference:

1. Walkenbach, John - Excel 2013/2016 Bible, Wiley (2013/2015)
2. Newbold, P, W. Carlson and B. Thorne - Statistics for Business and Economics (8th edition), Harlow: Pearson Education, ©2013
3. Casella & Berger - Statistical Inference, Cengage
4. Gardener, M - Beginning R: The Statistical Programming Language (1st edition), Wrox;
5. Mu Sigma internal training documents

Course Name: Foundations of Decision Science	Course Code: BBDS253
Total number of hours: 60 Hrs.	Credits: 3
Course Description:	
<p>The interdisciplinary field of Decision Science seeks to understand and improve the judgment and decision making of individuals, groups, and organizations. The major emphasizes basic skills and concepts that enhance students' ability to understand and improve the decisions that they and others face. The course also covers the Art of Problem-Solving framework and its subcomponents – muPDNA and muUniverse. It also looks to enhance the students' knowledge on businesses and how they work, what are the basic steps to be taken to chart out the first steps in decision making</p>	
Course Objectives:	
<p>The objective of the course is:</p> <ol style="list-style-type: none"> 1. Understand why simply solving problems is not enough and why a more elaborate art of problem solving is in order 2. Understand how solving specific problems and the art of problem solving can co-exist harmoniously in the larger realm of problem solving 3. Understand the tenets of the Art of Problem-Solving framework 4. Understand the frameworks to analyze an industry vertical 5. Perceive another person's thoughts, fears and concerns, and motivations and appreciate the role of a third person's role in decision making 	
Course Learning Outcomes:	
<p>At the end of the course the students will be able to:</p> <p>CLO1 Define the first steps towards design thinking with the Mu Sigma framework of Art of Problem Solving (AoPS)</p> <p>CLO2 Interpret how to break down a problem into its smallest segments</p> <p>CLO3 Identify how to represent the complexity of a problem</p> <p>CLO4 Examine the working of an industry, its businesses, marketing, and value proposition</p> <p>CLO5 Perceive another person's thoughts, fears, concerns, motivations & examine the role of a third person in decision making and understand how to map out an industry and the structure of an organization</p>	
Pedagogy:	
<p>This course uses multiple pedagogies like interactive lecture and students' discussions & lab sessions.</p>	
Unit 1 –: Introduction to Design Thinking (AoPS Framework) 5 hrs	
<p>The need of an art of problem solving, what art of problem solving enables, non-linearity in problem solving, transforming decision sciences by harmonizing Art of Problem Solving (AoPS) and Solving Specific Problems (SSP)</p>	

Unit 2: Problem Definition & Design**20 hrs**

Underlying concepts of articulating problems – Design, representation, and hypotheses, muSearch, breaking down a problem, iterating refinement of representation and hypotheses, asking the right questions, examples of muPDNA, use cases and exercises

Unit 3: Complexity Representation**15 hrs**

Complexity surrounding individual business problems, mapping problem interconnections, discovering and identifying the latent interconnection between problems, examples of muUniverse

Industry knowledge**Unit 4: Business 101****05 hrs**

Understanding an organization, industry, marketing – Brand, value proposition, segmentation, marketing mix, marketing research, customer lifecycle, finance – balance sheet, profit & loss statement, cash flow statement, operational metrics & ratios in finance, how to read 10K report, operations – operations management practices, trends in operation

Unit 5: Empathy – Relationship Building**10 hrs**

Inputs, outputs and processing, understand the party's sensory inputs, what goes (and doesn't go) in their mind, action yielded as a result of inputs and processing, understanding the stakes & the party's pain points, what party has to gain, use cases of Empathy Maps approaching new and prospective clients and customers, planning for transformation, charting analytical roadmaps, preparing for meetings, preparing clients for presentations, building products and software

Unit 6: Vertical write-ups and Organization Charts**05 hrs**

Overview, significance, how to create them, use-cases

Reading Materials for reference:

Mu Sigma internal training material and case studies

Course Name: Problem Space I	Course Code: BBDS211
Total number of hours: 60 Hrs.	Credits: 2
Course Description:	
<p>This course is designed to give the students a stage to apply and understand all the concepts taught in Foundations of Data Science, Data Engineering & Decision Science. It will help in providing the students with real world industry exposure by guiding them to solve real world problems that Mu Sigma has historically dealt with</p>	
Course Objectives:	
<p>The objective of the course is to:</p> <ol style="list-style-type: none"> 1. Understand why simply solving problems is not enough and why a more elaborate art of problem solving is in order 2. Understand how solving specific problems and the art of problem solving can co-exist harmoniously in the larger realm of problem solving 3. Understand the tenets of the Art of Problem-Solving framework 4. Understand the frameworks to analyze an industry vertical 5. Perceive another person's thoughts, fears and concerns, and motivations 	
Course Learning Outcomes:	
<p>At the end of the course the students will be able to:</p> <p>CLO1 List the principles of art of problem solving while approaching customer churn problems CLO2 Illustrate the business model of an organization CLO3 Identify how change is an outcome of transmission of minor changes CLO4 Examine perspectives of evolutionary change to understand change in contemporary environments CLO5 Test the applications of Data Science, Data Engineering & Decision making in the real world</p>	
Pedagogy:	
<p>This course uses pedagogies like students' discussions & lab sessions.</p>	
Background Knowledge: EDA, R, Hypothesis testing, logistic regression	
Problem Space on Customer churn	60 hrs
<p>Problem Space I will occur once the students are familiar with the design thinking concepts in Decision Science topics. It will be a classroom activity on the problems given by the trainer. This subject will be covered during the second part of the semester.</p>	
Students will be guided on:	
<ol style="list-style-type: none"> 1. How to develop an understanding of customer churn in general 2. Examples of real-life applications of forecasting & its impact 3. How to work on an exercise on customer churn 	
Output expected from students:	
<ol style="list-style-type: none"> 1. Create an Empathy Map, Org Chart and a Vertical writeup on the industry and the business in question 2. Access the problem statement using Design Thinking 3. Break down the problem statement using Problem Definition & Design 	

4. Arrive at a solution thinking on the lines of Transformation Roadmap
5. Submit a Jupyter Notebook with the solution

Reading Materials for reference:

Mu Sigma internal training material and case studies

Course Name: Financial Management	Course Code: BBA331
Total number of hours: 60 Hrs	Credits: 4
<p>Course Description: Financial Management is an introductory core course that is offered with an intent to equip the students with the basic knowledge of finance theory and its application to develop relevant financial strategies pertinent to profit-seeking organizations. The theme of financial management is structured around three decision making financial areas: Investment- long term as well as working capital, Financing and Dividend policy. This imbibes students with analytical and decision-making skills in managing finance through application of theoretical questions and practical problems.</p>	
<p>Course Objectives:</p> <ol style="list-style-type: none"> 1. To understand the basics of finance function and the concepts of financial management 2. To apply the knowledge in taking finance decisions 3. To develop analytical skills to identify financial management problems and solve them. 4. To analyze the relationship among capital structure, cost of capital, dividend decisions, and value of the business. 5. To assess a firm's requirement for long-term assets by applying capital budgeting techniques. 	
<p>Course Learning Outcomes: On having completed this course student should be able to:</p> <p>CLO1 Understand the principles and concepts of financial management.</p> <p>CLO2 Demonstrate the motives behind financial decision making.</p> <p>CLO3 Interpret the relevant theories and concepts of various practices of financial management.</p> <p>CLO4 Analyze the relationship among capital structure, cost of capital, dividend decisions, and value of the business.</p> <p>CLO5 Evaluate and decide on the long-term assets which are profitable to the business applying capital budgeting techniques</p>	
<p>Pedagogy: This course uses multiple pedagogies like interactive lecture, article reviews, case analysis, and flip classes</p>	
<p>Unit I: Introduction to financial management 06 Hrs</p> <p>Level of knowledge: Basic</p> <p>Meaning of finance and financial management, Types of finance – public and private finance , classification of private finance – personal finance, business finance and finance of non-profit organization Importance and Scope of financial management, Approaches to finance function Relationship of finance with other business functions, Objectives of financial management – profit maximization and wealth maximization - merits and criticisms Financial decisions, Internal relation of financial decisions, Factors influencing financial decisions Functional areas of financial management, Functions of a finance manager.</p>	
<p>Unit II: Sources of finance and Capitalization 09 Hrs</p> <p>Level of knowledge: Conceptual</p> <p>Ownership securities – Equity shares, Preference shares, Deferred shares, No par stock/shares, Shares with differential rights, Sweat Equity Creditorship securities – Debentures – Zero coupon bonds, Zero interest bonds, Callable bonds, Deep discount bonds Internal financing or ploughing back of profit – factors affecting ploughing back of profits – merits and demerits Loan financing – short term and long term sources. Meaning</p>	

of capitalization – Theories of capitalization – cost theory and earnings theory. Over capitalization and under capitalization – causes – effects and remedies, Watered stock, Over trading and under trading

Unit III: Capital Structure

10 Hrs

Level of knowledge: Conceptual

Meaning of capital structure and financial structure, principles of capital structure, optimum capital structure, determinants of capital structure, theories of capital structure and EPS – practical problems. Point of indifference, capital gearing

Unit IV: Cost of capital and Leverages

12Hrs

Level of knowledge: Conceptual / Analytical

Meaning of cost of capital, significance of cost of capital, components of cost of capital – computation of cost of capital and Weighted Average Cost of Capital – practical problems. Meaning of leverage, types of leverages – operating, financial and combined leverage, risk and leverage – practical problems

Unit V: Capital budgeting

10 Hrs

Level of knowledge: Conceptual / Analytical

Meaning of capital budgeting, Importance, Need, Time value of money, capital budgeting process, project appraisal by using traditional methods and modern methods Practical problems on payback period, rate of return, NPV method, Profitability index, IRR methods

Unit VI: Dividend policy decisions

06 Hrs

Level of knowledge: Conceptual/ Analytical

Meaning, Kinds, Bonus shares – merits and demerits, theories of dividend decisions, determinants of dividend policy decisions.

Unit VII: Management of working capital

07 Hrs

Level of knowledge: Conceptual/ Analytical

Meaning of working capital, types of working capital, working capital cycle, adequate working capital, determinants of working capital, estimation of working capital. Management of cash – cash budget – practical problems. Management of inventory and debtors – theory only.

Core Text:

1. Khan, M, Y, & Jain, P, K (2018). *Financial Management*. Tata Mc Graw Hill.

Recommended references:

1. Chandra, P. (2019). *Financial Management*. New Delhi, India. Tata McGraw Hill Book Co.
2. Pandey, I.M. (2015). *Financial Management*. New Delhi, India. Vikas Publishing House.
3. Gupta, S, K., Sharma, R.K. & Gupta, N (2013). *Financial Management*. Kalyani Publishers.

Course Name: Human Resource Management	Course Code: BBA332
Total number of hours: 60 Hrs	Credits: 4
Course Description: Human Resource Management course provides an overview of the HR function covering the entire gamut of operations related to the employee life cycle management. The course focuses on providing the basic understanding of HR processes and practices followed in a business organization. It orient learners towards understanding of various HR functions such as recruitment and selection, training and development, performance management system, conflict management for a satisfied and committed workforce.	
Course Objectives: <ul style="list-style-type: none"> ● To interpret the range of theories/models concerned with human resources management and how they can be applied to the hospitality industry. ● To assess the importance of job description and person specification in recruitment and selection. ● To outline the range of training and development methods available to the hospitality industry. ● To compare and differentiate between evaluative and developmental aspects of performance management. ● To discuss the cause of grievance and misconduct by employees in the organization. ● To examine the ways to settle the employee employer conflicts. 	
Course Learning Outcomes: On having completed this course student will able to: CLO1: Demonstrate understanding of the concept and process of human resources management. CLO2: Develop the documents related to various HR activities. CLO3: Analyze the cause of the HRM problem in business organization. CLO4: Propose solutions to address the problem and apply HRM frameworks. CLO5: Design the content for training and development aligned with learning needs of the employees. CLO6: Formulate HR policies and program to address issues to resolve employee conflicts.	
Pedagogy: This course uses multiple pedagogies like interactive lecture, student discussions, peer learning & presentations, flip class, case studies and research article analysis, field study as well as a Guest Lecture by an industry practitioner.	
Unit I Introduction Level of Knowledge: Conceptual Concept of HRM, Evolution of HRM, Role of Human Resource Manager, Functions of HRM, HR structure and Concept of Strategic HRM.	06 Hrs
Unit II Human Resource Planning Level of Knowledge: Analytical Concept & Importance of HRP, Different stages of HR Planning Process, Action Plans in case of shortage and surplus of workforce.	08 Hrs
Unit III Job Analysis Level of Knowledge: Analytical Concept of Job Analysis, Importance and Benefits of Job Analysis, Job Analysis Process, Job Description, Job Specification and other Job-related concepts- Job Enrichment, Job Enlargement, Job Rotation, Flexi timing, Telecommuting and Ergonomics.	08 Hrs

Unit IV Recruitment, Selection & Placement**10 Hrs**

Concept of Recruitment, Factors affecting Recruitments, Traditional and Modern sources of Recruitment; E-Recruitment; Alternative to Recruitment. Definition and Importance of Selection, Stages involved in Selection Process, Types of Selection Tests and Types of Interviews. Meaning and benefits of Induction, Content of an Induction Program.

Unit V Performance Appraisal**08 Hrs**

Purpose of Performance Appraisal, Trait, Behavioral and Result Methods of Performance Appraisals, Process of Performance Appraisal.

Unit VI Training and Development**08 Hrs**

Meaning and Importance of Training and Development Programs, Stages involved in Training Process, On-the-Job and Off-the-Job Training & Development Methods.

Unit VII Career Planning and Development**06 Hrs**

Career Planning & Development, Stages in Career Planning, Internal and External Mobility of Employees.

Unit VII Conflict Management**06 Hrs**

Meaning and Sources of Employee Grievance, Grievance Handling Systems, Meaning & Process of Collective Bargaining, Indiscipline, Settlement Machinery of Industrial Conflicts.

Essential Reading

- K. Ashwathappa (2017), *Human Resource Management: Text and Cases*, 8th edition, Tata Mc Graw Hill.

Recommended Reading

- Rao, P.Subba (2016). *Personnel and Human Resource Management: Text & Cases 5th Edition* Mumbai: Himalaya Publishing Houses Private Limited.
- Dessler, Gary (2015), *Human Resource Management*, 14th edition, Prentice Hall.
- Armstrong, M. (2010). *Handbook of HRM Practice*. USA: Kogan Page.
- Basak, S. P. (2012). *Human Resource Management: Text & Cases*. New Delhi: Pearson

Course Name: Marketing Management	Course Code: BBA333
Total number of hours: 60 Hrs	Credits: 4
<p>Course Description: Marketing is a particularly stimulating subject for learners, since its practical application is visible every day. Old rules of marketing are no longer useful to those who want to influence these new consumer's choices. This course will lead the exploration of the leading edge of this paradigm shift that is now underway. This course introduces students to the concepts and processes of marketing and takes them deeper into the world of marketing.</p>	
<p>Course Objectives:</p> <ol style="list-style-type: none"> 1. To understand the application of Marketing concepts and techniques 2. To analyze marketing from a managerial perspective, including the critical analysis of functions of marketing opportunity assessment 3. To enhance team decision making skills and communication skills from a Marketing perspective 	
<p>Course Learning Outcomes: On having completed this course student should be able to:</p> <p>CLO1 Recognize how to identify target markets and environments by analyzing demographics and consumer behavior</p> <p>CLO2 Students will be able to create a detailed marketing plan and implementation schedule for a company, or critically evaluate existing marketing strategies and tactics.</p> <p>CLO3 Students can communicate effectively among team members to develop a team-prepared written project and (b) they can make a persuasive, effective presentation of their project.</p> <p>CLO4 Recall the strategies used within each of the marketing mixes</p> <p>CLO5 List best practices for responsible marketing and how to manage marketing efforts</p>	
<p>Pedagogy: This course uses multiple pedagogies like case study discussions, interactive lecture, presentations, review of research article, in class group exercises and activities.</p>	
<p>Syllabus</p> <p>UNIT I INTRODUCTION TO MARKETING FUNDAMENTALS 10 Hrs Meaning Definition marketing, scope of marketing, core marketing concepts, Marketing and Customer Value, Marketing Plan Criteria.</p> <p>UNIT II CONNECTING WITH CUSTOMERS 09 Hrs Model Consumer Behavior, characteristics Affecting consumer Behavior, Types of Buying Decision Behavior, The Buyer Decision Process, The Buyer Decision Process for New Products; Business Buyer Behavior, The Business Buyer Decision Process, Institutional and Government Market. Segmentation, targeting and positioning for competitive advantage.</p> <p>UNIT III PRODUCT DECISION 08 Hrs Product Levels, Product Characteristics and Classifications, New product development stages, categories of new product, reasons for launching new products and its failure. Product life cycle strategies and its extension,</p>	

Ansoff's Matrix, BCG Matrix, meaning of services, unique characteristics of services, 7Ps of service marketing, Service delivery process

UNIT IV PRICING

08 Hrs

Types of pricing, Pricing strategies: New product pricing strategies, Product mix pricing strategies, Price adjustment strategies, Price changes, Public policy and pricing.

UNIT V DISTRIBUTION CHANNELS

08 Hrs

Marketing channels, structure, types and criteria of selecting a channel, wholesaling, retailing, and physical distribution.

UNIT VI PROMOTION

09 Hrs

An overview. Advertising, sales promotion, personal selling and sales management. Public and customer relations, direct and online marketing, multilevel marketing-the new marketing model.

UNIT VII RESPONSIBLE MARKETING

08 Hrs

Sustainable Marketing, Social Criticisms of Marketing, Marketing's Impact on Individual, Marketing's Impact on Society as a Whole, Marketing's Impact on Other Businesses, Actions to Promote Sustainable Marketing, Business Actions Toward Sustainable Marketing, Principles and Marketing Ethics.

Essential Reading:

1. Kotler.P, & Keller.K.L. (2016). *Marketing Management*, 17th edition, Pearson.

Recommended Reading:

1. Marshall & Johnston, *Marketing Management*, McGraw Hill
2. Kotler & Armstrong, 15th ed., *Principles of Marketing Management*, Pearson publication
3. Chernev & Kotler, 5th ed., *Strategic Marketing Management*, Brightstar Media
4. Stanton, Etzel, Walker, *Fundamentals of Marketing*, Tata-McGraw Hill, New Delhi.
5. Saxena, Rajan, *Marketing Management*, Tata-McGraw Hill, New Delhi.
6. McCarthy, E.J., (2016). *Basic Marketing: A managerial approach*. Irwin, New York.

Course Name: Beginner Level Data Engineering	Course Code: BBDS351
Total number of hours: 60 Hrs.	Credits: 3
Course Description:	
<p>This course covers HTML which provides the basic structure of sites, which is enhanced and modified by other technologies like CSS and JavaScript. CSS is used to control presentation, formatting, and layout. JavaScript is used to control the behavior of different elements. The course also includes Node.js which is an open-source, cross-platform, back-end JavaScript runtime environment that executes JavaScript code outside a web browser. Node.js allows the developers to use JavaScript to write command line tools and for server-side scripting.</p>	
Course Objectives:	
<p>The objective of the course is to:</p> <ol style="list-style-type: none"> 1. Understand the structure of web content and how it is created 2. Learn the basics of HTML 3. Learn the basics of CSS and JavaScript 4. Learn the Node.js framework for developing web applications 5. Understand the interactions between Node.js applications and various database systems 	
Course Learning Outcomes:	
<p>At the end of the course the students will be able to:</p> <p>CLO1 Define how to build and demonstrate the fundamentals of the web CLO2 Identify the basic programming languages for web development and design CLO3 Build websites from scratch CLO4 Discover the basics of application building using Node.js CLO5 Create small- and large-scale web applications using Node.js, which interact with database systems for information storage</p>	
Pedagogy:	
<p>This course uses multiple pedagogies like interactive lecture and students' discussions and lab sessions</p>	
Unit 1 – Hypertext Mark-up Language (HTML)	8 Hrs
<p>Beginner's guide, tags, elements and attributes, tables, lists and blocks, formatting and image, links, frames and background, multimedia, HTML semantics, storage</p>	
Unit 2 – Cascading Style Sheets (CSS)	8 Hrs
<p>Beginner's guide, page design, textual formatting, embedding links and images, tables and dimensions, media queries, CSS grid, flexboxes</p>	
Unit 3 – JavaScript	13 Hrs
<p>Introduction to JS, JavaScript variable, JavaScript data type, JavaScript array methods, For, While and Do-While loops in JavaScript, JavaScript conditional statements, JavaScript Define and Call functions, cookies in</p>	

JavaScript, JavaScript DOM, Object Oriented JavaScript (OOJS), internal and external JavaScript, call-backs, promises, Async, Await, ES6 introduction.

Unit 4 – Basics of Node.js

13 Hrs

Introduction to Node.js, Node.js module system, file system and command line Args, debugging Node.js, asynchronous Node basic

Unit 5 – Node JS Level II

18 Hrs

Creating a web server, accessing API from browser, deployment of web application, MongoDB and promises, Mongoose and Rest API, API authentication and security

Recommended references:

1. Duckett, J (2011). HTML and CSS: Design and Build Websites. Wiley
2. Duckett, J (2014). JavaScript and jQuery: Interactive Front-end Development. Wiley
3. Robbins, J, N (2016). Learning Web Design: A Beginner's Guide to HTML, CSS, JavaScript, and Web Graphics. O'Reilly
4. Kiessling, M (2011). The Node Beginner Book. Leanpub
5. Kiessling, M (2017). The Node Craftsman Book. Packt Publishing
6. Dayley, B (2018). Node.js, MongoDB, and AngularJS Web Development (2nd Edition). Addison-Wesley

Course Name: Beginner Level Data Science	Course Code: BBDS352
Total number of hours: 60 Hrs.	Credits: 3
<p>Course Description: The Course gives an introduction and dwells in-depth into the working and functions of Data Science. Python is an interpreted, object-oriented, high-level programming language with dynamic semantics. Its high-level built in data structures, combined with dynamic typing and dynamic binding, make it very attractive for Rapid Application Development, as well as for use as a scripting or glue language to connect existing components together. The course also covers the application of analytics in various industries.</p>	
<p>Course Objectives: The objective of the course is to:</p> <ol style="list-style-type: none"> 1. Familiarize in working with the Python workspace 2. Understand the basic functionality of Python and to be able to write structured code 3. Familiarize with specific data science libraries and packages 4. Become familiar with how the Retail & Insurance industries works 5. Understand how the Healthcare & Pharmaceutical industries work 	
<p>Course Learning Outcomes: At the end of the course the students will be able to:</p> <p>CLO1 Define a structured code in Python for a range of purposes including scripting and application development</p> <p>CLO2 Identify how to perform data manipulation and analysis using Python</p> <p>CLO3 Analyze how to visualize using Python</p> <p>CLO4 Develop an understanding of major industries – Retail, Insurance, Pharma & Healthcare</p> <p>CLO5 Propose a hypothesis around business problems in the Retail, Insurance, Pharma & Healthcare industry based on a strong understanding of how businesses function</p>	
<p>Pedagogy: This course uses multiple pedagogies like interactive lecture and students’ discussions & lab sessions</p>	
<p>Unit 1 – Introduction to programming in Python 12 hrs Concepts and motivation: What is programming, programming paradigms (procedural, object oriented, functional), compiled vs. interpreted languages, popular IDEs (IDLE, Spyder, IPython/Jupyter, Komodo), Print statement, variables in Python, lists and sets, functions and function calls, conditional statements, iterative statements, BREAK and CONTINUE, classes and objects, importing libraries, importing your own code, installing a new package using PIP, memory management by the Python virtual machine</p>	
<p>Unit 2 - Python packages for data analysis 14 hrs NumPy, SciPy, Pandas, Scikit-Learn, Nltk, Matplotlib, Bokeh, connecting to data sources and fetching data, reading datasets of various types and storing in relevant structures, reading and writing files of any time, DICT data structure, JSON, list comprehensions and its use, string manipulation, text cleansing, date-time handling</p>	

Unit 3: Visualizations using Python**10 hrs**

Histograms, bar-plot, scatter plots, line plots, pie-charts, box-whisker plots, using gg plot to improve aesthetics, EDA using Python

Unit 4: Introduction to Industries: Insurance & Retail**12 hrs**

Fundamentals of the insurance industry: Entities in the insurance industry, insurance products – home, health, life, vehicle, disaster, group insurance, commercial insurance; regulations in the insurance industry – difference across countries, reinsurance

Overview of Strategic Retail Management and Situation Analysis: An introduction to retailing, building and sustaining relationships in retailing, strategic planning in retailing, retail Institutions by ownership, retail institutions by store-based strategy, web, non-store-based and other forms of non-traditional retailing

Unit 5: Introduction to Industries: Pharma & Healthcare**12 hrs**

Fundamentals of pharmaceuticals and pharmacy retail R&D – drug development and trials, product launches, regulatory compliance, pharmacy retail – in-pharmacy marketing, pharmacy services, filling process and prescriptions, customer outreach and retention

Fundamentals of the healthcare industry, healthcare ecosystem and various entities – manufacturers, PBMs, KOLs, retailers, insurers, hospitals, patients and doctors, interactions between these entities, difference in healthcare ecosystem across countries, healthcare regulation across countries

Reading Materials for reference:

1. McKinney, W. Python for Data Analysis (2nd edition). O'Reilly Media
2. Mu Sigma Internal Training Documents

Mu Sigma Case studies

Course Name: Beginner Level Decision Science	Course Code: BBDS353
Total number of hours: 60 Hrs.	Credits: 3
Course Description:	
<p>The course covers Power BI – How it is used for making better business decisions. Students will learn how to fetch relevant information from the data in a lucid manner. Microsoft Power BI suite is designed to quickly turn the data into useful information. The course also looks to incorporate the muOBI tenet of the Art of Problem-Solving framework of Mu Sigma. The course will also help in understanding the client environment and the steps to complete work using Business Process Flow & Client Context. It also entails to teach the art of dashboarding & deck making</p>	
Course Objectives:	
<p>The objective of the course is:</p> <ol style="list-style-type: none"> 1. To prepare the data, data discovery, interactive dashboards, and rich visualizations in one solution 2. Students will learn an intuitive tool for interacting with data and turning it into insights more easily 3. They will understand the tenets of the art of problem-solving framework 4. They will discover why standardizing business process flows is important and valuable to an organization 5. They will understand customer context and understand dashboarding and deck-making 	
Course Learning Outcomes:	
<p>At the end of the course the students will be able to:</p> <p>CLO1 Demonstrate the applications of Power BI, connect, import, and transform data for Business Intelligence (BI)</p> <p>CLO2 Determine how to visualize data, create, and share dashboards</p> <p>CLO3 Deduct outcomes and derive insights using muOBI</p> <p>CLO4 Create Business Process Flow & Client Contexts</p> <p>CLO5 Plan how to tell a story through deck-making and story boarding</p>	
Pedagogy:	
<p>This course uses multiple pedagogies like interactive lecture and students' discussions & lab sessions</p>	
Unit 1 – Introduction to Power BI	15 Hrs
<p>What is Power BI, why is it important, processes in Power BI, starting with Power BI, connecting data sciences, data transformations, introduction to DAX</p>	
Unit 2 - Power BI: Visualization & Data modelling	20 Hrs
<p>Charts, maps, gauge, data card, slicers, tables & matrices, using related functions, optimizing data models, waterfall charts, funnels, tree map, decomposition tree, formatting, conditional formatting</p>	
Unit 3 - Transformation Roadmap	10 Hrs

What is muOBI, planning for outcomes, planning for transformation, harmonizing top-down planning and bottom-up execution, how to traverse the muOBI. (Examples of muOBI)

Unit 4 - Business Process Flow & Client Context

10 Hrs

Steps to create a Business Process Flow (BPF), steps to create client context

Unit 5 - Art of Storytelling & Dashboarding

05 Hrs

Best practices to storyboard, make decks and apply them in presentations, introduction to dashboarding, nuances of dashboarding, gauging dashboard requirements

Reading Materials for reference:

1. Powell, B (2018). Mastering Microsoft Power BI: Expert techniques for effective data analytics and business intelligence, Packt
2. Mu Sigma internal documents

Course Name: Problem Space II	Course Code: BBADS311
Total number of hours: 60 Hrs.	Credits: 2
Course Description:	
<p>This course is designed to give the students a stage to apply and understand all the concepts taught in Beginner Data Science, Data Engineering & Decision Science. It will help in providing the students with real world industry exposure by guiding them to solve real world problems that Mu Sigma has historically dealt with.</p>	
Course Objectives:	
<p>The objective of the course is:</p> <ol style="list-style-type: none"> 1. To understand why simply solving problems is not enough and elaborate the art of problem solving 2. Understand how solving specific problems and the art of problem solving can co-exist harmoniously in the larger realm of problem solving 3. Understand the tenets of the Art of Problem-Solving framework 4. Understand the frameworks to analyse an industry vertical 5. Understand problems pertaining to specific industries 	
Course Learning Outcomes:	
<p>At the end of the course the students will be able to:</p> <p>CLO1 List the principles of art of problem solving while approaching Promotion & campaign management CLO2 Illustrate the business model of an organization CLO3 Identify how change is an outcome of transmission of minor changes CLO4 Examine perspectives of evolutionary change to understand change in contemporary environments CLO5 Test the applications of Data Science, Data Engineering & Decision making in the real world</p>	
Pedagogy:	
<p>This course uses pedagogies like students' discussions & case studies.</p> <p>Background Knowledge: EDA, Hypothesis testing, AoPS, Python</p>	
Problem Space on Promotion & campaign management	
60 Hrs	
<p>Problem Space II will occur once the students are familiar with the design thinking concepts in Decision Science topics. It will be a classroom activity on the problems given by the trainer. This subject will be covered during the second part of the semester.</p>	
Students will be taught:	
<ol style="list-style-type: none"> 1. To develop an understanding of Promotion & campaign management in general 2. Examples of real-life applications of Promotion & campaign management & its impact 3. Techniques to arrive at a solution, their uses & application 4. How to work on an exercise on Promotion & campaign management 	
Output expected from students:	
<ol style="list-style-type: none"> 1. Create an Empathy Map, Org Chart and a Vertical writeup on the Industry and the business in question 2. Access the problem statement using Design Thinking 	

3. Break down the problem statement using Problem Definition & Design
4. Arrive at a solution thinking on the lines of Transformation Roadmap
5. Submit a Jupyter Notebook with the solution

Reading Materials for reference:

Mu Sigma internal documents and case studies

Course Name: Cost and Management Accounting	Course Code: BBA431
Total number of hours: 60 Hrs	Credits: 4
<p>Course Description: This course covers the fundamental concepts and various aspects in and of cost as well as management accounting. This course discusses how to prepare a cost sheet, costing for materials, labour cost and overheads. This course also talks about financial statement analysis using various tools like comparative and common size Income Statements and Balance Sheet, Trend Analysis, Ratio Analysis, Cash Flow Statement, Budgets and Budgetary Control. It also throws some light on Management Reporting in general. And thus this course as a part of the Business administration programme provides fundamental knowledge and basic understanding on various methods, tools and techniques of cost and management accounting helpful for financial decision making required for a budding professional in the domain of accounting and finance.</p>	
<p>Course Objectives:</p> <ul style="list-style-type: none"> ● To familiarize the learners with the basic concepts and processes used to determine product costs. ● To make known the students in ascertaining Material, Labor and Overhead cost ● To enrich the knowledge of the learners in knowing and applying various tools like ratio analysis, cash flow statement, marginal costing for analyzing the financial statements for managerial information ● To provide with the basic understanding of budgetary control ● To develop the knowledge of the learners to understand and prepare a management report 	
<p>Course Learning Outcomes: On having completed this course student should be able to:</p> <p>CLO1 Interpret the relevant theories of cost and management accounting and can prepare cost sheet and quotations.</p> <p>CLO2 Ascertain Material and Labor cost</p> <p>CLO3 Ascertain, allot and apportion of the overheads.</p> <p>CLO4 Assess and interpret the financial statements for managerial decision making.</p> <p>CLO5 Examine and understand management reports.</p>	
<p>Pedagogy: This course uses multiple pedagogies like interactive lecture, students' discussions and PPTs, problem solving</p>	
<p>Unit-I</p> <p>Introduction to Cost and management accounting 8 Hrs</p> <p>Definitions, features, objectives, functions, scope, advantages and limitations. Relationship and differences between Cost accounting, Management accounting and Financial accounting.</p> <p>Cost Concepts-Cost classification – Elements of cost - Preparation of cost sheet and quotation.</p> <p>Unit-II 10 Hrs</p> <p>Material, Labor and Overheads</p> <p>Material Cost: direct and indirect material cost, Inventory control techniques-stock levels, EOQ, ABC analysis. Issue of materials to production- pricing methods-FIFO, LIFO and Average methods.</p> <p>Labor cost: direct and indirect labor cost-methods of payment of wages including incentive plans -Halsey and Rowan plans, Taylor's Piece Rate method.</p> <p>Overheads: features, classification, methods of allocation and apportionment of overheads, primary and secondary distributions (Repeated & step ladder method only).</p>	
<p>UNIT III: Marginal Costing 8 Hrs</p>	

Level of Knowledge: Analytical

Marginal Costing-Meaning - Importance - Marginal Cost Equation - Difference between Marginal costing and Absorption costing - Break Even Analysis-Meaning and Importance - Break even chart- P/V ratio - Cost Volume Profit Analysis- Margin of Safety-Angle of Incidence- Problems in Marginal costing.

UNIT-IV Budgetary control**7 Hrs**

Budgets - Meaning and importance - Budgetary Control-Meaning and Importance-Types of Budgets, practical problems - Flexible Budget and cash Budget,

UNIT-V: Financial Statement Analysis**10 Hrs****Level of Knowledge: Analytical**

Comparative Income Statements and Balance Sheets- Common size Income Statements and Balance Sheet analysis- Trend Analysis. Ratio Analysis – Introduction, Classification & Interpretation of Ratios.

UNIT-VI: Cash flow statement**13 Hrs****Level of Knowledge: Analytical**

Introduction- Concept of Cash- Sources of cash flow Cash from operating- cash from Financing and cash from investment- Inflow and outflow of cash- Preparation of cash flow statements with adjustments

UNIT VII: Management Reports**04 Hrs****Level of Knowledge: Conceptual**

Management Reporting – Meaning and Definitions of reports- Objectives and purpose-Reports to top level management – Reports to lower level management- Sample Reports

Essential Reading:

Arora,M.N (2019).*Cost and Management Accounting*, New Delhi: Himalaya Publishing House.

Recommended Reading:

1. Jain, S.P., & Narang, K.L. (2018). *Cost Accounting*. New Delhi: Kalyani Publishers.
2. Kishor, R.M. (2013). *Cost and Management Accounting*. New Delhi: Taxman Allied Services.
3. Pillai, R.N.S. (2013). *Cost Accounting*. New Delhi: Sultan Chand.
4. Arora,M.N (2018). *Management Accounting*, New Delhi: Himalaya Publishing House
5. Lal, J. (2013). *Cost Accounting*. New Delhi: Tata Mc Graw Hill Education

Course Name: Entrepreneurship Development	Course Code: BBA432
Total number of hours: 60 Hrs.	Credits: 4
<p>Course Description:</p> <p>From the perspective of a country's economic development, entrepreneurship is a necessary ingredient for stimulating economic growth and employment opportunities. In the developing world, successful small businesses are the primary engines of job creation & income growth. In this direction, this course on entrepreneurship development, educates an individual about the efforts taken by the government broadly to encourage entrepreneurship.</p>	
<p>Course Objectives:</p> <ul style="list-style-type: none"> • To outline the need & importance of entrepreneurship and the role of government in promoting entrepreneurship. • To explain key entrepreneurial competencies & skills needed to take up entrepreneurship • To analyze the entrepreneurial opportunities and transform them into business plans • To interpret the factors influencing the entrepreneurial activities in the context of the economic, socio-cultural, legal, technological and global environment • To adapt the functional management knowledge to new business ideas 	
<p>Course Learning Outcomes:</p> <p>CLO1.Understand the need and importance of developing entrepreneurship and the role of government in promoting entrepreneurship.</p> <p>CLO2.Identify & develop key entrepreneurial competencies & skills to take up entrepreneurship</p> <p>CLO3.Examine the entrepreneurial opportunities and transform them into business plans</p> <p>CLO4.Evaluate factors influencing the entrepreneurial activities in the context of the economic, socio-cultural, legal, technological, and global environment.</p> <p>CLO5.To adapt functional management knowledge into new business ideas</p>	
<p>Pedagogy: This course uses multiple pedagogies like case study discussions, interactive lecture, presentations, review of research article, in class group exercises and activities.</p>	
<p>UNIT I–Introduction to Entrepreneurship 10 Hrs.</p> <p>Evolution of the Concept of Entrepreneurship; Theories of Entrepreneurship- Innovation Theory, Harvard School Theory, Theory of High Achievement, Theory of Profits, Theory of Adjustment of Price-Entrepreneurship Today; Types of Entrepreneurs; Intrapreneurship; Difference Between a Manager and an Entrepreneur; Entrepreneurial Competencies; Capacity Building for Entrepreneurs; Women’s Entrepreneurship, Challenges Faced by Women Entrepreneurs; Characteristics of a Family-owned Business in India; Various Types of Family Businesses; Challenges Faced by Family-owned Businesses.</p>	
<p>UNIT II– Entrepreneurship Development in India 10 Hrs.</p> <p>Entrepreneurial Environment; Global Entrepreneurship Environment; Business Climate in India; Environmental Factors Affecting Entrepreneurial Growth; Creating a Favorable Environment for Entrepreneurship; Models of Entrepreneurial Development; The Process of Entrepreneurial Development;</p>	

Role and Importance of Micro, Small, and Medium Enterprises; Concepts and Definitions of MSME; The MSMED Act, 2006; Government Policy Initiatives; Current Schemes for MSME; Problem Faced by MSME Sector; Role of Clusters in Promoting MSME.

UNIT III– Creativity & Innovation

10 Hrs.

The creative process, Search for Business ideas, Selection of Product/Service, Product innovation; Services Industries-Human side of an enterprise; Identification of Business Opportunities; Mobility of Entrepreneurs; Geographical Mobility of Entrepreneurs; Occupational Mobility; Business Opportunities in India; Models for Opportunity Evaluation; The RAMP Model ; Mullins's Seven-domain Framework

UNIT IV– Business Plans

10 Hrs.

Purpose of a Business Plan; Contents of a Business Plan- Management Summary; Marketing Plan; Operations Plan; Financial Plan; Procedure for Setting Up an Enterprise; Selection of a Project; Decide on the Constitution Obtain Registration; Obtain Clearances from Departments as Applicable; Arrange for Land/Shed; Arrange for Plant and Machinery; Arrange for Infrastructure; Prepare Project Report; Apply for and Obtain Finance; Implement the Project and Obtain Final Clearances.

UNIT V–Institutional Support to entrepreneurs

10 Hrs.

Institutions Supporting Business Enterprises; Central-level Institutions; National Board for Micro, Small, and Medium Enterprises (NBMSME) The Khadi and Village Industries Commission (KVIC) The Coir Board MSME-DO; National Small Industries Corporation (NSIC); National Science and Technology Entrepreneurship Development Board (NSTEDB) National Productivity Council (NPC) Entrepreneurship Development Institute of India (EDI) National Research Development Corporation of India (NRDCI) National Entrepreneurship Development Institutes; State-level Institutions ; State Directorate of Industries and Commerce ; District Industries Centers (DIC) ; State Financial Corporation (SFC); State Industrial Development Corporation (SIDC) State Industrial Area Development Board (SIADB); Other Institutions National Bank for Agriculture and Rural Development (NABARD) Housing and Urban Development Corporation (HUDCO); Technical Consultancy Organization (TCO); Small Industries Development Bank of India (SIDBI) ; Export Promotion Councils (EPCs) Industry Associations Non-Governmental Organization (NGOs) Business Incubators.

UNIT VI – Project Management & Financing

10Hrs.

Introduction, Project Manager ; Project Life Cycle , Project Scheduling -Gantt Charts, Network Techniques ; Project Management Software; Capital Budgeting; Generating an Investment Project Proposal; Project Analysis; Market Analysis, Technical Analysis, Financial Analysis, Economic Analysis, Project Evaluation and Selection ; The Payback Period; Accounting Rate of Return (ARR) Net Present Value (NPV) Internal Rate of Return (IRR) ; Benefit-Cost Ratio (BCR) Project Financing Equity Financing; Angel Investing ; Debt Financing ; Miscellaneous Sources; Project Implementation Phase; Capital Structure and Cost of Capital; Detailed Project Report; Ecological Analysis.

Essential Reading:

1. Poornima M Charantimath (2020) “Entrepreneurship Development and Small Business Enterprises”, 3rd Edition, Pearson Publication.

Recommended Reading:

2. David, H. (2013). “Entrepreneurial Development” (5th edition), Prentice Hall
3. Desai, V. (2014). The Dynamics of Entrepreneurial Development and Management (6th edition). Himalaya Publishing House.
4. Gupta, C.B., & Srinivasan, N.D. (2012) Entrepreneurship Development. New Delhi Sultan Chand & Sons.
5. Robert D Hisrich, Mathew J. Manimala, Michael Peter, Dean A Shepherd. (2013) “Entrepreneurship” (8th edition). Tata McGraw Hill

Course Name: Research Methodology	Course Code: BBA433
Total number of hours: 60 Hrs	Credit: 4
<p>Course Description: Research in common parlance refers to a search for knowledge in any stream or a discipline finding solutions or inputs for questions raised. Students will be provided with basic concepts of research and its process. Course focuses on inculcating research culture among students through hands on learning experience. This course will equip the students with required skill sets for identification, analysis, and interpretation of business problems. This process will help in informed business decision making. The course is designed to provide experiential learning in all the modules.</p>	
<p>Course Objectives:</p> <ul style="list-style-type: none"> ● To understand the concepts, tools and terminologies used in the research world. ● To identify the methods best suited for investigating different types of problems and questions ● To demonstrate hands on experience on different tools used in a research ● To construct research questions that are based on and build upon a critical appraisal of existing research. ● To develop a research design and analysis the results 	
<p>Course Learning Outcomes: Students should be able to:</p> <p>CLO1 - Demonstrate ability to understand different research terminologies.</p> <p>CLO2 - Identify research problems and questions</p> <p>CLO3 - Develop methodology for research problems</p> <p>CLO4 - Analyze data required for business decision-making.</p> <p>CLO5 - Propose suggestions based on the findings from the research.</p>	
<p>Pedagogy: This course uses multiple pedagogies like in classroom activities, interactive lecture, students discussions & presentations, article analysis, participation in industrial discussion forums, guest lectures from researchers.</p>	
Unit I – INTRODUCTION TO BUSINESS RESEARCH	10Hrs
<p>Level of Knowledge: Basic / Conceptual</p> <p>Definition, Objectives of research, Characteristics of research - Scientific Method, Types of research, Criteria for Good research, Business research in organizations - Decision Support, Ethics in research.</p>	
Unit II –RESEARCH PROCESS AND CONCEPTS IN RESEARCH	10 Hrs
<p>Level of Knowledge: Basic / Conceptual</p> <p>Research Process - Steps in research, Research designs for Experimental, Explorative and Explanatory. Concepts - Methodology and Methods, Theory, concepts, constructs variables, Deductive and inductive logic.</p>	
Unit III –FORMULATION OF RESEARCH PROBLEM AND HYPOTHESES	10 Hrs
<p>Level of Knowledge: Basic / Conceptual / Analytical</p> <p>Identifying and formulating research problem, Diagnosis of symptoms and problem. Setting research objectives. Doing review of literature – purpose, methods. Hypothesis – Meaning, Purpose, Sources, characteristics of hypotheses, types of hypothesis, testing of hypothesis with the aid of AoPS.</p>	
Unit IV - MEASUREMENT SCALES & SAMPLING TECHNIQUES	10 Hrs
<p>Level of Knowledge: Basic / Conceptual / Analytical</p> <p>Measurement – Types of Scales, Scaling techniques, characteristics of good instrument, and errors in measurement, Reliability and validity of research instruments. Sampling - Significance of sampling, Concepts, Steps in sampling, Criteria for good sample, Methods of sampling, determining sample size.</p>	

Unit V – DATA COLLECTION**8 Hrs****Level of Knowledge:** Basic / Conceptual / Analytical

Data sources - primary and secondary data, Data Collection methods- Survey, observation, Interview, focus group technique. Data collection instruments - Questionnaire, schedule, electro-mechanical devices.

Unit VI – DATA ANALYSIS using Python/R on a big data set**15 Hrs****Level of Knowledge:** Basic / Conceptual / Analytical

Data processing – Editing, coding, tabulation, pictorial and graphical presentation of Data, problems in processing, transcribing. Selection of statistical methods – based on objectives, type of scale. Overview of types of statistical analysis – descriptive, validation and inferential tools. Overview of Non-parametric and Qualitative data analysis tools. EDA on a data set using Python/R and insight generation

Statistical Techniques for analysis

Hypothesis Testing: Parametric vs. Nonparametric, Logic, Confidence Intervals, Power of the test, Normal Curve, Normality Test, Homogeneity of variance, Bootstrapping

T-Test: One Sample, Independent Sample, Paired Sample. Analysis of variance, Chi-Square, Correlation and Regression. Implementation using Python/ R and insight generation

Unit VII– REPORT WRITING AND PRESENTATION OF RESULTS**7 Hrs****Level of Knowledge:** Basic / Conceptual / Analytical

Classification and tabulation, Graphical representation, Research presentation, Types of report - Research proposal, research report. Format of a report- Layout, Standards (Introduction to APA formatting), Precautions.

Essential Readings:

- Kothari, C. R. (2009). Research Methodology Methods & Techniques (2 ed.). New Delhi: Vishwa Prakashan.

Recommended Readings:

- Bryman, Alan and Bell, Emma (2011), Business Research Methods, 3/e, Oxford University Press
- Chawla, D., & Sondhi, N. (2011). Research Methodology: Concepts and cases. New Delhi: Vikas Publishing House
- Gupta, S. L and Gupta, Hitesh (2012), Business Research Methods, McGraw Hill Education (India) Private Limited, New Delhi
- Krishnaswamy, K.N., Sivakumar, A.I., Mathirajan, M (2007), Management Research Methodology, Pearson, New Delhi
- Krishnaswami, O., & Ranganatham, M. (2013). Methodology of Research in Social Sciences. Mumbai: Himalaya Publishing House.
- Majhi, P. R., & Khatua, P. K. (2013). Research Methodology (Concepts, Methods, Techniques and SPSS). Mumbai: Himalaya Publishing House.
- Srivastava. T. N and RegoShailaja (2012), Business Research Methodology, Tata McGraw Hill Education Private Limited, New Delhi

Course Name: Intermediate Data Engineering	Course Code: BBDS451
Total number of hours: 60 Hrs.	Credits: 3
<p>Course Description:</p> <p>This course covers Apache Hadoop project which develops an open source software for reliable, scalable, and distributed computing. The course seeks to equip the learners with the framework, libraries, computation, and the usage of big data using Apache Hadoop which is designed to scale up from single servers to thousands of machines. It also allows the users to store all forms of data, that is, both structured data and unstructured data. Hadoop also provides modules like Hive for analysis of large-scale data which will also be covered under this course.</p>	
<p>Course Objectives:</p> <p>The objective of the course is to:</p> <ol style="list-style-type: none"> 1. Understand how to solve problems that require massive datasets and computation power 2. Understand the storage, access, and the manipulation of large structured and unstructured data 3. Learn about distributed storage of data and the process of working with such systems 4. Use the processes and systems for handling and utilizing such data, including for the purposes of retrieval, accumulation, and computation 5. Understand Hive Query Language and its uses 	
<p>Course Learning Outcomes:</p> <p>At the end of the course the students will be able:</p> <p>CLO1 Learn how to query using the commands and syntax of Hadoop's querying language CLO2 Demonstrate the detailed process flow of Hadoop architecture CLO3 Identify the approach taken to distribute file system CLO4 Discover data manipulation language in Hadoop CLO5 Elaborate on data definition language in Hadoop</p>	
<p>Pedagogy:</p> <p>This course uses multiple pedagogies like interactive lecture, students' discussions and lab sessions.</p>	
<p>Unit 1 – Big Data: Hadoop – Beginners guide</p> <p>Distributed file system, reference links, basic shell commands</p>	<p>4 Hrs</p>
<p>Unit 2 – Big Data: Hadoop – Architecture</p> <p>Common, distributed file system, YARN, MapReduce, references</p>	<p>12 Hrs</p>

Unit 3 – Big Data: Hadoop – Hive Query Language: Operators and Built-in Functions 15 Hrs

Operators & user-defined functions, operators, built-in questions, date functions, conditional functions, string functions, miscellaneous functions

Unit 4 – Big Data: Hadoop – HQL – DDL (Data Definition Language) 14 Hrs

Create/Drop/Alter/Use Database, storage formats, row formats & SerDe, tables and operations on tables, tables – Views & partitioning, permanent functions

Unit 5 – Big Data: Hadoop – HQL - DML (Data Manipulation Language) 15 Hrs

Inserting data into Hive tables, dynamic partition inserts, write data into filesystem, Insert/Update/Delete/Merge

Reading Materials for reference:

1. White, T (2012). Hadoop: The Definitive Guide. O'Reilly
2. Grover, M (2015). Hadoop Application Architectures. O'Reilly
3. Apache.org – Official documentation for Apache applications
4. Mu Sigma internal training material

Course Name: Intermediate Data Science	Course Code: BBDS452
Total number of hours: 60 Hrs.	Credits: 3
<p>Course Description: The course introduces learners to univariate descriptive statistics, its importance in daily life and application areas, it is designed to equip learners to evaluate and describe any given variable based on its summary statistics. It also covers Machine Learning, which is a subset of Artificial Intelligence, that provides systems the ability to automatically learn and improve through experience. It is an upcoming branch of applied mathematics. The course also enables the learners to understand various components of Time-Series and how it is used to generate a forecast</p>	
<p>Course Objectives: The objective of the course is to:</p> <ol style="list-style-type: none"> 1. Teach how to summarize large quantities of numerical data and reveal patterns in the raw data 2. Understand how to present the information in a more organized format 3. Become familiar with how to determine whether there is enough statistical evidence in favor of a certain belief and to examine data for distribution 4. Equip to extract features from raw data via data mining techniques and use it to improve the performance of machine learning algorithms 5. Familiarize to predict or estimate a future event or trend in a business 	
<p>Course Learning Outcomes: At the end of the course the students will be able to: CLO1 Define the importance of descriptive statistics in business CLO2 Illustrate the distribution of data, learn about errors and how to mitigate it CLO3 Analyze the importance of ML in data analytics CLO4 Conduct Exploratory data Analysis CLO5 Test & train various model, analyze using various forecasting methodologies and learn how to forecast using time-series forecasting methodology</p>	
<p>Pedagogy: This course uses multiple pedagogies like interactive lecture, students' discussions & lab sessions.</p>	
<p>Unit 1: Machine Learning – Exploratory Data Analysis 12 Hrs Data cleaning & treatment, outlier detection & treatment, univariate analysis, multivariate analysis. Introduction to missing value treatment and outlier treatment using ML techniques.</p>	
<p>Unit 2: Machine Learning – Data wrangling 12 Hrs Importing data into R from different formats, web scraping, string processing with regular expressions, text mining</p>	
<p>Unit 3: Machine Learning – Feature Engineering 12 Hrs</p>	

Importing libraries (R), functions, standardize the data, imputation, handling outliers, binning, one hot encoding, data transformation, factor analysis, principal component analysis, PCA

Unit 4: Machine Learning – Time Series Forecasting I

12 Hrs

Smoothing methods, basic forecasting methods, Holt's method, Holt – Winters method, ARIMA

Unit 5: Machine Learning – Time Series Forecasting II

12 Hrs

Dynamic time series model – ARIMAX, prophet model, DTW, hierarchical time series, ACF, PACF

Reading Materials for reference:

1. Bishop, C. (2006). Pattern Recognition and Machine Learning. Berlin: Springer-Verlag.
- Mu Sigma internal documents

Course Name: Intermediate Decision Science	Course Code: BBDS453
Total number of hours: 60 Hrs.	Credits: 3
Course Description:	
<p>The course covers two powerful visualization tools Power BI Advanced level features and Tableau. Power BI bridges the gap between data and decision making by creating great data experiences. Tableau platform is known for taking any kind of data from almost any system and turning it into actionable insights with speed and ease. It's as simple as dragging and dropping</p>	
Course Objectives:	
<p>The objective of the course is to:</p> <ol style="list-style-type: none"> 1. Prepare data and data discovery, interactive dashboards, and rich visualizations in one solution 2. Learn an intuitive tool for interacting with data and turning it into insights more easily 3. Learn to create insightful and impactful visualizations in an interactive and colorful way 4. Provide essential skills to create reports and dashboards, statistical and analytical tools 5. Understand the basics of visualization solutions using Tableau 	
Course Learning Outcomes:	
<p>At the end of the course the students will be able to:</p> <p>CLO1 Explain the applications of Power BI, connect, import and transform data for Business Intelligence (BI)</p> <p>CLO2 Illustrate data extraction using Tableau</p> <p>CLO3 Develop intuitive and coherent analytical solutions to business problems using Tableau dashboards</p> <p>CLO4 Visually analyze via creating a few basic charts and representations</p> <p>CLO5 Minimize the gap between data & decision making</p>	
Pedagogy:	
<p>This course uses multiple pedagogies like interactive lecture, students' discussions & lab sessions.</p>	
Unit 1 –: Power BI: Summary & Data Modelling	7 Hrs
<p>Summary of Power BI level 1, context in DAX, summarize function, summarize columns function, calculate table function, bidirectional cross filtering, circular dependencies in Power BI</p>	
Unit 2: Power BI: Advanced DAX & Additional functionalities	20 Hrs
<p>Advanced DAX functions including Filter, CountX, etc., visualization and themes, report themes using JSON, drill through filtering, bookmarks and selection pane, additional functionalities, Python/R in Power BI, write-back functionality, dynamic row level security</p>	
Unit 3: Tableau – Introduction & Data Integration	15 Hrs
<p>Introduction, initial interface, workspace layout, data types, data Source connection and integration, managing data loads, data transformation – Joins & Blends, data schema preparation,</p>	

Unit 4: Tableau – Worksheets, Workbooks & Visualization

8 Hrs

Worksheets & Workbooks – Basic filtration, formatting & navigation, interactive filtration, basic visual charts,

Unit 5: Tableau – Visualization

10 Hrs

Sets, grouping data, parameter creation, drill down & hierarchy

Reading Materials for reference:

1. Powell, B (2018). Mastering Microsoft Power BI: Expert techniques for effective data analytics and business intelligence, Packt
2. Guillevin, T. Getting Started with Tableau 2019.2 (Second Edition), Packt
3. Mu Sigma internal training material and case studies

Course Name: Problem Space III	Course Code: BBDS411
Total number of hours: 60 Hrs.	Credits: 3
<p>Course Description: This course is designed to give the students a stage to apply and understand all the concepts taught in Intermediate Data Science, Data Engineering & Decision Science. It will help in providing the students with real world industry exposure by guiding them to solve real world problems that Mu Sigma has historically dealt with</p>	
<p>Course Objectives: The objective of the course is to:</p> <ol style="list-style-type: none"> 1. Understand why simply solving problems is not sufficient and why a more elaborate art of problem solving is in order 2. Understand how solving specific problems and the art of problem solving can co-exist harmoniously in the larger realm of problem solving 3. Understand the tenets of the Art of Problem-Solving framework 4. Understand the frameworks to analyze an industry vertical 5. Understand problems pertaining to specific industries 	
<p>Course Learning Outcomes: At the end of the course the students will be able to:</p> <p>CLO1 List the principles of art of problem solving while approaching Demand forecasting problems CLO2 Illustrate the business model of an organization CLO3 Identify how change is an outcome of transmission of minor changes CLO4 Examine perspectives of evolutionary change to understand change in contemporary environments CLO5 Test the applications of Data Science, Data Engineering & Decision making in the real world</p>	
<p>Pedagogy: This course uses pedagogies like students' discussions & case studies.</p>	
<p>Problem Space on Demand forecasting 60 Hrs Problem Space I will occur once the students are familiar with the design thinking concepts in Decision Science topics. It will be a classroom activity on the problems given by the trainer. This subject will be covered during the second part of the semester.</p> <p>Students will be taught:</p> <ol style="list-style-type: none"> 1. To develop an understanding of Demand forecasting in general 2. Examples of real-life applications of Demand forecasting & its impact 3. Techniques to arrive at a solution, their uses & application 4. How to work on an exercise on Demand forecasting <p>Output expected from students:</p> <ol style="list-style-type: none"> 1. Create an Empathy Map, Org Chart and a Vertical writeup on the Industry and the business in question 	

2. Break down the problem statement using Problem Definition & Design
3. Identify the right sampling technique and performed clustering
4. Performing Hypothesis testing and Exploratory data analysis
5. Arrive at a solution thinking on the lines of Transformation Roadmap
6. Submit a Jupyter Notebook with the solution

Reading Materials for reference:

Mu Sigma internal training material and case studies

Course Name: Strategic Management	Course Code: BBA531
Total number of hours: 60 Hrs	Credits: 4
<p>Course Description: An Organization consists of different departments and processes. Managers at all level must understand how a company’s departments and processes “fit” together to achieve its goal. It focuses on all the functional areas of business and presents a cohesive strategic management model from a strategic perspective. The subject provides an insight on the strategy adopted by the companies in response to environmental change. The course provides a comprehensive and integrated presentation of current strategic management thinking in a clear and succinct format.</p>	
<p>Course Objectives:</p> <ol style="list-style-type: none"> 1. To understand the fundamentals of crafting strategies 2. To equip students with skills of strategic management for agile businesses 3. To enhance decision making skills from a strategic perspective 	
<p>Course Learning Outcomes: On having completed this course student should be able to: CLO1 Apply models and tools of analysis to address diverse business needs in an everchanging world CLO2 Critically think and find alternative solutions for business problems CLO3 Craft strategies to solve business problems</p>	
<p>Pedagogy: This course uses multiple pedagogies like case study discussions, interactive lecture, presentations, review of research article, in class group exercises and activities.</p>	
<p>Syllabus</p>	
<p>UNIT I INTRODUCTION TO STRATEGIC MANAGEMENT</p> <p>Meaning and Definition of Strategic management, Key terms, stages, strategic management model, benefits and pitfalls, comparing business and military strategies, vision and mission analysis, process of developing vision and mission statement, characteristics and components, evaluating and writing mission statements.</p>	<p>10 Hrs</p>
<p>UNIT II TYPES OF STRATEGIES</p> <p>Long term objectives, levels, integration, intensive, diversification, defensive strategies, generic strategies, means for achieving strategies, tactics to facilitate strategies, strategic management in non-profit, government and small firms.</p>	<p>08 Hrs</p>
<p>UNIT III INTERNAL AUDIT</p> <p>Nature of Internal audit, integrating strategy and culture, Management, marketing, finance and accounting, production/operation, research and development, MIS, Value chain analysis, benchmarking, Internal factor evaluation matrix.</p>	<p>08 Hrs</p>
<p>UNIT IV EXTERNAL AUDIT</p>	<p>08 Hrs</p>

Purpose and Nature of External audit, PESTEL, Porter's five forces analysis, sources of external information, forecasting tools and techniques, external factor evaluation matrix and the competitive evaluation matrix.

UNIT V STRATEGY GENERATION AND SELECTION

09 Hrs

The strategy analysis and choice process, strategy formulation analytical framework, SWOT and SPACE, BCG, Internal-External matrix, grand strategy matrix, QSPM, culture and politics of strategy analysis and choice.

UNIT VI STRATEGY EXECUTION

09 Hrs

Transitioning from formulating to implementing strategies, need for clear annual objectives, policies, allocation of resources and conflict management, matching structure and strategy, types of organizational structure, Do's and Don'ts in developing organizational charts, strategic production and operation issues, strategic human resource issues.

UNIT VII STRATEGY MONITORING

08 Hrs

The strategy evaluation process, criteria and methods, three strategy evaluation activities, balanced scorecard, characteristics of an effective strategy evaluation system, contingency planning, auditing, 21st century challenges in strategic management, guidelines for effective strategic management.

Core Text:

1. Fred R David and Forest R David, Strategic Management- Concept and cases, Pearson, Sixteenth Edition

Reference Books:

1. Charles Hill and Gareth.R.Jones, Strategic Management: an integrated approach, biztantra, sixth edition
2. Alex miller, strategic management, Irwin Mc graw hill, third edition
3. Lawrence R.Jauch, William F Glueck, Business Policy and strategic management, Mc Graw Hill international editions, Fifth edition

Course Name – Taxation Laws	Course Code: BBA532
Total number of hours: 60 Hours	Credits: 4
<p>Course Description: India has a well-developed tax structure with a three-tier federal structure, comprising the Union Government, the State Governments and the Urban/Rural Local Bodies. The power to levy taxes and duties is distributed among the three tiers of Governments, in accordance with the provisions of the Indian Constitution. The study of tax laws is of a great importance for Management students as it exposes students to the tax environment in India. This course is introduced as part of the BBA program to give an overall idea about the theoretical and practical aspects of direct and indirect taxes in India. The content of the course is arranged in such a manner that it gives an outline of the Income tax law and GST Law in an analytical and simple manner.</p>	
<p>Course Learning Outcomes: On completion of this course students are expected to:-</p> <p>CLO 1: To understand the Income tax regime in India.</p> <p>CLO 2: To apply concepts of taxation in computation of Gross Taxable income, from various heads of income.</p> <p>CLO 3: To demonstrate knowledge in savings, investment schemes and other payments eligible for income tax exemptions.</p> <p>CLO 4: To assess Total income, compute Income tax payable and able to file e-returns.</p> <p>CLO 5: To interpret the effect of Goods and Service Tax and Customs law in India in business transactions.</p>	
<p>Pedagogy: This course uses multiple pedagogies like interactive lecture, practical problem solving, case study, discussions, presentations and written assignments.</p>	
<p>Unit I: Introduction to Income Tax</p> <p>Meaning and types of Taxes, Difference between direct and indirect taxes. Legal enactments governing Income Tax in India, Basic Concepts in Taxation - Assessee, Person, Assessment Year, Previous Year, Agricultural Income, Income, GTI, Total Income, Determination of residential status, Kinds of income, incidence of tax. Practical problems. Tax free incomes or Exempted incomes. Capital and Revenue Expenditure. Comparison between Income Tax structure in India and other countries.</p>	<p>7 Hrs</p>
<p>Unit II: Income from Salary</p> <p>Salary meaning, chargeability, Treatment of Various Allowances, Perquisites and their Valuation, Treatment of Provident Funds, Leave salary and Pension, Deductions from Gross Salary Computation of Taxable salary.</p>	<p>12 Hrs</p>
<p>Unit III: Income from House property</p> <p>Annual value and NAV, Deductions from NAV under u/s 24, Practical problems</p>	<p>7 Hrs</p>
<p>Unit IV: Profits and Gains from Business and Profession</p> <p>Meaning of Business and Profession, Incomes Chargeable under this head, Allowed and disallowed expenses, Expenditure on scientific Research, Computation of Taxable Income from business and profession.</p>	<p>8 Hrs</p>
<p>Unit V: Capital Gains and Income from Other source</p> <p>Meaning of Short term and Long term capital gain, Transfer of assets, cost of acquisition of capital assets, Computation of capital gains, Exemptions from LTCG- only deductions u/s 54, 54B, 54EC and 54F. Incomes taxable under the head Income from other sources, Various incomes taxable as Income from Other source.</p>	<p>6 Hrs</p>
<p>Unit VI: Gross Total Income, Deductions from GTI, Total income and Tax liability</p> <p>Computation of GTI, Deductions from GTI, Section 80C to 80U (only deductions applicable to individuals 80 C and CCC, D, DD, DDB, G, 80TTA, 80TTB, 80E, 80EEA, 80GGB and U), Taxable Income, Computation of tax for individual assesses, Procedure for e-returns filing.</p>	<p>10 Hrs</p>

Unit VII: Overview on GST and Customs Law**10 Hrs**

Meaning of Goods and Service Tax, Persons liable for GST registration/ Procedure of Registration, Liability to pay GST, Taxable event for GST, Tax invoice, GST Council of India, Rates of GST, Services exempted from GST, Non- resident taxable person, TDS under GST

Customs Law, Basic concepts, Types of Customs duty, taxable event for the levy of Customs duty.

Essential reading:

Gaur, V.P. & Narang, B.K. (2020), Income Tax Law and practice. Kalyani Publishers, New Delhi,

Books for reference:

1. Singhanian,(2020) Income tax law and practice , Taxman publishers, New Delhi
2. Income tax law and Practice (2020), Dr. Mehrotra and Goyal, Sahitya bhavan Publications
3. Datey V S (2020), GST Laws and Practice with Customs and Foreign Tax Practice, Taxman Publications, New Delhi
4. Singhanian,(2020) Income tax law and practice , Taxman publishers, New Delhi
5. Income tax law and Practice (2020), Dr. Mehrotra and Goyal, Sahitya bhawan Publications
6. Datey V S (2020), GST Laws and Practice with Customs and Foreign Tax Practice, Taxman Publications, New Delhi.

Course Name: Advanced Data Engineering	Course Code: BBDS551
Total number of hours: 60 Hrs.	Credits: 3
Course Description:	
<p>This course covers introduction to Big Data Spark, RDDs – Resilient distributed datasets, Spark and Big Data, built in libraries for Spark, The Spark Shell, Transformations and Actions. This course also covers arithmetic and numbers, values and variables, Boolean and comparison operators, Strings and basic RegEx , Tuples , Collections , Lists , Arrays , Sets , Maps , Flow Control for loops , While Loops and Functions</p>	
Course Objectives:	
<p>The objective of the course is to:</p> <ol style="list-style-type: none"> 1. Understand the fundamental concepts of Spark 2. Understand the manipulating big data distributed over a cluster using functional concepts 3. Understand the syntax and usage of Spark and Scala for data access and manipulation 4. Understand the use of Spark and Scala in dealing with big data 5. Will learn how to launch spark application on a cluster 	
Course Learning Outcomes:	
<p>At the end of the course the students will be able to:</p> <p>CLO1 Learn how to access and manipulate data residing in clusters or distributed storage CLO2 Explain Spark integration with RDBMS (Oracle) CLO3 Identify the launching of Spark application on a cluster CLO4 Program and develop algorithms on distributed data in an efficient manner CLO5 Formulate an overview of Spark</p>	
Pedagogy:	
<p>This course uses multiple pedagogies like interactive lecture, students’ discussions and lab sessions.</p>	
Unit 1 – Introduction to Spark	5 Hrs
<p>What is Spark – Introduction to RDDs – Resilient Distributed Datasets, Spark and Big Data, Built in libraries for Spark , The Spark Shell , Transformations and Actions</p>	
Unit 2 – Spark Data Frames	10 Hrs
<p>Introduction to Spark Data Frames, Data Frames overview, Spark Dataframe Operations, Group By aggregate functions and Handling missing data</p>	
Unit 3 – Spark Integration with RDBMS (Oracle)	10 Hrs

Intro to RDBMS, MS SQL Server, IBM DB2, Oracle, MySQL. Coding in Spark for RDBMS. Packages in SPARK for data transformation.

Unit 4 – Spark transformation, actions & Operations

17 Hrs

Apache Spark RDD operations - Transformations and Actions. Linkage, map, filter, flatmap, Map partition, reduced by, groupby, sample, union, join, distinct, coalesce, collect, reduce, aggregate, saveas, countby

Unit 5 – Launching Spark application on a cluster and Spark Streaming

18 Hrs

Linking, Initializing Streaming Context, Discretized Streams (DStreams), Caching /Persistence and Fault – tolerance Semantics

Reading Materials for reference:

1. Karau, Holden, Kowinski, Andy, Zaharia, Matei, Wendell, Patrick (2015). Learning Spark (1st edition). O'Reilly Swartz. J (2015). Learning Scala.O'Reilly

Course Name: Advanced Data Science	Course Code: BBDS552
Total number of hours: 60 Hrs.	Credits: 3
Course Description:	
<p>This course covers regression that is the most used Machine Learning paradigm and is often utilized for comparing or establishing the relationship between two or more variables. This course provides learners with an introduction to popular Regression algorithms. Clustering is an Unsupervised Machine Learning technique and is often utilized to differentiate between various levels of a variable. This course also enables the learners to understand the necessity and areas of application of linear statistical model techniques like factor analysis which is an integral part of Exploratory Data Analysis</p>	
Course Objectives:	
<p>The objective of the course is to:</p> <ol style="list-style-type: none"> 1. Understand the generalized linear models (GLM) Framework 2. Understand various models under the GLM framework, specifically for cases of continuous outcomes, binary outcomes, and count outcomes 3. Understand data preparation, clustering techniques and cluster validation 4. Understand the Model Validation techniques are used to assess the accuracy of Machine Learning models 5. Learn techniques like factor analysis which is an integral part of exploratory data analysis 	
Course Learning Outcomes:	
<p>At the end of the course the students will be able to:</p> <p>CLO1 Define training and testing models (Linear Regression)</p> <p>CLO2 Interpret important and influential underlying factors without observed variables & Interpret the results of confirmatory factor analysis (CFA) and Exploratory Factor Analysis (EFA)</p> <p>CLO3 Identify the class of GLM models to solve business problems</p> <p>CLO4 Distinguish between various distance measurements available for clustering techniques</p> <p>CLO5 Validate the models (Linear Regression & Clustering)</p>	
Pedagogy:	
<p>This course uses multiple pedagogies like interactive lecture, students' discussions & lab sessions.</p>	

Unit 1 – Introduction to GLM framework**5 Hrs**

Responses and predictors, General Linear Hypothesis, Distribution of the response variable and link functions, Analysis of Deviance

Unit 2: Pre-processing for GLM framework**10 Hrs**

Importing libraries, functions, standardize the data, imputation, handling outliers, binning, one hot encoding, data transformation, factor analysis, principal component analysis

Unit 3: Review of Linear regression models**15 Hrs**

Assumptions in Linear regression, OLS, Linear regression, Multiple linear regression, ANOVA in regression models, Testing the general linear hypothesis through F-tests, Main effects and interactions, Error analysis and residual plots.

Unit 4: Review of Clustering and validation**15 Hrs**

Partitioning methods: k-means, expectation maximization (EM), Hierarchical methods: distance-based agglomerative and divisible clustering

Validation using silhouette score, Dunn Index

Unit 5: Binary outcomes and logistic regression models**15 Hrs**

Maximum likelihood estimation, logit and probit models, Diagnostics for binary outcome models, likelihood ratio tests, interpretation of estimates under various binary outcome models, Main effects and interactions, confidence intervals of estimates, Prediction intervals for binary outcome models

Reading Materials for reference:

1. McCullagh, P, &Nelder, J. A. Generalized Linear Models (2nd edition). Chapman & Hall/CRC Press.
2. Agresti, A. (2015). Foundations of Linear and Generalized Linear Models, Wiley

Course Name: Advanced Decision Science	Course Code: BBDS553
Total number of hours: 60 Hrs.	Credits: 3
Course Description:	
The course covers various aspects of Art of Problem-Solving framework and covers complexity surrounding individual business problems, Mapping problem interconnections, Discovering and identifying the latent interconnection between problems with examples and introduction to D3 Stack	
Course Objectives:	
The objective of the course is to:	
<ol style="list-style-type: none"> 1. Understand the complexity surrounding individual business problems, 2. Mapping problem interconnections, discovering 3. Identifying the latent interconnection between the problems 4. Understand the tenets of the art of problem-solving framework 5. Instill a new approach in decision making 	
Course Learning Outcomes:	
At the end of the course the students will be able to:	
CLO1 Define the flow of decisions in a business	
CLO2 Demonstrate the applications of muUniverse to solve business problems	
CLO3 Experiment with how to create simple visualization using D3	
CLO4 Examine the flow of tracking decisions	
CLO5 Elaborate the Descriptive, Inquisitive, Prescriptive and Predictive analysis	
Pedagogy:	
This course uses multiple pedagogies like interactive lecture, students' discussions.	
Unit 1: – muPDNA & muOBI	13 Hrs
Summary of muPDNA & muOBI	
Unit 2: – muUniverse	12 Hrs
Complexity surrounding individual business problems, Mapping problem interconnections, Discovering and identifying the latent interconnection between problems, Examples of muUniverse	
Unit 3: - D3 Stack	12 Hrs
Structural concepts of D3 Stack along with how it helps in creating business solution	
Unit 4: muDSC – Decision Supply Chain	11 Hrs
Analogy between manufacturing supply chains and decision supply chains, understanding flow of decisions in organizations, role of muDSC in understanding flow and tracking of decisions, examples of muDSC	
Unit 5: - muIDA – Interdependency Analysis	12 Hrs

The DIPP index, flaws in conventional deciphering of the DIPP index, interdependency across D, I, P and P problems to yield greater ROI of the analytical process, examples of muIDA

Reading Materials for reference:

Mu Sigma internal training material and case studies

Course Name: Knowledge Management	Course Code: BBDS561A
Total number of hours: 45 Hrs	Credits: 3
Course Description: Today’s turbulent business environment has been characterized by ‘the knowledge era’ where competitive advantage is based upon the resource-based view of the firm and successful utilization of employee knowledge. It is the organization that can capture, manage, and apply the different forms of knowledge prevalent in the workplace that will grow and flourish. The purpose of the course is to explore the concept of knowledge and the means by which organizations seek to manage it through formal technological practices and informal social systems. The course looks at a theoretical and practitioner point of view and seeks to provide a 360degree overview of the domain of Knowledge Management.	
Course Objectives: . The objectives of this course are to: <ul style="list-style-type: none">● Understand the key concepts, theories and models that enable knowledge management● To provide an outline about the importance of knowledge management in developing people and organizations.● To enable the students to apply the concepts, principles and models of knowledge management in practical situations.● To evaluate the various process, approaches and strategies for managing knowledge in organizations● To provide solutions to the issues pertaining to managing knowledge	

Course Learning Outcomes:

At the end of the course the students will be able to:

1. Demonstrate the understanding of key concepts, principles and models related to knowledge management
2. Learn to apply the theories and concepts studied in the classroom to practical situations.
3. Analyze the various types of knowledge and models and its relevance to organizations
4. Evaluate the various knowledge management practices and their value to organizations
5. Solve the issues pertaining to knowledge management

Pedagogy: This course uses multiple pedagogies like interactive lecture, student discussions & presentations, case studies and research article analysis as well as a Guest Lecture by an industry practitioner.

Unit I: Introduction to Knowledge Management**6Hrs**

Level of Knowledge: Conceptual

Introduction to Knowledge Management; Multidisciplinary Nature of KM - The Two Major Types of Knowledge, The Concept Analysis Technique; History of Knowledge Management - From Physical Assets to Knowledge Assets Organizational Perspectives on Knowledge Management; Importance of KM - KM for Individuals, Communities, and Organizations.

Unit II: Knowledge Management Cycle**6 Hrs**

Level of Knowledge: Conceptual

Major Approaches to the KM Cycle - The Zack KM Cycle, The Bukowitz and Williams KM Cycle, The McElroy KM Cycle, The Wiig KM Cycle; An Integrated KM Cycle; Strategic Implications of the KM Cycle; Practical Considerations for Managing Knowledge.

Unit III: Knowledge Management Models**8 Hrs**

Level of Knowledge: Conceptual and Analytical

Major Theoretical KM Models - The von Krogh and Roos Model of Organizational Epistemology, The Nonaka and Takeuchi Knowledge Spiral Model, The Knowledge Creation Process, Knowledge Conversion, Knowledge Spiral.

Unit IV: Knowledge Capture and Codification**6 Hrs**

Level of Knowledge: Conceptual and Analytical

Tacit Knowledge Capture - Tacit Knowledge Capture at Individual and Group Levels, Interviewing Experts, Structured Interviewing, Stories, Learning by Being Told, Learning by Observation; Tacit Knowledge Capture at the Organizational Level; Explicit Knowledge Codification - Cognitive Maps, Decision Trees, Knowledge Taxonomies.

Unit V: Knowledge Sharing and Communities of Practice**6 Hrs**

Level of Knowledge: Conceptual and Analytical

The Social Nature of Knowledge; Sociograms and Social Network Analysis, Knowledge-Sharing Communities - Types of Communities, Roles and Responsibilities in CoPs, Knowledge Sharing in Virtual CoPs; Obstacles to Knowledge Sharing, The Undernet.

Unit VI: Knowledge Management Tools

7 Hrs

Level of Knowledge: Conceptual and Analytical

Knowledge Capture and Creation Tools - Content Creation Tools, Data Mining and Knowledge Discovery, Blogs, Content Management Tools; Knowledge Sharing and Dissemination Tools - Groupware and Collaboration Tools, Wikis, Networking Technologies; Knowledge Acquisition and Application Tools - Intelligent Filtering Tools, Adaptive Technologies.

Unit VII: Role of Organizational Culture

6 Hrs

Level of Knowledge: Conceptual and Analytical

Different Types of Cultures, Organizational Culture Analysis, Culture at the Foundation of KM, The Effects of Culture on Individuals; Cultural Transformation to a Knowledge-Sharing Culture; Organizational Maturity Models - KM Maturity Models, CoP Maturity Models.

Essential references:

- Dalkir, K. (2017) Knowledge management in theory and practice (3rd ed.). Cambridge, MA: MIT Press

Recommended references:

- Rhem, A. J. (2017). Knowledge management in practice. New York: CRC Press.
- Leonard-Barton, D., Swap, W. C., & Barton, G. (2015). Critical knowledge transfer: Tools for managing your company's deep smarts. Boston, US: Harvard Business Review Press.
- Horaguchi. (2014). Collective knowledge management: Foundations of international business in the age of .. [Place of publication not identified]: Edward Elgar Publishing Ltd.
- Jay Liebowitz., & Liebowitz, J. (2012). Knowledge Management Handbook: Collaboration and social networking (2nd ed.). London: CRC Press.
- Pugh, K. (2011). Sharing hidden know-how: How managers solve thorny problems with the knowledge jam. San Francisco, CA: Jossey-Bass.

Course Name: Cross Cultural Management	Course Code: BBDS561B
Total number of hours: 45 Hrs	Credits: 3
<p>Course Description: The course will make students understand the importance of managing cultural diversity in a globalized world. They will learn about the factors that influence a country's culture and communication process. The course will help them to develop cultural sensitivity and improve their cultural awareness.</p>	
<p>Course Learning Outcomes: On having completed this course student should be able to:</p> <p>CLO1 To understand the concepts of cross cultures.</p> <p>CLO2 To identify the difference and similarity in the cultural context of different countries.</p> <p>CLO3 To develop cultural awareness and sensitivity about other cultures.</p>	
<p>Pedagogy: This course uses multiple pedagogies like interactive lecture, discussions & presentations, HBR case and article analysis, role plays and movie reviews the form of experiential learning.</p>	
<p>Unit 1: Challenging roles of Global Manager 9 Hrs Challenges of Globalization, Role of Global Manager- organizational context, culture and managerial roles- Evaluating cross cultural management studies.</p>	
<p>Unit 2: Understanding Role of Culture 9 Hrs Features of Culture, Key cultural terminology, Cultural Differences, Culture and Social Group.</p>	
<p>Unit 3 Comparing Culture 9 Hrs Kluckhohn &Strodbeck Framework, Hofstede Study, The GLOBE study, Trompenaars Dimensions, Cultural Distance.</p>	
<p>Unit 4: Communicating Across Culture 9 Hrs Cultural factors in communication, Variables in communication process, International Body Language, Guidelines for English and foreign languages. The internet and intercultural Communication.</p>	
<p>Unit 5: Regional Cultural Specifics 9hrs Understanding the characteristics and Cultural guidelines for: North American Work Culture – Pan American perspective, United States of America; Middle-East Work Culture- Middle East overview, Cultural Aspect of Arab, Egypt, Saudi Arabia.; Asian Work Culture- Cultural aspect of China, India, Japan, Pakistan, South Korea; European Work Culture- European Diversity and synergy, Western Europe, France, Italy.</p>	
<p>Essential Reading:</p> <ul style="list-style-type: none"> ● Thomas, D. C. 1. (2018). <i>Cross-cultural management: Essential concepts</i> (Fourth edition.). London: Sage. 	
<p>Recommended Reading:</p> <ul style="list-style-type: none"> ● Abramson, N. R., & Harris, P. R. 1. (2018). <i>Managing cultural differences</i> (Tenth Edition.). New York: Routledge. ● Ting-Toomey, S. (2019). <i>Communicating across cultures</i> (Second edition.). New York: The Guilford press. <p>Ghemawat, P. (2018). <i>Redefining global strategy: Crossing borders in a world where differences still matter</i>. Boston: Harvard business review press.</p>	

Course Name: Problem Space IV	Course Code: BBDS511
Total number of hours: 60 Hrs.	Credits: 3
<p>Course Description: This course is designed to give the students a stage to apply and understand all the concepts taught in Advanced Data Science, Data Engineering & Decision Science. It will help in providing the students with real world industry exposure by guiding them to solve real world problems that Mu Sigma has historically dealt with</p>	
<p>Course Objectives: The objective of the course is to:</p> <ol style="list-style-type: none"> 1. Understand why simply solving problems is not sufficient and why a more elaborate art of problem solving is in order 2. Understand how solving specific problems and the art of problem solving can co-exist harmoniously in the larger realm of problem solving 3. Understand the logic and calculation of customer lifetime value 4. Understand problems pertaining to specific industries 5. Examine classification techniques used to determine CLTV 	
<p>Course Learning Outcomes: At the end of the course the students will be able to: CLO1 Define the business model of an organization CLO2 Explain how change is an outcome of transmission of minor changes CLO3 Apply and identify the chain of values of a customer. CLO4 Experiment with the applications of Data Science, Data Engineering & Decision making in the real world CLO5 Relate to the real-life applications of CLTV</p>	
<p>Pedagogy: This course uses pedagogies like students' discussions & case studies. Background Knowledge: EDA, R, Python, Hypothesis testing, regression, correlation, ML techniques, Time series</p>	
<p>Problem Space on Customer Life Time Value 60 hrs Problem Space IV will occur once the students are familiar with the design thinking concepts in Decision Science topics. It will be a classroom activity on the problems given by the trainer. This subject will be covered during the second part of the semester.</p>	
<p>Students will be taught:</p> <ol style="list-style-type: none"> 1. To develop an understanding of CLTV in general 2. Examples of real-life applications of CLTV & its impact 3. Techniques to arrive at a solution, their uses & application 4. How to work on an exercise on CLTV 	
<p>Output expected from students:</p> <ol style="list-style-type: none"> 1. Define and learn to interpret an Empathy Map, Org Chart, Vertical writeup on the Industry and the business in question 	

2. Make use of breakdown of the problem statement
3. Identify the flow of revenue and calculate CLTV
4. Take part in performing Hypothesis testing and Exploratory data analysis and conclude to a solution thinking on the lines of Transformation Roadmap
5. Formulate and submit a Jupyter Notebook with the solution

Reading Materials for reference:

Mu Sigma internal training material and case studies

Course Name: Operations Management	Course Code: BBA631
Total number of hours: 60 Hrs	Credits: 4
<p>Course Description: Operations Management (OM) is concerned with the management of resources and activities that produce and deliver goods and services for customers. Efficient and effective operations can provide an organization with major competitive advantages since the ability to respond to customer and market requirements quickly, at a low cost, and with high quality, is vital to attaining profitability and growth through increased market share. The course focuses on the basic concepts, issues, and techniques for efficient and effective operations.</p>	
<p>Course Learning Outcomes: On having completed this course student should be able to:</p> <p>CLO1 Understand the key concepts and issues of operations management in manufacturing and service organizations.</p> <p>CLO2 Analyze the strategic role of operations management in attaining competitive advantage for a firm.</p> <p>CLO3 Apply and relate operations management with other key departments of a firm.</p> <p>CLO4 Understand emerging and important topics related to production and operations management.</p> <p>CLO5 Understand, design, plan, manage and control the best processes so that value-addition occurs in the most efficient and effective way.</p>	
<p>Pedagogy: This course uses multiple pedagogies like interactive lecture, students' discussions & presentations, HBR case and article analysis, and a field visit in the form of experiential learning.</p>	
<p>Unit I: Introduction to Production and Operations Management 9 Hrs Introduction, Historical Development, Concept of Production, Production System, Classification of Production System, Production Management. Objectives of Production Management, Concept of Operations. Distinction between Manufacturing Operations and Service Operations. Operations Management, A Framework for Managing Operations. Objectives of Operations Management, Managing Global Operations, Scope of Production and Operations Management.</p>	
<p>Unit II: Plant Location and Plant Layout 9 Hrs Introduction and meaning Need for selecting a suitable location, Factors influencing plant location/Facility location. General locational factors, and Specific locational factors for manufacturing organization and for Service organization. Objectives, principles and Types of plant layout. Process layout, Product Layout, Combination layout, Fixed position layout, Group layout. Physical Facilities.</p>	
<p>Unit III: Materials Management 9 Hrs</p>	

Introduction and Meaning, Scope or functions of Materials Management, Material planning and control, Purchasing, Stores Management. Inventory control, Standardization, Simplification, Value analysis. Just in time, Ergonomics.

Unit IV: Material Handling

8 Hrs

Introduction and Meaning, Objectives and Principles of Material Handling, Selection of Material Handling Equipment, Evaluation of Material Handling system, Material Handling equipments, Guidelines for Effective Utilization of Material Handling Equipment, Relationship between Plant Layout and Material Handling.

Unit V: Production Planning and Control

8 Hrs

Introduction and Meaning, Need, Objectives, Phases of Production Planning and Control, Functions of Production Planning and Control, Operations Planning and Scheduling Systems, Aggregate Planning, Master Production Schedule (MPS), Material Requirement Planning (MRP), Capacity Planning, Routing, Scheduling.

Unit VI: Quality Control

9 Hrs

Introduction to Quality, Fundamental factors affecting quality, Control, need for controlling, Quality Inspection, Types of Quality Control, Steps in Quality control, Objectives of Quality Control, Benefits of Quality Control, Seven Tools for Quality Control, Causes of Variation in Quality, Statistical Process Control, Quality circles. Total Quality Management.

Unit VII: Maintenance Management and Waste Management

8 Hrs

Introduction, Objective, types, maintenance planning and scheduling, Modern Scientific Maintenance Methods- Six Sigma Maintenance, Enterprise Asset Management (EAM), Lean Maintenance, Computer Aided Maintenance. Introduction and Meaning of Waste Management, Reasons for Generation and Accumulation of Obsolete, Surplus and Scrap Items, Identification and Control of Waste, Disposal of Scrap.

Essential references:

1. Kumar, S.A & Suresh, N. (2013). *Production and Operations Management*, New age International publishers.

Recommended references:

2. Aswathappa, K. & Reddy, G.S., Reddy, M.K. (2012). *Production and Operations Management*, Himalaya Publishers.
3. Khann, R.B. (2007). *Production and Operations Management*. New Delhi: PHI Learning Pvt.
4. Krajewski, Lee J., Ritzman, Larry P., and Manoj K. Malhotra (2013). *Operations Management: Processes and Value Chains*, 8/e; New Delhi: Pearson Education.
5. Richard, B. Chase, Ravi Shankar, F. Robert, Jacobs and Nicholas, J. Aquilano (2010). *Operations and Supply Management* 12/e; New Delhi: Tata McGraw-Hill
6. Singh, S.P. (2014) *Production and Operations Management*, a1/e, New Delhi: Vikas Publishing House

Course Name: Business Laws	Course Code: BBA632
Total number of hours: 60 Hrs	Credits: 4
Course Description: This course covers important components of Business Laws such as Contract Law, Intellectual Property Law, Consumer Protection Law, Competition Law, Law of Sale of Goods and Cyber Law.	
Course Objectives: This course attempts to enable students to apply relevant theories and concepts to various aspects of Business Laws. It further aims to help the students to be comfortable in application of Legal concepts used in various Business entities.	
Course Learning Outcomes: On having completed this course student should be able to: CLO1 Identify the role and importance of Contracts Laws. CLO2 Demonstrate the meaning and provisions of Special Contracts. CLO3 Interpret the role and nature of Intellectual Property Right Laws. CLO4 Examine the importance of Competition Laws in Modern Commerce. CLO5 Assess the relevance of Sale of Goods and Negotiable Instruments. CLO6. Explore the evolution of Consumer Protection Laws. CLO7. Delve into role of Cyber Laws in understanding technological growth.	
Pedagogy: This course uses multiple pedagogies like interactive lecture, students' discussions and PPTs, research article, a field visit, and form of experiential learning.	
Unit-1	12 Hrs
Introduction to Law of Contracts	
Meaning and Scope of Business Law – Sources of Indian Business Law. The Indian Contracts Act, 1872: Definition – types of contracts- Essentials of a Contracts. Discharge of a contract and remedies for breach of contract. Government Contracts: Article 299: Constitution of India. Concept of Equity, Fairness and Reasonableness, Doctrine of Promissory Estoppel vs. Executive Necessity, No person liability. E-Contracts: Meaning & need for Digital Goods, Unfair terms in E-contract. Indian Evidence Act: Basic Concepts.	
Unit-2	5 Hrs
Contract of Guarantee	
Distinction between Indemnity and Guarantee, Kinds of Guarantee, Rights of Surety, Liability of Surety, and Discharge of Surety.	
Unit-3	10 Hrs
Intellectual Property Laws	
Meaning and scope of intellectual properties – The Patent Act of 1970 and its amendments as per WTO agreement, back ground, objects, definition, inventions, patentee, true and first inventor, procedure for grant of process and product patents, WTO rules as to patents, rights to patentee – infringement – remedies. The Copyright Act, 1957- Meaning – Its uses and rights. The Trademarks Act, 1999 - meaning, registration, procedures – infringement – Authorities concerned –Remedies.	
Unit-4	8 Hrs
Competition Law	

The Competition Act, 2002- Concept of Competition, Development of Competition Law, overview of MRTP Act 2002, Anticompetitive Agreements, Abuse of dominant position, combination, regulation of combinations, Competition Commission of India; Appearance before Commission, Compliance of Competition Law. Types of Offence and penalty.

Unit-5

10 Hrs

Law of Sale of Goods and Negotiable Instruments Law

The Sale of Goods Act, 1930- Definition of Goods, Sale and Agreement to Sell, Conditions and Warranties, Rights & Liabilities of a Buyer & Seller, Rights of an Unpaid Seller. The Negotiable Instruments Act, 1881- Statutory definitions, promissory note, bill of exchange or cheque payable. Dishonor of Negotiable Instrument. Types of Offences and penalty.

Unit-6

10 Hrs

Law of Consumer Protection

Consumer Protection Act 1986: Background – definitions – consumer, consumer dispute, Complaint Procedure, defect, deficiency, and service, Remedies, Consumer Protection Council, Consumer Redress Agencies, District Forum, State Commission and National Commission.

Unit-7

5 Hrs

Cyber Laws

Information Technology Act, 2000: Objectives, definitions and salient features, provisions pertaining to piracy and related offences and personalities.

Recommended Book:

1. Gulshan, S.S. (2013). Business & Corporate Law, Excel Books, New Delhi.

Reference Books:

1. Anson, W. R. (2009). Law of contract (29th edition), Oxford University Press, Oxford, New Delhi.
2. Avtar, S. (2011). Principles of Mercantile Law (9th Edition), Eastern Book Company, New Delhi.
3. Kapoor, N.D (2012.). Elements of Mercantile Law, Sultan Chand & Sons, New Delhi.
4. Padmanabhan, A. (2012). Intellectual property rights: Infringement and remedies, LexisNexis Butterworth's, Nagpur.
5. Tulsian, P.C. (2013). Business Laws, 5th Edition), Tata-McGraw Hill Education Limited, New Delhi

Course Name: Practitioner Data Engineering	Course Code: BBDS651
Total number of hours: 60 Hrs.	Credits: 3
<p>Course Description: In recent day terms, cloud computing means storing, accessing data, programs, application, and files over the internet of the premises rather than on-premises installed on a hard drive. Cloud computing delivers on demand computing service using the communication network on a pay-as used basis including applications or complete data centers on the centralized server which is accessible from anywhere remotely in the world using the internet. This course covers Cloud Computing, types of cloud, cloud service models. We will also be covering introduction to Microsoft Azure, along with introduction to Amazon web services and introduction to Google Cloud Platform.</p>	
<p>Course Objectives: The objective of the course is to:</p> <ol style="list-style-type: none"> 1. Understand how cloud computing reduces the cost of managing and maintaining IT systems 2. Will understand how business users can store large data remotely in the cloud instead of strong locally 3. Understand how cloud computing offers a reliable, secure, and consistent quality of service (QoS) 4. Understand the different types of cloud computing that has different types of service offerings like infrastructure – as – a – service (IaaS) 5. Will learn about the top cloud computing public and private , mobile and hybrid service provider companies like – Amazon Web Services, Microsoft Azure, Google Cloud Platform 	
<p>Course Learning Outcomes: At the end of the course the students will be able to:</p> <p>CLO1 Define how cloud computing is distributed computing services where IT infrastructures are accessible based on network speed CLO2 Illustrate and analyze cloud - usage of reports and graphs CLO3 Determine computing behavior like performance, Scalability, availability, and security, how it is analyzed CLO4 Compare various cloud computing platforms like Google Cloud Computing, Azure & Amazon Web Services CLO5 Create, build and maintain secure systems, including backup</p>	
<p>Pedagogy: This course uses multiple pedagogies like interactive lecture, students’ discussions and lab sessions.</p>	

Unit 1 – Introduction to Cloud Computing, Types of Cloud, Cloud Operations 12hrs

Introduction to cloud computing, Types of Cloud Computing – Infrastructure-as-a-service (IaaS) which is used for internet-based access to storage and computing power

Unit 2 – Cloud Service Models, Virtualization, Cloud Operations, challenges & storage 12 hrs

Cloud Service Models – Infrastructure-as-a service (IaaS). Virtualization in creation of virtual servers, infrastructures, devices, and computing resources. Virtualization changes the hardware – software relations and is one of the foundational elements of cloud computing. Challenges – Security issues, cost management and containment

Unit 3 – Big Data in cloud computing, Mobile Cloud Computing 12hrs

Big Data, Cloud Computing, Mobile cloud, different operating systems, computing tasks and data storage

Unit 4 – Cloud Computing Applications and Cloud Computing providers 12hrs

Cloud Computing applications like IaaS, hybrid cloud approach, testing and development, Big Data analysis, storage, recovery, and backup

Unit 5 – Introduction to Microsoft Azure, Amazon web services & Google Cloud Platform 12 hrs

Microsoft Azure - Introduction, ingestion services, storage options in Azure, tools, data science using Azure, Azure DevOps, security features, monitoring, pricing calculator and structure, Google Cloud Platform – Introduction, compute services, data ingestion options, storage options, data processing, visualization, data science in GCP, horizontal components, GCP pricing calculator

Recommended Reading:

Mu Sigma internal material

Course Name: Practitioner Data Science	Course Code: BBDS652
Total number of hours: 60 Hrs.	Credits: 3
Course Description:	
<p>R is a computer language used for statistical computations, data analysis and graphical representation of data and is the second most popular language in data science. R has an extensive library of tools for data and database manipulation and wrangling which will be taught as a part of this course. The course also includes R shiny which is an open source R package that provides an elegant and powerful web framework for building web applications using R. This course will also cover introduction to Data Mining, Data pre-processing and Data mining algorithms</p>	
Course Objectives:	
<p>The objective of the course is to:</p> <ol style="list-style-type: none"> 1. Enhance R Skills and the ability to analyze huge datasets 2. Understand R tool for statistical computations and graphical representation of data 3. Understand object-oriented programming in R & Data Mining 4. Understand how to build applications using R shiny & Data Mining 5. Learn about other useful libraries in R and Data Mining Algorithms 	
Course Learning Outcomes:	
<p>At the end of the course the students will be able to:</p> <p>CLO1 Define the use of R in analysis and visualization, data cleaning, data transformation and data mining algorithms</p> <p>CLO2 Interpret and learn how to perform complex data exploration and manipulation</p> <p>CLO3 Identify and differentiate between recursive, function and explicit environments and prediction of task</p> <p>CLO4 Discover and build interactive web applications in R using shiny libraries</p> <p>CLO5 Propose various methods of deploying R shiny applications in the web browser</p>	
Pedagogy:	
<p>This course uses multiple pedagogies like interactive lecture, students' discussions & lab sessions.</p>	
Unit 1 – Intermediate R Part 1	5 hrs
R basics, control statements, missing values, apply functions, UDF & introduction to dplyr	
Unit 2 – Intermediate R Part 2	5 hrs
Data manipulation and transformation using dplyr and tidyr, String and date manipulations, visualization in R	
Unit 3 – Advanced R & Data Mining	20 hrs
Date & time, subsetting and applications, visualizations, R flex dashboards, importing and exporting data, object-oriented programming, functions, environment. Introduction to Data Mining, Data Pre-processing, Data mining algorithms. Advanced techniques and Data Mining software and applications	
Unit 4 – Visualization – Introduction to R Shiny	10hrs
Introduction to R Shiny, functions in R shiny, examples of R shiny	

Unit 5: Visualization –R Shiny level II**20hrs**

Reactivity concept, complex example, other useful libraries, deploying shiny apps to the web

Reading Materials for reference:

Mu Sigma internal training material

Course Name: Practitioner Decision Science	Course Code: BBDS653
Total number of hours: 60 Hrs.	Credits: 3
Course Description: The course covers various aspects and case studies that show the Art of Problem-Solving framework in action. It aims to show various case-studies across industry verticals like Retail, Pharma, Banking and Consumer Packaged Goods. The course also covers tenets of design thinking.	
Course Objectives: The objective of the course is to: <ol style="list-style-type: none">1. Understand how solving specific problems and the art of problem solving can co-exist harmoniously in the larger realm of problem solving2. Understand the tenets of the art of problem-solving framework3. Instill a new approach in decision making4. Understand how the AoPS works from industry examples5. Familiarize with procedural approach, towards designing solutions	
Course Learning Outcomes: At the end of the course the students will be able to: CLO1 Define the real-world example of AoPS and its application in the Pharmaceutical industry CLO2 Explain with a real-world example of AoPS and its application in the Consumer Purchased Goods industry CLO3 Experiment with a real-world example of AoPS and its application in the Banking industry CLO4 Analyze with a real-world example of AoPS and its application in the Retail industry CLO5 Compile with the final designed solution in the best manner with the help of real-world scenarios	
Pedagogy: This course uses multiple pedagogies like interactive lecture, students' discussions & case studies.	

Unit 1 : AoPS in Action – Pharmaceutical Industry**14 Hrs**

Case studies from the pharmaceutical industry to demonstrate and illustrate the application of AoPS in transforming business decision making

Unit 2: AoPS in Action –Consumer Purchased Goods Industry**12 Hrs**

Case studies from the CPG industry to demonstrate and illustrate the application of AoPS in transforming business decision making

Unit 3: AoPS in Action – Banking Industry**12 Hrs**

Case studies from the banking industry to demonstrate and illustrate the application of AoPS in transforming business decision making

Unit 4: AoPS in Action – Retail Industry**10 Hrs**

Case studies from the retail industries to demonstrate and illustrate the application of AoPS in transforming business decision making

Unit 5: Design Thinking**12 Hrs**

Beginners guide, discovery phase, ideation phase, iterative execution, market roll-out, case studies

Reading Materials for reference:

Mu Sigma internal training material and case studies

Course Name: Problem Space V (Project)	Course Code: BBDS681
Total number of hours: 60 Hrs.	Credits: 3
Course Description: This course is designed to give the students a stage to apply and understand all the concepts taught in Intermediate Data Science, Data Engineering & Decision Science. It will help in providing the students with real world industry exposure by guiding them to solve real world problems that Mu Sigma has historically dealt with	
Course Objectives: The objective of the course is to: <ol style="list-style-type: none"> 1. Understand why simply solving problems is not sufficient and why a more elaborate art of problem solving is in order 2. Understand how solving specific problems and the art of problem solving can co-exist harmoniously in the larger realm of problem solving 3. Understand the tenets of the Art of Problem-Solving framework 4. Understand the frameworks to analyse an industry vertical 5. Understand problems pertaining to specific industries 	

Course Learning Outcomes:

At the end of the course the students will be able to:

- CLO1 Define and demonstrate the art of problem solving while approaching Fraud Management problems
- CLO2 Illustrate the business model of an organization
- CLO3 Apply how change is an outcome of transmission of minor changes
- CLO4 Discover anomalies in the data using various techniques.
- CLO5 Interpret with the applications of Data Science, Data Engineering & Decision making in the real world

Pedagogy:

This course uses pedagogies like students' discussions & case studies.

Background Knowledge: R, Python, EDA, Basic ML techniques, Logistic regression.

Problem Space on Fraud Management**60 Hrs**

Problem Space V will occur once the students are familiar with the design thinking concepts in Decision Science topics. It will be a classroom activity on the problems given by the trainer. This subject will be covered during the second part of the semester.

Students will be taught:

1. To develop an understanding of fraud management in general
2. Examples of real-life applications of fraud management & its impact
3. Techniques to arrive at a solution, their uses & application
4. How to work on an exercise on Fraud Management

Output expected from students:

1. Create an Empathy Map, Org Chart and a Vertical writeup on the Industry and the business in question
2. Break down the problem statement using Problem Definition & Design
3. Identify the right sampling technique and performed clustering
4. Performing Hypothesis testing and Exploratory data analysis
5. Arrive at a solution thinking on the lines of Transformation Roadmap
6. Submit a Jupyter Notebook with the solution

Reading Materials for reference:

Mu Sigma internal training material and case studies

