

## **B.Com. V Semester**

<b>Sl. No.</b>	<b>Code Nos.</b>	<b>Subjects</b>
1	BCOM 520	Financial Management
2	BCOM 521	Computer Applications in Business – IV
3	BCOM 522	Principles and Practice of Auditing
4	BCOM 523	Human Resource Management
5	BCOM 524	Industrial Economics

### **Elective Group – I**

6	BCOM 5251	Cost Accounting - I
	BCOM 5252	Income Tax - I

### **Elective Group – II**

7	BCOM 5261	Indian Banking – I
	BCOM 5262	Insurance - I

### **Elective Group – III**

8	BCOM 5271	Statistics for Management
	BCOM 5272	Quantitative Technique for Management - I

**DEPARTMENT OF COMMERCE**

**B.Com. 520 – FINANCIAL MANAGEMENT  
(Compulsory Paper)**

**OBJECTIVES :**

The objective of the study of financial management is to know the areas of sources of finance and application of finance in the area of finance of an organization. By studying financial management the students will come to know regarding the better utilization of finances. The career opportunities after studying this subject are that they can make use of this subject for the financial analysis course and they can choose the financial management as a core subject. Financial management is very much significant in corporate sector, even if they start their own enterprises they start their own enterprises they can become experts in making use of the scarce resources that is finance.

**SYLLABUS**

**Unit I : Nature and Scope of Financial Management:**

Meaning and definition of financial management – evolution of financial management-Scope and significance –finance function-approaches of finance function-relationship of financial management with other functional areas of business-objectives of financial management.

**Unit II: Sources of Finance:**

Sources of Finance: Classification: Short term, long term, equity, financing and debt financing, kinds of debentures, differences between share and debentures, self-financing-factoring. (Theory only).

**Unit III: Basic Concepts of Working Capital Management:**

Meaning, definitions-classification, excess or inadequate working capital-merits and dangers-determinants of working capital requirement, working capital forecasting of manufacturing and trading concern: balance sheet approach and operating cycle approach-principles of working capital management –working capital financing and investment policies (Theory and Problems).

**Unit IV: Time Value of Money:**

Basic concepts- future value-present value-comparison between present value and future value; multiple cash flows-future value of an ordinary annuity-future value of annuity due-present value of annuity. (Theory and Problems)

**Unit V: Capital Structure and Financial Structure:**

Significance of Capital Structure, optimal capital structure, operating and financial average-Point: Financial Break Even Point, computation of E.P.S. and Evaluation of financial plans (Theory and problems).

**SUGGESTED READINGS:**

1. Pandey I.M. - Financial Management, Vikas, Allahabad.
2. Khan and Jain - Financial Management, T.M.H., New Delhi.
3. Van Horne - Financial Management & Policy, P.H.I., New Delhi.
4. Maheshwari S.N. - Financial Management and Practice, Sultan Chand & Sons, New Delhi.
5. Maheshwar & Gupta - Financial Management, Sultan Chand & Sons, New Delhi.
6. Kulkarni & Satyaprasad - Financial Management, Himalaya, Bombay.
7. Reddi and Appannaiah - Financial Management, Himalaya, Bombay.
8. Stanley Block - Foundations of Financial Management, T.M.H New Delhi.
9. Stephen A.Ross - Essentials of Corporate Finance Management, T.M.H New Delhi.
10. Richard A.Brealey - Fundamentals of Corporate Finance, T.M.H New Delhi.

**DEPARTMENT OF COMMERCE**

**B.Com. 521 – COMPUTER APPLICATION IN  
BUSINESS - IV**

**(COMPULSORY PAPER)**

**OBJECTIVES :**

- "Tally" - accounting software is thought to help the students shift from manual accounting system to computerized Accounting System.
- GUI Programming Language like Visual Basic is introduced to make the students aware of GUI Programming Environment.
- Students are made aware of Management Information System which exposes the flow of information in the various Organizational structures and firms.

**SYLLABUS**

- Unit I : **System Concepts & System Analysis & Design** 8 Hrs  
Definition of System, Characteristics, Business as a system, Component of a System, Type of system, Deterministic & Probabilistic system, Open & Closed systems, sub-systems, Overview of Business Functions in an organization. Introduction to System Analysis & Design, System Development Life Cycle, Fact finding Techniques, System Development Tools such as Flowcharts, Decision Tree & Organization Charts.
- Unit II **Unit II: Management Information System** 8 Hrs  
Concept of MIS, DATA, Sources of Data, Data Possessing, Information Requirements of different levels of organization, Desired Properties of Management Information, Role of a system Analyst & his responsibilities in an Organization.
- Unit III **Accounting Information System** 10 Hrs  
Basic of Accounting Practice & Preparation of final accounts, Introduction to Computerized accounting Information, Distinction between Manual & Computerized Accounting Information System, Accounts Payable systems, Accounts Receivable system.
- Unit IV **Tally** 10 Hrs  
Introduction to Tally, Creating New Company, Creation of Groups and Accounts, Marking vouchers entries, working with dates & all menus of Tally packages, Generation of Reports Recording of Inventory.

Unit V **Visual Basic**

16 Hrs

Introduction to Visual Basic, VB Environment, Menu Bar, Tool Box, Properties Box, Project Box, Screen Box, Customizing the Environment, Inserting Dialog Box, Level, Combo, Picture, Frames, Scroll Bar & Sliders, Working with Forms, Changing the properties of the Form, Multiple Forms, Designing Menu, Hierarchy, Expressions, I/O operations, Branching, Looping, Arrays, Functions & Procedures.

**SUGGESTED READINGS :**

1. Visual Basic – Deitel & Deitel
2. Visual Basic The Complete Reference
3. Tally- Implementing Tally - A.K.Nadhani
4. SAAD- Elis.M.Awad

**DEPARTMENT OF COMMERCE**

**B.Com. 522 – PRINCIPLES AND PRACTICE OF  
AUDITING  
(COMPULSORY PAPER)**

**OBJECTIVES :**

- To learn Audit principles and provisions required for Audit.
- To detect and prevent the errors and frauds.
- To ensure transparency and accuracy of business dealings.

**SYLLABUS**

- Unit I: **Nature of Audit:** 12 Hrs  
Meaning , Definition and Concepts of Auditing, Objectives of Audit, Kinds of Audit, Advantages and Disadvantages of Audit, Qualification and qualities of an Auditor.
- Unit II **Standard Auditing Practices:** 08 Hrs  
Basic principles governing an audit, planning an audit, Working papers, audit evidence, materiality, audit sampling and audit risk.
- Unit III **Evaluation of Internal control:** 06 Hrs  
Meaning, need, Limitations and Stages in Evaluation of Internal Control.
- Unit IV **Auditing in computerized Information System Environment:** 12 Hrs  
Meaning of CIS, Approaches of Computer auditing, distinction between manual accounting audit and computerized accounting audit, Characteristics of CIS Environment, computer frauds and computer virus.
- Unit V **Audit of Financial Statements and Auditor's Report:** 12 Hrs  
Audit of financial statements; Verification of profit and loss account and Balance sheet items (in brief) Auditor's Report: Meaning, Importance, Distinction between reports and certificates, contents of audit reports, types of audit reports and their specimen.

**SUGGESTED READINGS:**

1. Tondon : Practical Auditing.
2. Kamal Gupta : Fundamentals of Auditing, TMH, New Delhi.
3. Batra and Bangardia : Text Book of Auditing, TMH, New Delhi.
4. Saxena & Saravaravel : Practical Auditing, Himalaya Publishing House, ombay.
5. Saxena, Reddy, : Essentials of Auditing. Appannaiah & Shollapur, Himalaya Publishing House, Bombay.
6. Kurt Pany : Auditing, TMH, New Dehli.
7. D.R.Camichael : Auditing Concepts and Methods, TMH, New Delhi.
8. Setter Howard : Auditing Principles, PHI, New Delhi.
9. L.K.Shukla : Auditing Principles & Practice, Taxman Law's New Delhi.

**DEPARTMENT OF COMMERCE**

**B.Com. 523 – HUMAN RESOURCE MANAGEMENT (COMPULSORY PAPER)**

**OBJECTIVES :**

The objective of the study of Human Resource Management is to know the recruitment, selection, placement, induction, training, H.R.D and compensation being practiced in general by the business enterprises. The students will acquire the knowledge regarding the avenues of the recruitment, the selection process, the compensation, calculation etc. The study of H.R.M helps in gaining confidence for facing interviews for personality development and if they are selected in the H.R.department or payroll section they can discharge their duties more effectively and efficiently in addition to all those for advance courses. H.R.M is a core subjects even if they start their own enterprises, they can manage their H.R. force more effectively for achieving the objectives of their enterprises.

**SYLLABUS**

- Unit I: **Human Resource Management :** 08 Hrs  
Meaning, Objectives, Functions, Significance of Human Resource Management. Difference between HRM and PM and HRD. Essential elements of HRM. HRM planning.
- Unit II **Recruitment ,Selection, Placement, and Induction:** 10 Hrs  
Recruitment: Meaning, Factors influencing recruitment. Selection: Meaning, steps in Selection Process Placement and induction Meaning and importance.
- Unit III **Human Resource Development :** 10 Hrs  
Meaning, Definition and Features of HRD, Need, Objectives and functions of HRD. Performance Appraisal: Meaning, Need, Objectives and methods of performance appraisal.
- Unit IV **Training :** 10 Hrs  
Meaning, Objectives, types of Training, Advantages of Training.
- Unit V **Compensation Management :** 10 Hrs  
Meaning, Objectives, Components of Compensation. Need for sound salary administration.

**SUGGESTED READINGS:**

- 1) P.Subba Rao : Personnel and Human Resource Management, HPM, N. Delhi.
- 2) Ashwathappa : Human Resource & Personnel Management, TMH, New Delhi.
- 3) Fisher Schoenfield : Human Resource & Personnel Management, AIPD, Chennai.
- 4) Snail & Holden : Human Resource & Personnel Management; McMillan India, Ltd., New Delhi.
- 5) Edwin Flippo : Personnel Management, McGraw Hill International Edition, New York.
- 6) Anuradha Sharma & Aradhana Khandekar : Strategic Human Resource Management, Sage Publication, ND.
- 7) T.V.Rao : Human Resource Management, Sage Publication New Delhi.

**DEPARTMENT OF COMMERCE**

**B.COM. 524 - INDUSTRIAL ECONOMICS**

(Compulsory Paper)

**OBJECTIVES:**

- To acquaint students with nature and scope of Industrial Economics
- To understand the Industrial Policy of India and its role in Nation Development.
- To study the market concentrations and industrial combinations.
- To know the sources of industrial finance in India.

**SYLLABUS**

Unit I: Meaning and Definition of Industrial Economics-Need for Industrialisation -Factors affecting IndustrialisationIndustrial Location-Meaning. Location Theories-Weber and Sargent Florence-Factors affecting Location	12 Hrs
Unit II Market Concentration and Industrial Combinations: Meaning and Measurement of Market Concentration. Industrial Combinations-Horizontal and Vertical. Mergers, Amalgamations and Takeovers.	10 Hrs
Unit III Industrial Productivity and Efficiency-Meaning and Measurement of Productivity, Scope and Significance of Productivity, Tools of Productivity, Factors Influencing Productivity. National Productivity Council.	10 Hrs
Unit IV Industrial Finance-Meaning, Sources-Institutions Providing Industrial Finance in India.-IFCI, SFC's, IDBI, SIDBI and EXIM BANK.	10 Hrs
Unit V Industrial Policy of 1991-New Economic Policy - LPG-Concepts of e-Governance, e-Business, e-Marketing and e-Payments.	08 Hrs
<b>Tests, field visits, Home assignments, academic counseling of students.</b>	<b>14 Hrs</b>

**SUGGESTED READINGS:**

1. K. V. Sivayya & V. B. M. Dar: Indian Industrial Economy: S. Chand & Company Ltd., New Delhi.
2. A.B.N. Kulkarni & A.B. Kalkundrikar: Industrial Economics – 2008: R.Chand & Co., New Delhi.
3. Ruddar Datt and K. P. M. Sundaram: Indian Economy: S. Chand & Company Ltd. New Delhi.
4. Bharatwal R.R. 'Industrial Economics'
5. Ranganath Chari and Lekhi. 'Indian Industrial Economy'
6. Dhar P.K., 'Indian Industrial Economy'
7. Cherunilam F. Industrial Economics : Indian Perspective, Himalaya Publishing House, Mumbai.
8. Kuchal S.C. Industrial Economy of India, Chaitanya Publishing House, Hyderabad.

## Elective Group - I

### B.COM. 5251 – COST ACCOUNTING – I

#### LEARNING OBJECTIVES OF COST ACCOUNTING:

Cost Accounting is a specialized branch of accounting that aims;

1. To Ascertain Cost:
2. To Present the Cost:
3. To Control the Cost:
4. To Guide the Management in – (a) disclosing profitability.  
(b) Inventory control  
(c) Formulating policies.  
(d) Decision making.

#### SYLLABUS

##### Unit I: **Concept of cost:**

Accountants and Economists. Meaning of cost Accounting, Objectives and functions: Distinction between cost and financial accounting. merits and demerits of cost accounting. 6 Hrs

Unit II **Classification of Costs:** Elements, nature, functions, behaviour, identification, controllability of Cost. Managerial concepts of Cost; relevant cost, imputed cost, opportunity cost; Junk cost, implicit cost Meaning and importance of cost sheet. Preparation of Cost Sheet. 8 Hrs

Unit III **Material Cost Control:** Meaning, objective and significance of material cost control. Purchase department, Procedure in Purchasing, Levels of Materials: minimum level, maximum level, reordering and danger levels. EOQ-Concept and Computation of EOQ. Stores control, Methods of pricing issues; FIFO and LIFO, Weighted Average Method, base stock method. 12 Hrs

Unit IV **Labour Cost Control:** Meaning, Objectives and significance of Labour cost control. Methods of Time keeping and Time booking. Treatment of idle time and overtime wages. Wage payments methods: Time rate and Piece rate, Straight Piece rate, Taylor's differential Piece rate, Gantt Task and Bonus plan, Merrick's multiple Piece rate. Incentive Wage Plans: Need and importance Halsey, Rowan Premium plans, Group bonus scheme. 12 Hrs

Unit V **Overhead Cost Control:**Meaning, Objectives and Significance: classification of overhead: Element wise, Functional wise, Behavioral classifications. Primary and Secondary distribution of overhead. Re-apportionment of Service department costs to production departments Absorption of overheads; meaning, procedure and methods of absorption, Labour hour rate, and Machine hour rate. 12 Hrs

**SUGGESTED READINGS**

1. Jawaharlal - Cost Accounting, T.M.H., New Dehli.
2. Rayadu - Theory and problems in Cost Accounting, T.M.H., N. Dehli.
3. Pattanshetti and Palekar - Cost Accounting, R.Chand,New Dehli.
4. Horngren et al - Cost Accounting, P.H.I., New Dehli
5. Williamson - Cost Accounting, P.H.I., New Dehli
6. Jain & Narang - Cost Accounting, Kalyani, New Dehli
7. Agrwal M.L - Cost Accounting, Sahitya Bhawan, Agra.
8. Maheshwari S.N - Cost Management Accounting, Sultan Chand & sons, NDehli.
9. Nigam & Sharma - Cost Accounting, Himalaya Bombay.
10. Saxena &Vashist - Cost Accounting, Sultan Chand & sons, New Dehli.

**Elective Group - I**  
**B.COM. 5252 – INCOME TAX - I**

**OBJECTIVES :**

- To expose the students to the various provisions of the Income Tax Act.
- To acquaint the knowledge of Administration of the Income Tax Act.
- To develop the skill of computation of total income of assesses and their tax liability.

**SYLLABUS**

- Unit I: **(a) Introduction:** 8 Hrs  
Brief history of Income-Tax, Legal frame work Meaning and terms used: Person, Assessee assessment, Assessment year previous year income, Total income, Gross Total Income, Assessing officer
- (b) Residential Status:** Rules for determining residential status of individual. HUF firm-Incidence of Tax-Practical Problems.
- Unit II **(a) Tax free incomes u/s 10:** 9 Hrs  
Section 10(1), 10(2), 10(2A), 10(5), 10(10), 10(10A), 10(10AA), 10(10B), 10(10C), 10(D), 10(11), 10(12), 10(13), 10(13A), 10(14), 10(15), 10(34)
- (b) Deductions from gross Total Income, Rebate and Relief applicable to Individuals only.** 80C, 80CCC, 80CCD, 80D, 80DD, 80DDB, 80G, 80GG, 80AB and 80U.
- Unit III **Income from salary** 15 Hrs  
Salary, Allowances-Perquisites and retirement benefits-Deductions u/s 16- Computation of salary income-practical problems with Tax Liability.
- Unit IV **Income from House Property** 10 Hrs  
Annual value-Let out property-Self occupied property Deductions u/s 24- Computation of House property income Practical Problems.

**Unit V : Income from Business Profession**

12 Hrs

Depreciation and other permissible expenses-Disallowed expenses, incomes and expenses of illegal business Computation of business income. Income from Profession: Computation of income of Doctors, Chartered Accountants, Civil engineers and Lawyers.

**SUGGESTED READINGS:**

1. M.B.Kadkol : Income Tax, Renuka, Hubli.
2. Bhagavati Prasad : Direct Taxes, New Age, New Delhi.
3. V.A.Patil : Income Tax
4. Gour & Narang : Income Tax Law and Practice, Kalyani, New Delhi.
5. Singhania V.K : Direct Taxes-Law and Practice, Taxman Publications, New Delhi.

## **Elective Group - II**

### **B.COM. 5261 – INDIAN BANKING –I**

#### **OBJECTIVES:**

- To study money and banking
- To study trade and finance in India
- To study theory of banking and its practical approach
- To study the use of computers in Indian banking practice
- To apply the traditional banking to the modern banking

#### **SYLLABUS**

- Unit I: **Evolution of Banking Institutions:** 12 Hrs  
Origin of banks: development of banking Institutions: classification of Banks.  
Commercial Banking Principles. Earning assets of Bank, Non Performing Assets.
- Unit II **Banking Systems:** 08 Hrs  
Branch Banking and unit Banking. Chain Banking and Group Banking. Deposit  
Banking, Investment Banking.
- Unit III **The Banking Regulation Act:** 10 Hrs  
  
Scheme of the Act; Application of the Act. Management and control. Assets of a  
Banking company, Powers of RBI: Accounts and Audit.
- Unit IV **The Reserve Bank of India:** 12 Hrs  
Organization of the Bank, Functions of the bank, Central Banking functions,  
superiority functions. Control of credit by the Reserve Bank. Commercial Banks and  
the Reserve Bank.
- Unit V **The State Bank of India.** 08 Hrs  
Establishment of SBI, Share capital, Shares, Management, business of SB. Funds,  
Accounts and Audit. SBI(Subsidiary Banks) Act.

**SUGGESTED READINGS:**

1. Maheshwari S. N : Banking Law and Practice, Kalyani Publisher, New Delhi.
2. Shekar K.C : Banking Theory, Law and Practice.
3. Sundaram KPM : Money, Banking and International Trade.
4. Varshey : Banking Law and Practice. Sultan Chand and Sons, New Delhi.
5. G.B,Baligar : Banking Law and Practice. Ashok Prakashan, Hubli.
6. Lall Nigam B.M : Banking Law and Practice. Konark Publisher, New Delhi.

## **Elective Group - II**

### **B.COM. 5262 – INSURANCE - I**

#### **OBJECTIVES:**

- To face increasing risks and uncertainties of man in this modern world
- It is a device which a man to learn to meet against the losses of in evitable contingencies of loss.
- To study the role of Insurance in the socio economic prosperity of a country.
- To understand how it protects the farmer against flood, fire, storm etc.,
- To understand how insurance is a means of security against the risk of fire or perils of sea.

#### **SYLLABUS**

Unit I: <b>Nature of Insurance:</b>	10 Hrs
Insurance Contracts, Legal principles of Contract. Scope of Insurance, Subject matter of Insurance, IRDA- Objectives and functions.	
Unit II <b>Concept of Risk :</b>	10 Hrs
(General Insurance) Loss prevention and Risk Management. Nature and sources of Risk, Classification of risk, Expectation of Loss.	
Unit III <b>Principles of Life Insurance:</b>	12 Hrs
Life Insurance In India. Objectives of LIC of India, organizational set up, public and private insurance, companies, types of life policies, Prices of life insurance policies.	
Unit IV Practice o <b>General Insurance.</b>	12 Hrs
Insurance agencies- Intermediaries. Structure of Commission; Pricing of general insurance product, Public and private insurance companies.	
Unit V TAC-Tariff Advisory Committee. Legal Environment-Insurance Act. Motor vehicle Act: Marine Insurance Act.	06 Hrs

**SUGGESTED READINGS:**

1. M.J.Mathew : Principles and Practice of Insurance.
2. G.S.Panda, Ghanshyam : Principles and Practice of Insurance.
3. Katayal, Rakesh, Inderjit -  
Singh, Arrora S. : Insurance
4. Inderjit Singh : Text Book of Insurance
5. Verhese A.M : Book of Insurance Madhavan T.V.

## Elective Group - III

### B.COM. 5271 - STATISTICS FOR MANAGEMENT

#### OBJECTIVES :

- Update the students with emerging **trends and techniques** to compete in this competitive world.
- Equip the students with techniques for **data analysis** which is the most important function of the **management**.
- Exploit the emerging opportunities in the **insurance business** and to play a key role of **Actuaries**.
- Educate students to gear up to face the challenges of **liberalization, privatization and globalization**.
- Develop graduates with **numerical skills** needed in the field of **research** in higher education.

#### SYLLABUS

- Unit I: **Use of Statistical Techniques.** In Managerial Decision Making. Data Interpretation  
8 Hrs
- Unit II **Probability :** 12 Hrs  
Concept and Definition – Relevance to Management. Sample space and events. Rules of Probability. Random Variables, Mathematical Expectation, Theorems of Expectations(with out proof).Problems based on expectation & variance. Concept of Probability Distribution. Theoretical Probability Distributions : Binomial, Poisson and Normal. Problems on it.
- Unit III **Theory of Sampling:** 6 Hrs  
Concept and Definitions. Census and Sampling. Simple random sampling, Stratified sampling, Systematic sampling and multistage sampling. Determination of sample size.
- Unit IV **Testing of Hypothesis:** 12 Hrs  
Introduction to Hypothesis Testing. Procedure of Testing Hypothesis. Type I and Type II errors. Z-Test, t-test, Chi-Square Test and F-test.
- Unit V **Analysis of Variance :** 12 Hrs  
Introduction, Definition of Analysis of Variance. Assumptions to be made and use of ANOVA. One way classification : Mathematical Model for one way classified data, procedure for carrying out ANOVA with one factor of classification and problems. Applications of ANOVA Multivariate Techniques.

Practicals: 2 Hours/Week/Paper Hours.

<b>S.No.</b>	<b>Title of Experiments</b>	<b>No. of Experiments</b>
1	Applications of Probability	02
2	Applications of Expectation	01
3	Fitting of Theoretical Distributions & Applications	02
4	Large Sample Tests	01
5	Small Sample Tests	02
6	Analysis of Variance	02
		<b>Total 10</b>

**SUGGESTED READINGS:**

1. Business Statistics : J. K. Sharma. Pearson Education, 2<sup>nd</sup> edition 2008.
2. Fundamentals of Statistics : S. C. Gupta. Himalaya Publishing House. 6/e 2004.
3. Research Methodology: C. R. Kotari: Eastern Publications
4. Business Statistics : Sancheti and Kapoor. Sultan Chand and Sons – New-Delhi.
5. Business Statistics : Aggarawal and Bharadwaj. Kalyani New-Delhi.
6. Mathematics & Statistics : Goel and Goel. Taxmann New-Delhi.
7. Statistics for Business and Economics : Anderson, Sweeney, William. Thomson publishing, 9/e 2007.
8. Statistics : Levin and Rubin, Pearson 7e.

## Elective Group - III

### B.Com. 5272 - QUANTITATIVE TECHNIQUES FOR MANAGEMENT - I

#### OBJECTIVES :

- Update the students with emerging **trends and techniques** to compete in this competitive world.
- Educate students to gear up to face the challenges of **liberalization, privatization and globalization**.
- Develop graduates with **numerical skills** needed in the field of **research** in higher education.
- To develop consistency in **logical reasoning and ability of decision making** in students.
- Prepare the students to have career as **quantitative technicians** which has remarkable weightage across the world.

#### SYLLABUS

- Unit I: **Quantitative Techniques :** 6 Hrs  
Introduction and their field of application. Classification of Quantitative Techniques. Limitations of Quantitative Techniques.
- Unit II **Introduction to Operations Research :** 6 Hrs  
Meaning, Scope, Techniques, Characteristics and Limitations of O.R. Methodology and Models in O.R. (Only theory). Importance of O.R. Techniques in business and Industry.
- Unit III **Linear Programming Problem :** 20 Hrs  
Construction of L.P. Model. Characteristics of L.P.P. Graphical Solution. Slack, Surplus and artificial variables. Simplex method. Big M-method. Duality. Economic interpretation of Dual Variables.
- Unit IV **Assignment Problems :** 8 Hrs  
Meaning and Definition of Assignment Problems. Hungarian Algorithm and examples on it. Travelling Salesman Problems.
- Unit V **Transportation Problem :** 10 Hrs  
Meaning and Definition of Balanced and Unbalanced T.P. Finding feasible solution by NWCR, MMM and VAM. Optimum Solution – MODI Method.

**PRACTICALS:**

<b>S.No.</b>	<b>Title of Experiments</b>	<b>No. of Experiments</b>
1	L,P,P, Graphical	01
2	Simplex Method	03
3	Assignment Problems	02
4	Travelling Salesman Problems	01
5	Transportation Problems	03
<b>Total</b>		<b>10</b>

**SUGGESTED READINGS:**

- 1) Quantitative Techniques for Managerial Decisions VOL – I ; L.C. Jhamb, Everest Publishing Home-Pune.,
- 2) Operations Research : J. K. Sharma. Mc Millan, India.
- 3) Quantitative Techniques in Management : N.D. Vohra, Tata Mc. Grow Hill Publications 3/e, 4<sup>th</sup> reprint 2007.
- 4) Operations Research : P. K. Gupta and D. H. Hira. Sultan Chand and Sons, New-Delhi.
- 5) Operations Research : B. S. Goel, Pragati Prakashan, Meerut.
- 6) Operations Research: Kanti Swaroop, P. K. Gupta and Manmohan. Sultan Chand and Sons, New-Delhi.
- 7) Operations Research: S. D. Sharma.