St. Xavier's College (Autonomous), Kolkata

Curriculum and Syllabus

(As per NEP, 2020)

for

Semester II

M.Com (Accounting & Finance)

&

M.Com (Marketing)

Postgraduate and Research Department of Commerce
(M. Com)

2026

M. COM. CURRICULUM STRUCTURE
(COURSE WORK AND RESEARCH)
EACH PAPER 100 MARKS

Year	Semester	DSC	DSE	Internship & Presentation	Dissertation	Total Credit
1	I	15	5	-	-	20
	II	15	5	-	-	20
2	III	5	15	-	-	20
	IV	6	-	6	12	24
Total		41	25	6	12	84

1st Year: Semester 1	DSC: 3 Core (15 Credits)	DSE: 1 Elective (5 Credits)	Internship/Dissertation (0 credit)
	. Advance Strategic Management . Advance Strategic Financial Management . Organizational Change and Development	. Economics for Managers	-
1st Year: Semester 2	**DSC: 3 Core (15 Credits)**	**DSE: 1 Elective (5 Credits)**	**Internship/Dissertation (0 credit)**
	. Advance Strategic Marketing Management . Strategic Cost and Performance Management . Taxation for Business Decisions	. Statistics & Quantitative Techniques for Business Decisions	-
2nd Year: Semester 3	**DSC: 1 Core (5 Credits)**	**DSE: 3 Electives (15 Credits)**	**Internship/Dissertation (0 credit)**

	. AI in Business & Business Analytics	**Accounting & Finance Specialization** . Advance Corporate Accounting and Reporting (50 + 50) . Advance Auditing and Assurance & Sustainability (50 + 50) . Advance Security Analysis and Portfolio Management (50 +50) **Marketing Specialization** . Customer Relation Management and Sustainability (50 + 50) . Supply Chain Management and Digital Marketing (50 + 50) . Brand Management & Agro Marketing (50+50)	-
2nd Year: Semester 4	**DSC: 1 Core (6 Credits)**	**DSE: 1 Elective (0 Credit)**	**Internship/Dissertation (6+12 Credits)**
	. Advance Research Designs and Tools (Theory- 50 + Practical- 50)	-	1. Internship + Presentation -6 credits . Dissertation- 12 credits

M. COM. CURRICULUM STRUCTURE
(COURSE WORK)
EACH PAPER 100 MARKS

Year	Semester	DSC	DSE	Internship	Project	Total Credit
1	I	15	5	-	-	20
	II	15	5	-	-	20
2	III	5	15	-	-	20
	IV	6	6	6	6	24
Total		41	31	6	6	84

1st Year: Semester 1	DSC: 3 Core (15 Credits)	DSE: 1 Elective (5 Credits)	Internship/Project (0 credit)
	. Advance Strategic Management . Advance Strategic Financial Management . Organizational Change and Development	. Economics for Managers	-
1st Year: Semester 2	**DSC: 3 Core (15 Credits)**	**DSE: 1 Elective (5 Credits)**	**Internship/Project (0 credit)**
	. Advance Strategic Marketing Management . Strategic Cost and Performance Management . Taxation for Business Decisions	. Statistics & Quantitative Techniques for Business Decisions	-
2nd Year: Semester 3	**DSC: 1 Core (5 Credits)**	**DSE: 3 Electives (15 Credits)**	**Internship/Project (0 credit)**

	. AI in Business & Business Analytics	**Accounting & Finance Specialization** . Advance Corporate Accounting and Reporting (50 + 50) . Advance Auditing and Assurance & Sustainability (50 + 50) . Advance Security Analysis and Portfolio Management (50 +50) **Marketing Specialization** . Customer Relation Management and Sustainability (50 + 50) . Supply Chain Management and Digital Marketing (50 +50) . Brand Management & Agro Marketing (50+50)	-
2nd Year: Semester 4	**DSC: 1 Core (6 Credits)**	**DSE: 1 Core (6 Credits)**	**Internship/Project (6+6 Credits)**
	International Business & Policy Making	**Accounting & Finance Specialization** Derivative and Risk Management **Marketing Specialization** . Retail Management & Social and Ethical Marketing (50 + 50)	1. Internship + Presentation -6 credits . Research Methodology & Project – 6 credits

M. COM. CURRICULUM STRUCTURE
(COURSE WORK AND RESEARCH)
OR
M. COM. CURRICULUM STRUCTURE
(COURSE WORK)

SEMESTER I

Sl. No.	Subjects	Paper Code	Total Marks	Credit Points
1	Advance Strategic Management	**MCOM2611C**	**100**	**5**
2	Advance Strategic Financial Management	**MCOM2612C**	**100**	**5**
3	Organizational Change and Development	**MCOM2613C**	**100**	**5**
4	Economics for Managers	**MCOM2614E**	**100**	**5**
	TOTAL		**400**	**20**

SEMESTER II

Sl. No.	Subjects	Paper Code	Total Marks	Credit Points
1	Advance Strategic Marketing Management	**MCOM2621C**	**100**	**5**
2	Strategic Cost and Performance Management	**MCOM2622C**	**100**	**5**
3	Taxation for Business Decisions	**MCOM2623C**	**100**	**5**
4	Statistics & Quantitative Techniques for Business Decisions	**MCOM2624E**	**100**	**5**
	TOTAL		**400**	**20**

M.COM SYLLABUS

Semester: II	
Course Title: ADVANCE STRATEGIC MARKETING MANAGEMENT	
Course Code: MCOM2621C	**Credits: 5**
Classes/week:	**Total marks: 100**
Theory/Practical/Composite: Theory	**Category: DSC**
No. of Units: 5	**No of Modules:**

COURSE OVERVIEW:

This course transforms traditional business growth frameworks. It goes beyond basic marketing mix to analyse market dynamics, and build sustainable brand eco-systems, and align marketing efforts with overall corporate goals.

COURSE OUTCOME:

1. Understand and explain data-driven marketing concepts, including STP and formulation of marketing strategies across product, pricing, distribution, and IMC domains.
2. Analyse the role of marketing in overall business strategy through product-market analysis, competitor analysis, and stakeholder evaluation in diverse and cross-cultural contexts.
3. Evaluate marketing strategies suitable for different competitive positions (leaders, challengers, followers) and varying market scenarios, including product life-cycle and slow-growth economies.
4. Develop marketing strategies for complex organizational forms such as strategic alliances, networks, and platform-based business models.
5. Apply marketing accountability concepts by linking marketing performance with financial outcomes using KPIs, customer metrics, profitability analysis, and tools like break-even and customer lifetime value. Apply ethical frameworks to resolve marketing dilemmas.
6. Evaluate ethical issues in marketing practices, including marketing mix decisions and digital marketing challenges such as data privacy, fake reviews, and dark patterns.
7. Develop ethically responsible and sustainable marketing strategies considering stakeholder interests and regulatory frameworks.

Prerequisites: (for example - Basic knowledge about any prior course)

SYLLABUS

Unit/Module with topic name	Content	Number of Classes	CO Mapping	Cognitive Level
I. Data Driven Marketing Decision	▪ Rediscovering Segmentation, Targeting, and Positioning (STP) ▪ Formulating marketing strategy (Covers areas like Product strategy, Pricing strategies, Distribution and channel strategy, Integrated Marketing Communication (IMC) strategies-strategic point of view only)	**10**	CO1	K2
II. Marketing strategy formulation	▪ Role of marketing in overall business strategy ▪ Product-market analysis ▪ Competitor analysis ▪ Customer and stakeholder analysis ▪ Cross-cultural marketing ▪ Platform-based marketing models	**8**	**CO2**	K4

III.	**Marketing Strategies for Competitive and Market Scenarios**	▪ Marketing Strategies for market leaders, followers and challengers ▪ Marketing over the Product Life-Cycle ▪ Marketing strategies for slow growth economies ▪ Marketing strategies in strategic alliances and hollow corporations	**8**	CO3	K5
IV.	**Marketing Accountability**	▪ Role of accountability in strategic marketing ▪ Linking marketing with business performance ▪ Challenges in measuring marketing effectiveness ▪ Key Performance Indicators (KPIs) in marketing ▪ Customer metrics: acquisition, retention, churn, lifetime value ▪ Profitability analysis (product, segment, customer) ▪ Break-even analysis and contribution margin ▪ Customer lifetime value (CLV) and customer equity	**8**	CO4	K3, K6
V.	**Marketing Ethics**	▪ Importance of ethics in marketing ▪ Ethical Issues in Marketing Mix ▪ Digital Marketing Ethics (Data privacy and protection, Fake reviews, misinformation, and dark patterns) Indian Case Studies	**4**	CO6, CO7	K5, K6

NOTE: Case Studies as relevant to the curriculum to be included unit-wise.

TEXT BOOKS

1. Strategic Marketing Management by Alexander Chernev, Cerebellum Press (11th Edition)
2. Strategic Marketing Management: Planning, Implementation and Control by Richard M. S. Wilson and Collin Gilligan, Routledge (3rd Edition)
3. Strategic Marketing Management by Syed Akhter, Barney Pacheco, Sage Publications (4th Edition)
4. Marketing Management: A Strategic Decision-Making Approach by John Walker Mullins, Mc Graw Hill (5th Edition)
5. Strategic Marketing Legend in Marketing (2024) by Phillip Kotler, Vibrant Publishers

WEB RESOURCES

1. Think with Google – data-driven insights
2. Marketing Profs – B2B strategy
3. RACE Framework – Digital Marketing
4. Google Digital Garage – Digital Planning Strategy
5. Brand watch – Consumer intelligence

COURSE OUTCOMES (COS) AND COGNITIVE LEVEL MAPPING

COs	CO Description	Cognitive levels based on Bloom's Taxonomy Level
CO1	Understand the concept of data driven marketing and STP analysis	**K2 (Understand)**
CO2	Analyze the role of marketing in overall business strategy development	**K4 (Analyse)**
CO3	Evaluate marketing strategies specific for different competitive positions	**K5 (Evaluate)**
CO4	Develop marketing strategies for complex organisational forms	**K2 (Understand)**
CO5	Apply marketing accountability by linking marketing performance with relevant KPIs	**K4(Analyse)** **K5 (Evaluate)**
CO6	Develop ethically responsible and sustainable marketing strategies	**K6 (Create)**

M.COM SYLLABUS

Semester: II	
Course Title: STRATEGIC COST & PERFORMANCE MANAGEMENT	
Course Code: MCOM2622C	**Credits: 5**
Classes/week:	**Total marks: 100**
Theory/Practical/Composite: Composite	**Category: DSC**
No. of Units: 6	**No of Modules:**

COURSE OVERVIEW:

This course equips students with advanced competencies in strategic cost management and performance measurement. The course focuses on managing costs strategically within modern business environments, covering lean systems, specialist costing techniques, emerging business models, and strategic revenue and profit management. It then develops skills in designing and evaluating strategic performance management systems including standard costing, transfer pricing, and the use of balanced scorecard frameworks.

COURSE OUTCOME:

1. Understand the concept of Strategic Cost Management, its limitations vs Traditional Cost Management, and the organisational/environmental context including competitive advantage and value chain.
2. Apply modern cost management techniques including Target Costing, Life Cycle Costing, Throughput Accounting (Theory of Constraints), Activity-Based Management, and Environmental Management Accounting.
3. Analyse Lean Systems (JIT, Kaizen, 5S, TPM, Six Sigma), process innovation, and supply chain management within the modern business environment.
4. Evaluate strategic performance measures for private sector and not-for-profit organisations using frameworks like Balanced Scorecard, Performance Pyramid, Building Block Model, EVA, and KPIs.
5. Apply divisional transfer pricing methods, standard costing, advanced variance analysis, and reconciliation of profits for performance reporting in complex organisational structures.
6. Formulate strategic revenue and profit management decisions using CVP analysis, pricing strategies, and Activity-Based Profitability Analysis.

SYLLABUS

Unit/Module with topic name	Content	Number of Classes	CO Mapping	Cognitive Level
I. An Introduction to Strategic Cost Management, Modern Business Environment, Lean Systems and Innovation	**(i) Managing Cost Strategically** ▪ Strategic Cost Management ▪ Limitations of Traditional Cost Management ▪ Traditional vs. Strategic Cost Management **(ii) Organisational Context** ▪ Gaining Competitive Advantage ▪ Value Proposition **(iii)External Environment Context** ▪ Industry Profitability ▪ Basis of Competition ▪ Industry Key Success Factors ▪ Understanding Customers and Markets **(iv) Introduction & Characteristics of the Modern Business Environment** ▪ Hyper Competition	**10**	CO1	K2

		▪ Transformation and Disruption ▪ Introduction to Process Innovation ▪ Advanced Manufacturing ▪ Agile Organisations ▪ Supply Chain Partnerships ▪ Business Models - Hyper-disruptive Business Models, Dark Store Models, and Models relevant to Sustainability **(v) Quality to Business Excellence** ▪ Cost of Quality ▪ Total Quality Management (TQM) **(vi) Introduction to Lean System** ▪ Just-in-Time (JIT) ▪ Kaizen Costing ▪ Total Productive Maintenance (TPM) ▪ Six Sigma (SS) **(vii) Benchmarking** **(viii)Business Process Reengineering (BPR)**			
II.	**Cost and Profit Management Techniques**	(i) Cost Control / Waste Control, Cost Reduction (ii) Target Costing (iii) Throughput Accounting and Theory of Constraints (iv) Life Cycle Costing (v)Environment Management Accounting (vi) Activity Based Costing and Activity Based Management (ABM)	**8**	CO2, CO6	K5, K6
III.	**Strategic Revenue Management**	**(i) Decision Making Techniques** ▪ Cost-Volume-Profit (CVP) Analysis ▪ Relevant Costing and its application in business decision making - Special pricing decisions, Product mix decisions when capacity constraints exist, Replacement of equipment – the irrelevance of past costs, Outsourcing and make-or-buy decisions, Discontinuation decisions (Shut-Down Point), Determining the relevant costs of direct materials and direct labour - Importance of qualitative/non-financial factors. **(ii) Pricing Decisions and strategies** ▪ Theory & Principles of Product Pricing	**10**	CO6	K5, K6

		▪ Pricing – New Product, Finished Products, Pricing of Services, Emerging Business Models ▪ Pricing Decision under Special Circumstances ▪ Ethical and Non-financial Considerations ▪ Pricing Strategies			
IV.	**Strategic Performance Management**	**(a) Introduction to Performance Management** **(b) Role of Performance Management in Business Integration** - Models such as Value Chain and McKinsey's 7S **(c) Critical Success Factors and KPIs** ▪ Link between CSF and Performance Measurement ▪ Key Performance Indicators (KPI) **(d) Financial Measures** Return on Capital Employed (ROCE), Return on Investment (ROI), Residual Income (RI), and Economic Value Added (EVA). (e) **Non-Financial Performance Measures** ▪ Balanced Scorecard – Linking Strategy, Operations and Performance ▪ Performance Pyramid	**10**	CO4, CO5	K2, K4, K6
V.	**Divisional Transfer Pricing**	(i) Meaning, Purpose & Principles of Transfer Pricing (ii) Methods of Transfer Pricing (iii) The Behavioural Consequences arising from Divisional Structures	**8**	CO5	K4, K6
VI.	**Standard Costing**	(i) Calculation, Analysis and Interpretation of Material, Labour, Overhead, and Sales Variances (ii) Integration of Standard Costing with Marginal Cost Accounting (iii) Reconciliation of Profit (iv) Limitations of Standard Costing	**10**	CO5	K4, K6

NOTE: Case Studies as relevant to the curriculum to be included unit-wise.

TEXT BOOKS

1. Kaplan & Atkinson – Advanced Management Accounting
2. Horngren, Datar & Rajan – Cost Accounting: A Managerial Emphasis
3. Drury, C. – Management and Cost Accounting
4. Shank, J.K. & Govindarajan, V. – Strategic Cost Management
5. Robert S. Kaplan & David P. Norton – The Balanced Scorecard
6. Ravi Kishore – Advanced Management Accounting

COURSE OUTCOMES (COS) AND COGNITIVE LEVEL MAPPING

COs	CO Description	Cognitive levels based on Bloom's Taxonomy Level
CO1	Understand the concept of Strategic Cost Management, its limitations vs Traditional Cost Management, and the organisational/environmental context including competitive advantage and value chain.	**K1 (Remember)** **K2 (Understand)**
CO2	Apply modern cost management techniques including Target Costing, Life Cycle Costing, Throughput Accounting (Theory of Constraints), Activity-Based Management, and Environmental Management Accounting.	**K4 (Analyse)**
CO3	Analyse Lean Systems (JIT, Kaizen, 5S, TPM, Six Sigma), process innovation, and supply chain management within the modern business environment.	**K4 (Analyse)**
CO4	Evaluate strategic performance measures for private sector and not-for-profit organisations using frameworks like Balanced Scorecard, Performance Pyramid, Building Block Model, EVA, and KPIs.	**K5 (Evaluate)**
CO5	Apply divisional transfer pricing methods, standard costing, advanced variance analysis, and reconciliation of profits for performance reporting in complex organisational structures.	**K1 (Remember)** **K5 (Evaluate)**
CO6	Formulate strategic revenue and profit management decisions using CVP analysis, pricing strategies, and Activity-Based Profitability Analysis.	**K4 (Analyse)** **K6 (Create)**

M.COM SYLLABUS

Semester: II	
Course Title: TAXATION FOR BUSINESS DECISIONS	
Course Code: MCOM2623C	**Credits: 5**
Classes/week:	**Total marks: 100**
Theory/Practical/Composite: Composite	**Category: DSC**
No. of Units: 8	**No of Modules: 2**

MODULE I (50 MARKS)
DIRECT TAXATION

COURSE OVERVIEW:

This course provides a comprehensive understanding of direct taxation and corporate tax planning with a focus on practical and legal aspects of income tax. It covers computation of business income under normal and presumptive taxation provisions, capital gains arising from business restructuring such as amalgamation, demerger and slump sale, and exemptions available under relevant sections of the Income Tax Act. The course also examines taxation of income from other sources, deemed dividends, and various deductions for computing total income. Further, it includes assessment and taxation of entities such as LLPs, companies, business trusts, start-ups, carbon credits and virtual digital assets, along with concepts like MAT and AMT. In addition, the course introduces the principles, objectives and tools of corporate tax planning, including tax planning under different heads of income, bonus stripping, business decisions related to location and ownership, asset acquisition and financing, restructuring, compensation planning, capital structure, dividend policy and other financial management decisions for effective tax management. The course also focuses on international taxation and indirect taxation with special emphasis on GST and customs duty. It introduces the meaning and scope of international taxation, transfer pricing, Arm's Length Price (ALP), methods of ALP computation, thin capitalization, double taxation, DTAA and relief mechanisms. The course further provides an in-depth understanding of Goods and Services Tax (GST), including its concepts, framework, taxable events, types of supply. Additionally, the course explains the fundamentals of customs duty, including basic concepts, types of customs duties, determination of assessable value and customs duty liability.

COURSE OUTCOME:

1. Able to compute income under Profits & Gains of Business or Profession, Capital Gains, and Other Sources and to gain understanding on deductions.
2. Understand the assessment of various entities of taxation of certain special cases.
3. Apply tax-planning techniques for different business entities.
4. Analyze tax implications of financial and managerial decisions.
5. Understand international taxation including DTAA and transfer pricing basics.
6. Compute GST liability and comply with procedural requirements.
7. Understand concept of customs duty and determine customs duty payable.

SYLLABUS

Unit/Module with topic name	Content	Number of Classes	CO Mapping	Cognitive Level
I. Profits & Gains of Business or Profession	Computation of business income under normal and presumptive basis under Sec.58.	**4**	CO1	K1, K2, K4
II. Capital Gains	Capital Gains relating to business restructuring (Amalgamation, Demerger, Slump sale), transfer of assets between holding and wholly owned subsidiary companies. Exemption under Sec.84, 85, 87 and 88.	**5**	CO1	K1, K2, K4

III.	**Income from other sources and deductions**	Taxability of deemed dividend, deductions to be made in computing total income (Sec. 133, 136, 139, 140, 145, 146, 148, 151 and 152).	**2**	CO2	K1, K4, K5
IV.	**Assessment of various Entities and Taxation of certain special cases**	**(a)**Taxation of LLP (including AMT), Companies (including MAT), Business Trust. **(b)**Start-up, Carbon credit, Virtual digital assets.	**4**	CO2	K1, K4, K5
V.	**Corporate Tax Planning**	**(a) Concepts, Objectives, Types and tools of tax planning**, Tax planning under different heads of income, Bonus stripping. **(b) Tax planning** in relation to – **(i) General business decisions:** Setting up a new business (location, nature and form of ownership). **(ii) Specific management decisions:** own vs. Lease vs. Hire for acquisition of assets, Instalment payment vs. hire purchase for purchase of assets, Own fund Vs. borrowed fund for financing of assets, Business restructuring, Personal compensation plan. **(iii) Financial management decisions:** Capital structure decision; Dividend policy (including deemed dividend and inter-corporate dividend); Bonus shares, Buyback of shares.	**5**	CO3, CO4	K1, K3, K4, K5

MODULE II (50 MARKS) **INDIRECT AND INTERNATIONAL TAXATION**				
SYLLABUS				
Unit/Module with topic name	**Content**	**Number of Classes**	**CO Mapping**	**Cognitive Level**
VI. Goods and Service Tax	**(a) Basic Concepts and Taxable Event in GST:** Concept of GST and Framework of GST Council; Definitions – Aggregate turnover, Business, Person, Taxable person, Supplier, Recipient, Import of goods and services. Supply under GST; Meaning of goods and services; Negative list; Deemed supply; Services by Government; Types of supply – taxable, exempt, zero-rated, composite and mixed supply; Activities under Schedule I, II & III. **(b) Levy and Exemption under GST and Value, Time and Place of**	**7**	CO6	K1, K4, K5

	Supply: Concept: Levy of GST; Intra-state and inter-state supply; Exemption from GST; Reverse charge mechanism. Transaction value; Inclusion and exclusion; Valuation rules; Time and place of supply of goods and services; Continuous supply; Voucher transactions.			
VII. Customs Duty	Basic concepts and definitions; Types of customs duties; Determination of assessable value and customs duty liability.	**3**	CO7	K1, K2, K4
VIII. International Taxation	Meaning of international taxation; Transfer pricing and Arm's Length Price (ALP); Methods of ALP computation; Thin capitalization; Double Taxation and DTAA; Relief for double taxation.	**3**	CO5	K1, K2, K4

NOTE: Case Studies as relevant to the curriculum to be included unit-wise.

TEXT BOOKS

1. V.K. Singhania & Monika Singhania – Corporate Tax Planning & Business Tax Procedures.
2. G. Ahuja & Ravi Gupta – Direct Tax Laws & International Taxation.
3. K.M. Bansal – GST & Customs Law.
4. V.S. Datey – Indirect Taxes Law and Practice.
5. Dr. P.P. Ghosh & CA M. Agarwal: Student's Guide to Direct Tax -1 and Direct Tax -2.
6. ICAI Study Material – Direct Tax & GST.

WEB RESOURCES

1. www.incometaxindia.gov.in
2. www.gst.gov.in
3. www.cbic.gov.in

COURSE OUTCOMES (CO) AND COGNITIVE LEVEL MAPPING

COs	CO Description	Cognitive levels based on Bloom's Taxonomy Level
CO1	Able to compute income under Profits & Gains of Business or Profession, Capital Gains, and Other Sources and to gain understanding on deductions.	**K1(Remember)** **K2 (Understand)** **K4 (Analyse)**
CO2	Understand the assessment of various entities of taxation of certain special cases.	**K1(Remember)** **K4 (Analyse)** **K5 (Evaluate)**
CO3	Apply tax-planning techniques for different business entities.	**K3 (Apply)** **K4 (Analyse)** **K5 (Evaluate)**
CO4	Analyze tax implications of financial and managerial decisions.	**K1(Remember)** **K4 (Analyse)** **K5 (Evaluate)**
CO5	Understand international taxation including DTAA and transfer pricing basics.	**K1(Remember)** **K2 (Understand)** **K4 (Analyse)**
CO6	Compute GST liability and comply with procedural requirements.	**K1(Remember)** **K4 (Analyse)** **K5 (Evaluate)**
CO7	Understand concept of customs duty and determine customs duty payable.	**K1(Remember)** **K2 (Understand)** **K4 (Analyse)**

M.COM SYLLABUS

Semester: I	
Course Title: STATISTICS & QUANTITATIVE TECHNIQUES FOR BUSINESS DECISIONS	
Course Code: MCOM2624E	**Credits: 5**
Classes/week:	**Total marks: 100**
Theory/Practical/Composite: Composite	**Category: DSE**
No. of Units: 8	**No of Modules: 2**

MODULE I (50 MARKS)
STATISTICS FOR BUSINESS DECISIONS

COURSE OVERVIEW:

The course covers the basic lessons in statistics to develop the foundation of the subject among students, fit for future research-oriented learning. The course aims to give a wholesome idea of the various statistical tools and techniques. This course is designed to provide students with an understanding of the data and its relevance in business. A particular emphasis is placed on developing the ability to interpret the numerical information that forms the basis of decision-making in business. This course also aims at discussing the extend at which the businessmen are frequently applied to b decision-making; to analyze and interpret the outcome of the results of problem solving and develop an intuition about situations where these tools and techniques are appropriate.

COURSE OUTCOME:

1. Solve problems on descriptive statistics and develop an in-depth knowledge for analysis and interpretation and understand in details correlation and regression and develop models.
2. Solve different problems relating to probability theory.
3. Develop the knowledge of suitability of probability distributions according to type of data.
4. Understand the tabulation process of the data collected and analysed for research.
5. Differentiate among various theoretical distributions and solve related problems.
6. Identify and express a decision problem in mathematical form (linear programming form) and solve it graphically and by Simplex method.
7. Understand and formulate transportation, assignment problems and funding out the optimal solution.
8. Analyse operational research models from the verbal description of the real system by understanding the mathematical tools that are needed to solve optimization problems.
9. Develop a report that describes the model and the solving technique, analyse the results and propose recommendation

Unit/Module with topic name	Content	Number of Classes	CO Mapping	Cognitive levels based on Bloom's Taxonomy Level
I. Probability Theory	Introduction to Probability: Different definitions of Probability, Conditional Probability: Theorem of compound probability, theorem of total probability, Bayes' theorem and its applications, independent events. Random variables and their probability distributions – Binomial, Poisson, Normal and Exponential (Statement of properties and applications).	**10**	CO1, CO2	K1, K4, K5
II. Sampling Theory	Basic concepts of Sampling; Types of random sampling – practical	**10**	CO4	K1, K4, K5

		methods of drawing simple random sample. Descriptions of Stratified Sampling, Multistage Sampling, Multiphase Sampling and Systematic sampling; non-random sampling, Sampling Distributions. Point estimation and Interval estimation, Properties of a good estimator, Different estimation methods. Sample size estimation			
III.	**Hypotheses Testing**	Basic Concepts: Null and alternative hypothesis, size, level, power, p-value, etc. Test of Significance: Z test (mean, difference of means, proportion, difference of proportions) t test (mean), paired t test, Chi-square test. Analysis of variance.	**6**	CO5	K1, K2, K4
IV.	**Time Series Analysis**	Components of time series; Additive and multiplicative models, Determination of different components of time series, Forecasting Models, Measuring Accuracy of forecasting.	**4**	CO3	K1, K2, K4
NOTE: Case Studies as relevant to the curriculum to be included unit-wise.					
TEXT BOOKS					

1. Aczel, A. D., & Sounderpandian, J., Complete Business Statistics. Tata McGraw Hill.
2. Das, J. K., Statistics for Business Decisions. Academic Publishers.
3. Gupta, S. C., Fundamentals of Statistics. Himalaya Publishing House.
4. Hanke, J. E., Business Forecasting. Prentice Hall of India.
5. Das, N. G., & Das, J. K. Business Mathematics and Statistics. Tata McGraw Hill.
6. Gupta, S. C. Fundamentals of Statistics. Himalaya Publishing House.
7. Levin, R. I., & Rubin, D. S. Statistics for Management. Prentice Hall.
8. Sharma, J. K. Business Statistics. Pearson Education.

MODULE II (50 MARKS)
QUANTITATIVE TECHNIQUES FOR BUSINESS DECISIONS

SYLLABUS

Unit/Module with topic name		Content	Number of Classes	CO Mapping	Cognitive Level
V.	**Linear Programming Problem**	Linear programming problem formulation; Graphical solution; Simplex method; Variations in Linear Programming Problem; Duality; Dual simplex method.	9	CO6	K1, K2, K4
VI.	**Assignment and Transportation Problem**	Concepts; Basic Theorems; Initial solutions and optimality test for different types of problems; Exceptional Cases	9	CO7	K1, K4, K5
VII.	**Network Analysis**	Network diagram; Time estimates for activity; Programme evaluation and review technique; Critical path method; Network crashing.	6	CO8	K1, K4, K5

VIII.	**Game Theory**	Decision under uncertainty; Decision under risk; Game theory; Two-person zero sum game; Pure and mixed strategy games; Linear Programming Formulation of Game.	6	C08	K2, K4

TEXT BOOKS

1. Anderson, D. R., Sweeny, D. J., & Williams, T. An Introduction to Management Science. Thompson South-Western.
2. Gupta, P. K., &Hira, D. S. Problems in Operations Research. S Chand & Co.
3. Kapoor, V. K. Operations Research. Sultan Chand and Sons
4. Mustafi, C. K. Operations Research: Methods and Practice. New Age International Ltd.
5. Natarajan, A. M., Balasubramani, P., & Tamilasar. Operations Research. Pearson Education
6. Sharma, J. K. Operations Research: Theory and Methods. Macmillan.
7. Taha, H. Operation Research. Prentice Hall
8. Vohra, N. D. Quanitative Techniques in Management. Tata McGraw Hill.

COURSE OUTCOMES (CO) AND COGNITIVE LEVEL MAPPING

COs	CO Description	Cognitive levels based on Bloom's Taxonomy Level
CO1	Solve problems on descriptive statistics and develop an in-depth knowledge for analysis and interpretation and understand in details correlation and regression and develop models.	**K1(Remember) K2 (Understand) K4 (Analyse)**
CO2	Solve different problems relating to probability theory.	**K1(Remember) K4 (Analyse) K5 (Evaluate)**
CO3	Develop the knowledge of suitability of probability distributions according to type of data.	**K1(Remember) K2 (Understand) K4 (Analyse)**
CO4	Understand the tabulation process of the data collected and analysed for research.	**K1(Remember) K4 (Analyse) K5 (Evaluate)**
CO5	Differentiate among various theoretical distributions and solve related problems.	**K1(Remember) K2 (Understand) K4 (Analyse)**
CO6	Identify and express a decision problem in mathematical form (linear programming form) and solve it graphically and by Simplex method.	**K1(Remember) K2 (Understand) K4 (Analyse)**
CO7	Understand and formulate transportation, assignment problems and funding out the optimal solution.	**K1(Remember) K4 (Analyse) K5 (Evaluate)**
CO8	Analyse operational research models from the verbal description of the real system by understanding the mathematical tools that are needed to solve optimization problems.	**K1(Remember) K4 (Analyse) K5 (Evaluate)**
CO9	Develop a report that describes the model and the solving technique, analyse the results and propose recommendation	**K1(Remember) K2 (Understand) K4 (Analyse)**