

BBA PROGRAM CURRICULUM - 2025

(Applicable for the batches admitted from A.Y 2025-26)
Version 1.0

BACHELOR OF BUSINESS ADMINISTRATION (BUSINESS ANALYTICS)

Version 1.0–Approved in the BoS meeting on 17-05-2025 & Academic Council meeting on 14-06-2025



A D I T Y A
U N I V E R S I T Y

Aditya Nagar, ADB Road, Surampalem, Andhra Pradesh

VISION & MISSION OF THE UNIVERSITY

VISION

To be a globally recognized University through excellence in Education, Innovation, and Sustainable Growth

MISSION

Deliver collaborative education to prepare students for global challenges through

1. Transformative learning.
2. Vibrant research ecosystem.
3. Sustainable and inclusive community

VISION & MISSION OF THE SCHOOL OF BUSINESS

VISION

To be a world-class business school advancing academic excellence, innovation, and global talent to develop responsible leaders shaping an inclusive and sustainable future

MISSION

M1: Deliver transformative business education that blends academic rigor with real-world relevance and ethical grounding.

M2: Nurture globally competent, entrepreneurial leaders through innovation, research, and interdisciplinary learning.

M3: Champion sustainability, social impact, and inclusive growth through collaborative industry and community engagement.

PROGRAM OUTCOMES (POs)

After successful completion of the program,

PO1:	Proficiency in Business Fundamentals: Graduates will showcase a thorough grasp of essential business concepts, models, and practices spanning multiple functional areas of management.
PO2:	Competence in Solving Business Challenges: Graduates will effectively diagnose and resolve complex business issues by applying research tools, data interpretation, and strategic decision-making approaches.
PO3:	Logical and Analytical Reasoning: Graduates will demonstrate the capacity to critically assess business scenarios, apply structured thinking, and arrive at reasoned, evidence-based conclusions.
PO4:	Strong Communication Skills: Graduates will be able to articulate ideas clearly and confidently through both written and spoken communication, suitable for diverse professional contexts including presentations, reports, and negotiations.
PO5:	Legal Awareness and Ethical Integrity: Graduates will understand and apply business laws, uphold ethical standards in decision-making, and recognize the importance of corporate governance and compliance.
PO6:	Leadership and Team Engagement: Graduates will develop key leadership attributes, including the ability to guide, influence, and collaborate with teams while embracing adaptability and shared problem-solving.
PO7:	Entrepreneurial Orientation: Graduates will embody entrepreneurial thinking, demonstrating originality, proactive innovation, and the ability to pursue and develop new business ventures or opportunities.
PO8:	Commitment to Human Values: Graduates will integrate core human values such as honesty, empathy, harmony, and scientific curiosity into their personal and professional conduct, promoting ethical and socially conscious leadership.
PO9:	Digital and Technological Literacy: Graduates will possess the ability to leverage digital tools, business technologies, and analytics platforms to enhance decision-making and organizational efficiency.
PO10:	Teamwork and Global Business Dynamics: Graduates will work productively within diverse and cross-cultural teams, contributing effectively to collective goals through cooperation, shared responsibility, and mutual respect, while demonstrating awareness of international business trends, cultural nuances, and the economic impact of globalization on business practices.
PO11:	Lifelong Learning Orientation: Graduates will exhibit a proactive attitude toward continuous learning, professional growth, and staying aligned with evolving industry practices and innovations.

PROGRAM SPECIFIC OUTCOMES (PSOs)

After successful completion of the program,

- PSO1: Analytical Thinking and Tool Application:** Graduates will demonstrate proficiency in using analytical tools and technologies (Excel, SQL, R/Python, Tableau, Power BI) for solving real-world business problems across domains.
- PSO2: Data Interpretation and Strategic Decision-Making:** Graduates will be able to gather, clean, visualize, and interpret data to make strategic and operational decisions in business functions such as marketing, finance, and supply chain.
- PSO3: Business Intelligence with Ethical Insight:** Graduates will apply business intelligence techniques responsibly, ensuring data integrity, compliance, and ethical use of information in line with contemporary data

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

After successful completion, this program will support

- PEO 1: Strong Foundation in Business Disciplines:** To equip students with comprehensive knowledge across essential business domains such as accounting, finance, marketing, operations, and management, fostering a robust understanding of core principles that drive business success.
- PEO 2: Development of Analytical and Problem-Solving Skills:** To build students' capacity for critical thinking and logical analysis, enabling them to address complex business challenges through informed decision-making and data-driven solutions.
- PEO 3: Mastery in Communication:** To strengthen students' written, verbal, and interpersonal communication skills, preparing them to articulate ideas clearly, craft professional business documents, and deliver impactful presentations.
- PEO 4: Fostering Collaboration and Leadership:** To instill a strong appreciation for teamwork and cooperative problem-solving, while also nurturing leadership abilities that empower students to effectively manage group dynamics and drive collective success.
- PEO 5: Encouraging Innovation and Entrepreneurial Thinking:** To inspire a spirit of innovation and cultivate an entrepreneurial outlook, encouraging students to think creatively, embrace risk, and recognize emerging opportunities in the business landscape.
- PEO 6: Commitment to Lifelong Learning and Growth:** To promote an enduring commitment to personal and professional development by encouraging students to remain agile, pursue advanced learning, and adapt continuously in a fast-changing business environment.

**Bachelor of Business Administration (BBA-BA)
Program Curriculum-2025**

Credit Division:

S. No	Category of Courses	Credits
1	Program Core Courses (PCC)	48
2	Discipline Specific Courses (DSC)	30
3	Ability Enhancement Courses (AEC)	05
4	Multi-Disciplinary Course (MDC)	05
5	Value Added Courses (VAC)	12
6	Skill Enhancement Courses (SEC)	12
7	Summer Internship (SI)	04
8	Capstone Project (CPROJ)	04
10	Mandatory courses (MC)	0
Total Credits		120

FC- Fundamental Courses

IC- Intermediate Level Courses

AC- Advanced Courses

Program Core Courses (PCC)

Course Code	Course Title	Level	L	T	P	C	CIE	SEE	Total	Pre-requisite
2505MS59	Principles and Practices of Management	FC	2		1	3	50	50	100	-
2505MS49	Financial Accounting	FC	2	1		3	50	50	100	-
2505MS45	Business Statistics and Logic	FC	2	1		3	50	50	100	-
2505MS57	Micro economics	FC	2		1	3	50	50	100	-
2505MS08	Human Behavior and Organization	IC	2		1	3	50	50	100	PPM
2505MS55	Marketing Management	FC	2		1	3	50	50	100	-
2505MS12	Macro Economics	IC	2		1	3	50	50	100	MiE
2505MS54	Legal and Ethical Issues in Business	FC	2		1	3	50	50	100	FA
2505MS43	Business Environment and Public Policy	FC	2		1	3	50	50	100	-
2505MS58	Operations Management	FC	2		1	3	50	50	100	-
2505MS44	Business Research Methodology	FC	2	1		3	50	50	100	-
2505MS60	Strategic Management	FC	2		1	3	50	50	100	-
2505MS11	Logistics and Supply Chain Management	IC	2		1	3	50	50	100	MM
2505MS52	Intellectual Property Rights	FC	2		1	3	50	50	100	-
2505MS32	Project Management	AC	2		1	3	50	50	100	OM
2505MS18	Business Taxation	AC	2	1		3	50	50	100	-
	Total					48				

Discipline Specific Courses (DSC)

Business Analytics (BA)											
S. No	Course Code	Course Title	Level	L	T	P	C	CIE	SEE	Total	Pre-requisite
I	2507MS06	Introduction to Business Analytics	AC	2		1	3	50	50	100	-
II	2507MS02	Data Analysis with Python	AC	2		1	3	50	50	100	IBA
III	2507MS07	Marketing Analytics	AC	2		1	3	50	50	100	
IV	2507MS05	Financial Analytics	AC	2		1	3	50	50	100	
V	2505MS27	HR Analytics	AC	2		1	3	50	50	100	
VI	2507MS08	Predictive Analytics	AC	2		1	3	50	50	100	
VII	2507MS01	Big Data Analytics	AC	2		1	3	50	50	100	
VIII	2507MS09	Web Analytics	AC	2		1	3	50	50	100	
IX	2507MS03	Data Mining and Machine Learning	AC	2		1	3	50	50	100	
X	2507MS04	Data Visualization	AC	2		1	3	50	50	100	
Total							30				

Ability Enhancement Courses (AEC)

Course Code	Course Title	Level	L	T	P	C	CIE	SEE	Total	Pre-requisite
2505MS50	Fundamental Cognitive Skills for Managers	FC			1	1	100	-	-	-
2505MS01	Advanced Cognitive Skills for Managers	IC			1	1	100	-	-	FCSM
2505MS23	Employability Skills V	AC				1	100	-	-	ES-IV
2505MS38	Student Activity-Based Learning	AC				2	-	-	-	-

Multi-Disciplinary Course (MDC)

Course Code	Course Title	Level	L	T	P	C	CIE	SEE	Total	Pre-requisite
2505MS53	IT & AI Skills	FC	1		2	3	100	-	100	-
2505MS56	Media Literacy and Critical Thinking	FC	2			2	50	50	100	-

Value Added Courses (VAC)

Course Code	Course Title	Level	L	T	P	C	CIE	SEE	Total	Pre-requisite
2505MS48	Environmental Science and Sustainability	FC	2			2	50	50	100	-
2505MS51	Indian constitution	FC	2			2	50	50	100	-
2505MS14	Public Health and Management	FC	2			2	50	50	100	-
2505MS03	Community Service Project	FC			3	3	100	-	100	-
2505MS10	International Business	IC	2		1	3	50	50	100	BEPP

Skill Enhancement Courses (SEC)

Course Code	Course Title	Level	L	T	P	C	CIE	SEE	Total	Pre-requisite
2505MS05	Emerging Technologies and Applications	IC	2			2	50	50	100	IT&AIS
2505MS13	Management Information System	AC	2		1	3	50	50	100	ETA
2505MS06	Enterprise Systems and Platforms	IC	2		1	3	50	50	100	IT&AI
2505MS46	Design Thinking and Innovation	FC	2			2	50	50	100	-
2505MS20	Corporate Governance	AC	2			2	50	50	100	BEPP

Summer Internship (SI)

Course Code	Course Title	Level	L	T	P	C	CIE	SEE	Total	Pre-requisite
2505MS15	Summer Internship	IC			4	4	100	-	100	-

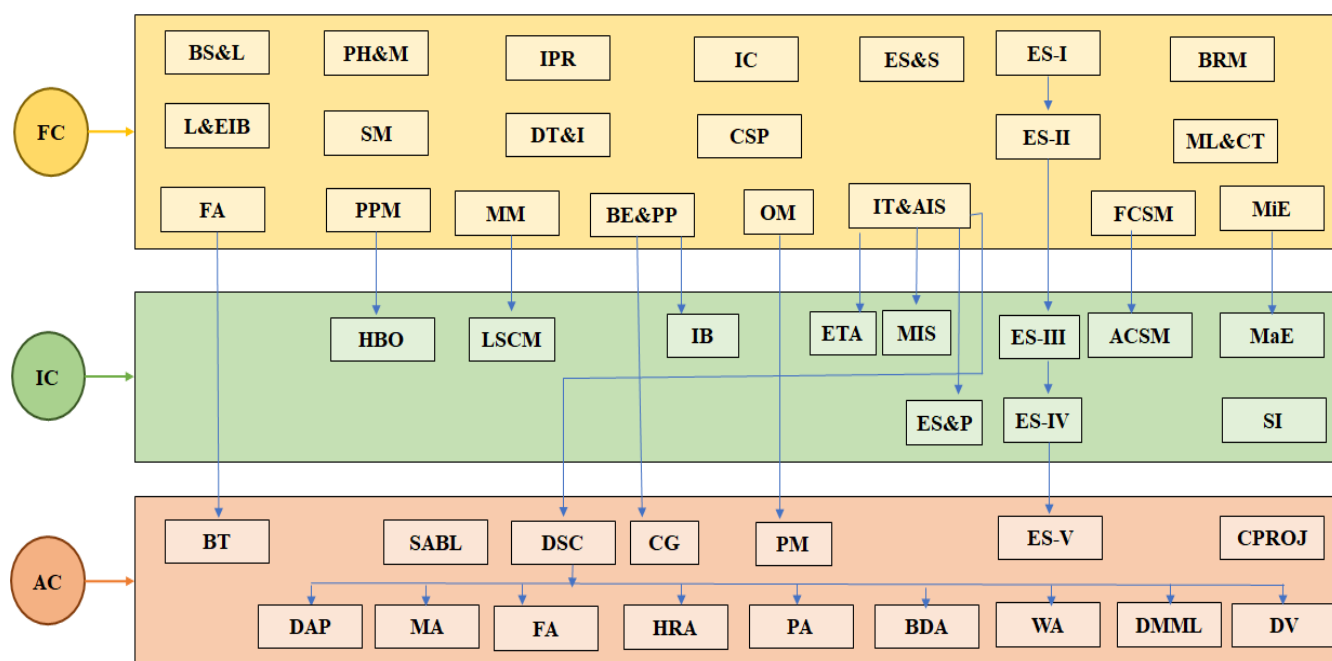
Capstone Project (CPROJ)

Course Code	Course Title	Level	L	T	P	C	CIE	SEE	Total	Pre-requisite
2505MS19	Capstone Project	AC			4	4	50	50	100	-

Mandatory Courses (MC)

Course Code	Course Title	Level	L	T	P	C	CIE	SEE	Total	Pre-requisite
2505AC01	Employability Skills-I	AC	2				100	-	100	-
2505AC02	Employability Skills-II	AC	2				100	-	100	ES-I
2505AC03	Employability Skills-III	AC	2				100	-	100	ES-II
2505AC04	Employability Skills-IV	AC	2				100	-	100	ES-III

2025 BBA BA CURRICULUM
Pre - Requisite Flow Chart



Fundamental Courses	
PPM	Principles and Practices of Management
FA	Financial Accounting
BS&L	Business Statistics and Logic
MiE	Micro economics
MM	Marketing Management
L&EIB	Legal and Ethical Issues in Business
BEPP	Business Environment and Public Policy
OM	Operations Management
BRM	Business Research Methodology
SM	Strategic Management
IPR	Intellectual Property Rights
FCSM	Fundamental Cognitive Skills for Managers
IT&AI	IT & AI Skills
ML&CT	Media Literacy and Critical Thinking
ES&S	Environmental Science and Sustainability
IC	Indian constitution
PH&M	Public Health and Management
CSP	Community service Project
DT&I	Design Thinking and Innovation
ES-I	Employability Skills-I
ES-II	Employability Skills-II

Intermediate Level Courses	
HBO	Human Behavior and Organization
MaE	Macro Economics
L&SCM	Logistics and Supply Chain Management
ACSM	Advanced Cognitive skills for Managers
IB	International Business
ET&A	Emerging Technologies and Applications
ER&P	Enterprise System and Platforms
SI	Summer Internship
ES-III	Employability Skills-III
ES-IV	Employability Skills-IV

Advanced Courses	
PM	Project Management
BT	Business Taxation
MIS	Management Information System
CG	Corporate Governance
ES-V	Employability Skills V
SCBL	Student Activity Based Learning
CPROJ	Capstone Project
Discipline Specific Courses (DSC)	
BA	Business Analytics

Suggestive Semester- wise Curriculum

SEMESTER-I									
Course Code	Course Title	Level	Course Category	Credits				Total Hours	Pre requisite
				L	T	P	Total		
2505MS59	Principles and Practices of Management	FC	PCC	2		1	3	4	-
2505MS49	Financial Accounting	FC	PCC	2	1		3	3	-
2505MS45	Business Statistics and Logic	FC	PCC	2	1		3	3	-
2505MS57	Micro economics	FC	PCC	2		1	3	4	-
2507MS06	Introduction to Business Analytics	AC	DSC	2		1	3	4	-
2505MS48	Environmental Science and Sustainability	FC	VAC	2			2	2	-
2505MS53	IT & AI Skills	FC	MDC	1		2	3	5	-
2505MS50	Fundamental Cognitive skills for Managers	FC	AEC			1	1	2	-
2505AC01	Employability Skills I	FC	MC	2				3	-
Total							21	30	

SEMESTER-II									
Course Code	Course Title	Level	Course Category	Credits				Total Hours	Pre requisites
				L	T	P	Total		
2505MS08	Human Behavior and Organization	IC	PCC	2		1	3	4	PPM
2505MS55	Marketing Management	FC	PCC	2		1	3	4	-
2505MS12	Macro Economics	IC	PCC	2		1	3	4	MiE
2507MS02	Data Analysis with Python	AC	DSC	2		1	3	4	IBA
2505MS51	Indian constitution	FC	VAC	2			2	2	-
2505MS05	Emerging Technologies and Applications	IC	SEC	2			2	2	IT&AI
2505MS56	Media Literacy and Critical Thinking	FC	MDC	2			2	2	-
2505MS01	Advanced Cognitive skills for Managers	IC	AEC			1	1	2	FCSM
2505AC02	Employability Skills II	FC	MC	2				3	ES-I
Total							20	27	

SEMESTER-III									
Course Code	Course Title	Level	Course Category	Credits				Total Hours	Pre requisite
				L	T	P	Total		
2505MS54	Legal and Ethical Issues in Business	FC	PCC	2		1	3	4	-
2505MS43	Business Environment and Public Policy	FC	PCC	2		1	3	4	-
2507MS07	Marketing Analytics	AC	DSC	2		1	3	4	IBA
2507MS05	Financial Analytics	AC	DSC	2		1	3	4	IBA
2505MS13	Management Information System	AC	SEC	2		1	3	4	ETA
2505MS14	Public Health and Management	FC	VAC	2			2	2	-
2505MS03	Community service Project	FC	VAC			3	3	-	-
2505AC03	Employability Skills III	IC	MC	2				3	ES-II
Total							20	25	

SEMESTER-IV									
Course Code	Course Title	Level	Course Category	Credits				Total Hours	Pre requisite
				L	T	P	Total		
2505MS58	Operations Management	FC	PCC	2		1	3	4	
2505MS44	Business Research Methodology	FC	PCC	2	1		3	3	
2505MS27	HR Analytics	AC	DSC	2		1	3	4	IBA
2507MS04	Data Visualization	AC	DSC	2		1	3	4	IBA
2505MS10	International Business	IC	VAC	2		1	3	4	BE
2505MS06	Enterprise System and Platforms	IC	SEC	2		1	3	4	IT&AI
2505MS46	Design Thinking and Innovation	FC	SEC	2			2	2	-
2505AC04	Employability Skills IV	IC	MC	2				3	ES-III
Total							20	28	

SEMESTER-V									
Course Code	Course Title	Level	Course Category	Credits				Total Hours	Pre requisite
				L	T	P	Total		
2505MS60	Strategic Management	FC	PCC	2		1	3	4	-
2505MS11	Logistics and Supply chain Management	AC	PCC	2		1	3	4	MM
2505MS52	Intellectual Property Rights	FC	PCC	2		1	3	4	-
2507MS08	Predictive Analytics	AC	DSC	2		1	3	4	IBA
2507MS01	Big Data Analytics	AC	DSC	2		1	3	4	IBA
2505MS15	Summer Internship	IC	SI			4	4		-
2505MS23	Employability Skills V	AC	AEC				1	3	ES-IV
Total							20	23	

SEMESTER-VI									
Course Code	Course Title	Level	Course Category	Credits				Total Hours	Pre requisite
				L	T	P	Total		
2505MS32	Project Management	AC	PCC	2		1	3	4	OM
2505MS18	Business Taxation	AC	PCC	2	1		3	3	FA
2507MS09	Web Analytics	AC	DSC	2		1	3	4	IBA
2507MS03	Data Mining and Machine Learning	AC	DSC	2		1	3	4	IBA
2505MS20	Corporate Governance	AC	SEC	2			2	2	BE
2505MS19	Capstone Project	AC	CPROJ			4	4		-
2505MS38	Student Activity Based Learning	AC	AEC				2		-
Total							20	17	

PROGRAM CORE COURSES

PRINCIPLES AND PRACTICES OF MANAGEMENT

	L	T	P	C
Course Code: 2505MS59	2		1	3

Course Outcomes:

At the end of the course, Student will be able to:

- CO1:** Explain theoretical aspects, processes and principles, the scope of Management and its application to modern management practice
- CO2:** Identify the Decision-making process in Business organizations
- CO3:** Differentiate the functions of Line and Staff management
- CO4:** Understand and apply different leadership styles
- CO5:** Apply different controlling techniques in different situations

Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	2	1	1	1	-	2	1	1	1
CO2	2	3	3	1	1	2	1	1	2	1	1
CO3	2	2	2	1	1	3	-	1	1	2	1
CO4	1	2	2	2	1	3	1	2	1	2	2
CO5	2	3	3	1	1	2	-	1	2	1	2

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	2	1	1
CO2	2	2	2
CO3	2	2	1
CO4	1	2	1
CO5	2	2	2

UNIT – I

Management: Definition, nature, significance and principles of management, Evolution of management thought, management and administration, levels of management, Functions of Management.

UNIT – II

Planning: Concept, Objectives, Types, Steps and Techniques, Decision Making: Steps in Decision Making and Types; Management by Objectives (MBO).

UNIT – III

Organizing & Staffing: Structures, Nature, Types and Principles of Organizing; Centralization and Decentralization, Staffing: Nature, Significance and Process.

UNIT – IV

Leading and Directing: Introduction, Characteristics and Functions of a Leader; Leadership and Management, Styles of Leaders. **Directing:** Meaning and nature and importance of Directing.

UNIT – V

Controlling: Introduction, Concept of Controlling, Purpose of Controlling; Types of Control; Steps in Controlling; Techniques in Controlling.

Textbooks:

1. P.C. Tripathi & P.N. Reddy, Principles of Management (2023), McGraw Hill, 6th Edition, ISBN: 9789352605354
2. Harold Koontz & Heinz Weihrich, Essentials of Management (2015), McGraw Hill, 10th Edition, ISBN: 9789339222864

Reference Books:

1. Gerald Cole, Management: Theory and Practice (2020), Cengage, ISBN: 9781473769724
2. OpenStax, Principles of Management (2019) XanEdu Publishing Inc, Ed., ISBN: 9781593998769

Web Links:

1. https://onlinecourses.nptel.ac.in/noc23_mg33/preview
2. <https://archive.nptel.ac.in/courses/110/107/110107150/>

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

FINANCIAL ACCOUNTING

Course Code: 2505MS49

L	T	P	C
2	1		3

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Identify and explain key concepts and principles of financial accounting.
- CO2:** Assess accounting concepts, principles, standards, and policies.
- CO3:** Apply the accounting process to record transactions and compute depreciation.
- CO4:** Simplify Trading, Profit & Loss Accounts, and Balance Sheets for sole proprietary businesses.
- CO5:** Analyze final accounts of companies in line with the Companies Act, 2013

Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	2	1	2	-	-	1	1	-	1
CO2	3	3	2	1	3	-	-	1	2	-	1
CO3	3	3	2	1	2	-	-	1	2	-	1
CO4	3	2	2	1	2	-	-	1	1	1	1
CO5	3	3	2	1	3	-	-	2	2	1	2

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	3	2	2
CO2	3	3	2
CO3	3	3	2
CO4	3	2	2
CO5	3	3	3

UNIT – I

Introduction to Financial Accounting: Definition, Scope, objectives of Financial Accounting, Accounting v/s Book Keeping, Double entry system of accounting and its advantages; types of accounts, rules of accounting.

UNIT – II

Conceptual Frame work: Accounting Concepts, Principles and Conventions, Brief review of Accounting Standards in India, GAAP (Generally Accepted Accounting Principles) and IFRS (International Financial Reporting Standards)

UNIT – III

Recording of Transactions: Voucher system; Accounting Process, Journal, Subsidiary Books, Ledger, Cash Book, Bank Reconciliation Statement, Trial Balance. Rectification of Errors; Depreciation: Need & importance and methods of charging depreciation,

UNIT – IV

Preparation of Final Accounts: Preparation of Trading and Profit & Loss Account and Balance Sheet of sole proprietary business (with adjustments).

UNIT – V

Company Final Accounts: Understanding of final accounts of a Company. Joint Stock Company- Definition, Characteristics, types of companies, Shares, Share Capital, rights shares, bonus shares.

Textbooks:

1. T.S. Grewal, Double Entry Book Keeping: Financial Accounting(2023), Sultan Chand & Sons, ISBN: 9788196162658
2. Ambrish Gupta, Financial Accounting for Management (2021), Pearson, 5th Edition, ISBN: 9788131797556

Reference Books:

1. Rajesh Agarwal & R. Srinivasan, Accounting Made Easy (2020) McGraw Hill, 2nd Edition, ISBN: 9780070700987
2. R. Narayanaswamy, Financial Accounting: A Managerial Perspective (2017) PHI, 6th Edition, ISBN: 9788120353435

Web Links:

1. https://onlinecourses.nptel.ac.in/noc23_mg65/preview
2. <https://archive.nptel.ac.in/courses/110/101/110101131/>

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

BUSINESS STATISTICS AND LOGIC

Course Code: 2505MS45

L	T	P	C
2	1		3

Course Outcomes:

At the end of the Course, students will be able to:

- CO1:** Explain the types of data and types of variables
- CO2:** Interpret various concepts of descriptive statistics
- CO3:** Analyze the theories of probability
- CO4:** Solve the problems related to Linear programming.
- CO5:** Develop various transportation models and game theory.

Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	2	2	2	1	-	-	-	-	2	-	1
CO2	2	3	3	1	-	-	-	-	3	-	1
CO3	2	3	3	1	-	-	-	-	3	-	1
CO4	2	3	3	1	-	1	1	-	3	1	1
CO5	2	3	3	1	-	1	1	-	3	1	1

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	2	2	1
CO2	3	3	2
CO3	3	3	2
CO4	3	3	3
CO5	3	3	3

UNIT – I

Introduction to Business Statistics: Statistics in Business, Types of data – Nominal, Ordinal, Interval, Ratio. Types of variables.

UNIT – II

Descriptive Statistics: Measure of central tendency, Measure of variability – Range, interquartile range, standard deviation, variance, coefficient of variation.

UNIT – III

Introduction to Probability: Theories of probability, Laws of probability, Inverse Probability. Revision of probability: BAYES' RULE, Discrete distribution – Binomial, Poisson, Continuous distribution – Uniform, normal.

UNIT – IV

Introduction to Linear Programming Problems (LP) – LP Formulations – Graphical Solution – Simplex Method

UNIT – V

Introduction to Logic Number series, coding decoding and odd man out series, direction sense test, seating arrangements – linear and circular, blood relations, arithmetic and geometric progressions, Inductive and deductive reasoning.

Textbooks:

1. Richard I. Levin & David S. Rubin, Statistics for Management (2012) Pearson Education, 7th Edition, ISBN: 9780134762920
2. S.P. Gupta, Business Statistics (2021), Sultan Chand & Sons, Revised Edition, ISBN: 97893516111066

Reference Books:

1. Paul Newbold, William Carlson, Betty Thorne, Statistics for Business and Economics (2020) Pearson, 9th Edition, ISBN: 9781292315034
2. Robert stine and Dean foster, Statistics for business: Decision making and Analysis (2017) Pearson, 3rd Edition ISBN: 9780134497167

Web Links:

1. <https://archive.nptel.ac.in/courses/110/107/110107114/>
2. <https://archive.nptel.ac.in/noc/courses/noc21/SEM1/noc21-mg07/>

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

MICRO ECONOMICS

Course Code: 2505MS57

L	T	P	C
2	1		3

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Understand the fundamentals of Micro Economics
- CO2:** Apply the knowledge of the mechanics of supply and demand to explain working of markets.
- CO3:** Explain the relationships between production and costs.
- CO4:** Analyze the key characteristics and consequences of different forms of markets.
- CO5:** Examine the choices made by a rational consumer

Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	1	2	-	-	-	-	2	-	1
CO2	3	3	2	2	-	-	1	-	3	-	1
CO3	3	3	2	2	-	-	1	-	3	-	1
CO4	3	3	2	2	1	1	1	-	3	1	1
CO5	3	3	2	2	1	-	1	-	3	1	1

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	2	2	1
CO2	3	2	2
CO3	3	2	2
CO4	3	3	2
CO5	3	3	2

UNIT – I

Introduction to Economics: Definition, Nature and Scope of Economics. Micro and Macro Economics, Role of Economics in Decision Making.

UNIT – II

Demand Analysis: Meaning of Demand, Types of Demand, Law of demand, Determinants of Demand, Demand Function, Elasticity of demand- price elasticity of demand. Income elasticity of demand, Cross Elasticity of demand,

UNIT – III

Production and Cost Analysis: Production function, Factors of Production, Types of Production Function, Law of Returns, Law of variable proportions, Isoquants and Iso cost Curves, Cost Concepts, Cost Output Relation (Short Run & Long Run costs).

UNIT – IV

Market Structures: Perfect competition, monopoly, monopolistic competition, oligopoly basic features, equilibrium price, short run equilibrium of firm/industry, long run equilibrium of firm/industry.

UNIT – V

Consumer's Behavior: Law of diminishing Marginal Utility Analysis, Indifference Curve Analysis and its Properties; Marginal rate of Substitution, Consumer Equilibrium.

Textbooks:

1. Dr. D.M. Mithani, Microeconomics Himalaya Publishing House, ISBN: 978-93-6557- 962-8
2. Pankaj Tandon, Microeconomic Theory Routledge India, ISBN: 978-1032789668

Reference Books:

1. Sreejata Banerjee & Robert S. Pindyck, Microeconomics Pearson India, 9th Edition, ISBN: 978-9356060128.
2. David Besanko, Ronald Braeutigam, Tamali Chakraborty, Microeconomics: Indian Adaptation, Wiley India, 6th Edition, ISBN: 978-9354249136

Web Links:

1. <https://archive.nptel.ac.in/courses/110/104/110104093/>
2. <https://archive.nptel.ac.in/courses/109/104/109104125/>

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

HUMAN BEHAVIOR AND ORGANIZATION

Course Code: 2505MS08

L	T	P	C
2		1	3

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Outline the overall perspective on human behavior in the work place.
- CO2:** Demonstrate the importance of motivation in at work place.
- CO3:** Examine the nature of group conflict and its resolution
- CO4:** Identify the impact of culture on individual performance
- CO5:** Analyze the impact of change, assess and manage work stress.

Mapping of Course Outcomes with Program Outcomes:

COs / POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	2	2	2	3	1	3	1	3	2
CO2	3	2	2	2	2	3	1	2	1	3	2
CO3	3	3	3	2	2	3	2	3	1	3	2
CO4	2	2	3	3	3	2	1	3	1	3	2
CO5	2	3	3	3	2	3	1	3	2	3	3

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	1	1	2
CO2	2	1	2
CO3	2	1	2
CO4	2	1	2
CO5	2	1	2

UNIT – I

Introduction to Human Behavior and Organization: Meaning and importance of Organizational Behavior (OB); Evolution and factors influencing OB; OB models and their relevance in modern organizations.

UNIT – II

Individual Behavior: Personality – Determinants, Type A & B, Big Five traits; Attitude – Components and job-related attitudes; Learning theories and reinforcement; Perception – Process and influencing factors; Values – Terminal and instrumental; Motivation – Early (Maslow, McGregor, Herzberg) and contemporary theories (Self-Determination, Goal-Setting, Reinforcement, Self-Efficacy).

UNIT – III

Group and Team Behavior: Concepts and differences between groups and teams; Five-stage model of group development; Groupthink, group shift, and Indian perspective on group norms; Types of teams and development; Conflict management in groups and virtual/e-teams.

UNIT – IV

Leadership and Power: Leadership – Concepts, trait and behavioral theories, contingency theories; Contemporary leadership styles (transformational, charismatic, authentic); Mentoring and self-leadership; Cross-cultural leadership comparisons; Bases and types of power.

UNIT – V

Organizational Culture and Stress Management: Organizational culture – Meaning, functions, and creating ethical cultures; Role of employees in shaping culture; Cross-cultural management in globalized workplaces; Stress – Causes, types, and stress management strategies.

Textbooks:

1. L.M. Prasad, Organizational Behaviour, Sultan Chand & Sons, ISBN: 9789351611462.
2. Dr. Kavita Singh, Organizational Behaviour: Text and Cases, Pearson India, ISBN: 9781282652729

Reference Books:

1. Nahar Amandeep, Rao PCK, Nigah Rajesh Kumar, Organisational Behaviour(2021), Sultan Chand & Sons, ISBN: 93-5161-199-8.
2. Jerald Greenberg, Behavior in Organizations, Pearson Education India, 10 Edition, ISBN-10: 92.332556997, ISBN-13: 9332556997-978

Web Links:

1. <https://archive.nptel.ac.in/courses/110/106/110106145/>
2. https://onlinecourses.nptel.ac.in/noc20_mg51/preview

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

MARKETING MANAGEMENT

Course Code: 2505MS55

L	T	P	C
2		1	3

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Explain marketing and analyze the core marketing concepts
- CO2:** Assess and select market segments based on effective segmentation criteria
- CO3:** Classify products, analyze the product life cycle, and propose strategies for new product development
- CO4:** Develop pricing strategies, explain the relevance of the value chain to marketing, and assess customer lifetime value
- CO5:** Design integrated marketing channels, manage retailing and logistics, and evaluate the effectiveness of various promotional strategies

Mapping of Course Outcomes with Program Outcomes:

COs / POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	1	2	2	1	1	2	2	1	1
CO2	3	3	2	2	2	1	1	2	2	2	1
CO3	3	2	2	2	2	1	2	2	2	2	2
CO4	3	3	2	2	2	1	2	2	2	2	1
CO5	3	2	2	2	2	2	2	3	3	2	2

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	3	1	1
CO2	3	1	1
CO3	3	1	1
CO4	3	1	1
CO5	3	1	1

UNIT – I

Introduction to Marketing and Environment: Nature, scope, and importance of marketing; Evolution of marketing concepts (Production, Product, Selling, Marketing, Holistic); Types of marketing (B2C, B2G, B2B, C2C); Marketing environment (Demographic, Economic, Political, Legal, Socio-cultural, Technological); Market and competition analysis; Creating customer value.

UNIT – II

Consumer Behavior and Market Segmentation: Segmentation, Targeting, and Positioning; Bases for segmenting consumer markets; Consumer behavior (Stimulus Response Model, Cultural, Social, Personal, Psychological factors); Consumer buying decision process; Business buyer behavior; Traditional vs. Experiential marketing.

UNIT – III

Product and Pricing Decisions: Product Life Cycle (PLC) and marketing strategies; Product classification, line, and mix decisions; Branding, packaging, labeling; BCG Matrix; Brand management; Innovation and new product development; Pricing determinants and methods.

UNIT – IV

Promotion and Distribution Decisions: Promotion mix and factors; Promotional tools (Advertising, Sales Promotion, PR, Publicity, Personal Selling); Marketing channels and intermediaries (Wholesalers, Retailers); Introduction to retail management.

UNIT – V

Services and Contemporary Marketing: Services marketing (7Ps); Contemporary marketing issues (E- commerce, Digital Marketing, Online payments); Ethical and social responsibility; Rural marketing, social marketing, green marketing.

Textbooks:

1. Kotler, P., Keller, K. L., Chernev. A., Sheth. J.N., Shainesh.G., Marketing Management (2022), Pearson Education, 16th Edition, ISBN-10. 9356062668; ISBN-13. 978-9356062665
2. Dr. K. Karunakaran, Marketing Management, Himalaya Publishing House, ISBN: 978- 93-5693-548-8

Reference Books:

1. Hartley, S. W., Kerin, R. A., Marketing (2021) United States: McGraw-Hill Education, 15th Edition, ISBN-10. 1260260364; ISBN-13. 978-1260260366
2. Prof. Sunil Tiwari and Dr. Richa Tiwari, Strategic International Marketing, Society Publishing, ISBN: 9781779563798

Web Links:

1. https://onlinecourses.nptel.ac.in/noc22_mg57/preview
2. <https://archive.nptel.ac.in/courses/110/104/110104068/>

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

MACRO ECONOMICS

Course Code: 2505MS12

L	T	P	C
2		1	3

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Explain the concepts of National Income
- CO2:** Identify the Basics of Fiscal policy and its importance
- CO3:** Compare the relationships between monetary policy and flow of cash in economy.
- CO4:** Analyze the key characteristics and consequences of Business cycles and Balance of Payments.
- CO5:** Examine the concepts of inflation and unemployment

Mapping of Course Outcomes with Program Outcomes:

COs / POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	1	2	2	1	1	2	1	1	1
CO2	3	3	2	2	2	2	1	2	1	1	1
CO3	3	3	2	2	2	2	2	2	1	1	1
CO4	3	3	2	2	2	2	2	2	1	1	1
CO5	3	3	2	2	2	2	1	2	1	1	1

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	2	2	2
CO2	2	3	2
CO3	2	3	2
CO4	2	3	2
CO5	2	3	2

UNIT – I

Introduction to Macro Economics and National Income: Introduction Meaning and Scope of Macro Economics, introduction to Classical and Keynesian theory, Definition, Concepts of National income, Measurement of National Income.

UNIT – II

Monetary Policy: meaning, objectives and components; credit creation; money multiplier; tools of monetary policy- open market operation.

UNIT – III

Fiscal Policy: meaning, objectives and components; revenue receipts, capital receipts, revenue expenditure, capital expenditure, government deficit, revenue deficit, fiscal deficit, primary deficit.

UNIT – IV

Business Cycles and Balance of Payments: Business cycle; phases of business cycle, measures to control Business cycles. Balance of trade, Trade Deficit, Balance of Payments.

UNIT – V

Inflation and Unemployment: Concept of inflation; determinants of inflation; types of inflation; relationship between inflation and unemployment.

Text Books:

1. M C Vaish, Macro Economic Theory(2021), Vikas Publishing House, Revised Edition, ISBN: 9788125941958
2. Olivier Blanchard, Macroeconomics(2019), Pearson, 7th Edition, ISBN: 9789353945220

Reference Books:

1. Dornbusch, Fischer & Startz, Macroeconomics (2020), McGraw Hill, 13th Edition, ISBN: 9781260084351
2. McConnell, Brue & Flynn, Macroeconomics: Principles, Problems, and Policies (2018), McGraw Hill, 21st Edition, ISBN: 9789353165024

Web Links:

1. https://onlinecourses.swayam2.ac.in/cec22_hs08/preview
2. <https://archive.nptel.ac.in/courses/130/104/130104114/>

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

LEGAL AND ETHICAL ISSUES IN BUSINESS

	L	T	P	C
Course Code: 2505MS54	2		1	3

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Identify fundamental legal principal behind contractual Agreements
- CO2:** Explain the salient features of Sale of Goods Act and Negotiable Instruments Act
- CO3:** Assume the consequences of applicability of Companies Act and Partnership Act in business situations.
- CO4:** Build critical thinking through the use of Consumer Rights.
- CO5:** Develop awareness in respect of rules and regulations for Environment Protection.

Mapping of Course Outcomes with Program Outcomes:

COs / POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	3	2	3	2	2	2	2	2	2
CO2	3	3	2	2	3	2	2	2	2	2	2
CO3	3	3	3	2	3	2	2	2	2	2	2
CO4	3	3	2	2	3	2	2	2	2	2	2
CO5	3	2	2	2	3	2	2	2	2	2	2

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	3	2	3
CO2	3	3	2
CO3	3	3	3
CO4	3	3	3
CO5	3	2	3

UNIT – I

The Indian Contract Act 1872: Essentials, types, offer & acceptance, consideration, competency, free consent, void agreements, performance, discharge, breach, quasi contract.

The Special Contracts: Indemnity, guarantee, bailment, pledge, agency.

UNIT – II

The Sale of Goods Act 1930: Sale vs. agreement to sell, conditions & warranties, transfer of property, unpaid seller's rights.

The Negotiable Instruments Act 1881: Types, parties, dishonor, discharge, promissory note, bill of exchange, cheque.

UNIT – III

The Companies Act 2013: Types, incorporation, MOA & AOA, prospectus, shares, role of directors, company meetings.

The Limited Liability Partnership Act 2008: Nature, formation, partners' relations, liability

limitations.

UNIT – IV

The Consumer Protection Act 1986: Consumer rights, disputes, redressal mechanisms.

The Right to Information Act 2005: Features, definitions, obligations of authorities, request process, PIO functions.

UNIT – V

The Information Technology Act 2000: Digital signatures, e-governance, cyberlaws.

The Environment Protection Act 1986: Water & air pollution, Green Tribunal, sustainability reporting.

Textbooks:

1. Kenneth W. Clarkson et al., Business Law: Text and Cases (2017), Cengage Learning, 14th Edition, 2017 ISBN: 9781305967250
2. P.C. Tulsian, Business Law (2021), McGraw Hill, 3rd Edition, ISBN: 9789354600318

Reference Books:

1. Ravinder Kumar, Legal Aspects of Business (2021), Cengage India, 4th Edition, ISBN: 9789387511767
2. N.D. Kapoor, Elements of Mercantile Law (2022), Sultan Chand & Sons, 38th Edition, ISBN: 9789351618323

Web Links:

1. https://onlinecourses.swayam2.ac.in/cec21_mg02/preview
2. <https://www.classcentral.com/course/swayam-fundamentals-of-legal-aspects-of-business-22987>

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

BUSINESS ENVIRONMENT AND PUBLIC POLICY

	L	T	P	C
Course Code: 2505MS43	2		1	3

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Explain the nature, dimensions, and challenges of the business environment at both micro and macro levels.
- CO2:** Explain the global business frameworks and their impact on the Indian economy and national development.
- CO3:** Demonstrate an understanding of key public policies and analyze their impact on the Indian economy and reforms.
- CO4:** Analyze the major economic challenges in India and evaluate remedies and opportunities within the business environment.
- CO5:** Analyze emerging business trends and assess their impact on the digital economy, outsourcing, and technological growth.

Mapping of Course Outcomes with Program Outcomes:

COs / POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	2	2	2	2	2	2	2	2	2
CO2	3	2	2	2	2	2	2	2	2	2	2
CO3	3	3	2	2	3	2	2	2	2	2	2
CO4	3	3	2	2	2	2	2	2	2	2	2
CO5	3	3	2	2	3	2	2	2	2	2	2

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	3	2	2
CO2	3	3	2
CO3	3	3	3
CO4	3	3	3
CO5	3	3	3

UNIT – I

Theoretical Framework of Business Environment: Concept, Significance and Nature of Business Environment. Micro and Macro Dimensions of Business Environment, Changing Dimensions of Business Environment. Problems and Challenges of Indian Business Environment.

UNIT – II

Global Framework: EPRG Framework, Liberalization, Privatization & Globalization concept & its impact on Indian Economy. Significance of FDI & FII, IMF & WTO, Regional Economic Integrations in the development of the Nations.

UNIT – III

Public Policies: Background, Meaning and Importance of Public Policy. Significance of Industrial Policy, Fiscal Policy, Monetary Policy, Foreign Trade Policy, FERA & FEMA. Structural Adjustment Programs and Banking Sector Reforms in India.

UNIT – IV

Problems and Challenges of Growth of Economy: Unemployment, Poverty, Regional Imbalance. Social Injustice, Inflation, Parallel economy, Lack of technical knowledge and information. Remedies to solve these problems, Challenges & Opportunities of Indian Business Environment.

UNIT – V

Emerging Trends in Business: Concepts, Advantages and Limitations-Franchising, Aggregators, Business Process Outsourcing (BPO) & Knowledge Process Outsourcing (KPO); E-Commerce, Digital Economy. Technological Growth and MNC's.

Textbooks:

1. Dr. V. Basil Hans, Business Environment, IIP Publications, ISBN: 978-93-5747-517-4
2. Faisal Ahmed & M. Absar Alam, Business Environment: Indian and Global Perspective- PHI Learning, 3rd Edition ISBN: 978-9354437731

Reference Books:

1. Risha Khandelwa, Business Environment (2024), Toronto Academic Press, ISBN: 978-1774697375
2. Vishwajeet Prasad, Business Environment, GenNext Publication, ISBN: 978-9356633667.

Web Links:

1. https://onlinecourses.swayam2.ac.in/imb22_mg02/preview
2. https://ugcmoocs.inflibnet.ac.in/index.php/courses/view_pg/389

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

OPERATIONS MANAGEMENT

	L	T	P	C
Course Code: 2505MS58	2		1	3

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Understand the Relationship of Operations management with other functional areas and different types of Production Systems.
- CO2:** Apply stages of the product design process, analyze value analysis techniques, and critique facility location and layout decisions
- CO3:** Evaluate methods of forecasting, design operation planning strategies, and assess capacity planning techniques including MRP and scheduling
- CO4:** Analyze factors affecting productivity, apply job design principles, and evaluate process flow charts and methods study
- CO5:** Examine the techniques of Statistical Quality Control and Total Quality Management.

Mapping of Course Outcomes with Program Outcomes:

COs / POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	3	3	3	3	3	2	3	3	3	3
CO2	3	3	3	3	3	3	2	3	3	3	3
CO3	3	3	3	3	3	3	2	3	3	3	3
CO4	3	3	3	3	3	3	2	3	3	3	3
CO5	3	3	3	3	3	3	2	3	3	3	3

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	3	3	3
CO2	3	3	3
CO3	3	3	3
CO4	3	3	3
CO5	3	3	3

UNIT – I

Introduction to Operation Management: Nature, Scope, Recent trends in Operation Management, Manufacturing & Theory of Constraint, Types of Production System, Just in Time (JIT) & lean system.

UNIT – II

Product Design & Process Selection: Stages in Product Design process, Value Analysis, Facility location & Layout: Types, Characteristics, Advantages and Disadvantages.

UNIT – III

Forecasting & Capacity Planning: Methods of Forecasting, Production strategies, Capacity Requirement Planning, MRP, Scheduling, Supply Chain Management, Purchase Management, Inventory Management.

UNIT – IV

Productivity: Factors Affecting Productivity – Job Design – Process Flow Charts – Methods Study – Work Measurement – Engineering and Behavioral Approaches.

UNIT – V

Quality Management: Cost of Quality, Quality Circles, ISO (9000&14000 Series), Statistical Quality Control, Control Charts -Acceptance Sampling Operating Characteristic Curve (AQL, LTPD, Alpha & Beta risk), Total Quality Management (TQM).

Textbooks:

1. Lee J. Krajewski, Manoj K. Malhotra, Operations Management: Processes and Supply (2021) Chains Pearson, 13th Edition, ISBN: 9780136860938
2. William J. Stevenson, Operations Management (2017) McGraw Hill, 13th Edition, ISBN: 9781259667473

Reference Books:

1. K. Aswathappa & K. Shridhara Bhat, Production and Operations Management (2020), Himalaya Publishing, 2nd Edition, ISBN: 9789352621247
2. S. Anil Kumar, N. Suresh, Operations Management (2018), New Age International, 3rd Edition, ISBN: 9788122437257

Web Links:

1. https://onlinecourses.nptel.ac.in/noc20_me30/preview
2. <https://archive.nptel.ac.in/courses/112/107/112107238/>

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

BUSINESS RESEARCH METHODOLOGY

Course Code: 2505MS44

L	T	P	C
2	1		3

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Explain the fundamentals of research, its types, ethical considerations, and the characteristics of good research.
- CO2:** Explain the process of identifying research problems, setting objectives, reviewing literature, and understanding research design types.
- CO3:** Apply appropriate measurement techniques and data collection methods for conducting effective research.
- CO4:** Analyze and evaluate sampling techniques and perform data preparation for effective research analysis.
- CO5:** Analyze and interpret research data using statistical tools and visualization techniques for effective decision-making.

Mapping of Course Outcomes with Program Outcomes:

COs / POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	3	3	3	3	3	2	3	3	3	3
CO2	3	3	3	3	3	3	2	3	3	3	3
CO3	3	3	3	3	3	3	2	3	3	3	3
CO4	3	3	3	3	3	3	2	3	3	3	3
CO5	3	3	3	3	3	3	2	3	3	3	3

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	3	3	3
CO2	3	3	3
CO3	3	3	3
CO4	3	3	3
CO5	3	3	3

UNIT I:

Introduction to Research: Definition, history, evolution, and types of research. Scientific inquiry and research ethics. Characteristics of good research and the research process.

UNIT II:

Research Problem and Design: Identifying and formulating research problems, setting objectives, and conducting literature reviews. Basics of research design and types.

UNIT III:

Measurement and Data Collection: Concepts of measurement and scaling, types of data, measurement errors, and scale construction. Data collection methods: questionnaires, interviews, and observation.

UNIT IV:

Sampling and Data Preparation: Sampling techniques, sample size, and types of sampling. Data editing, coding, and preparation for analysis.

UNIT V:

Data Analysis and Interpretation: Hypothesis testing (parametric & non-parametric), tools for analysis, and data visualization techniques such as charts, graphs, and box plots.

Textbooks:

1. Dr. C.R. Kothari, Research Methodology & Business Research (2024), Galgotia Publishing Company, ISBN 978-93-90980-48-2.
2. Dr. Zillur Rahman, Business Research Methods, McGraw Hill Education, ISBN: 978-9390177530

Reference Books:

1. J.K. Sachdeva, Business Research Methodology (2024), Himalaya Publishing House, ISBN: 978-9352625925
2. H.K. Dangi & Shruti Dewen, Business Research Methods (2024), Vikas Publishing House (Imprint of S. Chand Publishing), 2nd Edition, ISBN: 978- 9359307107.

Web Links:

1. https://onlinecourses.swayam2.ac.in/cec20_mg14/preview
2. <https://archive.nptel.ac.in/courses/110/107/110107080/>

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

STRATEGIC MANAGEMENT

Course Code: 2505MS60

L	T	P	C
2		1	3

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Elaborate on the basic concepts and characteristics of Strategic management.
- CO2:** Build skills to develop strategic vision and mission objectives.
- CO3:** Develop knowledge on types of strategies to implement.
- CO4:** Build awareness on various strategy evaluation and controlling approaches
- CO5:** Visualize various strategies for managing global competition

Mapping of Course Outcomes with Program Outcomes:

COs / POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	2	2	2	1	1	1	1	2	1
CO2	3	2	3	2	2	2	2	2	2	2	1
CO3	3	2	3	2	2	2	3	1	2	2	1
CO4	3	2	3	2	2	3	2	1	2	2	1
CO5	2	2	3	2	2	2	3	2	2	2	1

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	3	2	2
CO2	3	2	2
CO3	3	2	2
CO4	3	2	2
CO5	2	3	2

UNIT – I

Strategic Planning: Definition, importance, and characteristics of strategic decisions. Difference between policy, strategy, and tactics. Strategic planning vs. long-range planning. Overview of strategic management process.

UNIT – II

Strategy Formulation: Mission, vision, and goal setting. Business environment analysis: External and Internal, Strategic analysis tools: BCG Matrix, Ansoff's Product- Market Matrix. Long-term strategy formulation: Market development, product development, diversification, integration, and liquidation.

UNIT – III

Strategy Implementation & Corporate Restructuring: Strategy and structure, managing strategic change, strategic control mechanisms. Management tools: Benchmarking, Reengineering, Balanced Scorecard. Corporate restructuring: Mergers, acquisitions, joint ventures, and strategic alliances.

UNIT – IV

Strategic Evaluation and Control: Strategic controls, performance benchmarking, strategic information systems. Strategy evaluation tools: Strategic audit, feedback mechanisms. Corporate governance and ethical considerations in strategy.

UNIT – V

Global Issues in Strategic Management: Challenges and opportunities in international business strategy. Advantages & disadvantages of global operations. International taxation and regulatory frameworks. Role of global institutions in strategic decision-making.

Textbooks:

1. Fred R. David & Forest R. David, Strategic Management: A Competitive Advantage Approach Pearson (2023), 18th Edition, ISBN:9789361590955
2. Arthur A. Thompson et al., Crafting and Executing Strategy (2021), McGraw Hill, 22nd Edition, ISBN: 978-9354600043

Reference Books:

1. Azhar Kazmi, Strategic Management and Business Policy (2021) McGraw Hill, 4th Edition, ISBN: 978-9339221836
2. Lawrence R. Jauch & William F. Glueck, Business Policy and Strategic Management (2004) McGraw Hill, 5th Edition, ISBN: 978-0070323476

Web Links:

1. <http://tjsec.digimat.in/nptel/courses/video/110108047/L21.html>
2. <https://archive.nptel.ac.in/courses/110/108/110108047/>

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

LOGISTICS AND SUPPLY CHAIN MANAGEMENT

	L	T	P	C
Course Code: 2505MS11	2		1	3

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Explain the concepts of logistics and supply chain management
- CO2:** Explore the characteristics of different modes of transportation and their roles in the supply chain.
- CO3:** Identify the benefits and constraints of containerization.
- CO4:** Familiarize with essentials and types of packing and packaging.
- CO5:** Summarize the concepts of import and export logistics

Mapping of Course Outcomes with Program Outcomes:

COs / POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3
CO3	2	2	2	1	1	1	1	1	2	1	1
CO4	2	2	2	1	1	1	1	1	2	1	1
CO5	2	2	2	2	1	1	2	1	2	2	2

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	3	2	2
CO2	3	2	2
CO3	2	2	2
CO4	2	2	2
CO5	3	2	3

UNIT – I

Logistics Management and Supply Chain Management - Definition, evolution, and importance of logistics and supply chain management. Key drivers and logistics relationships in supply chain operations.

UNIT – II

Basics of Transportation- Transportation principles and functions. Multimodal transport: characteristics and comparisons of different modes (air, ocean, road, and rail). International shipping and types of ships.

UNIT – III

Containerization: Concept, classification, and advantages of containerization. Inland Container Depots (ICDs): roles, functions, and export clearance. Role of CONCOR and Container Freight Stations (CFS).

UNIT – IV

Packing and Packaging: Functions and essentials of packing and packaging for storage and transportation. Types of packaging (primary, secondary, tertiary). Modern packaging technologies: barcodes, electronic data interchange (EDI), and universal product codes.

UNIT – V

Special Aspects of Export Logistics: Export logistics: picking, packing, customs clearance, documentation, and shipment processes. Import logistics: bonded warehousing, valuation, and customs formalities.

Textbooks:

1. Martin Christopher, Logistics and Supply Chain Management (2022) Pearson, 6th Edition, ISBN: 9781292416182
2. Sunil Chopra & Peter Meindl, Supply Chain Management: Strategy, Planning, and Operation (2022) Pearson, 7th Edition, ISBN: 978-9353065966

Reference Books:

1. S.K. Bhattacharyya, Logistics Management Pearson (2020), 1st Edition, ISBN: 9788121928854
2. Michael H. Hugos, Essentials of Supply Chain Management (2018) Wiley, 4th Edition, ISBN: 9781119461104

Web Links

1. <https://archive.nptel.ac.in/courses/110/105/110105141/>
2. <https://www.youtube.com/watch?v=Nrl0CtS1mY>

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

INTELLECTUAL PROPERTY RIGHTS

Course Code: 2505MS52

L	T	P	C
2		1	3

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Compare different IP laws and need for protecting
- CO2:** Explain different theories on the concept of property
- CO3:** Identify various functions of WIPO
- CO4:** Analyze the IP laws in India
- CO5:** Differentiate various forms of IPR

Mapping of Course Outcomes with Program Outcomes:

COs / POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	2	2	1	3	2	2	1	1	2	2	2
CO2	2	2	1	2	1	1	1	1	1	1	1
CO3	2	2	2	2	2	2	1	2	1	1	1
CO4	2	2	1	3	3	2	2	2	2	2	2
CO5	2	2	1	3	2	2	1	1	1	1	2

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	2	3	2
CO2	2	2	1
CO3	2	2	1
CO4	3	2	2
CO5	3	3	2

UNIT – I

Introduction: Origin and Development of IPR – Historical and theoretical basis for protection of IPR – Analyzing and understanding the Interpretation of IP laws – Need for Protecting IP

UNIT – II

Concept of Property: Theories on concept of property – Nature – Public Vs. Private – Tangible Vs. Intangible – Industrial Vs. Intellectual

UNIT – III

International IP Regime: World Intellectual Property Organization (WIPO) – Functions of WIPO – Membership – GATT Agreement – Major Conventions on IP – Berne Convention – Paris Convention – TRIPS agreement.

UNIT – IV

Indian IP Regime: Overview of IP laws in India – Major IP Laws in India – International treaties signed by India. IPR and Constitution of India.

UNIT – V

Forms of IPR: Forms of IPR – Copyright – Trademark – Patents – Industrial Designs – Trade Secrets – Geographical Indications - Application of different forms of IPR.

Textbooks:

1. Prabuddha Ganguli, Intellectual Property Rights: Unleashing the Knowledge Economy (2022), McGraw Hill, 2nd Edition, ISBN: 978-0070077171
2. Deborah E. Bouchoux, Intellectual Property (2016), Cengage, 5th Edition, ISBN: 978- 1305948464

Reference Books:

1. B.L. Wadehra, Law Relating to Intellectual Property (2021), LexisNexis, 5th Edition, ISBN: 9789350350300
2. Neeraj Pandey & Khushdeep Dharni, Intellectual Property Rights (2014), PHI Learning, 1st Edition, ISBN: 9788120349896

Web Links:

- 1 https://onlinecourses.nptel.ac.in/noc22_hs59/preview
- 2 <https://archive.nptel.ac.in/courses/110/105/110105139/>

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

PROJECT MANAGEMENT

Course Code: 2505MS32

L	T	P	C
2		1	3

Course Outcomes:

At the end of the Course, Student will be able to:

CO1: Explain the basic concepts of project Management

CO2: Estimate project planning and risk.

CO3: Interpret project financing through techniques

CO4: Analyze the concept of Project controlling

CO5: Summarize stress management, conflict management and team building

Mapping of Course Outcomes with Program Outcomes:

COs / POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	1	2	2	1	1	2	2	2	1
CO2	3	3	2	1	2	1	1	1	2	2	1
CO3	2	3	2	1	2	1	1	1	2	2	2
CO4	3	3	2	1	3	1	1	1	1	3	2
CO5	2	2	2	2	2	2	3	3	2	2	2

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	3	2	1
CO2	3	3	2
CO3	3	3	2
CO4	3	2	2
CO5	2	2	2

UNIT – I

Introduction to Project Management: Project Characteristics – Project Life Cycle – Project Identification, Formulation and Implementation – Project Management in Different Sectors, Systems Approach to Project Management

UNIT – II

Project Appraisal: Project Planning – Steps in Project Planning – Scheduling – Project Appraisal – Feasibility Study – Technical, Commercial, Economic, Financial, Management, Social, Cost Benefit Analysis – Project Risk Analysis

UNIT – III

Project Finance: Project Cost Estimation, Project Financing – Investment Criteria, Project Evaluation Techniques – Cash Flows Estimation for New and Replacement Projects – Cost of Capital, Risk Analysis.

UNIT – IV

Project Control: Network Diagrams, Network Analysis, Critical Path, Quality Management, Project Execution, Monitoring and Control, Agile Project Management, Scrum, Lean Production.

UNIT – V

Organizational Behavior and Project Management: Structure & Integration, Project Manager & Team Role, Stakeholder Engagement, Leadership, Conflict & Stress Management in Projects.

Textbooks:

1. Erik W. Larson & Clifford F. Gray, Project Management: The Managerial Process McGraw Hill (2022), 8th Edition, ISBN: 978-9354602078
2. A Guide to the Project Management Body of Knowledge (PMBOK Guide) (2021)– Project Management Institute, 7th Edition, ISBN: 978-1628256659

Reference Books:

1. K. Nagarajan, Project Management (2020) New Age International, 9th Edition ISBN: 9789360748531
2. Harold Kerzner, Project Management: A Systems Approach (2017) Wiley, 12th Edition 2017 ISBN: 9781119165354

Web Links:

1. https://onlinecourses.nptel.ac.in/noc23_mg124/preview
2. https://onlinecourses.nptel.ac.in/noc24_mg01/preview

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

BUSINESS TAXATION

Course Code: 2505MS18

L	T	P	C
2	1		3

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Explain the concept, structure, and components of GST within the Indian tax framework including registration processes and related constitutional provisions.
- CO2:** Describe the scope of supply, levy, composition scheme, input tax credit, and tax payment processes under GST.
- CO3:** Apply the procedures for filing GST returns, conducting audits, and handling assessments using Tally ERP and the GST portal.
- CO4:** Apply practical skills to configure, record, and file GST transactions and returns using accounting software like Tally ERP.
- CO5:** Analyze the provisions of customs law, types of duties, and procedures related to import/export, valuation, and duty drawbacks under the 2017 customs rules.

Mapping of Course Outcomes with Program Outcomes:

COs / POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	1	2	2	3	2	1	2	2	2
CO2	2	3	2	1	2	2	2	2	1	2	1
CO3	2	3	2	1	2	3	1	1	2	2	2
CO4	3	3	3	1	2	2	2	2	2	1	2
CO5	3	2	2	2	2	2	2	1	2	2	2

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	3	2	1
CO2	2	2	2
CO3	2	2	2
CO4	3	3	2
CO5	3	2	2

UNIT- I

Introduction to GST and Tax Framework: Overview of GST, need and objectives, Constitution (101st Amendment) Act 2016, structure of Indian taxation – direct vs. indirect taxes, GST Council, tax rates, dual model of GST, CGST, SGST, UTGST, IGST, GSTN. GSTIN, process of registration and types – compulsory, exemption, cancellation, revocation.

UNIT - II

Supply, Levy and Input Tax Credit: Meaning and scope of supply – composite and mixed supplies. Levy and collection of GST, composition scheme, time and value of supply. Input Tax Credit (ITC) – eligibility, distribution, documentation (invoices, credit/debit notes, vouchers). Payment of tax – ledgers, challans, timelines, interest, set-off and refund process.

UNIT - III

GST Returns and Audit: Types of GST returns – GSTR-1 to GSTR-11. Audit under Sections 65 & 66, departmental audits, audit procedure, findings, and response. Assessment, demand and recovery rules. Practical work on GST registration, return filing, and tax payment using Tally ERP and GST portal.

UNIT - IV

Practical Applications of GST: Hands-on training in GST setup using accounting software (Tally ERP). Defining GST rates at master and transaction levels, creating GST ledgers, accounting GST transactions, generating and exporting GSTRs, and filing them online.

UNIT - V

Basics of Customs Duty: Introduction to customs law, territorial waters, types of duties – basic, protective, countervailing, safeguard, anti-dumping. Concepts like baggage rules, warehousing, export procedure, deemed exports, duty drawback, and valuation of import/export goods under 2017 customs rules.

Textbooks:

1. Akhileshwar Pathak & Savan Godiawala, Business Taxation McGraw-Hill Education India, Print ISBN: 978-1259098024, eText ISBN: 978-1259098017.
2. CA Raj K. Agrawal, Handbook on Income Tax (A.Y. 2025–2026) Bharat Law House Pvt. Ltd. ISBN: 978-93-4808-017-2

Reference Books:

1. Dr. Girish Ahuja & Dr. Ravi Gupta, Systematic Approach to Income Tax (Golden Jubilee Edition 2025) Commercial Law Publishers, ISBN: 978-93-5603-720-5.
2. A.N. Aiyar's Indian Tax Laws, 2025, Company Law Institute, ISBN: 978-93-5569-443-0.

Web Links:

1. <https://www.youtube.com/watch?v=swrzarYcMvY>
2. https://www.youtube.com/watch?v=QUI_OevD3yw

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

PROGRAM ELECTIVE COURSES

INTRODUCTION TO BUSINESS ANALYTICS

	L	T	P	C
Course Code: 2507MS06	2		1	3

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Explain the historical overview and importance of business analytics in practice.
- CO2:** Organize various sources of data and data visualization.
- CO3:** Analyze data mining and multi-dimensional data analysis
- CO4:** Apply the concepts of machine learning.
- CO5:** Apply the concepts of analytics in business areas such as retail, marketing, finance, health care and supply chain.

Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	2	2	3	2	3	2	2	2	3	3	2
CO2	3	3	2	2	3	3	2	2	3	3	2
CO3	2	3	3	3	2	3	2	2	3	2	2
CO4	2	2	2	3	2	3	2	2	2	2	2
CO5	3	3	3	2	3	3	3	2	3	3	2

Mapping of Course Outcomes with Program Specific Outcomes:

CO/PSO	PSO1	PSO2	PSO3
CO1	1	2	1
CO2	1	2	1
CO3	1	2	1
CO4	1	3	1
CO5	2	3	1

UNIT – I

Introduction: What is business analytics? Historical Overview of data analysis, Data Scientist vs. Data Engineer vs. Business Analyst, Career in Business Analytics, what is data science, Why Data Science, Applications for data science, Data Scientists Roles and Responsibility

UNIT – II

Data: Data Collection, Data Management, Big Data Management, Organization/sources of data, Importance of data quality, Dealing with missing or incomplete data, Data Visualization, Data Classification Data Science Project Life Cycle: Business Requirement, Data Acquisition, Data Preparation, Hypothesis and Modeling, Evaluation and Interpretation, Deployment, Operations, Optimization.

UNIT – III

Introduction to Data Mining: The origins of Data Mining, Data Mining Tasks, OLAP and Multidimensional data analysis, Basic concept of Association Analysis and Cluster Analysis.

UNIT – IV

Introduction to Machine Learning: History and Evolution, AI Evolution, Statistics Vs Data Mining Vs, Data Analytics Vs, Data Science, Supervised Learning, Unsupervised Learning, Reinforcement Learning, Frameworks for building Machine Learning Systems.

UNIT – V

Application of Business Analytics: Retail Analytics, Marketing Analytics, Financial Analytics, Healthcare Analytics, Supply Chain Analytics.

Textbooks:

1. Richard I. Levin & David S. Rubin, Statistics for Management (2012), Pearson Education, 7th Edition, ISBN: 978-1292039930
2. S.P. Gupta,, Business Statistics (2021), Sultan Chand & Sons, Revised Edition ISBN: 978-9351611066

Reference Books:

1. Paul Newbold, William Carlson, Betty Thorne, Statistics for Business and Economics (2020), Pearson, 10th Edition ISBN: 978-1292436906
2. Goon, Gupta, Dasgupta, Fundamentals of Statistics (2014), World Press, 3rd Edition, ISBN: 978-8187567806

Web Links:

- 1 <https://nptel.ac.in/courses/110106050>
- 2 <https://archive.nptel.ac.in/courses/110/105/110105089/>

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

DATA ANALYSIS WITH PYTHON

Course Code: 2507MS02

L	T	P	C
2		1	3

Course Outcomes:

At the end of the Course, Student will be able to:

CO1: Understand and use basic Python concepts to write simple programs for business needs.

CO2: Work with data using the Pandas library to organize and analyze datasets.

CO3: Create basic charts using Matplotlib and Seaborn to visualize business data.

CO4: Apply simple statistical methods to analyze and interpret business data.

CO5: Conduct a basic mini project using Python to solve a real-world business problem.

Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	2	2	1	1	2	2	3	2	1
CO2	3	3	2	2	1	1	2	2	3	2	1
CO3	2	2	2	3	1	1	2	2	3	2	1
CO4	2	3	3	2	2	1	2	2	3	2	2
CO5	3	3	3	3	2	2	3	3	3	3	2

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	3	2	2
CO2	3	3	2
CO3	3	2	2
CO4	3	3	3
CO5	3	3	3

UNIT – I

Introduction to Python Programming: Concept, Importance of Python in business, installing Python and Jupyter Notebook, basic syntax, variables, data types, lists, tuples, dictionaries, sets, conditional statements, loops, functions, simple business examples like profit calculation and pricing models.

UNIT – II

Working with Data using Pandas: Introduction to Pandas, Series and Data Frames, reading data from Excel and CSV files, handling missing data, filtering and selecting data, grouping and summarizing data, merging datasets, simple business examples like sales reports, customer segments, and employee records.

UNIT – III

Data Visualization Basics: Introduction to Matplotlib and Seaborn, line graphs, bar charts, pie charts, histograms, scatter plots, customizing plots with titles, labels, and legends, business examples like customer trends, product sales, and financial overviews.

UNIT – IV

Basic Statistical Analysis: Mean, median, mode, standard deviation, correlation and trends, introduction to hypothesis testing (concept only), overview of simple linear regression, use cases like business performance comparison and decision support.

UNIT – V

Mini Project / Practical Task Dataset selection, data cleaning and preparation, data visualization, basic statistical interpretation, report writing, presentation of findings with a business conclusion.

Textbooks:

1. Jonathan Rioux, Data Analysis with Python and PySpark(2022), Manning Publications, 1st Edition, ISBN: 978-1617297205
2. Avinash Navlani, Armando Fandango & Ivan Idris, Python Data Analysis (2021), Packt Publishing, 3rd Edition, ISBN: 978-1789955248

Reference Books:

1. Walter R. Paczkowski, Business Data Analytics with Python (2022) O'Reilly Media, 1st Edition, ISBN: 0636920672197
2. Wes McKinney, Python for Data Analysis (2022), O'Reilly Media, 3rd Edition ISBN: 978- 1098104030

Web Links:

1. https://onlinecourses.nptel.ac.in/noc21_cs45/preview
2. <https://nptel.ac.in/courses/106107220>

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

MARKETING ANALYTICS

Course Code: 2507MS07

L	T	P	C
2		1	3

Course Outcomes:

At the end of the Course, Student will be able to:

CO1: Explain the Concepts of Marketing Analytics and their relevance in business.

CO2: Make use of MS Excel to deal with Marketing Data at basic level.

CO3: Appreciate Customer's journey through Product Selection Process and Customer Lifetime Value.

CO4: Conduct Analysis in Determining the Pricing Strategies

CO5: Analyze the Process of Optimizing Clusters and Measure the Effectiveness of Promotion

Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	2	2	2	2	2	1	2	2	2
CO2	3	3	2	2	2	2	3	1	3	2	2
CO3	2	3	2	3	2	2	3	2	2	3	2
CO4	3	3	2	3	2	2	3	2	3	3	2
CO5	2	3	2	3	2	2	3	2	3	3	3

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	3	2	2
CO2	2	3	2
CO3	2	3	3
CO4	3	3	2
CO5	2	3	3

UNIT – I

Introduction to Marketing Analytics: Definition, Need and Scope, Comparison with Marketing Research, Analytics Levels (Descriptive, Diagnostic, Predictive, Prescriptive), Applications in Marketing, Role in Business Intelligence.

Excel in Marketing Analytics: Using Excel as an Analytics Tool, Data Organization, Data Summarization, Pivot Table Creation.

UNIT – II

Summarizing Marketing Data: Revenue Summary, Data Slicing (Pareto, Filters, Slicers), Demographic Analysis, Crosstabs, GETPIVOTDATA, Data Labels, Data Tables.

UNIT – III

Customer Analytics: Journey Mapping, Experience Metrics, Customer Persona, Conjoint Analysis, Customer Lifetime Value (CLV), CLV Calculation, Sensitivity Analysis, Retention Estimation.

UNIT – IV

Pricing Analytics: Pricing Goals, Price Elasticity, Demand Curve Estimation, Price Optimization with Solver, Multi-product Pricing, Price Bundling, Mixed Bundling, Optimal Bundle Pricing, Price Skimming.

UNIT – V

Segmentation & Promotion Analytics: Segmentation Analytics: Cluster Analysis, Location Clustering, Solver for Optimal Clusters, Conjoint Analysis, Decision Trees for Segmentation. **Promotion Analytics:** Promotion Types, Discounting Types, Advertising Effectiveness (Adstock Model), Media Selection (Linear Model, Quantity Discounts, Monte Carlo Simulation), Pay per Click Advertising.

Textbooks:

1. Stephan Sorger, Marketing Analytics: Strategic Models and Metrics (2014), Create Space Independent, 1st Edition, ISBN: 9781481900300
2. Wayne L. Winston, Wiley, Marketing Analytics: Data-Driven Techniques with MS Excel, 1st Edition, ISBN: 978-1118417300

Reference Books:

1. Mike Grigsby, Marketing Analytics: A Practical Guide (2018), Kogan Page, 2nd Edition, ISBN: 9780749482169
2. Naresh K. Malhotra, Marketing Research (2020) Pearson, 7th Edition, ISBN: 978- 9353433291

Web Links:

1. https://onlinecourses.nptel.ac.in/noc20_mg30/preview
2. <https://archive.nptel.ac.in/courses/110/105/110105142/>

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

FINANCIAL ANALYTICS

Course Code: 2507MS05

L	T	P	C
2		1	3

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Examine financial statements to interpret organizational financial health.
- CO2:** Apply time value of money and risk-return measures to make financial decisions.
- CO3:** Analyze investment opportunities using capital budgeting techniques
- CO4:** Assess equity valuations and perform industry, economic, and technical analysis.
- CO5:** Interpret bond valuation and immunization strategies to manage fixed-income portfolios effectively.

Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	3	2	2	2	2	2	2	2	2	2
CO2	3	3	3	2	2	2	2	2	3	2	2
CO3	3	3	3	2	2	2	2	2	3	3	2
CO4	3	3	3	2	2	2	2	2	3	3	2
CO5	3	3	3	2	2	2	2	2	3	3	2

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	3	2	2
CO2	3	2	2
CO3	3	3	3
CO4	3	3	3
CO5	3	3	3

UNIT – I

Techniques of Financial Statement: Horizontal, Vertical Analysis, Trend Analysis, Ratio Analysis, Liquidity, Profitability, Solvency and Turnover Ratio, Valuation of Ratios, Statement of Cash Flow, Classification of Cash Flow, Computing Net Cash Flow: Operating, Investing and Financing Activities. Reporting and Interpretation using Spreadsheet.

UNIT – II

Time Value of Money: Future Value: Simple, Compound Interest and Annuity, Present Value: Discounted, Annuity, Equated Loan Amortization, Perpetuity using Spreadsheets. **Risk and Return:** Holding Period Returns, Arithmetic Mean vs Geometric Mean, Risk: Standard Deviation, Coefficient of Variation, Beta, Covariance of Stock.

UNIT – III

Capital Budgeting Techniques: Payback Period, Accounting Rate of Return, Net Present Value, Internal Rate of Return, Profitability Index, Decision Tree, Cash Flow in Capital Budgeting, Cost of Capital, Advance Capital Budgeting Techniques, Adjusted Present Value Approach, Competing Project Risk using Spreadsheets.

UNIT – IV

Equity Valuation: Calculation of Portfolio Mean and Variance, Capital Asset Pricing Model (CAPM), Variance: Covariance Matrix, Estimating Beta and Security Market Line. Industry Analysis, Economic Analysis and Technical Analysis in Stock, Real Option in Capital Budgeting.

UNIT – V

Bond Valuation: Duration, Duration of Bond with Uneven Payments, Immunization Strategies, Modelling the Term Structure, Calculating Expecting Bond Return in a Single and Multi-period Framework, Semi-annual Transition Matrix, Computation of Bond Beta.

Textbooks:

1. Mark J. Bennett & Dirk L. Hugen, Financial Analytics with R (2016), Cambridge University Press, 1st Edition, ISBN: 978-1107150751
2. Simon Benninga, Financial Modeling (2014) MIT Press, 4th Edition, ISBN: 9780262027281

Reference Books:

1. K.R. Subramanyam, Financial Statement Analysis (2014), McGraw Hill, 11th Edition ISBN: 9780078110962
2. Kenneth L. Grant, Quantitative Financial Analytics (2015), Wiley, 1st Edition, ISBN: 978-1-118-62988-8

Web Links:

1. <https://www.coursera.org/learn/applying-data-analytics-business-in-finance>
2. <https://www.udemy.com/course/financial-analytics-excel-tableau/>

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

HR ANALYTICS

Course Code: 2505MS27

L	T	P	C
2		1	3

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Explain the evolution and scope of HR analytics and apply HR metrics for efficient HR operations and performance measurement.
- CO2:** Demonstrate the use of descriptive analytics and tools like dashboards and pivot tables for HR data visualization and analysis.
- CO3:** Apply statistical tools such as correlation, regression, t-tests, and ANOVA in HR analytics contexts for data interpretation.
- CO4:** Analyze HR problems using classification techniques like logistic regression and interpret analytical results for strategic decision-making.
- CO5:** Evaluate and apply advanced HR analytics techniques (decision trees, clustering) to address key HR areas such as attrition, absenteeism, and training effectiveness.

Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	2	3	2	1	2	2	2	2	1
CO2	3	3	3	2	3	2	3	2	2	3	2
CO3	3	3	3	3	3	3	2	2	3	3	3
CO4	3	3	3	3	3	3	2	3	3	3	3
CO5	3	3	3	3	3	2	2	3	3	3	2

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	3	2	2
CO2	3	3	3
CO3	2	3	3
CO4	2	3	3
CO5	2	3	3

UNIT- I:

Introduction to HR Analytics and Metrics: Evolution and importance of HR analytics, Role of HR analytics in strategic decision-making, HR metrics: HR operations, recruitment, training and development, Use of metrics for monitoring and correction.

UNIT-II:

Descriptive Analytics and Dashboards: Descriptive analytics in HR, Creation and usage of HR dashboards using software, Slicing and dicing HR data using pivot tables, Visual representation of HR data.

UNIT- III:

Statistical Tools for HR Analytics: Correlation and regression analysis, T-tests: ne-sample, independent, paired, One-way and two- way ANOVA, Interpretation of statistical outputs.

UNIT-IV:

Predictive HR Analytics: Application of logistic regression for classification, Predictive modeling for HR decisions, Evaluation of results, Implementation in workforce planning and employee retention.

UNIT-V:

Advanced HR Analytics Applications: Analytics applied to absenteeism, attrition, training and development, Job classification techniques, Clustering algorithms, Decision tree analysis in HR.

Textbooks:

1. Dipak Kumar Bhattacharyya, HR Analytics: Understanding Theories and Applications (2017), Sage Publications, 1st Edition, ISBN: 9789386062710
2. Jac Fitz-enz, The New HR Analytics (2010), AMACOM, 1st Edition ISBN: 9780814416433

Reference Books:

1. Ben Waber, People Analytics (2013), FT Press, 1st Edition ISBN: 978-0133158311
2. Predictive HR Analytics (2019), Martin Edwards & Kirsten Edwards, Kogan Page, 2nd Edition, ISBN: 978-0749484446

Web Links:

1. [HR Analytics - Course](#)
2. [Human Resources Analytics | Coursera](#)

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit

PREDICTIVE ANALYTICS

Course Code: 2507MS08

L	T	P	C
2		1	3

Course Outcomes:

At the end of the Course, Student will be able to:

CO1: Explain descriptive, predictive, and prescriptive analytics, and assess their applications

CO2: Examine qualitative forecasting methods to make informed predictions and distinguish them.

CO3: Implement linear regression techniques using Excel to analyze and predict relationships between variables.

CO4: Apply moving averages for forecasting and evaluate their effectiveness using Excel.

CO5: Simplify and structure various types of documents using various tools.

Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	3	2	1	3	1	2	2	3	2	2
CO2	3	3	2	2	2	2	2	1	2	3	2
CO3	2	3	2	1	2	3	3	2	3	2	1
CO4	2	3	2	1	2	2	3	3	2	2	1
CO5	1	2	3	1	3	2	2	2	1	1	2

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	3	2	2
CO2	3	3	2
CO3	3	2	3
CO4	3	3	3
CO5	2	2	3

UNIT – I

Introduction to Predictive Analytics: Definition of Analytics advantage and limitation of analytics
Definition of predictive analytics –Introduction to Descriptive analytics, Predictive analytics, Prescriptive analytics (theory only) - Applications and limitation of predictive analytics.

UNIT – II

Forecasting with Qualitative Methods: Meaning of Qualitative forecasting – Methods of Qualitative forecasting – Criteria to select method of forecasting - Application areas of Qualitative methods - Differentiation between Qualitative and Quantitative forecasting methods.

UNIT – III

Linear Regression: Correlation and Regression - Charting the Relationship -Calculating Pearson's Correlation Coefficient- Simple Regression – Array - Entering Formulas- Multiple Regression – LINEST function with Multiple Predictors - Using Excel.

UNIT – IV

Forecasting with Moving Averages: About Moving Averages – Types of moving averages Signal and Noise- Lost Periods -Smoothing Versus Tracking - Criteria for Judging Moving Averages - Mean Absolute Deviation - Least Squares – Using Excel.

UNIT – V

Working with Documents: Defining purpose and scope documents, Understanding structure of documents – case studies, articles, white papers, technical reports, minutes of meeting Documentation formats and Styles. Document preparation tools – PowerPoint, Word, Excel.

Textbooks:

1. Lie, or Die – Eric Siegel, Predictive Analytics: The Power to Predict Who Will Click, Buy (2020), Wiley, Revised Edition, ISBN: 978-1119153658
2. Dean Abbott, Applied Predictive Analytics (2014), Wiley, 1st Edition, ISBN: 978- 1118727966

Reference Books:

1. Valentine Fontama et al., Predictive Analytics with Microsoft Azure (2017) ML Apress, 2nd Edition, ISBN: 978-1484212011
2. Galit Shmueli et al., Machine Learning for Business Analytics (2020), Wiley, 3rd Edition, ISBN: 978-1119829867

Web Links:

1. https://onlinecourses.nptel.ac.in/noc23_ma46/preview
2. <https://www.coursera.org/learn/predictive-analytics>

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

BIG DATA ANALYTICS

Course Code: 2507MS01

L	T	P	C
2		1	3

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Explain big data futures and classification of analytics
- CO2:** Develop knowledge on analytics flow for big data and big data stack
- CO3:** Analyze big data tool using Hadoop
- CO4:** Identify the security related aspects in big data
- CO5:** Discover various application areas of big data

Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	3	3	3	3	3	3	3	2	2	2
CO2	3	3	3	3	3	3	3	3	2	2	2
CO3	3	3	3	3	3	3	3	3	2	2	2
CO4	3	3	3	3	3	3	3	3	2	2	3
CO5	3	3	3	3	3	3	3	3	3	2	2

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	3	3	3
CO2	3	3	3
CO3	3	3	3
CO4	3	3	3
CO5	3	3	3

UNIT-I

Introduction to Big Data: Overview of analytics (Descriptive, Diagnostic, Predictive, and Prescriptive). Introduction to Big Data and its characteristics (Volume, Velocity, Variety, Veracity, and Value).

UNIT-II

Analytics Flow and Big Data Stack: Data collection, preparation, analysis types and modes, visualizations, and Big Data stack components like data sources, access connectors, storage, batch and real-time analytics, querying, and web frameworks.

UNIT-III

Big Data - Hadoop: Overview of NoSQL, comparison with SQL, Hadoop vs. RDBMS, distributed computing challenges, Hadoop Distributed File System (HDFS), processing with Hadoop, managing resources with YARN, and interacting with the Hadoop ecosystem.

UNIT-IV

Security in Big Data: Security, compliance, auditing, protection strategies for Big Data, classifying data, safeguarding analytics, and addressing intellectual property challenges.

UNIT-V

Big Data Applications: Business applications of Big Data in sectors like Finance, Web, Healthcare, IoT, Environment, Logistics, Industry, and Retail.

Textbooks:

1. Rajkumar Buyya & Rodrigo N. Calheiros, Big Data: Principles and Paradigms (2022), Morgan Kaufmann, 2nd Edition, ISBN: 9780128053942
2. Seema Acharya & Subhashini Chellappan, Big Data Analytics (2019) Wiley India, 2nd Edition ISBN: 978-8126579518

Reference Books:

1. Viktor Mayer-Schönberger & Kenneth Cukier, Big Data: A Revolution That Will Transform How We Live, Work, and Think (2013), Houghton Mifflin, 1st Edition ISBN: 9780544002692
2. Data Science and Big Data Analytics (2015), EMC Education Services, Wiley, 1st Edition, ISBN: 9781118876138

Web Links:

1. https://onlinecourses.swayam2.ac.in/arp19_ap60/preview
2. <https://www.coursera.org/specializations/big-data>

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

WEB ANALYTICS

	L	T	P	C
Course Code: 2507MS09	2		1	3

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Explain the importance of analytics in the context of social media and websites, emphasizing the role of data - driven decision – making.
- CO2:** Familiarize participants with fundamental metrics used in web analytics and social media analytics.
- CO3:** Identify the key performance indicators (KPIs) for social media and web analytics.
- CO4:** Show how to set up and track conversions on websites and social media platforms and understand the customer journey and optimize for conversion goals.
- CO5:** Analyze the concepts of social listening and monitoring and use tools to monitor brand mentions, track sentiment, and stay informed about industry trends.

Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	3	3	3	3	3	3	3	2	2	2
CO2	3	3	3	3	3	3	3	3	2	2	2
CO3	3	3	3	3	3	3	3	3	2	2	2
CO4	3	3	3	3	3	3	3	3	2	2	3
CO5	3	3	3	3	3	3	3	3	3	2	2

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	3	3	3
CO2	3	3	3
CO3	3	3	3
CO4	3	3	3
CO5	3	3	3

UNIT – I

Introduction to the Web: Limitations of the current web, development of the semantic web, emergence of the social web, statistical properties of social networks, network analysis, key concepts in social network analysis, discussion networks, blogs, and online communities.

UNIT – II

Modeling and Visualization: Visualizing online social networks, centrality, clustering, node-edge diagrams, matrix-based representations, node-link diagrams, hybrid representations, modeling social network data, random walks, Hadoop, MapReduce, ontological representation of relationships.

UNIT – III

Mining Communities: Aggregating social network data, community detection, evaluating communities, methods for community detection, applications of community mining algorithms, node classification.

UNIT – IV

Text and Opinion Mining: Text mining, opinion extraction, sentiment classification, temporal sentiment analysis, irony detection, product review mining, sentiment tracking over time.

UNIT – V

Tools for Social Network Analysis: UCINET, PAJEK, ETDRAW, Stoc NET, Splus, R, NodeXL, SIENA, RSIENA, real-world social networks (e.g., Facebook, Twitter).

Textbooks:

1. Kevin Hartman, Digital Marketing Analytics (2020), Amazon Independent, 1st Edition, ISBN: 979- 8638634780
2. Avinash Kaushik, Web Analytics 2.0 (2009), Sybex/Wiley, 1st Edition, ISBN: 9780470529393

Reference Books:

1. Chuck Hemann & Ken Burbary, Digital Marketing Analytics (2018), Pearson, 2nd Edition, ISBN: 9780789759603
2. Brian Clifton, Advanced Web Metrics with Google Analytics (2012), Wiley, 3rd Edition, ISBN: 9781118168448

Web Links:

1. https://onlinecourses.nptel.ac.in/noc22_mg68/preview
2. <https://www.coursera.org/professional-certificates/google-data-analytics>

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

DATA MINING AND MACHINE LEARNING

Course Code: 2507MS03

L	T	P	C
2		1	3

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Explore the kinds of data that can be mined, major issues in data mining, and the societal impact of data mining.
- CO2:** Determine reasons for data preprocessing, major tasks involved, and techniques for data cleaning, reduction, transformation, and discretization.
- CO3:** Analyze the machine learning concepts, types of algorithms, and specific supervised learning algorithms.
- CO4:** Illustrate the user-based and item-based similarity in recommender systems, calculate cosine similarity, and address challenges with similarity measures.
- CO5:** Summarize the decision trees, building classifiers using gini criteria and entropy criteria. Measure test accuracy, display decision trees, find optimal criteria,

Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	3	2	1	2	2	3	2	2	3	2
CO2	3	3	3	2	2	2	3	2	2	3	3
CO3	3	3	3	2	3	2	3	3	2	3	3
CO4	2	3	2	1	3	2	3	3	3	3	2
CO5	3	3	3	2	3	3	3	2	3	3	3

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	3	2	2
CO2	3	3	3
CO3	3	3	2
CO4	3	3	2
CO5	3	3	3

UNIT – I

Introduction to Data Mining: Data Mining; Kinds of data that can be mined-Database Data, Data Warehouses, Transactional Data, Other Kinds of Data; Major Issues in Data Mining- Mining Methodology, User Interaction, Efficiency and Scalability, Diversity of Database Types, Data Mining and Society.

UNIT – II

Data Preprocessing: An Overview-Reasons to process the data, Major Tasks in Data Preprocessing; Data Cleaning-Missing Values, Noisy Data, Data Cleaning as a Process; Data Reduction-Principal Component Analysis, Histograms, Clustering, Sampling, Data Cube Aggregation; Data Transformation and Data Discretization-Data Transformation by Normalization, Discretization by Binning, Discretization by Histogram Analysis.

UNIT – III

Machine Learning: What is Machine Learning; Types of Machine Learning Algorithms- Supervised, Unsupervised and Reinforcement Learning. Supervised Learning-K Nearest Neighbors, Random Forest and Boosting.

UNIT – IV

Recommender Systems Using Machine Learning: User Based Similarity-Calculating Cosine Similarity Between Users, Filtering Similar Users, Challenges with User Based Similarity. Item Based Similarity-Calculating Cosine Similarity between Movies, Finding Most Similar Movies. Matrix Factorization.

UNIT – V

Decision Tree Classification: Introduction to Decision Tree; Building Decision Tree Classifier using Gini Criteria; Measuring Test Accuracy; Displaying the Tree; Building Decision Tree Classifier using Entropy Criteria. Finding Optimal Criteria; Maximum Depth of the Tree and Benefits and Disadvantages of Decision Tree Case Study: Applying Decision Tree Classification on German Credit Data.

Textbooks:

1. Jiawei Han, Micheline Kamber & Jian Pei, , Data Mining: Concepts and Techniques (2022), Morgan Kaufmann, 4th Edition, ISBN: 978-0128117606
2. Pang-Ning Tan, Michael Steinbach & Vipin Kumar, Introduction to Data Mining (2021), Pearson, 2nd Edition, 2021, ISBN: 9789354491047

Reference Books:

1. Tom M. Mitchell, Machine Learning (2017), McGraw Hill, 1st Edition, ISBN: 978- 1259096952
2. Galit Shmueli et al., Data Mining for Business Analytics (2019) Wiley, 4th Edition, ISBN: 978-1119549840

Web Links:

- 1 https://onlinecourses.nptel.ac.in/noc21_cs06/preview
- 2 <https://www.coursera.org/specializations/machine-learning-introduction>

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit

DATA VISUALIZATION

Course Code: 2507MS04

L	T	P	C
2		1	3

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Understand and apply the principles of effective data visualization in various business contexts.
- CO2:** Preprocess, clean, and prepare data for effective visualization.
- CO3:** Utilize basic visualization techniques to represent different data types and patterns.
- CO4:** Design interactive dashboards and construct compelling data-driven stories.
- CO5:** Apply advanced visualization tools and techniques for complex data analysis and real-time applications.

Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	2	2	1	2	2	1	2	2	3
CO2	2	3	2	2	1	2	3	1	2	2	3
CO3	2	3	2	2	1	3	3	2	2	2	3
CO4	3	3	3	2	2	3	3	2	3	3	3
CO5	2	3	2	3	1	2	2	3	2	2	3

Mapping of Course Outcomes with Program Specific Outcomes:

COs	PSO1	PSO2	PSO3
CO1	3	2	2
CO2	3	3	2
CO3	3	3	2
CO4	3	3	3
CO5	2	2	3

UNIT-I

Introduction to Data Visualization: Importance in business, Evolution of techniques, Gestalt principles, Cognitive aspects, Visual representations for categorical, numerical, and temporal data, Data type-based visualization, Use of color, layout, and typography.

UNIT-II

Data Preparation: Data cleaning and preprocessing, Data conversion, handling missing data and outliers, merging datasets, Basic data reduction, Sampling, Data quality assessment, addressing biases and ethical concerns, Ensuring transparency and accuracy.

UNIT- III

Basic Visualization Techniques: Bar and column charts, Line and area charts for trends, Pie and donut charts for composition, Scatter plots for relationships, Bubble charts, Histograms, Box plots for outliers, Heatmaps, Tree maps, Network graphs, Flow diagrams, Geographical maps, Waterfall, radar, and spider charts.

UNIT- IV

Data Dashboards and Storytelling: Static vs Interactive Visualizations, Dashboard design, Filters and actions in dashboards, Visual storytelling techniques, structuring narratives, using visuals for storytelling, Animation for data understanding, Engaging stakeholders with data stories.

UNIT- V

Advanced Visualization Techniques and Applications: Advanced tools and software, Visualization of complex datasets, Real-time data visualization, Interactive visualizations, Case studies and practical business applications.

Textbooks:

1. Cole Nussbaumer Knaflitz, Storytelling with Data (2015), Wiley, 1st Edition, ISBN: 978- 1119002253
2. Kieran Healy, Data Visualization: A Practical Introduction (2018), Princeton University Press, 1st Edition, ISBN: 9780691181622

Reference Books:

1. Steve Wexler, Jeffrey Shaffer, Andy Cotgreave, The Big Book of Dashboards (2017) Wiley, 1st Edition, ISBN: 9781119282716
2. Nathan Yau, Visualize This (2011), Wiley, 1st Edition, ISBN:978-0470944882

Web Links:

1. [Biological data analysis and visualization with R - Course](#)
2. [Data Analytics with Python - Course](#)

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit

UNIT – II

Survival A/B/C/D

Listening	Conversation about a survival situation, Interview: The Tiger, Cooking for a friend, Talking about getting lost
Speaking	Telling a survival story, Giving advice; Asking questions, Giving compliments and responding, Discussing the natural environment
Reading	Article: Lost at sea, Leaflet: How to survive...an animal attack, Leaflet: Be wise and survive
Writing	Guidelines, organizing guidelines in a leaflet
Grammar	Narrative tense, Future time clauses and conditionals
Vocabulary	Expressions with get, Animals and the environment
Pronunciation	Sound and Spelling: g, Intonation in question tags

UNIT – III

Talent A/B/C/D

Listening	Conversation: learning experiences, Radio Programme: The sports gene, Making wedding plans, Interviews about sport
Speaking	Talking about something you have put a lot of effort into, Discussing sport and ways to improve performance, planning a party, Talking about popular sports
Reading	Text about learning; Learning to learn, Article: Born to be the best; Three articles about athletes, Article: Fitness: Seattle snapshot
Writing	Article describing data
Grammar	Multi-word verbs, Present perfect and present perfect continuous
Vocabulary	Ability and achievement, word connected with sport
Pronunciation	Word stress, sound and spelling consonant sounds

UNIT – IV

Life Lessons A/B/C/D

Listening	Interview: Psychology of money; Two monologues: Life-changing events, Two monologues; training for a job, Presenting photos, Three monologues; living in different places
Speaking	Talking about how your life has changes, Discuss experiences of training and rules, Describing photos: Expressing careful disagreement, Discussing living in a different country
Reading	Two texts about life-changing events that helped people become rich, Article: Training for the emergency frontline, Advert for being an international student ‘buddy’
Writing	Job application, Giving a positive impression
Grammar	Used to and would
Vocabulary	Cause and result, Talking about difficulty
Pronunciation	Sound and spelling: u

UNIT – V

Chance A/B/C/D

Listening

Monologue: What are your chances?, Conversation: Talking about work, Money problems, News reports: environmental problems

Speaking

Discussing possible future events, Role Play: job interview,

Reading

Explaining and responding to an idea for a café, Giving opinions on environmental problems

Quiz: Are you an optimist or a pessimist?; Article: Why we think we're going to have a long and happy life, Quiz: The unknown continent; Article: Cooking in Antarctica, Essay about protecting the environment

Writing

For and against essay, Arguing for and against an idea

Grammar

Future probability, Future perfect and future continuous

Vocabulary

Adjectives describing attitude, The natural world

Pronunciation

Sound and spelling : th, Intonation groups

Textbook:

1. K. Alex, A Course in Communication and Soft Skills (2021), S. Chand Publishing, 3rd Edition, ISBN: 9789358700749
2. Nitin Bhatnagar, Soft Skills and Personality Development (2011), Pearson, 1st Edition, ISBN: 978-8131760345

Suggested Software:

1. Cambridge Empower
2. SoftX(K-Van Solutions)

Reference Books:

1. Krishna Mohan & Meera Banerji, Developing Soft Skills (2009), Pearson, 2nd Edition, ISBN: 978-0230638433
2. Barun Mitra, Personality Development and Soft Skills (2016), Oxford, 2nd Edition, ISBN:978-0199459742

Web Links:

1. <https://www.cambridgeone.org/login>
2. <https://www.britishcouncil.in/english/online>
3. www.englishmedialab.com

Pronunciation Consonant clusters, Consonant sounds

UNIT –II

City living A/B/C/D

Listening	Interview: ‘Smart’ cities: Two monologues talking about ‘smart’ cities, Two monologues: house renovations, Flat hunting, Interviews about a new shopping centre
Speaking	Discussing good and bad points about a city
Reading	Article: Quick-slow down!, Article: Who puts the ‘real’ in reality TV? Email: Complaining about an important issue.
Writing	Email of complaint, Using formal language
Grammar	Too/enough; so/such, Causative have/get
Vocabulary	Describing life in cities, Film and TV; Houses
Pronunciation	Sound and spelling: o, Stress in compound nouns

UNIT – III

Dilemmas A/B/C/D

Listening	Radio programme: person finance, Three monologues about honesty, Going to the bank, Conversation about a TV programme
Speaking	Giving opinions on financial matters, Discussing moral dilemmas, Talking about hopes and worries Discussing programmes about crime
Reading	Article: Is it time to give up on cash?, Newspaper article: The honesty experiment, Review: Crime with a smile
Writing	Review, Organising a review
Grammar	First and second conditionals, Third conditional; should have+past participle
Vocabulary	Money and finance, Crime
Pronunciation	Stressed and unstressed words; Sound and spelling: l, Word groups

UNIT –IV

Discoveries A/B/C/D

Listening	Conversation about inventions, Conversation about an email hoax, Finding the perfect flat, Four monologues about alternative medicine
Speaking	Talking about inventions, describing a hoax or a scam or a case of fraud, Giving and receiving surprises
Reading	Article: Too good to be true?, Article: The rise and fall of Barry Minkow, Essay: The Value of alternative medicine
Writing	Opinion essay, Presenting a series of arguments
Grammar	Relative clauses, Reported speech; Reporting verbs
Vocabulary	Health, Verbs describing thought and knowledge
Pronunciation	Sound and spelling : ui, Linking and intrusion

UNIT – V

Possibilities A/B/C/D

Listening	Interview about Dan Cooper, Two monologues: pursuing a dream, Celebrating good news, conversation about goals
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Speaking	Telling stories about coincidences, Describing and comparing brave or amazing people, Telling an important piece of news, Talking about performing
Reading	Story: The man who disappeared; Blog: The Wreck of the Titan, Article: Dream to help, Story: Rosa's diary: The ultimate goal
Writing	Story, Making a story interesting
Grammar	Past modals of deduction, Wishes and regrets
Vocabulary	Adjectives with prefixes, Verbs of effort
Pronunciation	Word stress, Linking, Consonant clusters

Textbook:

1. Suzanne C. de Janasz, Karen O. Dowd, Beth Z. Schneider, Interpersonal Skills in Organizations (2018), McGraw Hill, 5th Edition, ISBN: 9781259870435
2. M.S. Rao, Enhancing Soft Skills for Managers (2013), I.K. International Publishing, 1st Edition., ISBN: 978-9380578385.

Suggested Software:

1. Cambridge Empower
2. SoftX(K-Van Solutions)

Reference Books:

1. Sabina Pillai & Agna Fernandez, Soft Skills and Employability Skills(2017) Cambridge University Press, 1st Edition, ISBN: 978-1316981320
2. Daniel Goleman, Emotional Intelligence: Why It Can Matter More Than IQ (2006), Bantam Books, 10th Anniversary Edition, ISBN: 9780553383713

Web Links:

1. <https://www.cambridgeone.org/login>
2. <https://www.coursera.org/>
3. <https://www.skillshare.com/>
4. <https://www.mindtools.com/cawh8bu/communication-tools>

EMPLOYABILITY SKILLS- V

L T P C
1

Course Code: 2505MS23

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Apply principles of permutations, combinations, probability, and logarithms to solve quantitative aptitude problems.
- CO2:** Interpret and analyze data from charts, graphs, and statistical tables for decision-making and accuracy.
- CO3:** Evaluate logical reasoning statements involving arguments, assumptions, conclusions, and data sufficiency.
- CO4:** Solve puzzle and eligibility test problems using analytical and critical thinking skills.
- CO5:** Demonstrate effective interpersonal, communication, and time management skills for successful personal and professional interactions.

Mapping of Course Outcomes with Program Outcomes:

COs / POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	—	—	—	—	—	—	—	—	2
CO2	2	3	2	—	—	—	—	—	2	—	2
CO3	—	3	3	—	2	—	—	—	—	—	2
CO4	—	2	3	—	—	—	—	—	—	—	2
CO5	—	—	—	3	2	3	2	3	2	3	3

Mapping of Course Outcomes with Program Specific Outcomes:

CO \ PSO	PSO1	PSO2	PSO3
CO1	2	2	—
CO2	2	3	—
CO3	—	2	3
CO4	—	2	2
CO5	—	—	3

Aptitude:

Permutations and Combinations, Probability, Data Interpretation, Logarithms, Statistics

Reasoning:

Puzzle Tests, Eligibility Test, Data Sufficiency, Statements – Arguments, Statements – Assumptions, Statements - Course of Action, Statements - Conclusions

Verbal:

Interview skills, Grammar in use, Interpersonal Skills, Negotiation Skills, Social Skills, Problem-Solving Skills, Time Management Skills

Text Books:

1. Nitin Bhatnagar, Soft Skills and Personality Development(2020), Pearson, 1st Edition, ISBN: 9788131760345,
2. Krishna Mohan & Meera Banerji, Developing Soft Skills (2009), Pearson, 2nd Edition, ISBN: 978-

0230638433

Reference Books:

1. Barun Mitra, Personality Development and Soft Skills (2016), Oxford University Press, 2nd Edition, ISBN: 9780199459742.
2. K. Alex, Soft Skills (2009), S. Chand Publishing, 3rd Edition, ISBN:9788121931922

Web Links:

1. www.indiabix.com
2. www.bankersadda.com

MULTI-DISCIPLINARY COURSES IT & AI SKILLS

	L	T	P	C
Course Code: 2505MS53	1		2	3

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Explain the fundamentals of computers and their applications in business.
- CO2:** Build and format professional documents using MS Word.
- CO3:** Design and present impactful business presentations in MS PowerPoint.
- CO4:** Integrate and apply AI tools across MS Excel applications
- CO5:** Analyze and visualize business data using MS Excel's functions.

Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	1	1	–	1	–	–	1	3	–	2
CO2	2	1	1	2	1	–	–	–	3	–	2
CO3	2	1	1	3	1	1	–	–	3	2	2
CO4	2	2	2	1	1	–	1	–	3	1	3
CO5	2	3	3	1	1	–	1	–	3	1	3

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	1	1	2
CO2	1	1	2
CO3	1	1	2
CO4	2	2	3
CO5	2	3	3

UNIT – I

Introduction to Computers: Definition, Components, Types; generations of computer; Computer Memory, Software and Hardware, Operating Systems. Window features. Introduction to Internet-benefit and limitation, IP address, Browser, E-mail.

UNIT – II

MS Word: Interface and Navigation; Document Formatting, Text Formatting, Paragraph Formatting, Advanced Features, Tables, Charts, and SmartArt, Mail Merge; AI Tools for MS Word.

UNIT – III

MS PowerPoint: Interface and Navigation; Slide Design and Layout, Adding and Formatting Text, Using Themes and Templates, Multimedia in Presentations, Presentation Tools, Slide Master and Custom Layouts, Slide Show Setup and Presentation Delivery; AI Tools for MS PowerPoint.

UNIT – IV

MS Excel: Interface and Navigation, Creating, Saving, and, Opening Workbooks, Basic Spread sheet Operations, Entering and Formatting Data, Basic Formulas and Functions, Sorting and Filtering Data, Data Visualization, Creating and Customizing Charts Conditional Formatting; AI Tools for MS Excel.

UNIT – V

Advanced Excel: Lookup Functions: VLOOKUP, HLOOKUP, and XLOOKUP; Logical Functions: IF, AND, OR; Text Functions: CONCATENATE, LEFT, RIGHT; Date and Time Functions: DATE, TODAY, NETWORKDAYS.

Data Analysis and Visualization: PivotTables-Creating and analyzing data with PivotTables; Charts and Graphs: Designing and customizing basic charts; Conditional Formatting: Applying rules to highlight key data points.

Data Cleaning Techniques: Using Text to Columns and Remove Duplicates; Data Validation: Setting up rules to ensure data accuracy; Importing Data: Importing data from external sources like CSV and databases.

Text Books:

1. George Reynolds and Judith S. Reynolds, Information Technology for Managers (2022).PearsonEducation.ISBN-10:1305482492, ISBN-13:9781305482494.
2. Alexis Khosla, Computer Fundamentals and Information Technology (2022).BPB Publications. ISBN-13. 9781305389830

Reference Books:

1. C.S.V. Murthy, Information Technology for Management (2022). Himalaya Publishing House. ISBN 81-7866-201-9.
2. K.C. Laudon and Jane P. Laudon, India Information Technology: An Introduction (2021). Pearson Education.ISBN-10:9789352865475, ISBN-13:978- 9352865475.

Web Links:

1. https://onlinecourses.swayam2.ac.in/cec20_cs05/preview
2. https://onlinecourses.nptel.ac.in/noc22_mg35/preview

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

components, Multimedia messages

Textbooks:

1. Chris Sperry & Cyndy Scheibe, Teaching Students to Decode the World: Media Literacy and Critical Thinking Across the Curriculum (February 2022), ASCDBN-13: 978-1416630937.
2. McQuail D. McQuail's Mass Communication Theory. Sage Publications. 6th Edition. ISBN-10:1849202923, ISBN-13: 978-1849202923

Reference Books:

1. Potter, W.J., Media Literacy (2021), SAGE Publishing, 10th edition, 504 p. ISBN-10:1071814451, ISBN-13:978-1071814451
2. Nick Pernisco, Media Literacy: An Essential Guide to Critical Thinking Skills for Our Complex Digital World (July 29, 2020), Independently published ISBN-13: 978- 1087896304.

Web Links:

1. <https://mediasmarts.ca/digital-media-literacy/general-information/digital-media-literacyfundamentals/media-literacy-fundamentals>
2. <http://www.hks.harvard.edu/fs/pnorris/Conference/Conference%20papers/Coronel%20Watchdog.pdf>

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

VALUE ADDED COURSES

ENVIRONMENTAL SCIENCE AND SUSTAINABILITY

Course Code: 2505MS48

L T P C
2 2

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Explain the functions of environment, ecosystems and biodiversity and their conservation.
- CO2:** Identify the causes, effects of environmental pollution and natural disasters and contribute to the preventive measures in the society.
- CO3:** Apply the understanding of renewable and non-renewable resources and contribute to the sustainable measures to preserve them for future generations.
- CO4:** Describe various environmental acts
- CO5:** Recognize the different goals of sustainable development and apply them for suitable technological advancement and societal development.

Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	1	1	1	–	2	–	–	3	–	–	1
CO2	1	2	2	–	3	1	1	3	–	–	1
CO3	1	2	2	–	2	1	3	3	2	–	1
CO4	–	1	1	–	3	1	–	2	–	–	–
CO5	1	2	2	1	3	2	2	3	2	1	2

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	1	-	2
CO2	1	2	2
CO3	2	2	3
CO4	1	1	2
CO5	2	2	3

UNIT – I

Environment and Biodiversity: Definition, scope and importance of environment – need for public awareness. Eco-system and Energy flow– ecological succession. Types of biodiversity.

UNIT – II

Environmental Pollution: Causes, Effects and Preventive measures of Water, Soil, Air and Noise Pollutions. Solid, Hazardous and E-Waste management, Environmental protection acts.

UNIT – III

Renewable Sources of Energy: Energy management and conservation, New Energy Sources: Need of new sources. Different types new energy sources.

UNIT – IV

Environmental Acts: The Water (Prevention and Control of Pollution) Act, 1974-The Air (Prevention

and Control of Pollution) Act, 1981-The Environment (Protection) Act, 1986 Objectives.

UNIT – V

Sustainability Practices: Zero waste and R concept, Circular economy, ISO 14000 Series, Material Life cycle assessment, Environmental Impact Assessment.

Textbooks:

1. Benny Joseph, __Environmental Science and Engineering ‘, Tata McGraw-Hill, New Delhi.ISBN-10:9387432351, ISBN-13: 978-9387432352.
2. Anubha Kaushik and C. P. Kaushik’s —Perspectives in Environmental Studies, 6th Edition, New Age International Publishers.ISBN-10:9789386418630, ISBN-13:978- 9386418630.

Reference Books:

1. R.K. Trivedi, __Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards, Vol. I and II, Enviro Media. ISBN-10: 8178002213, ISBN-13:978- 8178002217.
2. Cunningham, W.P. Cooper, T.H. Gorhani, __Environmental Encyclopedia, Jaico Publ., House, Mumbai. ISBN-10:8172247869, ISBN-13: 978-8172247867.

Web Links:

1. https://onlinecourses.nptel.ac.in/noc23_hs155/preview
2. https://onlinecourses.swayam2.ac.in/nou20_ag12/preview

UNIT – V

Federal structure: Federal structure & distribution of legislative and financial powers between the Union and the States.

Text Books:

1. D.D. Basu, Introduction to the Constitution of India, Lexis Nexis, New Delhi, ISBN 10-9388548868.
2. Subhash C. Kashyap, Indian Constitution, National Book Trust, New Delhi. ISBN- 10: 9352704428, ISBN-13:978-8123707341.

Reference Books:

1. Dr. G. B. Reddy & Mohd. Suhaib, Constitution of India and Professional Ethics, Dream tech Press, ISBN-10:818986601X, ISBN-13:978-8189866013.
2. B.Z. Fadia & Kuldeep Fadia, Indian Government & Politics, Lexis Nexis, New Delhi, ISBN-10: 9384885622, ISBN-13: 978-9384885625.

Web Links:

1. <https://archive.nptel.ac.in/courses/129/106/129106003/>
2. https://onlinecourses.nptel.ac.in/noc24_lw05/preview

INTERNATIONAL BUSIENSS

Course Code: 2505MS10

L	T	P	C
2		1	3

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Understand the fundamental concepts of international business, stages of internationalization, and global business environments.
- CO2:** Analyze classical and modern international trade theories and evaluate the impact of tariff and non-tariff barriers on global trade.
- CO3:** Interpret the role of Foreign Direct Investment (FDI), international institutions, and investment models in shaping global economic flows.
- CO4:** Evaluate regional economic integrations, trade blocs, and multilateral trade agreements, and their implications for business decisions.
- CO5:** Assess emerging trends in international business, including digital trade, CSR, ESG practices, and the impact of geopolitical and environmental shifts

Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	2	3	3	2	2	2	2	2	3
CO2	3	3	3	2	2	2	2	2	2	2	3
CO3	3	3	3	2	3	2	2	2	2	2	3
CO4	3	3	3	3	3	3	2	2	2	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	3	2	2
CO2	3	3	2
CO3	3	3	3
CO4	3	3	3
CO5	3	3	3

UNIT 1:

Fundamentals of International Business: Introduction to international business, Nature and scope, Stages of internationalization, EPRG framework (Ethnocentric, Polycentric, Regiocentric, Geocentric), Globalization and its impact, International business environment – economic, political, cultural, legal.

UNIT 2:

International Trade Theories and Barriers: Mercantilist theory, Absolute advantage, Comparative advantage, Factor proportions theory, Neo-factor proportions theory, Country similarity theory, Intra-industry trade, Tariff barriers, Non-tariff barriers, Role of WTO in trade liberalization.

UNIT 3:

Foreign Direct Investment and Global Institutions: Definition of FDI, Greenfield and Brownfield FDI, Theories of FDI, Benefits and costs of FDI, Trends in global FDI, CAGE model (Cultural, Administrative, Geographic, Economic distance), Role of international institutions – IMF, World Bank, UNCTAD.

UNIT 4:

Economic Integration and Trade Agreements: Economic indicators and business decisions, Regional economic integration – Free trade area, Customs union, Common market, Economic union, Regional trade blocs – EU, NAFTA, ASEAN, SAARC, Multilateral trade negotiations, Instruments of trade regulation, Emerging markets and developing economies.

UNIT 5:

Contemporary Trends and Challenges in International Business: International entrepreneurship, Born global firms, Corporate social responsibility (CSR), ESG investing and reporting, Corporate responses to climate change and social justice, Brexit and international business laws, Rise of digital platforms, E-commerce trends, Re-shoring and near-shoring, Impact of COVID-19 on international business.

Text Books:

1. S. Tamer Cavusgil, Gary Knight, John R. Riesenberger, International Business: The New Realities (Date: July 2, 2024), Pearson Publication, 6th Edition, ISBN-13: 978- 0138183769
2. Charles W.L. Hill, International Business: Competing in the Global Marketplace (2025, McGraw Hill, 14th Edition, and ISBN-13: 978-1260387544.

Reference Books:

1. John J. Wild and Kenneth L. Wild, International Business: The Challenges of Globalization (2022), Pearson Education, 9th Edition,
2. Jeffrey F. Beatty, Susan S. Samuelson, Patricia Sanchez Abril, International Business Law and Its Environment (2025), Publisher: Cengage, 11th Edition, ISBN-13: 978-0357717868.

Web Links:

1. https://books.google.com/books/about/International_Business_2e.html?id=c3GGYIMWWMQ_C
2. <https://www.amazon.in/International-Business-2e-K-Aswathappa/dp/007059953X>

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

PUBLIC HEALTH AND MANAGEMENT

Course Code: 2505MS14

L	T	P	C
2			2

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Explain the key concepts, evolution, and global frameworks of public health.
- CO2:** Identify the role of social determinants and health equity in public health outcomes.
- CO3:** Describe the structure, issues, and major programmes of the Indian health system.
- CO4:** Apply basic planning and management tools in public health settings.
- CO5:** Analyze public health programmes using monitoring, evaluation, and health system frameworks.

Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	2	1	3	1	2	1	1	1	2
CO2	2	2	1	3	3	2	3	1	1	2	1
CO3	3	3	2	1	2	3	2	1	1	2	2
CO4	3	3	3	2	2	3	1	2	2	1	2
CO5	3	3	3	2	2	3	1	2	2	1	3

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	2	2	1
CO2	2	2	2
CO3	3	2	2
CO4	3	3	3
CO5	3	3	3

UNIT I:

Foundations of Public Health: Concept of public health and its role in society, evolution of public health, understanding health and disease, and global health frameworks.

UNIT II:

Health Determinants and Equity: Health equity, social determinants of health, access to healthcare and social justice, and the role of public health in reducing disparities.

UNIT III:

Health Systems in India: History of public health in India, organization of health systems in India, key issues in India's health system, and major health schemes and programmes including the National Health Mission, Integrated Child Development Services (ICDS), Janani Suraksha Yojana, Ayushman Bharat Scheme, and POSHAN Abhiyan.

UNIT IV:

Health Planning and Management: Concepts of planning from macro to micro level, tools for health planning, district-level health management, and strategies for effective implementation.

UNIT V:

Monitoring, Evaluation, and Frameworks: Introduction to monitoring and evaluation (M&E), purpose and process of M&E in public health, health system frameworks, and application of frameworks in programme assessment.

Text Books:

1. Goldstein RL, Goldstein K, Dwele TL Introduction to Public Health: Promises and Practices, Springer Publishing Company.
2. Sen A, Health in Development, Bulletin of the World Health Organization, Vol. 77(8).

Reference Books:

1. R N Batta, Public health management in India: Concerns and options, Journal of Public Administration and Policy Research, Vol. 7(3).
2. National Health Policy 2017, Ministry of Health and Family Welfare, Govt. of India.

Web Links:

1. <https://nptel.ac.in/courses/121106007>
2. <https://nptel.ac.in/courses/127106227>

Relevant cases have to be discussed in each unit, and in examination, case study is compulsory from any unit.

SKILL ENHANCEMENT COURSES EMERGING TECHNOLOGIES AND APPLICATION

Course Code: 2505MS05

L	T	P	C
2			3

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Identify different emerging technologies
- CO2:** Explain the Basics of data science.
- CO3:** Identify fundamentals of Artificial Intelligence
- CO4:** Assess the latest developments in the area of technology to support business
- CO5:** Analyze the basic concepts of AR & VR

Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	2	2	1	2	2	2	3	2	1	3	3
CO2	2	3	2	2	1	2	3	1	2	3	3
CO3	2	3	2	2	1	2	3	1	2	3	3
CO4	3	3	3	3	2	3	3	2	2	3	3
CO5	2	2	2	2	2	2	3	1	2	3	3

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	2	2	3
CO2	2	2	3
CO3	2	2	3
CO4	3	2	3
CO5	2	2	3

UNIT – I

Cloud Computing: Cloud models (IaaS, PaaS, SaaS), Deployment models (public, private, hybrid), Cloud-based solutions, Cost-benefit analysis, Security, Data compliance, Governance frameworks.

UNIT – II

Internet of Things (IoT): Sensor technologies, IoT applications (smart cities, infrastructure, industrial), Data processing, Real-time analytics, Impact on business models, Production and supply chain transformation.

UNIT – III

Industry 4.0: Concept of Industry 4.0, Smart manufacturing, Cyber-physical systems, Robotics, Business process optimization, Impact on production and supply chains.

UNIT – IV

Blockchain Technology: Blockchain fundamentals, Decentralized ledger, Cryptography, Smart contracts, Financial services, Security, Privacy, Regulatory challenges.

UNIT – V

AR/VR: AR/VR concepts, Applications in marketing and training, Immersive technologies, Challenges and opportunities, Technological advancements, Integration in business processes.

Text Books:

1. Mohamed Anis Bach Tobji, Rim Jallouli, Yamen Koubaa, Anton Nijholt, Digital Economy. Emerging Technologies and Business Innovation, ISBN-10:9783319977485, ISBN-13:978-3319977485.
2. Timothy Jung, M. Claudia tom Dieck , Augmented Reality and Virtual Reality: Empowering Human, Place and Business, (2019). ISBN-10: 3319877038, ISBN-13: 978-3319877037

Reference Books:

1. Paul Mealy , Virtual & Augmented Reality for Dummies. ISBN-13:9978-1119481348.
2. Dr. Sanjay Sharma , Emerging Technology (2022), ISBN: 9789392549151.

Web Links:

1. <https://nptel.ac.in/courses/106105166>
2. https://onlinecourses.nptel.ac.in/noc22_cs53/preview

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

MANAGEMENT INFORMATION SYSTEMS

	L	T	P	C
Course Code: 2505MS13	2		1	3

Course Outcomes:

At the end of the Course, Student will be able to:

CO1: Explain the information needs of an organization and a business function

CO2: Identify the effectiveness of decision-making process and MIS design

CO3: Utilize DSS techniques for making effective decisions

CO4: Design parameters for information systems process and application

CO5: Apply DBMS to attain the goals of the organization

Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	2	3	3	3	3	2	3	3	3
CO2	3	2	3	3	3	2	3	3	2	3	3
CO3	3	3	3	3	3	3	3	2	3	3	3
CO4	3	3	2	3	2	3	3	3	3	3	2
CO5	3	3	3	3	3	3	2	3	3	3	3

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	3	2	2
CO2	3	3	2
CO3	3	3	3
CO4	3	3	3
CO5	3	3	3

UNIT I:

Introduction to Management Information Systems (MIS): Overview of MIS, types of MIS, dimensions and components of information systems (IS), benefits of MIS, IT infrastructure, evolution of IT infrastructure, and new approaches for system building in the digital era.

UNIT II:

Database Management Systems (DBMS): Objectives of database approach, characteristics of DBMS, data processing systems, components of DBMS packages, database administration, and the Entity-Relationship (ER) model.

UNIT III:

Information System Applications: MIS applications, Decision Support Systems (DSS), Group Decision Support Systems (GDSS), DSS applications in e-enterprise, Knowledge Management

Systems (KMS), Expert Systems (KBES), Enterprise Model Systems, E-business, E-commerce, E-communication, and Business Process Reengineering.

UNIT IV:

Project Management Basics: Objectives of project management, fundamentals of project management information systems (PMIS) with agile methodologies, introduction to SCRUM, roles and meetings, user stories, project risk management, and controlling risk factors.

UNIT V:

Ethical, Social, and Political Issues in Information Systems: Ethical, social, and political considerations in managing information systems, with a focus on the implications of these issues in the information era.

Text Books:

1. Bernd Schenk , Advanced Management Information Systems: Models, Concepts and Cases (2025) Springer Cham Publication, ISBN-13: 978-3031879036
2. Kenneth C. Laudon & Jane P. Laudon , Management Information Systems: Managing the Digital Firm(2021), Pearson, 17th Edition, ISBN-13: 978-0136971542

Reference Books:

1. Prasad L.M., Prasad Usha, Management Information Systems(2023), Sultan Chand & Sons, ISBN- 81-8054-814-7
2. Goyal, D.P., Management Information System, MACMILLAN India Limited, New Delhi. ISBN-10:403930996, ISBN-13: 978-1403930996

Web Links:

1. https://onlinecourses.nptel.ac.in/noc20_mg60/preview
2. <https://archive.nptel.ac.in/courses/122/105/122105022/>

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

ERP Implementation and Management: Implementation strategies, project planning, data migration, integration; Risk management, training, post-implementation support, and continuous improvement.

UNIT V:

Advanced ERP and Future Trends: Advanced ERP features, BI & analytics, cloud-based ERP; Emerging technologies like IoT, AI & ML in ERP; ERP's role in business strategy and digital transformation.

Text Books:

1. Paige Baltzan & Amy Phillips , Business Driven Information Systems (2025) McGraw Hill Publication , 9th Edition, ISBN-13: 978-1264638727
2. Johan Magnusson , Enterprise System Platforms (2025) Student litteratur AB Publication ISBN-13: 978-9144096704

Reference Books:

1. Veena Bansal , Enterprise Resource Planning: A Managerial Perspective(May 2024) , Pearson India ISBN-13: 9781306254311
2. Luvai F. Motiwalla & Jeffrey Thompson , Enterprise Systems for Management, Pearson Publication, 2nd Edition, ISBN-13: 9780132145763

Web Links:

1. NPTEL Course on Enterprise Systems
2. [SAP Official Learning Hub](#)

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

DESIGN THINKING AND INNOVATION

Course Code: 2505MS46

L T P C
2 2

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Explain the core concepts and historical evolution of Design Thinking.
- CO2:** Apply empathy research methods to gather user insights and create problem statements and journey maps.
- CO3:** Analyze ideation techniques and develop prototypes using various tools.
- CO4:** Evaluate user feedback and implement iterative design improvements.
- CO5:** Examine the principles and processes of innovation and differentiate between types of innovation.

Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	2	2	2	2	2	1	1	2	1
CO2	2	3	2	2	2	2	3	2	3	2	1
CO3	2	3	2	3	2	3	3	2	3	2	1
CO4	2	2	2	2	2	3	2	1	2	2	1
CO5	3	2	3	2	2	2	3	2	2	2	1

Mapping of Course Outcomes with Program Specific Outcomes:

CO / PSO	PSO1	PSO2	PSO3
CO1	2	2	2
CO2	2	2	3
CO3	2	2	3
CO4	2	2	2
CO5	2	2	3

UNIT I:

Introduction to Design Thinking: Covers innovation, creative thinking, problem-solving approaches, and the Design Thinking process—Empathize, Define, Ideate, Prototype, and Implement—using examples like Apple, Netflix, and Airbnb.

UNIT II:

Empathy and Problem Understanding: Focuses on developing empathy using design tools, observing users, understanding uniqueness, and identifying complex "wicked problems" around us.

UNIT III:

Ideation and Defining Solutions: Introduces brainstorming, systems thinking, and mapping customer experiences to generate creative solutions to defined problems.

UNIT IV:

Prototyping and Implementation: Covers rapid prototyping, testing ideas, and planning implementation, with emphasis on converting ideas into practical solutions.

UNIT V:

Feedback and Redesign: Focuses on gathering user feedback, improving design based on experience, and presenting final innovative solutions.

Text Books

1. Gavin Ambrose, Paul Harris, Basics Design-8: Design Thinking, illustrated, reprint, AVA Publishing, ISBN-10: 2940411174, ISBN-13: 978-2940411177.
2. Christian Müller-Roterberg, Handbook of Design Thinking, Kindle Direct Publishing, ISBN: 978-1790435371.

Reference Books:

1. CSG Krishnamacharyulu & Lalitha R, Innovation Management, Himalaya Publishing House. ISBN-10: 9350979209, ISBN-13: 978-9350979204.
2. Vinnie Jauhari, Sudanshu Bhushan, Innovation Management, Oxford Higher Education. ISBN-10: 0198080980, ISBN-13: 978-0198080985.

Web Links:

1. https://onlinecourses.nptel.ac.in/noc22_mg32/preview
2. https://onlinecourses.swayam2.ac.in/imb23_mg65/preview

Relevant cases have to be discussed in each unit and in examination case study is compulsory from any unit.

SEBI's LODR (2015), governance failures in India: Satyam Computer Services, Kingfisher Airlines, PNB Heist, ICICI Bank.

UNIT V:

Analysis of Corporate Failures and Governance Problems: Common governance issues in corporate failures in India and abroad, lessons from corporate governance failures, analysis of preventive measures and solutions.

Text Books:

1. Bob Tricker, Corporate Governance: Principles, Policies, and Practices (2025), Oxford University Press, 5th Edition, ISBN-13: 978-0192885456
2. Jason Harris, Principles of Contemporary Corporate Governance, (2024), Cambridge University Press, ISBN-13: 978-1009287388

Reference Books:

1. Salvatore Esposito De Falco, Corporate Governance: Theories, Actors, and Control Systems in the Age of New Capitalism, (2024), Palgrave Macmillan Publication ISBN-13: 978-3-031-74091-6
2. Shital Jhunjhunwala, Corporate Governance: Creating Value for Stakeholder (2024), Palgrave Macmillan Singapore, ISBN-13: 978-981-99-2771-5

Web Links:

1. <https://nptel.ac.in/courses/110/106/110106145/>
2. https://www.youtube.com/watch?v=7TjdC_zUG8k

Relevant cases have to be discussed in each unit, and in examination, case study is compulsory from any unit.

MANDATORY COURSES EMPLOYABILITY SKILLS-1

Course Code: 2505AC01

L T P C
2

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Apply fundamental arithmetic concepts such as number systems, LCM & HCF, ratio & proportion, and averages to solve quantitative problems efficiently.
- CO2:** Analyze number and letter series to identify logical patterns and predict subsequent elements.
- CO3:** Select the option by evaluating relationships in analogy-based problems and detecting inconsistencies in logical sequences
- CO4:** Demonstrate effective verbal communication skills by using appropriate parts of speech and tone in various interpersonal and professional contexts.

Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	–	–	–	–	–	–	–	–	2
CO2	–	3	2	–	–	–	–	–	–	–	2
CO3	–	3	3	–	1	–	–	–	–	–	2
CO4	–	–	–	3	–	2	–	2	–	3	2

Mapping of Course Outcomes with Program Specific Outcomes:

CO \ PSO	PSO1	PSO2	PSO3
CO1	2	2	–
CO2	2	3	–
CO3	–	2	3
CO4	–	–	3

Aptitude:

Number System, LCM & HCF, Ratio and Proportion, Averages

Reasoning:

Number Series, Letter Series, Number Analogy, Letter Analogy, Odd Man Out, Logical Sequence of Words.

Verbal:

Introduction to soft skills, how to improve communication? Parts of Speech, Mind your language towards better English, Vocabulary Expansion

Text Books:

1. Dr. R. S. Aggarwal, Quantitative Aptitude for Competitive Examinations , S. Chand Publishing, ISBN: 978-9352534029
2. Dr. R. S. Aggarwal, A Modern Approach to Verbal and Non-Verbal Reasoning, S. Chand

Publishing, ISBN: 978-9352832163

Reference Books:

1. Dr. R. S. Aggarwal, Vikas Aggarwal, Quick Learning Objective General English, S. Chand Publishing, ISBN: 978-9352837564
2. Abhijit Guha, Quantitative Aptitude for Competitive Examinations, McGraw-Hill Education, ISBN: 978-9353160180
3. M. K. Pandey, Analytical Reasoning, Arihant Publications, ISBN: 978- 9350947982

Web Links:

1. www.indiabix.com
2. www.bankersadda.com

EMPLOYABILITY SKILLS- II

L T P C

Course Code: 2505AC02

2

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Apply percentage, profit & loss, and partnership concepts to solve real-world quantitative problems.
- CO2:** Analyze age-related problems to develop logical problem-solving strategies.
- CO3:** Evaluate logical reasoning questions including ranking, directions, and alphabet tests for accurate decision-making.
- CO4:** Solve pattern-based problems in coding and decoding to enhance analytical skills.
- CO5:** Demonstrate effective written communication using correct grammar and structured presentation techniques

Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	—	—	—	—	—	—	—	—	2
CO2	—	3	2	—	—	—	—	—	—	—	2
CO3	—	3	3	—	1	—	—	—	—	—	2
CO4	—	2	3	—	—	—	—	—	—	—	2
CO5	—	—	—	3	—	2	—	2	—	3	2

Mapping of Course Outcomes with Program Specific Outcomes:

CO \ PSO	PSO1	PSO2	PSO3
CO1	2	2	—
CO2	2	3	—
CO3	—	2	3
CO4	—	2	2
CO5	—	—	3

Aptitude:

Problems on Ages, Partnership, Percentages, Profit and Loss

Reasoning:

Coding and Decoding, Ranking Test, Alphabet Test, Direction Test

Verbal:

Written communication skill practice, Grammatical use, Concept of 4 step method for presentation, Present Tense

Text Books:

1. Dr. R. S. Aggarwal, Quantitative Aptitude for Competitive Examinations, S. Chand Publishing, ISBN: 978-9352534029
2. Dr. R. S. Aggarwal, A Modern Approach to Verbal and Non-Verbal Reasoning, Publication: S. Chand Publishing, ISBN: 978-9352832163

Reference Books:

1. Dr. R. S. Aggarwal, Vikas Aggarwal, Quick Learning Objective General English , S.Chand Publishing, ISBN: 978-9352837564
2. Abhijit Guha, Quantitative Aptitude for Competitive Examinations, McGraw Hill Education, ISBN: 978-9353160180
3. M. K. Pandey, Analytical Reasoning , Arihant Publications, ISBN: 978-9350947982

Web Links:

1. www.indiabix.com
2. www.bankersadda.com

EMPLOYABILITY SKILLS-III

Course Code: 2505AC03

L T P C
2

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Solve financial and quantitative aptitude problems using concepts of simple and compound interest.
- CO2:** Apply logical time-work frameworks to solve real-time problems related to work efficiency and pipe systems.
- CO3:** Analyze and interpret problems related to blood relations, clocks, calendars, and coded inequalities.
- CO4:** Evaluate spatial and logical reasoning through cubes, dice, and symbolic interpretation problems.
- CO5:** Demonstrate effective communication using correct grammar, and participate actively in discussions and comprehension activities.

Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	—	—	—	—	—	—	—	—	2
CO2	2	3	2	—	—	—	—	—	—	—	2
CO3	—	3	3	—	1	—	—	—	—	—	2
CO4	—	2	3	—	—	—	—	—	—	—	2
CO5	—	—	—	3	—	2	—	2	—	3	2

Mapping of Course Outcomes with Program Specific Outcomes:

CO \ PSO	PSO1	PSO2	PSO3
CO1	2	2	—
CO2	2	3	—
CO3	—	2	3
CO4	—	2	2
CO5	—	—	3

Aptitude:

Simple Interest, Compound Interest, Time and Work, Pipes and Cisterns

Reasoning:

Blood Relations, Calendar, Clocks, Cubes and Dice, Coded Inequalities

Verbal:

Grammar in use, Group discussion, Reading Comprehension, Past Tense, Future Tense

Text Books:

1. Dr. R. S. Aggarwal, Quantitative Aptitude for Competitive Examinations, S. Chand Publishing, ISBN: 978-9352534029
2. Dr.R.S.Aggarwal, A Modern Approach to Verbal and Non-Verbal Reasoning, S. Chand Publishing, ISBN: 978-9352832163

Reference Books:

1. Dr. R. S. Aggarwal, Vikas Aggarwal, Quick Learning Objective General English ,S. Chand

Publishing, ISBN: 978-9352837564

2. AbhijitGuha, Quantitative Aptitude for Competitive Examinations, McGrawHill Education, ISBN: 978-9353160180
3. M.K.Pandey, Analytical Reasoning Arihant Publications, ISBN: 978-9350947982

Web Links:

1. www.indiabix.com
2. www.bankersadda.com

EMPLOYABILITY SKILLS-IV

Course Code: 2505AC04

L T P C
2

Course Outcomes:

At the end of the Course, Student will be able to:

- CO1:** Apply concepts of time, speed, distance, trains, boats and streams to solve motion-related aptitude problems.
- CO2:** Solve mensuration problems involving surface area and volume in real-world contexts.
- CO3:** Analyze logical reasoning questions involving Venn diagrams and syllogisms to make valid conclusions.
- CO4:** Interpret seating arrangements and solve non-verbal reasoning questions involving patterns and spatial reasoning.

Mapping of Course Outcomes with Program Outcomes:

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	—	—	—	—	—	—	—	—	2
CO2	3	2	—	—	—	—	—	—	—	—	2
CO3	—	3	3	—	1	—	—	—	—	—	2
CO4	—	2	3	—	—	—	—	—	—	—	2

Mapping of Course Outcomes with Program Specific Outcomes:

CO \ PSO	PSO1	PSO2	PSO3
CO1	2	2	—
CO2	2	2	—
CO3	—	2	3
CO4	—	2	2

Aptitude:

Time, Speed and Distance, Problems on Trains, Boats and Streams, Mensuration-I, Mensuration - II

Reasoning:

Venn Diagrams, Syllogisms, Non - Verbal Reasoning, Seating Arrangement

Verbal

Grammatical use, Self-introduction, Letters, E-Mail & Report writing, Error correction, Effective Communication

Text Books:

1. Dr.R.S.Aggarwal, Quantitative Aptitude, SChand
2. Dr.R.S.Aggarwal, A Modern Approach to Verbal and Non-Verbal Reasoning, Quick Learning
3. Dr.R.S.Aggarwal, , Objective General English, SChand

Reference Books:

1. AbhijitGuha, Quantitative Aptitude, McGraw-Hill Publications.
2. Jaikishanand Premkishan, Analytical Reasoning, Arihant Publications.

3. R.S.Dhillon, A New Approach to Objective English, DGPPublications.

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2. www.bankersadda.com