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II YEAR
SEMESTER–III

CourseCode	Course Title	Nature	Credits	HPW (Th+Tu+P)	Max Marks (CIE+SEE)
MTM301	Operations Management	Core	4	4Th + 1 Tu	30+70
MTM302	Global Business Strategies	Core	4	4Th + 1 Tu	30+70
MTM303	Business Analytics	Core	4	4Th + 1 Tu	30+70
DSE304	Finance/HR/Marketing	Core	5	4Th + 1 Tu	30+70
DSE305	Tech Elective I/ Tech Elective II	Core	5	3Th + 2P+1 Tu	30+20+50
LAB301	Business Analytics with R programming	Lab	2	4 P	50
RD301	Research Design		1		25
PS301	Progress Seminar		1		25
			26		600
Total Credits at the end of III Semester			**78**		**1850**

DSE 304
Finance: Investment Management
Marketing: Advertisement and Retail Management
HR: Compensation Management
DSE 305
Tech Elective I - Database Management Systems
Tech Elective II - Data Visualization

- **HPW – Hours Per Week**
- **CIE – Continuous Internal Exam**
- **SEE – Semester End Exam**
- **Th- Theory**
- **Tu – Tutorial**
- **P - Practical**

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SEMESTER-III

PAPER CODE – MTM 301
Course: OPERATIONS MANAGEMENT

Course Objectives:

1) To provide an extensive introduction to the field of operations management.
2) To explain the concepts, strategies, tools and techniques for managing the transformation process that can lead to building of adequate knowledge regarding the basic manufacturing facilities
3) How service activities have attained significance and need managerial skills to address the problem and build competitive advantage for the firm. Further
4) To introduce various optimization techniques with managerial perspective.

Course Outcomes:

1. Understanding of the evolution of operations management practices and world class manufacturing processes
2. Understand the importance /Planning organizing and controlling aspects of operations management,
3. Enhances the understanding of product development and design process, to maintain the economies in maintenance engineering.
4. Ability to plan and control the production and operations, and overcome bottlenecks
5. Provides insight to Quality management tools and practices.

UNIT-I Introduction to Production and Operations Management:

Introduction, Objectives, Scope and Differences among Production and Operations Management. Historical evolution of Production and Operations Management.

Characteristics of Modern Operation functions. Recent trends in Production and Operations Management. Operations Management interaction with other functional areas of management. The transformation Process: Manufacturing, Service and Hybrid Agile Manufacturing.

UNIT-II Operations Planning:

PPC Introduction, Objectives, Basic types of Production Control, Capacity planning, Capacity Requirement,

Resources aggregate planning, MPS, MRP-I, MRP-II, Economic Batch quantity, Lean operations, JIT, Line balancing, ERP.

UNIT-III Designing and Managing Operational systems :

Introduction to product design, importance, objective, factors influencing, characteristics of good product design. Process design and selection, process planning, process strategy, product life cycle versus process life cycle.

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Work Study, Method Study, Time study, Motion Study and work measurement. Facility location, Facility layout, types of layouts, Job Sequencing, Johnson's Algorithm, n jobs two machines, n jobs three machines, n jobs m machines, (Problems) Scheduling,

UNIT-IV Productivity, Quality and Maintenance Management:

Productivity, importance, measurement of productivity, tools to increase productivity, factors affecting industrial productivity, TQM, essentials, principles, scope and ISO standards basics. Statistical Quality Control (SQC), Control charts for variables and attributes (Problems).

Break Down Maintenance, Preventive Maintenance, Replacement of machines, Replacement Models. when money's worth is not considered in capital cost of the Asset, when money's worth is considered in capital cost of the Asset, Individual and Group replacement (problems)

UNIT-V Inventory Control and Stores Management:

Role and Importance of inventory, Inventory planning and control, Inventory decisions - Economic Order Quantity (EOQ), Selective Inventory Control, Safety Stock and Reorder Level and Inventory models-Inventory analysis and control systems: ABC, (Problems) VED, FNSD analysis, Just In Time (JIT)

Stores Management: Functions of stores and Materials control. Classification, codification, simplification and standardization of materials, Bin card, Double-Bin and stores Ledger. Evolution of Computer Based Stores Management and emerging trends in stores management.

Suggested Books:

1. Nigel Slack, Stuart Chambers and Robert Johnston - Operations management, Prentice Hall. Sixth edition
2. Panner Selvem - Production and Operations Management, Prentice Hall of India
3. Upendra Kachru - Operations Management - Excel Publications.
4. Martin K. Starr: Production & Operations Management, Wiley India, New Delhi.
5. Buffa, S. Elwood and Sarin, K. Rakesh - Modern Production/Operations Management, John Wiley & Sons.
6. Chunnawals - Production & Operations Management, Himalaya Publications.
7. Kanishka bedi-Production & Operations Management, Oxford University Press.
8. Adam EE & Ebert RJ - Production and Operations Management, Prentice hall of India.
9. Chary, S.N. - Production & Operations Management, New Delhi, Tata McGraw Hill
10. Manoj Kumar Sarkar - Production & Operations Management, Jaico Publisher.
11. P. Rama Murthy - Production and Operations Management, new age international.
12. Gaither N. and Frazier, G., Operations Management, ed. ix, Thomson.
13. Biswatjit Banerjee, Operations Management and Control,3e, S.Chand, ISBN:9788121925938
14. NVS Raju, Operations Management, BS publications

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PAPER CODE – MTM 302
Course: GLOBAL BUSINESS STRATEGIES

Course Objectives:
1. To impart global marketing skills to the learners
2. To make the student learns about global business environment
3. To expose the student towards various practical approaches of global business
4. To provide international market analysis to the learners

Course Outcomes:
1. The students develops higher level skills in global business
2. The student outlook changes towards global business environment
3. They are exposed to practical problems of global marketing
4. The students attains the knowledge about international industry and Markets

Unit – I: Introduction to Global Business:
Evolution of International business- Globalization of business, Internationalization process, International Business Approaches, International Trade Theories- Adam smith theory, David Ricardo, International Product Life Cycle theory, Rostov's growth theory- Regional Business and Global Business. Electronic Global Business.

Unit – II: Business & Regulation:
Rationale for Government Intervention- Forms of Trade regulations at National Level- Tariff and Non- Tariff Barriers- Regional Economic Integrations- Levels of Economic Integration- Benefits and Costs of Integrations- Multinational Companies- Entry methods – Cost benefit Analysis- Impact on National Economies.

Unit – III: Global Business and Multilateral Agreements:
Basic Principles of Multi-lateral Trade Negotiations- GATT and Its Evolution- Dunkel's Draft-WTO Structure- Functions- Success Stories- TRIPS, TRIMS, - Other Regional Trade Blocks – NAFTA, EU, ASEAN, SAFTA and UNCTAD

Unit – IV: Global Business Entry Strategies
Global Market Entry Strategies – Exporting, Licensing, Franchising, Contract Manufacturing, Turnkey Projects, Joint Ventures, Mergers, Acquisitions- Strategic alliances, Types of Alliances, Corporate Analysis, Intelligent Alliances – Electronic global business approaches – E- Business models- Risks and Rewards – Cost Benefit analysis of Entry Strategies.

Unit – V: Managing Global Business:

Strategy and Global Business- Global Business Planning and Implementing Strategies- Designing Effective International Organizations- Cross Cultural Management- Culture and International Business- Intercultural Communications- Human Resource Management in global context- Human Resource Planning, Training and Development- Managing Expatriates- International Labour Relations.

Suggested Books:

1. Richard M Hodgets & Fred Luthans 2008, "International Management" T M H, New Delhi.
2. John D Daniel & Lee H. Radebaugh, International Business" Pearson Education.
3. Alan M. Rugman, Richard M. Hodgetts, "International Business" Prentice Hall
4. P. Subbarao , "International Business" Himalaya Publishing House.
5. Chary S N, "Elements of International Business" John Wiley Publications.
6. Larraian Seigal, "International Business" Times Business random House, NewYork.
7. Manab Thakur, Gene E. Burton & B N Srivastava, "International Management" Concepts and Cases, T M H.
8. John B. Cullen, "Multinational Management" A Strategic Approach" Thomson Publication.
9. Dutta, "International Business", Wiley Publications.
10. Zubeda Begum, B.Pramesh and B.S.Sudha, "International Business", Himalaya Publications.
11. Jayakar Dalavai, Vidyadhar Reddy Aileni, International Business, BS Publications

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PAPER CODE – MTM 303
Course: BUSINESS ANALYTICS

Course Objectives:
1. The objective is to provide knowledge of data science
2. To provide basic statistical tools
3. State the importance of data in current business scenario
4. To develop contingent business models for better analysis

Course Outcomes:
1. Students can use data as tool for business analysis
2. The basic statistics provides a road map to learners
3. Micro metrics makes the students to identify data gaps
4. The business models may help in better decision making

Unit – I: Introduction to Business Analytics:
Definition of Business Analytics, Categories of Business Analytical methods and models, Business Analytics in practice, Big Data - Overview of using Data, Types of Data- Business decision modelling.

Unit – II: Descriptive Analytics:
Overview of Description Statistics (Central Tendency, Variability), Data Visualization - Definition, Visualization Techniques – Tables, Cross Tabulations, charts, Data Dashboards using Advanced Ms-Excel or SPSS.

Unit – III: Predictive Analytics:
Trend Lines, Regression Analysis – Linear & Multiple, Predictive modeling, forecasting Techniques, Data Mining - Definition, Approaches in Data Mining- Data Exploration & Reduction, Data mining and business intelligence, Data mining for business Classification, Association, Cause Effect Modelling.

Unit – IV: Prescriptive Analytics:
Overview of Linear Optimization, Non Linear Programming Integer Optimization, Cutting Plane algorithm and other methods, Decision Analysis – Risk and uncertainty methods - Text analytics, Web analytics.

Unit – V: Programming Using R:
R Environment, R packages, Reading and Writing data in R, R functions, Control Statements, Frames and Subsets, Managing and Manipulating data in R.

Suggested Books:
1. Camm, Cochran, Fry, Ohlmann, Anderson, Sweeney, Williams - Essentials of Business Analytics, Cengage Learning.
2. James Evans, Business Analytics, Pearson, Second Edition, 2017.
3. Albright Winston, Business Analytics - Data Analysis - Data Analysis and Decision Making, Cengage Learning, Reprint 2016.
4. Sahil Raj, Business Analytics, Cengage Learning.

5. Dinesh Jumar, Business Analytics – The Science of Data Driven Decision Making, Wiley
6. Kavitha Venkatachari, Fundamentals of Business Analytics UsingExcel & R
7. Foster Provost & Tom Fawsett, Data Science for Business.
8. Jank Wolfgang, "Business Analytics for Managers", Springer
9. Prema Alla, Introduction to Data Science Using R, BS Publications
10. Sharaff Aakanksha, Data Science and Its Applications, Taylor & Francis

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PAPER CODE – DSE 304 -Finance
Course: INVESTMENT MANAGEMENT

Course Objectives:
To explain the basic concepts of risk and return
1) To explain the various methods of investment analysis
2) To understand the features and valuation of debt and equity instruments
3) To explain the concept of portfolio and the various portfolio theories
4) To describe portfolio evaluation methods

Course Outcomes:
After studying this course the student will be able to
1) Differentiate various avenues of investment on the basis of risk and return
2) Gain basic knowledge of analyzing stocks
3) Make valuation of equity, debt and portfolio instruments
4) Gain an understanding of mutual funds, their performance evaluation and regulation.

Unit – I: Investments:
Concept; Real vs. Financial assets; Investment decision process; Sources of investment information; Investment vs. Speculation; Factors to be considered in investment decision-Liquidity, Return, Risk, Maturity, Safety, Tax and Inflation. The concept and measurement of return-realized and expected return. Ex-ante and ex-post returns. The concept of risk. Sources and types of risk. Measurement of risk-Range, Standard Deviation and Co-Efficient of Variation. Risk-return trade-off. Risk premium and risk aversion. Approaches to investment analysis-Fundamental Analysis; Technical Analysis**;** Efficient Market Hypothesis.

Unit – II: Fixed Income Securities - Analysis, Valuation and Management:
Features and types of debt instruments, Bond indenture, factors affecting bond yield. Bond yield measurement-Current yield, holding period return, YTM, AYTM and YTC. Bond valuation: Capitalization of income method, Bond-price theorems, Valuation of compulsorily / optionally convertible bonds, Valuation of deep discount bonds. Bond duration, Macaulay's duration and modified Macaulay's duration. bond convexity, Considerations in managing a bond portfolio, term structure of interest rates, risk structure of interest rates. Managing Bond Portfolio: Bond immunization, active and passive bond portfolio management strategies.

Unit – III: Common Stocks - Analysis and Valuation:
Basic Features of Common Stock, Approaches to valuation–Balance sheet model, dividend capitalization models; earnings capitalization models; Price-Earnings multiplier approach and capital asset pricing model, Free Cash flow model, relative valuation using comparable-P/E,P/BV, P/S; Security Market Indexes, their uses; computational procedure of Sensex and Nifty.

Unit – IV: Portfolio Theory:

Concept of portfolio. Portfolio return and risk. Harry Markowitz's Portfolio theory, construction of minimum risk portfolio, the single-index model. Capital market theory: Introduction of risk-free asset, Capital Market Line, Separation theorem. Capital asset pricing model (CAPM): Security Market Line. Identifying over-priced and under-priced securities. Arbitrage pricing theory (APT): The Law of one price, two factor arbitrage pricing, Equilibrium risk-return relations. A synthesis of CAPM and APT.

Unit – V: Portfolio Evaluation:

Performance measures-Sharpe's reward to variability index, Treynor's reward to volatility index, Jensen's differential index, Fama's decomposition of returns. Mutual funds: genesis, features, types and schemes. NAVs, costs, loads and return of mutual funds, Problems and prospects in India, Regulation of mutual funds and investor protection in India.

Suggested Books:

1. Alexander. G.J, Sharpe. W.F and Bailey. J.V, "Fundamentals of Investments", PHI, 3rd Ed.
2. Zvi Bodie, Alex Kane, Marcus.A.J, Pitabas Mohanty, "Investments", TMH, 8th Ed.
3. Prasanna Chandra, "Investment Analysis and Portfolio Management", TMH, 3rd Ed.
4. Charles.P.Jones, "Investments: Analysis and Management", John Wiley &Sons, Inc. 9th Ed.
5. Francis. J.C. & Taylor, R.W., "Theory and Problems of Investments". Schaum's Outline Series, McGraw Hill
6. Herbert. B. Mayo, "Investments: an Introduction", Thomson – South Western. 9th Ed.
7. Peter L. Bernstein and Aswath Damodaran, "Investment Management",Wiley Frontiers in Finance.
8. Stephen A. Ross, Randolph Westerfield, and Jeffrey Jaffe, "Corporate Finance", TMH.
9. S. Chand "Investment Management: Security Analysis & Portfolio Management".
10. S. Kevin, "Security Analysis and Portfolio Management", PHI.
11. Punithavathy Pandian, "Security Analysis and Portfolio Management", Vikas Publishing House
12. Donald E. Fisher and Ronald J. Jordan: "Securities Analysis and Portfolio Management", Prentice Hall.
13. Peter L.Bernstein, Aswath Damodaran, "Investment Management", Wiley Publications, ISBN:9780471191757
14. V.K.Bhalla, "Fundamentals of Investment Management", S.Chand Publications

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PAPER CODE – DSE 304 -Marketing
Course: ADVERTISING AND RETAIL MANAGEMENT

Course Objectives:

The objectives of this course are;
1. To sensitize students on various dimensions of the promotion mix
2. To help gain an understanding of the role of advertising in marketing
3. To explore the various elements relating to an effective advertising strategy
4. To introduce the concept of organized retailing
5. To help understand the various functions & roles of retailing in India

Course Outcomes:

After reading this course you should be able to;
1. Understand the importance of advertising in the marketing mix
2. Establish the importance of creativity in an ad campaign
3. Determine the comparative importance of organized retailing sector vis-a- vis unorganized sector
4. Compare the functions and performance of organized retail sector to others
5. Determine the role of other functional areas of marketing as key drivers to the retail sector

Unit-I:
Advertising – Role in promotion mix, Objectives of advertising, Creativity in advertising, Ad-copy, Creative strategy & process – Implementation & evaluation, DAGMAR, Types of ad appeals, Ad budget – Establishment & allocation, Budgeting approaches

Unit- II:
Media planning, Deciding media objectives – Media strategy, Media mix, Ad reach Vs. Frequency, Evaluation of media, Internet and interactive media, Role of technology in media, Media planning, Role of Technology in media planning, Measuring ad effectiveness, Copy testing

Unit – III:
Introduction to organized retailing, Trends in retail, Types of retail format, Behaviour of organized retail markets, Objectives and function of retailing, retailing in India

Unit- IV:
Retailing in rural India, Geographic spread of Indian retail sector, Organized & unorganized, Types of retail formats, Retailing in services sector, International retailing, Cultural challenges in International retail, Role of MNC's

Unit – V
CRM in retail, Retail pricing strategies – Key drivers, Merchandising management, Store management, visual merchandising – Logistics management, Developing retail CRM programmes, Legal & ethical concerns in organized retail

Suggested Readings:

1. Aaker, David A, Advertising Management 4th edition, PHI
2. Bajaj Tuli Srinivatsava , Retail Management, 3rd Edition, Oxford Publication

Suggested Books

1. Belch, George E and Blech, Michael A, Advertising and promotion, Tata McGraw Hill,
2. Ogilvy David, Ogilvy on Advertising , Longeman, London
3. Chunawalla, S.A., Advertising , Sales and Promotion Management, Himalaya Publishing House.
4. Mohan, Mahendra, Advertising Management, Tata Mcgraw Hill
5. Levy & Weitz, Retailing Management, Tata McGraw Hill
6. Bary Berman & Evans, Retail Management- A Strategic Approach, Pearson education
7. Akileshwar Pathak, Legal Aspects of Business, Tata McGraw Hill
8. Nicholas Alexander, International Retailing, Blackwell Basin Publishers Ltd
9. Dr.Harjith Singh, "Retail Management: A Global Perspective, S.Chand Publications.

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PAPER CODE – DSE 304 - HR
Course: COMPENSATION MANAGEMENT

COURSE OBJECTIVES:

1. To demonstrate various perspectives of compensation management
2. To provide thorough knowledge of planning and administering compensation in different sectors.
3. To understand the nature of executive and international compensation

COURSE OUTCOMES:

Upon completion of this course, the student will be able to

1. Understand the fundamental concepts and theories of compensation.
2. Recognize the importance of compensation strategy.
3. Analyse, integrate, and apply the knowledge of administering wages in different sectors according to the different wage laws.
4. Comprehend the employee benefits and services
5. Appreciate the advancements in managing compensation at global level.

UNIT I: Fundamentals of Compensation

Concept of Compensation; Different perspectives of Compensation – Stakeholders and determinants of compensation; Compensable Factors; Wage Differentials and Types of Compensation – Base pay, Variable Pay, Benefits, Incentives; The concepts of Minimum wage, Fair wage, Living wage, Money and real wages; Wage Theories – Macro and Micro.

UNIT II: Compensation Planning and Employee Contributions

Developing a total Compensation Strategy and Pay Roll Management System – Competitive Advantage –Compensation Structure - Wage and Salary surveys, the wage curve, Pay grades and Rate ranges, Preparing Salary matrix; Compensation management's association with Employee Motivation, Job design and Job evaluation; Performance-related compensation, Individual and team-based compensation.

UNIT III: Wage Administration

Wage Administration, Wage Policy and Wage Legislation in India - The Minimum Wages Act, 1948. The Payment of Wages Act, 1936. The Payment of Bonus Act, 1965. The Equal Remuneration Act, 1976. The Payment of Gratuity Act, 1972. The Employees' Provident Fund and Miscellaneous Provisions Act, 1952; Wage Structure in different Sectors – in Central Government, in State Government, in PSEs and in Nationalised Banks; Wage Boards - structure, scope and functions – Pay Commissions – Compensation Committees; Compensating contingent employees.

UNIT IV: Employee Benefits and Services

Legally required and Discretionary employee benefits; Employee services; Designing, Planning and Administration of benefits program; Totally integrated employee benefits; Fringe Benefits and Voluntary Retirement Schemes.

UNIT V: Executive and International Compensation

Nature and management of Executive compensation; Executive Compensation theories – Agency theory, tournament theory and Social comparison theory. International Compensation - Design and Approaches to International remuneration with special reference to expatriates and the remuneration of third country nationals. Challenges of international compensation

Essential Readings:

1. Joseph J. Martocchio- Strategic Compensation- 3rd Edition
2. Dr. Pradeep Kumar Das, Dr. Madan Chettri and Ms. Roshni Tamang., Compensation Management, Lulu Publication, 2021, 1st Edition.
3. Tapomoy Deb, Compensation Management – Texts and Cases, Excel Books, 2009, 1st Edition.
4. S. K. Bhatia, New Compensation Management in Changing Environment – Managerial Remuneration and Wage & Salary Administration, A Professional Manual, Deep and Deep Publications Pvt. Ltd., 2009, 3rd Edition.
5. R.C. Sharma and Sulabh Sharma, Compensation Management, Sage Publications, 2019,

Suggested Readings:

1. Milkovich, Newman & Gerhart, Compensation, Tata McGraw Hill, 2011, 10th Edition
2. Richard I. Henderson, Compensation Management in a Knowledge-Based World, Pearson Education, 2009, 10th Edition.
3. B D Singh, Compensation and Reward Management, 2008, Excel Books.
4. Dr. Vinay Ojha, "Compensation and Reward Management", 2019, 7th Edition.
5. Luis R. Gomez-Mejia & Steve Werner, Global compensation - Foundations and perspectives Routledge, 2008.
6. Mousmi S. Bhattacharya & Nilanjan Senguupta, Compensation Management, Excel Books, 2009, 1st Edition.
7. Dipak Kumar Bhattacharya Compensation Management- Oxford University Press, 2015

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PAPER CODE – DSE 305 – Tech Elective I
Course: DATABASE MANAGEMENT SYSTEMS

Course Objectives:
1. The objective of the course is to present an introduction to database management systems, with an emphasis on how to organize, maintain and retrieve - efficiently, and effectively - information from a DBMS.
2. To explain basic database concepts, applications, data models, schemas and instances.
3. Describe the basics of SQL and construct queries using SQL.
4. Use the basics of SQL and construct queries using SQL in database creation and interaction.
5. Analyze and Select storage and recovery techniques of database system.

Course Outcomes:
1. Students can apply the basic concepts of Database Systems and Applications
2. Design a commercial relational database system (Oracle, MySQL) by writing SQL using the system.
3. Students can get to facilitate students in Database design and also to familiarize issues of concurrency control and transaction management in DBMS

Unit-1: Database System Architecture and Data Models:
Data Abstraction, Data Independence, Data Definition Language (DDL), Data Manipulation Language (DML), Entity-relationship model, network model, relational and object oriented data models, integrity constraints, data manipulation operations.

Unit-2: Relational Query Languages and Relational Database Design:
Relational algebra, Tuple and domain relational calculus, SQL3, DDL and DML constructs, Open source and Commercial DBMS - MYSQL, ORACLE, DB2, SQL server.

Unit-3: Query Processing and Optimization and Storage Strategies:
Evaluation of relational algebra expressions, Query equivalence, Join strategies, Query optimization algorithms, Indices, B-trees, hashing.

Unit-4: Transaction Processing and Database Security:
Concurrency control, ACID property, Serializability of scheduling, Locking and timestamp based schedulers, Multi-version and optimistic Concurrency Control schemes, Database recovery Authentication, Authorization and access control.

Unit-5: SQL and PL/SQL Concepts:
Basics of SQL, DDL,DML,DCL, structure – creation, alteration, defining constraints – Primary key, foreign key, unique, not null, check, IN operator, aggregate functions, Built-in functions –numeric, date, string functions, set operations, sub-queries, correlated sub-queries, join, Exist, Any, All , view and its types., transaction control commands

Suggested Books:

1. "Database System Concepts", 6th Edition by Abraham Silberschatz, Henry F. Korth, S. Sudarshan, McGraw-Hill.
2. "Fundamentals of Database Systems", 7th Edition by R. Elmasri and S. Navathe, Pearson
3. "An introduction to Database Systems", C J Date, Pearson.
4. "Modern Database Management", Hoffer, Ramesh, Topi, Pearson.
5. "Principles of Database and Knowledge – Base Systems", Vol 1 by J. D. Ullman, Computer Science Press.
6. Dr.Rajiv Chopra, " Database Management System", S.Chand Publicatons

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PAPER CODE – DSE 305 – Tech Elective I
Course: DATABASE MANAGEMENT SYSTEMS - Practical Syllabus

Note: Student is required to submit a document showing the database as per their questions

Experiment 1: Student should decide on a case study and formulate the problem statement.

Experiment 2: Conceptual Designing using ER Diagrams (Identifying entities, attributes, keys and relationships between entities, cardinalities, generalization, specialization etc.)

Experiment 3: Converting ER Model to Relational Model (Represent entities and relationships in Tabular form, Represent attributes as columns, identifying keys) tables created from ER Model.

Experiment 4: Normalization -To remove the redundancies and anomalies in the above relational tables, Normalize up to Third Normal Form

Experiment 5: Creation of Tables using SQL- Overview of using SQL tool, Data types in SQL, Creating Tables (along with Primary and Foreign keys), Altering Tables and Dropping Tables

Experiment 6: Practicing DML commands- Insert, Select, Update, Delete

Experiment 7: Practicing Queries using ANY, ALL, IN, EXISTS, NOT EXISTS, UNION, INTERSECT, CONSTRAINTS

Experiment 8: Practicing Sub queries (Nested, Correlated) and Joins (Inner, Outer and Equip).

Experiment 9: Practice Queries using COUNT, SUM, AVG, MAX, MIN, GROUP BY, HAVING, VIEWS Creation and Dropping.

Experiment 10: Practicing on Triggers - creation of trigger, Insertion using trigger, Deletion using trigger, Updating using trigger

Experiment 11: Procedures- Creation of Stored Procedures, Execution of Procedure, and Modification of Procedure.

Experiment 12: Cursors- Declaring Cursor, Opening Cursor, Fetching the data, closing the cursor

Experiment 13: Creating forms and working with different objects, Graphics and reports.

Experiment 14: To create a table, alter and drop table.

Experiment 15: To perform select, update, insert and delete operation in a table.

Experiment 16: To make use of different clauses viz where, group by, having, order by, union, intersection, set difference.

Experiment 17: To study different constraints. [SQL FUNCTION]

Experiment 18: To use oracle function viz aggregate, numeric, conversion, string function.

Experiment 19: To understand use and working with joins.

Experiment 20: To understand use and working of sub-queries.

PAPER CODE – DSE 305 – Tech Elective II

Course: DATA VISUALIZATION

Course Objectives:

1. To enable students to understand the concepts related to data visualization.
2. To understand the tools and techniques of Data Visualization, Dashboards.
3. A practical understanding of Visualization with Power BI.

Course Outcomes:

1. Enables students to understand importance of Data –Visualization for Decision-Making.
2. Helps students to get practical experience of Data Visualization on Microsoft Power BI.

Unit – I: Introduction to Data and Information Visualization-

Definition and why we visualize data? How we visualize data? A Brief History of Data Visualization, types of data – categorical, ordinal and quantitative data. Visual Analytics Concepts.

Unit – II: Data Visualization Tools and Techniques:

Data Visualization tools – Multidimensional Data Visualization Tools (Column and Bar Graphs, Charts, Line Graphs, Scatter Plots, Pie graph) Hierarchical and Landscape Data Visualization Tools (Maps, Tree Graph).

Unite – III: Data Visualization -Dashboards Basics:

Definition- Performance Dashboard, types of dashboards (Operational, Tactical and Strategic) – Dashboard design-Business Activity Monitoring through Dashboards, Common pitfalls of Dashboard design. Organizing Data for Dashboards

Unit – IV: Introduction to Power BI:

Power Bi Concepts-Parts of Power BI Desktop – Major Building Blocks of Power BI-Data Sets, Shared Data Sets, Reports, Dashboards – Types of Visualizations- Area Charts, Bar and Column Charts, Donut Charts, Gauge Charts, KPIs, Line Charts, Maps, Matrix, Q&A Visual, Tree Maps, Waterfall Charts.

Unit – V: Microsoft Power BI and Other features:

Getting Data Source-Excel as a source, SQL as Source, Web as a source- Creating and Interacting with Dashboard, Sharing Dashboards -Power Query Editor for querying data and Report server for Reports.

Suggested Books:

1. Data Visualization with Excel Dashboards and Reports -Dick Kusleika 2021, Wiley.
2. Business Intelligence, A Managerial Perspective on Analytics- Ramesh Sharada, Dursun Delen, Efraim Turban, Pearson.
3. Effective Data Visualization: Right Chart for Right Data- Stephanie P.H. Evergreen 2019.
4. Visual Data Mining -Techniques and Tools for Data Visualization and Mining- Tom Soukup, Ian Davidson, Wiley Publishing.
5. Performance Dashboards-Measuring, Monitoring and Managing your Business- Wayne W Eckerson, Wiley & Sons, Inc.(Performance Dashboards)
6. Microsoft Power BI Quick Start Guide: Devin Knight, Brian Knight, Mitchell Pearson, Manuel Quintana, Packt Publishing, 2018.
7. Introducing Microsoft Power BI- Alberto Ferrari, Marco Russo-Microsoft Press, 2016, Microsoft Corporation.

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PAPER CODE – DSE 305 – Tech Elective II
Course: DATA VISUALIZATION WITH MICROSOFT POWER BI - Practical Syllabus

1. Getting Started with Power BI-Understanding the parts of Desktop Power BI.
2. Getting Access to Data Sources from Power BI.
3. Exploring Data Sets.
4. Creating simple visualizations -Creating Map Visualizations, Using Combination Charts, Using Table, Modify Colors in Charts, Adding Shapes, Images and Text box.
5. Creation, Sharing of Dashboards
6. Creation, Styling and Sharing of Reports
7. Using Excel Data (integrating excel data with Power BI)

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PAPER CODE – LAB 301

Course: R PROGRAMMING - LAB

R Programming

Introduction to the R Language, Programming Statistical Graphics, Programming With R, Simulation, Computational Linear Algebra, Numerical Optimization

Data Manipulation Techniques Using R Programming

Data In R, Reading And Writing Data, R And Databases, Dates, Factors, Subscribing, Character Manipulation, Data Aggregation

Statistical Applications Using R Programming

Basics, The R Environment, Probability and Distributions, Descriptive Statistics And Graphics, One- And Two-Sample Tests, Regression And Correlation

MBA (TECHNOLOGY MANAGEMENT) DAY AND EVENING SYLLABUS 2023-24

RD 301

RESEARCH DESIGN

A Research Design seminar presentation to be made by the student on the topic chosen for Project Work. A synopsis must be submitted to the college.

The Research Design Seminar will consist of

1. Title of the Project.
2. Statement of the problem
3. Introduction
4. Aims and objectives
5. Hypotheses (if any)
6. Research Methodology
   a. Nature of the study
   b. Scope of the study
   c. Data Collection methods
   d. Tools for analysis
   e. Chapterization (Name of the chapters)

MBA (TECHNOLOGY MANAGEMENT) DAY AND EVENING SYLLABUS 2023-24

PS 301

PROGRESS SEMINAR

Students must present their Progress of Research Seminar showing the extent of work done on the Project chosen. A write up on the Progress Work must be submitted to the college.