Krishna University Machilipatnam

Board of Studies Meeting in BBA Analytics

Date:19-08-2024

Agenda:

- Adaptation of B.B.A. Analytics syllabus for the 3rd and 4th Semesters under single major program for the academic year 2024-2025.

The Board of studies for B.B.A. Analytics Program is conducted on 19-08-2024 at Kakaraparti Bhava Narayana College, Vijayawada with following members:

S. No	Position	Name	Signature with Date
1	Chairman	Sri G Narayana Rao Lecturer in Commerce, Dr. LHR Govt. Degree College, Mylavaram NTR Dist. Cell: 9440490959, Email ID: glatharao.999@gmail.com	
2	Member	Mr. D. Vasu Dept. of BBA Business Analytics, P.B. Siddhartha College of Arts and Science, Vijayawada. Cell: 8885869995, Email: vasudammati1@gmail.com	
3	Member	Mr. Nayapamu Hemanth Kumar Department of MBA, KBN College, Vijayawada, Cell: 9100864160, Email: hemathkumar.nayapamu@kbncollege.ac.in	
4	Member	Ms. Y. Srilakshmi Department of MBA, Nalanda Degree College, Vijayawada. Cell: 9948024529, Email: srilakshmiy@nalanda.edu.in	
5	Industry Expert	Mr. Ravi Teja Tallam Industrialist, General Manager, Trigyn Technologies Ltd., Vijayawada. Cell: 7680822227, Email: ravi.t@trigyn.com & ravitejatallam@yahoo.com	on line
6	University Nominee	Dr. M. Sravani Asst. Professor, Dept. of Business Management, Krishna University, Cell: 9966361117, Email: sravani_me21@yahoo.co.in	on line
7	Student Member -1	B. Venkatesh Student, III BBA-BA, P.B. Siddhartha College of Arts and Science,	
8	Student Member -2	Sk. Mohammad Rafi Student, Nalanda Degree College, Vijayawada.	

Resolutions:

The members of the Board of Studies for B.B.A. Analytics Programme of Krishna university held its meeting at Kakaraparti Bhava Narayana College, Vijayawada and made the following resolutions unanimously:

1. It is resolved to adopt and implement the syllabus for the core subjects in the 3rd and 4th semesters (Major5,6,7,8 and Major9,10,11) as appended here under from the academic year 2024 – 2025.

2. It is resolved to adopt and implement the 4 minor subjects syllabus in the 3rd and 4th Semesters (Minor 2 and Minor 3,4) in (i.e. Digital Marketing, Computer Science, Logistics and Supply chain management and Data Science) as appended here under from the academic year 2024 – 2025.

3. The Board of Studies unanimously resolved to have 30 Marks allocated for the Continuous Internal Assessment in the college and 70 Marks for Semester End Examination to be held by Krishna University, Machilipatnam.

4. The Board of Studies unanimously resolved the Blue-Print/Question paper structure as held down here under. (For Both Major and Minor subjects).

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SEMESTER-IV
Course:9-MARKETING MANAGEMENT

Course Introduction:

Marketing management course enables a student to understand the fundamentals of marketing concept and the role marketing plays in business. This course enables a student to understand the 'Marketing mix' elements and the strategies and principles underlying the modern marketing practices. Students should be able to demonstrate their comprehension of marketing concepts and knowledge by applying those in their written exams, case studies discussions, presentations and projects

Course Objectives:

1. To understand the concepts of marketing management
2. To learn about marketing process for different types of products and services
3. To understand the tools used by marketing managers in decision situations
4. To understand the marketing environment

Course Outcomes:

On completion of this course, the students will be able to

1. Demonstrate strong conceptual knowledge in the functional area of marketing management.
2. Demonstrate effective understanding of relevant functional areas of marketing management and its application.
3. Demonstrate analytical skills in identification and resolution of problems pertaining to marketing management.

Unit – I Concept of marketing – Market, Marketing, Marketer – Selling concept, marketing concept, Social marketing concept – Identifying market segments – Basis for market segmentation for consumer and industrial market and requirement of effective segments.

Unit – II Product and Product lines- Product hierarchy, Product classification, Product mix decisions – Product line decisions- product attribute decisions, decision – Product life cycle, marketing strategies for different stages of the product life cycle.

Unit – III Pricing: Setting the price, pricing process, pricing methods, Adapting price, Geographical pricing, price discounts and allowances, promotional pricing, discriminatory pricing, product mix pricing.

Unit – IV Marketing channels: The importance of marketing channels – Channel Design decisions-channel management decisions-channel conflict-Types, Causes and Managing the conflict.

Unit – V – Promotion mix: Advertisement – Meaning, Objectives – Types of Media – Sales promotion: Objectives and Tools–Public relation-Meaning and tool – personal selling –Process.

Recommended Text Books:

1. Kotler, Philip. Marketing Management, Millennium Edition. Intl ed. US: Prentice Hall,
2. Kotler, P., Keller, K. L., Koshy, A., & Jha, M. (2012), Marketing Management A South Asian Perspective, 14th Edition, Pearson Education, New Delhi.
3. Ramaswamy, V. S., & Namakumari, S. (2017), Marketing Management: Indian Context with Global Perspective, McGraw hill.

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MODEL PAPER

MARKETING MANAGEMENT Max: Marks: 70

SECTION - A

I. Answer any FIVE of the following **5X4=20 Marks**

1. Social marketing concept
2. Selling concept
3. Product line decisions
4. Product hierarchy
5. Geographical pricing
6. Discriminatory pricing
7. Public relation
8. Personal selling

SECTION - B

II. **Answer all the questions.** **5X10=50 Marks**

9. Define Marketing? Explain the nature and scope of marketing.

OR

10. What is meant by Market Segmentation? Discuss the factors determining market Segmentation.

11. Explain the different phases of Product Life Cycle.

OR

12. Discuss the marketing strategies for different stages of the product life cycle.

13. Define Pricing? Explain the process of setting up of price.

OR

14. Explain the different methods of pricing in detail.

15. What factors should companies consider when designing a marketing channel?

OR

16. What is channel conflict, and why is it important for companies to understand and manage it?

17. Define Sales Promotion and explain the tools of sales promotion.

OR

18. Define Personal Selling. Explain the process of Personal Selling.

BLUE PRINT

UNIT	4 Marks	10 Marks
I	2	2
II	2	2
III	2	2
IV	1	2
V	1	2

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SEMESTER-IV
Course:10-DATA MINING & WAREHOUSING

Course Objectives:

- Be familiar with mathematical foundations of data mining tools.
- Understand and implement classical models and algorithms in data warehouses and data Mining.
- Characterize the kinds of patterns that can be discovered by association rule mining
- Classification and clustering.
- Master data mining techniques in various applications like social, scientific and
- Environmental context. Develop skill in selecting the appropriate data mining algorithm for
- Solving practical problems.

Unit I:

Introduction: What Motivated Data Mining? Why Is It Important? So, What Is Data Mining? , Data Mining—On What Kind of Data?: Relational Databases, Data Warehouses, Transactional Databases. Data Mining Functionalities—What Kinds of Patterns Can Be Mined? , Data Preprocessing: Why Pre-process the Data?, Descriptive Data Summarization: Measuring the Central Tendency, Measuring the Dispersion of Data, Data Cleaning, Data Integration and Transformation, Data Reduction

Unit II

Data Warehouse and OLAP Technology: An Overview, What Is a Data Warehouse?, A Multidimensional Data Model, From Tables and Spread sheets to Data Cubes, Stars, Snowflakes, and Fact Constellations: Schemas for Multidimensional databases, Examples for Defining Star, Snowflake and Fact Constellation Schemas, Measures: Their Categorization and Computation, Concept Hierarchies, OLAP Operations in the Multidimensional Data Model. Data Warehouse Architecture: Steps for the Design and Construction of Data Warehouses, A Three-Tier Data Warehouse Architecture, Data Warehouse Back-End Tools and Utilities. Data Warehouse Implementation.

Unit III

Mining Frequent Patterns, Associations, and Correlations: Basic Concepts and a Road Map, Efficient and Scalable Frequent Item set Mining Methods: The Apriori Algorithm: Finding Frequent Itemsets Using Candidate Generation, Generating Association Rules from Frequent Itemsets, Improving the Efficiency of Apriori, Mining Frequent Itemsets without Candidate Generation. Mining various kinds of Association Rules: Mining Multilevel Association Rules, Mining Multidimensional Association Rules from Relational Databases and Data Warehouses.

Unit IV

Classification and Prediction: What Is Classification? What Is Prediction? , Issues Regarding Classification and Prediction, Classification by Decision Tree Induction, Decision Tree Induction, Attribute Selection Measures. Bayesian Classification: Naïve Bayesian Classification, Bayesian Belief Networks, Training Bayesian Belief Networks. Rule-Based Classification: Using IF-THEN Rules for Classification, Rule Extraction from a Decision Tree, Rule Induction Using a Sequential Covering Algorithm

Unit V

Cluster Analysis: What is Cluster Analysis? , Types of Data in Cluster Analysis, A Categorization of Major Clustering Methods, Partitioning Methods. Hierarchical Methods: Agglomerative and Divisive Hierarchical Clustering, BIRCH: Balanced Iterative Reducing and Clustering Using Hierarchies. Density-Based Methods, Outlier Analysis.

References Prescribed Text Book:

1. Data Mining: Concepts and Techniques Second Edition Jiawei Han University of Illinois at Urbana-Champaign Micheline Kamber References:
2. Data Mining by VikramPudi, P. Radha Krishna, Oxford Universal Press
3. Data Warehousing by Reema Thareja, Oxford University Press
4. J. Han, M. Kamber and J. Pei, Data Mining: Concepts and Techniques, 3rd.Edition Morgan Kaufmann, 2011
5. Introduction to data mining –G. K. Gupta, PHI 5. Data mining, Data warehouse & Olap-Berson, Tata McGraw Hill

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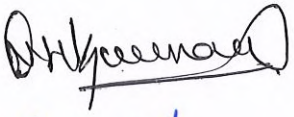
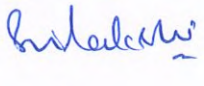
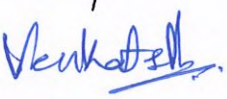
3 
4 
5 
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DATA MINING & WAREHOUSING
MODEL QUESTION PAPER

Max: Marks: 70

SECTION – A

I. Answer any FIVE of the following **5X4=20 Marks**

1. What are the key motivations for data mining?
2. Define data mining. What kind of data can be mined?
3. What is a data warehouse? Explain its importance.
4. Describe the basic concepts of frequent pattern mining.
5. Explain the Apriori algorithm in brief.
6. What is classification? How does it differ from prediction?
7. Define cluster analysis and its importance in data mining.
8. What is density-based clustering methods?

SECTION – B

II. **Answer all the questions.** **5X10=50 Marks**

9. Discuss the different types of data preprocessing methods and their significance in data mining.

OR

10. Explain the various data mining functionalities. What kinds of patterns can be mined?

11. Describe the architecture of a data warehouse and the steps involved in its design and construction.

OR

12. Explain the multidimensional data model and OLAP operations with examples.

13. Discuss the methods for mining frequent itemsets and association rules. Explain how to improve the efficiency of the Apriori algorithm.

OR

14. Explain how to mine multilevel and multidimensional association rules from relational databases and data warehouses.

15. Describe decision tree induction and attribute selection measures. How is it used for classification?

OR

16. Explain Bayesian classification and rule-based classification with suitable examples.

17. Discuss the different types of clustering methods and their applications in data mining.

OR

18. Explain hierarchical clustering methods and density-based methods in detail.

BLUE PRINT

UNIT	4 Marks	10 Marks
I	2	2
II	2	2
III	2	2
IV	1	2
V	1	2

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SEMESTER-IV

Course:11-FINANCIAL MANAGEMENT

Introduction to Course:

The course aimed to introduce the students with the basic fundamentals and tools and techniques of Corporate Financial Management in a changing, challenging and competitive global economic environment.

Course Objectives:

The purpose of the course is manifold:

(1) to give understanding and perspective on financial management function in the company and its relation to domestic and international economy,

(2) to provide illustration on financial management practices and policies, processes, techniques and strategies that are used in the financial management,

(3) the course enables the students to understand the process of evaluating the financial performance of organizations using various tools and techniques.

Course Outcomes:

The course enables the students to learn about different functions of financial management like procuring finance, investment decisions, dividend decisions and liquidity management in the organizations.

Unit-I

Introduction:

Nature, scope and significance of Financial function for the organization's success – Objectives of Corporate Financial Management – profit maximization versus wealth maximization – finance functions – investment, financing and dividend decisions – Financial Planning and Financial Forecasting.

Unit-II

Capital budgeting:

nature of investment decisions: investment evaluation criteria –net present value, internal rate of return, profitability index, payback period, accounting rate of return, NPV and IRR comparison: capital rationing: risk analysis in capital budgeting.

Unit-III

Working capital:

Meaning significance and types of working capital; determinants of working capital; sources of working capital: management of inventory; management of cash, management of account receivables.

Unit-IV

Capital structure Theories:

Traditional and MM hypotheses: determining capital structure in practice; Capital structure planning. Cost of capital:: meaning and significance of cost of capital; calculation of cost of debt, preference capital, equity capital and retained earnings, Operating and financial leverages.

Unit- V

Dividend decisions:

Types of dividend – Dividend models – Determinants of dividend policy – Practical aspects of dividend.

RECOMMENDED BOOKS:

1. Home, James Van Financial Management & Policy
2. Solomon Fare The Theory of Financial Finance.
3. Hunt William and Donaldson Basic Business Finance.
4. Kuchal, S.C Financial Management
5. Bradley Fundamentals of Corporation Finance
6. Pandey, I,M, Financial Management
7. Fred, Weston J. The Scope & Methodology of Finance
8. Weston & Brigham Essentials of Management Finance.

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MODEL PAPER

FINANCIAL MANAGEMENT Max: Marks: 70

SECTION - A

I. Answer any <u>FIVE</u> of the following **5X4=20 Marks**

1. Profit maximization
2. Wealth maximization
3. Payback period
4. Capital rationing
5. Types of working capital
6. Accounts receivables
7. Retained earnings
8. Types of dividend

SECTION - B

II. **Answer all the questions.** **5X10=50 Marks**

9. Define Financial Management? Explain the nature and scope of Financial Management.

OR

10. Explain the objectives of Financial Management..

11. What is Capital Budgeting? Examine its need and importance.

OR

12. The Tamil Nadu fertilizers Ltd. Is considering a proposal for the investment of Rs 5 lakhs on product development which is expected to generate net cash inflows in 6 years as under

Years	Net Cash inflows (Rs in thousands)
1	Nil
2	100
3	160
4	240
5	300
6	600

The following are the present value factor @ 15% per anum.

1	0.87
2	0.76
3	0.66
4	0.57
5	0.50
6	0.43

The company's cost of capital is 15%. Advise the company on desirability or otherwise of accepting the proposal.

13. Define Working Capital Management. What are the determinants of Working capital Management..

OR

14. Explain the concept of management of account receivables.

15. Briefly discuss the theories of Capital Structure.

OR

16. Define the concept of Cost of Capital. State how you would determine the weighted average cost of capital of a firm.

17. Define Dividend policy. Explain the models of dividend policy.

OR

18. Discuss the determinants of dividend policy.

BLUE PRINT

UNIT	4 Marks	10 Marks
I	2	2
II	2	2
III	2	2
IV	1	2
V	1	2

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

MINOR

Subject: Logistics and Supply Chain Management

w.e.f. AY 2023-24

COURSE STRUCTURE

Semester	Course Number	Course Name	No. of Hrs/Week	No. of Credits
II	1	Logistics Concepts and Planning	4	4
III	2	Transportation and Distribution Management	4	4
IV	3	International Trade Documentation Procedures	4	4
IV	4	Procurement, Storage and Warehouse Management	4	4
V	5	Supply Chain Information System	4	4
V	6	Supply Chain Software	4	4

SEMESTER-III

COURSE 2: TRANSPORTATION AND DISTRIBUTIONMANAGEMENT

Theory | Credits: 4 | 4 hrs/week

Course objectives:

- To explore the fundamental concepts of transportation and distribution management
- To gain knowledge in network planning, routing and scheduling and application of IT in transportation and distribution management.

Learning Outcomes: At the end of the course, the students will be able to:

1: Understand distribution techniques and different distribution networks in the supply chain.
2: Develop the various distribution network models
3: Illustrate on the various modes of transportation and the selection decisions.
4: Examine vehicle routing and scheduling.
5: Identify the issues involved in international transportation.

Syllabus:

Unit 1: Distribution:

Role of Distribution in Supply chain, Distribution channels – Functions, resources, Operations inDistribution, Designing Distribution network models - its features - advantages and disadvantages.

Unit 2: Planning:

Distribution network planning, Distribution network decisions, Distribution requirement planning (DRP)

Unit 3: Transportation:

Role of Transportation in Logistics and Business, Principle and Participants-Scope and relationship with other business functions, Modes of Transportation - Mode and Carrier selection, Routing and scheduling.

Unit 4: International Transportation:

International transportation, Carrier, Freight and Fleet management, Transportation management systems-Administration, Rate negotiation, Trends in Transportation.

Unit 5: Information Technology (It):

Usage of IT applications -E commerce – ITMS, Communication systems-Automatic vehicle location systems, Geographic information Systems.

Practical Component:

- Guest lectures and Seminars can be conducted by inviting subject experts.
- Can conduct a work shop on Overview of ERP modules.
- Can conduct class room seminars on future trends in ERP systems, web enabled, wireless technologies.
- Analyze data migration with the related case studies.

Text Books:

1. David Lowe, Lowe's Transport Manager's and Operator's Handbook 2019
2. Janat Shah, Supply Chain Management, Pearson Education India,2nd edition 2016
3. Raghuram and N. Rangaraj, Logistics and Supply chain Management – Leveraging Mathematical and Analytical Models: Cases and Concepts, New Delhi: Macmillan, 2000.

Reference Books:

1. Sunil Chopra, Peter Meindl, Supply Chain Management: Strategy, Planning, and Operation, Pearson, 6th edition 2014.
2. Michael B Stroh, Practical Guide to Transportation and Logistics, Logistics Network, 2006.
3. Alan Rushton, John Oxley, Handbook of Logistics & Distribution Management, KoganPage Publishers, 2006.

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SEMESTER-IV

COURSE 3: INTERNATIONAL TRADE DOCUMENTATION PROCEDURES

Theory | Credits: 4 | 4 hrs/week

Course objectives

- To understand India's contribution in International Trade and Service
- To know the Export and Import Documents used in Global Trade
- To identify future opportunities and challenges of India's Foreign Trade

Learning Outcomes:

1. To identify future opportunities and challenges of India's Foreign Trade.
2. Students gain the knowledge of Export and Import Documents used in Global Trade.
3. To Explore knowledge in starting an export organization and related procedures.
4. Understand Finance and Insurance issues relating to Exports.
5.To gain knowledge in Import Procedures, Customs regulations and import clearance formalities etc,.

Syllabus:

Unit 1: International Trade:

Need and importance of International Trade – Recent Trends in World Trade – Leading players – India's Foreign Trade –Commodity composition and Destination – India's Export and Import position in World merchandise trade and services –Project Exports-Deemed Exports - India's Foreign Trade Policy – India Trade Agreements and tariff benefits

Unit 2: Starting an Export Organization:

Starting an export firm – Selection of an export product – Market selection –Buyer selection – Registration procedure with Sales Tax, Central Exercise and various Boards and councils – Exim code number – Elements of export contract- Global rules as UCP 600 of ICC, INCOTERMS – Terms of payment and Letter of Credit – Payment settlement of exports and Imports

Unit 3: Export Documentation:

Types of documents – Primary Documents –Regulatory Documents - Transport, Negotiation and Insurance documents –E- Databases and Documents

Unit 4: Export Finance:

Sources of Finance - Role of commercial bank, EXIM Bank, ECGC SIDBI and others – Export promotion Schemes – Insurance for Export – Types – export credit insurance – Risk Management – Types of risks – mitigation methods.

Unit 5: Import Procedure and Documentation:

Global sourcing – Types of global procurement – Tender – Negotiation – Contract and others – Customs regulations and import clearance formalities – Types of import licenses -Export Promotion Capital Goods Scheme (EPCG) license- Duty exemption scheme –Import formalities for EOUs and SEZs –CEZ - Import Risk Management.

Practical Component:

- The students can identify international trades and opportunities with in global marketing environments.
- Analyze the prevalent trade environment in your home country and global country.
- Examine export and import documentation procedures.
- Analyze India Trade Agreements and tariff.
- Guest lecturers can be arranged by inviting the experts in the field.
- Assignments, class room seminars and group discussions.

Text Books:

1. Aseem Kumar (2007) "Export and Import Management", Excel Books Publications, New Delhi
2. David Stewart (2008)" International Supply Chain Management", Cengage publications,
3. Ram Singh (2008) "Export Management" Indian Institute of Foreign Trade, New Delhi

Reference Books:

1. P.K.Khurana (2010): Export Management, Galgotia Publication, New Delhi
2. Jeevanandam C(2002) "Foreign Exchange: Practices Concepts and control" Sultan Chand Publications
3. Foreign Trade Policy (2015-2020): Hand book of Export Procedure and Annual of the Ministry of Commerce, Government of India.

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SEMESTER-IV

COURSE 4: PROCUREMENT, STORAGE AND WAREHOUSE MANAGEMENT

Theory Credits: 4 4 hrs/week

Course objectives:

- Provides know-how required to operate an efficient and cost effective warehouse as also the role of inventory in warehouse management.
- It provides guidance on using the latest technology, reducing inventory, people management, location and design and manage uncertainty risks of customer markets
- Define the right structure of the supply network and inventory control and warehouse management system

Learning Outcomes:

1. To understand the procedure of procurement.
2. To provide knowledge on various warehousing operations.
3. To acquire knowledge on storage of materials, recognize the principles of warehouse or stores location and layout whilst applying proper stock flow, rotation and recording.
4. To provide knowledge on warehousing technologies.
5.To explore knowledge on Warehouse safety Material handling, Packaging, Labeling, waste management and fire safety mechanism.

Syllabus:

Unit 1: Procurement:

Objectives of Procurement System, Principles of Procurement, and history of procurement function: from administrative to strategic, value added role, Procurement Cycle, Procurement Planning, Purchasing Mix: Six Rights, Selecting the right supplier, Source of information and process, Supplier appraisal / vendor capability, Bidding process.

Unit 2: Introduction to Warehousing Concepts:

Role of warehouse-types of warehouse- warehouse location- Need for warehousing- Supply chain trends affecting warehouse –Warehouse functions- Role of warehouse manager- Warehouse process: e-commerce warehouse- Receiving and put away- Warehouse process – pick up preparation-Receiving - Pre-receipt -In- handling - Preparation - offloading - Checking - Cross-docking -Quality control - Put-away - Pick preparation - Pick area layout – Picking strategies and equipment -order picking methods - Warehouse processes-Replenishment to dispatch- Value adding services - Indirect activities -Security - Returns processing – Dispatch.

Unit 3: Storage Management system:

Storage Inventory Management –Functions of storage & Inventory - Classification of Inventory-Methods of Controlling Stock Levels- Always Better Control (ABC) Inventory system-Warehouse Management Systems (WMS) - choose a WMS-the process implementation-cloud computing- Warehouse layout-Data collection-space calculation-aisle width- finding additional space.

Unit 4: Storage and Warehousing Information system:
Storage Equipment: storage option - shuttle technology - very high bay warehouse -warehouse handling equipment - vertical and horizontal movement -Automated Storage/ Retrieval System (AS/RS)-specialized equipment-Technical advancements- Resourcing a warehouse- warehouse costs-Types of cost - Return on Investment (ROI) - Charging for shared-user warehouse service - Logistics charging methods Warehousing. Information System (WIS)- Performance management- outsourcing decisions.

Unit 5: Material Handling and Warehouse safety Material handling:
Product movement- concept- costs-product load activity—dispatch activity unload activity-control device-impact of the computer technology automatic identification-issues and trends in product transport—Packaging- Pallet - Stretch wraps - Cartons – Labeling- Health and safety-Risk assessment - Layout and design - Fire safety- Slips and trips – Manual handling - Working at height - Vehicles - Forklift trucks – Warehouse equipment legislation. Warehouse safety check list- Warehouse Environment- Energy production - Sustainable warehouse Management.

Practical Components:

- The students can select one warehouse and observe the method of material handling.
- Analyze the procedure of procurement of material in any selected industry and submit a report.
- Make a visit to one warehouse nearby and examine the inventory management systems.
- Observe different technologies used in warehouse management.
- Class room seminar can be conducted.
- All the students are divided into groups. Each group of students has to present a paper on each operation of warehouse.

Text Books:

1. Gwynne Richards (2014) Warehouse Management: A Complete Guide to Improve Efficiency and Minimizing Cost in the Modern Warehouse. The Chartered Institute of Logistics and Transport, Kegan page limited.
2. David E. Mulchy & Joachim Sidon (2008) A Supply Chain Logistics Program for Warehouse Management, Auerbachian Publications

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References

1. Bowersox, D.J., Closs, D.J., Cooper, M.B., & Bowersox, J.C. (2013). Supply Chain Logistics Management. (4 th ed.), McGraw Hill/Irwin.

2. Arnold, J.R., Chapman, S.N. (2012). The Introduction to Materials Management. (7thed.), Prentice-Hall. Coyle, J.J., Jr. Langley, C.J., Novack, R.A, & Gibson, B.J. (2013).Managing Supply Chains: A Logistics Approach. (9th ed.), McGraw Hill. Edward, F.(2002).

3. World-Class Warehousing and Material Handling. (International ed.), McGraw-Hill Muller, M. (2011). Essentials of Inventory Management. (2 nd ed.), American Management Association.

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ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

MINOR

Subject: Digital Marketing

w.e.f. AY 2023-24

COURSE STRUCTURE

Semester	Course Number	Course Name	No. of Hrs/Week	No. of Credits
Semester-II	1	Fundamentals of Digital Marketing	4	4
Semester-III	2	Social Media Marketing	4	4
Semester-IV	3	Affiliate Marketing	4	4
	4	Search Engine Optimisation	4	4
Semester-V	5	E-Mail Marketing	4	4
	6	Mobile Marketing	4	4

SEMESTER-III

COURSE 2: SOCIAL MEDIA MARKETING

Theory | Credits: 4 | 4 hrs/week

COURSE OBJECTIVE:

Introduce current and core practices of Digital and Social Media Marketing that will allow learnersto analyze, plan, execute and evaluate a digital marketing strategy.

LEARNING OUTCOMES:

Understand the Social Media space and tools • Analyze the effectiveness of your company's and competitors' social media programs. Design social media programs that directly support business and marketing goals. Channels and programs. Implement a process for planning social media marketing activities.

UNIT I:

Introduction to digital and social media marketing-meaning-definition-types of social media websites-mobile apps-email- social media-various social media websites; Blogging-types, platforms.

UNIT II:

Social Media Management-Social Media and Target Audience-Sharing content on Social Media-Book marking websites; DO's and Don'ts of Social media.

UNIT III:

Social Media Strategy-Goals ,Planning, Strategies, Monitoring Analysis; Tips of Social Media Marketing-Customization; Social Media Optimization; Social Media Promotion-paid advertising – other methods-Social Media ROI.

UNIT IV:

Social Media for Marketing -Facebook, LinkedIn, Twitter, YouTube. Establishing Relationship with customers Social Media.

UNIT V:

Social Analytics- Automation and Social Media- Social Media and other types of Marketing, Managing Tools of Social Media.

TEXT BOOKS:

1. Digital Marketing: Seema Gupta-Mcgraw hill
2. Social Media Marketing: Tracy L. Tuten (2021).
3. Social Media Marketing: A Strategic Approach. Debra Zahay, Mary Lou Roberts
4. ChatGPT & Social Media Marketing. Ryan Turner.

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SEMESTER-IV

COURSE 3: AFFILIATE MARKETING

Theory | Credits: 4 | 4 hrs/week

Course Objective:

Affiliate Marketing has been designed to give you the skills, knowledge, insights and tools that will immediately help to improve your organizations marketing goals. Affiliate Marketing helps to Promote Your Own Business In An Effective Manner.

Learning Outcomes:

•Affiliate marketing helps in building performance-base. It helps broaden your audience.
•Affiliates can boost your reputation. It's cost effective. Affiliates can rapidly scale your traffic and sales

UNIT I: Introduction to affiliate marketing how affiliate marketing works-affiliate program payment methods- cookies, cookie stuffing and affiliates-ad sense- email spam, adware, trademark bidding-tiered affiliate marketing cross selling and up selling-multi tier marketing and commissions.

UNIT II: Enrolling in an affiliate marketing program-signing up as an affiliate-logging into your affiliate account-integrating affiliate links into your websites-monitoring affiliate performance and tracking sales - setting up an affiliate website. Promoting your affiliate program-performing market analysis and market research-market strategies establishment-affiliate marketing and organic search optimization.

UNIT III: Types of Affiliate Marketing Search affiliates-Price comparison service websiteLoyalty websites-Cause related and coupon websites Content and niche market websitePersonal weblogs and website syndicates-Email marketing and shopping directoriesRegistration or co-registration affiliates-File sharing affiliates.

Unit IV: Strategies to improve affiliate marketing - affiliate links and how to deal with them-promoting your affiliate program-overcoming the challenges of affiliate marketing, performing market analysis and market research-market strategies establishment-affiliate marketing and organic search optimization.

Unit V: Setting Up affiliate Marketing Program - How to attract affiliates-Hosting and implementing an affiliate program-Growing your Affiliate Numbers. Setting up an affiliate program-Affiliate network service agreement-Data feeds and customer returns. Merchants/publisher management-Affiliate program promotion and content pages, Screen Affiliates-Combating affiliate fraud

Text Books

1) Bruce C. Brown: The Complete Guide to Affiliate Marketing on the Web: How to Use and Profit from Affiliate Marketing Programs. (2008)
2) Eugenia Prussakov: Affiliate Program Management: An Hour a Day (2011).
3) Affiliate Marketing 2023 - Step by Step Michael Gordon Cohen (2023).
4) Evergreen Affiliate Marketing: Master the Mindset, Learn the Strategies and Apply the Systems Used by the World's Wealthiest Affiliate Marketers. Nate McCallister, Iram Allam, et al.(2021)

SEMESTER-IV

COURSE 4: SEARCH ENGINE OPTIMISATION

Theory | Credits: 4 | 4 hrs/week

Course Objective: To make reports and help you measure your site's Search traffic and performance, fix issues, and make your site shine in Google Search results

Learning Outcomes:

1. Submit site maps and individual URLs for crawling.
2. Reviewindexcoverageto makesurethat Google has thefreshest viewof website..

UNIT-I: Overview: Performance: total clicks, total impression, avg. CTR, avg position - URL Inspection: URL on is Google – view crawled page–view source, learn more option

UNIT-II: Index: Coverage: valid, excluded, valid with warnings, submitted and indexed, discovery, refrreing page ,pages with errors, valid pages -Sitemaps-add new sitemap,submittedsitemaps,type,submitted,lastread,status,discoveredURLs.

UNIT-III: Enhancements:--Core web vitals -Mobile usability-AMP- bread crumbs-FAQ-How to-Logos- Riview snippets-Site Links Searchbox

UNIT-IV: Security & Manual Actions: Manual actions-How do I remove Manual Actions inSearch Engine Optimisation-security issues and its report-

UNIT-V: Legacy Tools and Reports: Links-settings-submit feedback- about new version-International targeting-messages-URL parameters-web Tools

References:

TheUltimateGuidetoGoogleSearchConsole2021byAjaFrom@ajavuu,

https://blog.hubspot.com/marketing/google - search-console

2.Google searchconsole:Knowledge panel by Sajith Thomo sand Evin Jaison 2016

3.Google SearchConsole:ACompleteGuidebyGerardusBlokdyk2018,Bookshoutpublis hers

Activities

Written Assignments

•OralPresentation

•QuizProgramme

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ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

MINOR

Subject: Data Science

w.e.f. AY 2023-24

COURSE STRUCTURE

Year	Semester	Course	Title of the Course	No. of Hrs /Week	No. of Credits
II	II	1	Introduction to Data Science and R Programming	3	3
			Introduction to Data Science and R Programming Practical Course	2	1
	III	2	Python Programming for Data Analysis	3	3
			Python Programming for Data Analysis Practical Course	2	1
	IV	3	Data visualization using Tableau	3	3
			Data visualization using Tableau Practical Course	2	1
		4	Data visualization using python	3	3
			Data visualization using python Practical Course	2	1
III	V	5	Supervised Machine Learning with Python	3	3
			Supervised Machine Learning with Python Practical Course	2	1
		6	Unsupervised Machine Learning with Python	3	3
			Unsupervised Machine Learning with Python Practical Course	2	1

SEMESTER-III

COURSE 2: PYTHON PROGRAMMING FOR DATA ANALYSIS

Theory | Credits: 3 | 3 hrs/week

Aim and objectives of Course:

- To be able to Program in Python
- To know and understand the data Analysis phases
- To know the usage of all libraries

Learning outcomes of Course:

- Understands and learn all basic concepts of
- Python Program Data Analysis methods in Python
- Get used with Python Programming environments

UNIT I:

What is Data Analysis? Differences between Data Analysis and Analytics, What is Python, Why Python for Data Analysis? What is Library, Essential Python Libraries. Python Language basics, I Python and Jupyter Notebook. Python Language Basics.

UNIT II:

Built-in Data Structures, Functions, Files and Operating System. **NumPy Basics:** Arrays and Vectorized Computation, The Numpy ndarray, Universal Functions, Array-Oriented Programming with Arrays, File Input and Output with Arrays, Linear Algebra, Pseudorandom Number Generation.

UNIT III:

Getting Started with Pandas: Introduction to Pandas Data Structures, Essential Functionality, Summarizing and Computing Descriptive Statistics

Data Loading, Storage and File Formats: Reading and Writing Data in TextFormat, Binary Data Formats, Interacting with Web APIs, Interacting with Databases.

UNIT IV:

Data Cleaning and Preparation: Handling Missing Data, Data Transformation,String Manipulation.

Data Wrangling: Join, Combine and Reshape: Hierarchical Indexing, Combiningand Merging Datasets, Reshaping and Pivoting.

UNIT V:

Introduction to Modeling Libraries in Python: Interfacing between pandas andModel code, Creating model descriptions with Patsy, Introduction to stats models.

Plotting and Visualization: A brief matplotlib API Primer, Plotting with Pandas and Seaborn, Other Python visualization tools.

TEXT BOOKS:

1. Wes McKinney "Python for Data Analysis" O'reilly Publications Second edition
2. Charles R Suverance "Python for Everybody" Exploring data using Python 3

REFERENCE BOOKS:

1. John Zelle Michael Smith Python Programming, second edition 2010

Co-curricular Activities

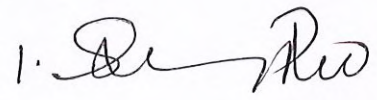
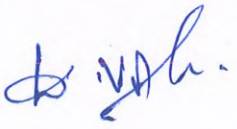
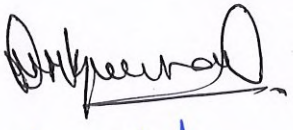
Take up any application which involves the python coding. Example Case studies/Simulators: (https://knightlab.northwestern.edu/2014/06/05/five-mini-programming-projects-for-the-python-beginner/)

- Dice Rolling Simulator
- Guess the number
- Text based adventure game
- Hangman

Continuous assessment:

Let the students be tested in the following questions from each unit

1. What is Data Analysis. List out the differences between data analysis and dataanalytics
2. What is Python? Explain Python basics
3. Explain NumPy Basics
4. What is Data Loading. Explain Pandas Data Structures
5. What is Data Cleaning. Explain different phases in it
6. Explain Plotting and Visualization in Python

1. 
2 
3 
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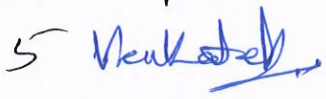
5 
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SEMESTER-III

COURSE 2: PYTHON PROGRAMMING FOR DATA ANALYSIS

Practical | Credits: 1 | 2 hrs/week

1. Use matplotlib and plot an inline in Jupyter.
2. Implement commands of Python Language basics
3. Create Tuples, Lists and illustrate slicing conventions.
4. Create built-in sequence functions.
5. Clean the elements and transform them by using List, Set and DictComprehensions.
6. Create a functional pattern to modify the strings in a high level.
7. Write a Python Program to cast a string to a floating-point number but fails with Value Error on improper inputs using Errors and Exception handling.
8. Create an n array object and use operations on it.
9. Use arithmetic operations on Numpy Arrays
10. Using Numpy array perform Indexing and Slicing Boolean Indexing,FancyIndexing operations
11. Create an image plot from a two-dimensional array of function values.
12. Implement some basic array statistical methods (sum, mean, std, var, min,max, argmin, argmax, cumsum andcumprod) and sorting with sortmethod.
13. Implement numpy.random functions.
14. Plot the first 100 values on the values obtained from random walks.
15. Create a data frame using pandas and retrieve the rows and columns in itbyperforming some indexing options and transpose it.
16. Implement the methods of descriptive and summary statistics
17. Load and write the data from and to different file formats including WebAPIs.
18. Implement the data Cleaning and Filtering methods(Use NAhandlingmethods, fillna function arguments)
19. Transform the data using function or mapping
20. Rearrange the data using unstack method of hierarchical Indexing
21. Implement the methods that summarize the statistics by levels.
22. Use different Join types with how argument and merge data with keys andmultiple keys.

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SEMESTER-IV

COURSE 3: DATA VISUALIZATION

Theory | Credits: 3 | 3 hrs/week

Aim and objectives of Course:

- To know the importance of data Visualization in the world of DataAnalytics and Prediction
- To know the important libraries in Tableau
- To get equipped with Tableau Tool

Learning outcomes of Course:

- Students should be able to visualize data through seven stages of data analysisprocess
- Should be able to do explanatory and hybrid types of data visualization
- Should be able to understand various stages of visualizing data

UNIT I:

Creating Visual Analytics with tableau desktop, connecting to your data-How to Connect to your data, What are generated Values? Knowing when to use a direct connection, Joining tables with tableau, blending different data sources in a single worksheet.

UNIT II:

Building your first Visualization- How Me works- Chart types, Text Tables, Maps, bar chart, Line charts, Area Fill charts and Pie charts, scatter plot, Bullet graph, Gantt charts, Sorting data in tableau, Enhancing Views with filters, sets groups and hierarchies.

UNIT III:

Creating calculations to enhance your data- What is aggregation, what arecalculated values and table calculations, Using the calculation dialog box to create,Building formulas using table calculations, Using table calculation functions **UNIT IV:**

Using maps to improve insights-Create a Standard Map View, Plotting your ownlocations on a map, Replace Tableau's standard maps, Shaping data to enable Point-to-Point mapping.

UNIT V:

Developing an Adhoc analysis environment- generating new data with forecasts, providing self evidence adhoc analysis with parameters, Editing views in tableau Server.

TEXT BOOKS:

1. Tableau your data-Daniel G. Murray and the Inter works BI team, Wiley Publications
2. Tableau Data Visualizaton Cookbook, AshutoshNandeshwar, PACKT publishing.
3. Storytelling with Data: A Data Visualization Guide for BusinessProfessionals by Cole NussbaumerKnaflic (2014)
4. ggplot2: Elegant Graphics for Data Analysis by Hadley Wickham (2009)

REFERENCE BOOKS:

1. Designing Data Visualizations: Representing Informational Relationshipsby Noah Iliinsky, Julie Steele (2011)
2. Alexandru C. Telea – "Data Visualization principles and practice" SecondEdition, CRC Publications
3. Joshua N. Millign–" Learning Tableau -2019" – Third Edition- Packt publications

Student Activity

Create a sample super store data set and visualize the following requirements

General Requirements

1. Dashboard size is 1250px wide by 750px tall.
2. Prefer using containers
3. The dashboard has a total of 5 containers (no more, no less)
4. The Filter Pane
5. Each filter has some padding

1. Charts Pane Requirement

1. All 3 charts must be in one vertical container
2. Do proper formatting
3. Each chart has some padding between them and other objects
4. Each chart has a grey border, slightly darker than the Pane background color.
5. The Pane under the Title has a border

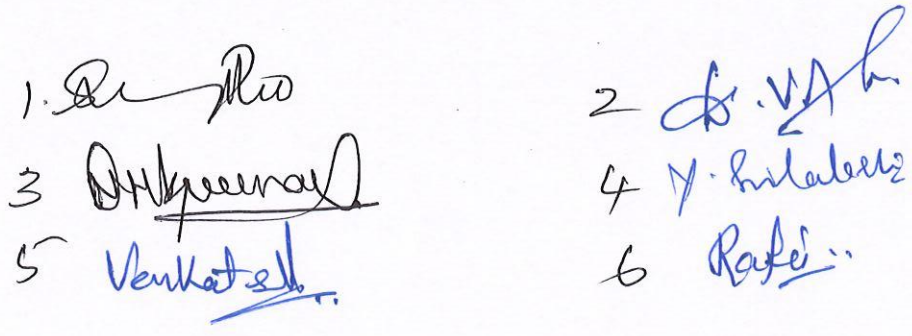
2. The second graph should have the title as "Sales" and should showmonthly sales per year. Make sure it is an area chart with proper formatting.

3. The third graph should the title as "Profit" and should show monthlyprofit per year. Make sure it is an area chart with proper formatting.

Continuous assessment:

Let the students be tested in the following questions from each unit

1. What are generated values? Join tables using Tableau
2. Create any visualization charts using Chart types, Text Tables, Maps, barchart, Line charts, Area Fill charts and Pie charts, scatter plot etc.,
3. What is aggregation, what are calculated values and table calculations?
4. Using Standard Map View, Plot your own locations on a map
5. Develop an Adhoc analysis environment.



SEMESTER-IV

COURSE 3: DATA VISUALIZATION

Practical | Credits: 1 | 2 hrs/week

1. Connect to data Sources
2. Create Univariate Charts
3. Create Bivariate and Multivariate charts
4. Create Maps
5. Calculate user-defined fields
6. Create a workbook data extract
7. Save a workbook on a Tableau server and web
8. Export images, data.

SEMESTER-IV

COURSE 4: DATA VISUALIZATION USING PYTHON

Theory Credits: 3 3 hrs/week

Course Objective :

This course introduces students to data analysis and visualization inthe field of exploratory data science using Python.

Course Learning Outcomes : On successful completion of thecourse, the students will be able to

1. Use data analysis tools in the pandas library.
2. Load, clean, transform, merge and reshape data.
3. Create informative visualization and summarize data sets.
4. Analyze and manipulate time series data.
5. Solve real world data analysis problems.

Unit 1

Introduction: Introduction to Data Science, Exploratory Data Analysisand Data Science Process. Motivation for using Python for Data Analysis, Introduction of Python Jupyter Notebook. Essential Python Libraries: NumPy, pandas, matplotlib, SciPy, scikit-learn, statsmodels, seaborn.

Unit 2

Getting Started with Pandas: Arrays and vectorized conputation, Introduction to pandas Data Structures, Essential Functionality, Summarizing and Computing Descriptive Statistics. Data Loading, Storage and File Formats. Reading and Writing Data in Text Format, Web Scraping, Binary Data Formats, Interacting with Web APIs,

Interacting with Databases Data Cleaning and Preparation. HandlingMissing Data, Data Transformation, String ManipulationUnit 3

Data Wrangling: Hierarchical Indexing, Combining and Merging Data Sets Reshaping and Pivoting. Data Visualization matplotlib: Basics of matplotlib, plotting with pandas and seaborn, other pythonvisualization tools. Advanced categorical and numeric plots.

Unit 4

Data Aggregation and Group operations: Group by Mechanics, Dataaggregation, General split-apply-combine, Pivot tables and cross tabulation

Time Series Data Analysis: Date and Time Data Types and Tools,Time series Basics, date Ranges, Frequencies and Shifting, Time Zone Handling, Periods and Periods Arithmetic, Resampling and Frequency conversion, Moving Window Functions.

Unit 5 Advanced Pandas:

Categorical Data: cleaning data and visualization techniques, Advanced GroupBy methods ,Use Techniques for Method Chaining.**Textbook:**

1. McKinney, W.(2017). Python for Data Analysis: Data Wranglingwith Pandas, NumPy and IPython. 2nd edition. O'Reilly Media.

Reference:

1. O'Neil, C., & Schutt, R. (2013). Doing Data Science: Straight Talkfrom the Frontline O'Reilly Media.

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SEMESTER-IV

COURSE 4: DATA VISUALIZATION USING PYTHON

Practical | Credits: 1 | 2 hrs/week

1. Practicals based on NumPy ndarray
2. Practicals based on Pandas Data Structures
3. Practicals based on Data Loading, Storage and File Formats
4. Practicals based on Interacting with Web APIs
5. Practicals based on Data Cleaning and Preparation
6. Practicals based on Data Wrangling
7. Practicals based on Data Visualization using matplotlib
8. Practicals based on Data Aggregation
9. Practicals based on Time Series Data Analysis

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Andhra Pradesh State Council of Higher Education

Computer Science:MINOR

w.e.f 2023-24 onwards

COURSE STRUCTURE

Year	Semester	Course	Title	No. Hrs./ Week	No. of Credits
I	II	1	Problem Solving using C - (T)	3	3
			Problem Solving using C- (P)	2	
II	III	2	Object Oriented Programming using Java- (T)	3	3
			Object Oriented Programming using Java- (P)	2	1
	IV	3	Database Management System	3	3
			Database Management System	2	1
		4	Object Oriented Software Engineering	3	3
			Object Oriented Software Engineering	2	1
		5	Web Applications Development using PHP & MYSQL	3	3
			Web Applications Development using PHP & MYSQL	2	1
		6	Internet of Things	3	3
			Internet of Things	2	1

Computer Science Minpr: III Semester
Course 2: Object Oriented Programming using Java

Credits -3

Course Objectives

To introduce the fundamental concepts of Object-Oriented programming and to design & implement object-oriented programming concepts in Java.

Course Outcomes

Upon successful completion of the course, a student will be able to:

1. Understand the basic concepts of Object-Oriented Programming and Java Program Constructs
2. Implement classes and objects and analyze Inheritance and Dynamic Method Dispatch
3. Demonstrate various classes in different packages and can design own packages
4. Manage Exceptions and Apply Threads
5. Create GUI screens along with event handling

UNIT-I

OOPs Concepts and Java Programming: Introduction to Object-Oriented concepts, procedural and object-oriented programming paradigm

Java programming: An Overview of Java, Java Environment, Data types, Variables, constants, scope and life time of variables, operators, type conversion and casting, Accepting Input from the Keyboard, Reading Input with Java.util.Scanner Class, Displaying Output with System.out.printf(), Displaying Formatted Output with String.format(), Control Statements

UNIT-II

Arrays, Command Line Arguments, Strings-String Class Methods

Classes & Objects: Creating Classes, declaring objects, Methods, parameter passing, static fields and methods, Constructors, and 'this' keyword, overloading methods and access

Inheritance: Inheritance hierarchies, super and subclasses, member access rules, 'super' keyword, preventing inheritance: final classes and methods, the object class and its methods;

Polymorphism: Dynamic binding, method overriding, abstract classes and methods;

UNIT-III

Interface: Interfaces VS Abstract classes, defining an interface, implement interfaces, accessing implementations through interface references, extending interface;

Packages: Defining, creating and accessing a package, understanding CLASSPATH, importing packages.

Exception Handling: Benefits of exception handling, the classification of exceptions, exception hierarchy, checked exceptions and unchecked exceptions, usage of try, catch, throw, throws and finally, rethrowing exceptions, exception specification, built in exceptions, creating own exception sub classes.

NIT-IV

Multithreading: Differences between multiple processes and multiple threads, thread states, thread life cycle, creating threads, interrupting threads, thread priorities, synchronizing threads, inter thread communication.

Stream based I/O (java.io) – The Stream classes-Byte streams and Character streams, Reading console Input and Writing Console Output, File class, Reading and writing Files, The Console class, Serialization

UNIT-V

GUI Programming with Swing- Introduction, MVC architecture, components, containers. Understanding Layout Managers - Flow Layout, Border Layout, Grid Layout, Card Layout, Grid Bag Layout.

Event Handling- The Delegation event model- Events, Event sources, Event Listeners, Event classes, Handling mouse and keyboard events, Adapter classes, Inner classes, Anonymous Inner classes.

Text Books:

1. Java The complete reference, 9th edition, Herbert Schildt, McGraw Hill.
2. Understanding Object-Oriented Programming with Java, updated edition, T. Budd, Pearson Education.

Reference Books

1. Cay S. Horstmann, "Core Java Fundamentals", Volume 1, 11 th Edition, Prentice Hall, 2018.
2. Paul Deitel, Harvey Deitel, "Java SE 8 for programmers", 3rd Edition, Pearson, 2015.
3. S. Malhotra, S. Chudhary, Programming in Java, 2nd edition, Oxford Univ. Press.

SUGGESTED CO-CURRICULAR ACTIVITIES & EVALUATION METHODS:

Unit 1: Activity: Quiz on Object-Oriented Programming Concepts and Java Constructs
Evaluation Method: Quiz Performance and Knowledge Retention

Unit 2: Activity: Object-Oriented Programming Assignment: Class Implementation
Evaluation Method: Assignment Completion and Correctness

Unit 3: Activity: Hands-on Lab Activity: Creating and Using Custom Java Packages
Evaluation Method: Lab Performance and Correctness of Code Implementation

Unit 4: Activity: Case Study Discussion on where multi-threading is crucial
Evaluation Method: Critical thinking, problem-solving, and presentation skills.

Unit 5: Activity: GUI design contest using Java Swings

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Evaluation Method: GUI design, Visual appearance and user friendliness, usability, and adherence to event handling principles.

Computer Science Minor: III Semester

Course 2: Object Oriented Programming using Java Lab

Credits -1

List of Experiments

1. Write a Java program to print Fibonacci series using for loop.
2. Write a Java program to calculate multiplication of 2 matrices.
3. Create a class Rectangle. The class has attributes length and width. It should have methods that calculate the perimeter and area of the rectangle. It should have read Attributes method to read length and width from user.
4. Write a Java program that implements method overloading.
5. Write a Java program for sorting a given list of names in ascending order.
6. Write a Java program that displays the number of characters, lines and words in a text file.
7. Write a Java program to implement various types of inheritance
   i. Single ii. Multi-Level iii. Hierarchical iv. Hybrid
8. Write a java program to implement runtime polymorphism.
9. Write a Java program which accepts withdraw amount from the user and throws an exception "In Sufficient Funds" when withdraw amount more than available amount.
10. Write a Java program to create three threads and that displays "good morning", for every one second, "hello" for every 2 seconds and "welcome" for every 3 seconds by using extending Thread class.
11. Write a Java program that creates three threads. First thread displays "OOPS", the second thread displays "Through" and the third thread Displays "JAVA" by using Runnable interface.
12. Implement a Java program for handling mouse events when the mouse entered, exited, clicked, pressed, released, dragged and moved in the client area.
13. Implement a Java program for handling key events when the key board is pressed, released, typed.

14. Write a Java swing program that reads two numbers from two separate text fields and display sum of two numbers in third text field when button "add" is pressed.
15. Write a Java program to design student registration form using Swing Controls. The form which having the following fields and button SAVE Form Fields are: Name, RNO, Mailid, Gender, Branch, Address.

Computer Science Minor: IV Semester
Course 3: Database Management Systems
Credits -**3**

Learning Objectives:

To familiarize with concepts of database design

Learning Outcomes: On successful completion of the course, students will be able to

1. Differentiate between database systems and file based systems
2. Design a database using ER model
3. Use relational model in database design
4. Use SQL commands for creating and manipulating data stored in databases.
5. Write PL/SQL programs to work with databases.

UNIT- I

Overview of Database Management System: Introduction to data, information, database, database management systems, file-based system, Drawbacks of file-Based System, database approach, Classification of Database Management Systems, advantages of database approach, Various Data Models, Components of Database Management System, three schema architecture of data base, costs and risks of database approach.

UNIT - II

Entity-Relationship Model: Introduction, the building blocks of an entity relationship diagram, classification of entity sets, attribute classification, relationship degree, relationship classification, reducing ER diagram to tables, enhanced entity-relationship model (EER model), generalization and specialization, **IS A** relationship and attribute inheritance, multiple inheritance, constraints on specialization and generalization, advantages of ER modeling.

UNIT - III

Relational Model: Introduction, CODD Rules, relational data model, concept of key, relational integrity, relational algebra, relational algebra operations, advantages of relational algebra, limitations of relational algebra, relational calculus, tuple relational calculus, domain relational Calculus (DRC), Functional dependencies and normal forms upto 3rd normal form.

UNIT - IV

Structured Query Language: Introduction, Commands in SQL, Data Types in SQL, Data Definition Language, Selection Operation, Projection Operation, Aggregate functions, Data Manipulation Language, Table Modification Commands, Join Operation, Set Operations, View, Sub Query.

UNIT - V

PL/SQL: Introduction, Shortcomings of SQL, Structure of PL/SQL, PL/SQL Language Elements, Data Types, Operators Precedence, Control Structure, Steps to Create a PL/SQL, Program, Iterative Control, Procedure, Function, Database Triggers, Types of Triggers.

Text Books:

1. Operating System Principles by Abraham Silberschatz, Peter Baer Galvin and GregGagne (7th Edition) Wiley India Edition.

Reference Books

1. Database Management Systems by Raghu Ramakrishnan, McGrawhill
2. Principles of Database Systems by J. D. Ullman
3. Fundamentals of Database Systems by R. Elmasri and S. Navathe
4. SQL: The Ultimate Beginners Guide by Steve Tale.

SUGGESTED CO-CURRICULAR ACTIVITIES & EVALUATION METHODS:

Unit 1: Activity: Seminar Presentation on Database Management Systems

Evaluation Method: Depth of research, clarity of explanations, ability to address questions and engage the audience.

Unit 2: Activity: Case Study on EER model

Evaluation Method: Identification of inheritance relationships, effective use of generalization and specialization, and adherence to constraints.

Unit 3: Activity: Exercise on Normalization: Assign students a set of unnormalized tables and have them normalize the tables to third normal form

Evaluation Method: Normalized table designs, identification of functional dependencies, adherence to normalization rules, and elimination of anomalies.

Unit 4: Activity: Competition on SQL Query Writing

Evaluation Method: Query correctness, efficiency, proper use of SQL commands, ability to handle complex scenarios, and creativity in query formulation.

Unit 5: Activity: Peer Review of PL/SQL code

Evaluation Method: Peer evaluation of code quality, adherence to coding standards, proper use of language elements, and logic.

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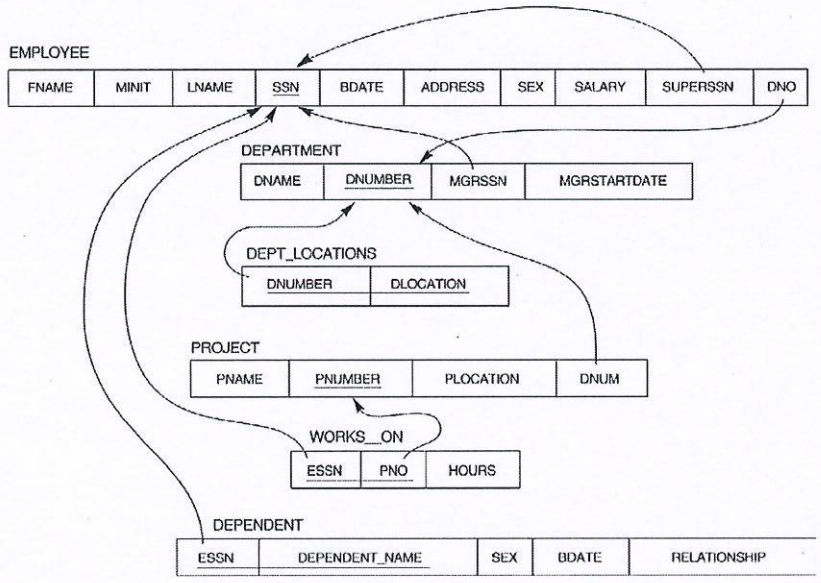
Computer Science Minor: IV Semester
Course 3: Database Management Systems
Credits -1

List of Experiments:

1. Draw ER diagram for hospital administration
2. Creation of college database and establish relationships between tables
3. Relational database schema of a company is given in the following figure.

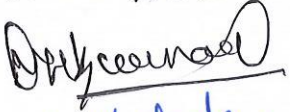
Relational Database Schema - COMPANY



Questions to be performed on above schema

1. Create above tables with relevant Primary Key, Foreign Key and other constraints
2. Populate the tables with data
3. Display all the details of all employees working in the company.
4. Display ssn, lname, fname, address of employees who work in department no 7.
5. Retrieve the Birthdate and Address of the employee whose name is 'Franklin T. Wong'
6. Retrieve the name and salary of every employee
7. Retrieve all distinct salary values
8. Retrieve all employee names whose address is in 'Bellaire'
9. Retrieve all employees who were born during the 1950s
10. Retrieve all employees in department 5 whose salary is between 50,000 and 60,000(inclusive)

11. Retrieve the names of all employees who do not have supervisors
12. Retrieve SSN and department name for all employees
13. Retrieve the name and address of all employees who work for the 'Research' department
14. For every project located in 'Stafford', list the project number, the controlling department number, and the department manager's last name, address, and birth date.
15. For each employee, retrieve the employee's name, and the name of his or her immediate supervisor.
16. Retrieve all combinations of Employee Name and Department Name
17. Make a list of all project numbers for projects that involve an employee whose last name is 'Narayan' either as a worker or as a manager of the department that controls the project.
18. Increase the salary of all employees working on the 'Product X' project by 15%. Retrieve employee name and increased salary of these employees.
19. Retrieve a list of employees and the project name each works in, ordered by the employee's department, and within each department ordered alphabetically by employee first name.
20. Select the names of employees whose salary does not match with salary of any employee in department 10.
21. Retrieve the employee numbers of all employees who work on project located in Bellaire, Houston, or Stafford.
22. Find the sum of the salaries of all employees, the maximum salary, the minimum salary, and the average salary. Display with proper headings.
23. Find the sum of the salaries and number of employees of all employees of the 'Marketing' department, as well as the maximum salary, the minimum salary, and the average salary in this department.
24. Select the names of employees whose salary is greater than the average salary of all employees in department 10.
25. Delete all dependents of employee whose ssn is '123456789'.
26. Perform a query using alter command to drop/add field and a constraint in Employee table.

1. 
2. 
3. 
4. 
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Computer Science Minor: IV Semester

Course 4: Object Oriented Software Engineering

Credits -3

Course Objective:

To introduce Object-oriented software engineering (OOSE) - which is a popular technical approach to analyzing, designing an application, system, or business by applying the object- oriented paradigm and visual modeling.

Course Outcomes:

Upon successful completion of the course, a student will be able to:

1. Understand and apply the fundamental principles of Object-Oriented Programming (OOP) concepts and Unified Modeling Language (UML) basics, in the development of software solutions.
2. Analyze and specify software requirements, develop use cases and scenarios, apply object-oriented analysis and design (OOAD) principles
3. Familiar with the concept of test-driven development (TDD) and its practicalimplementation
4. Analyze and Evaluate Software Maintenance and Evolution Strategies
5. Apply Advanced Object-Oriented Software Engineering Concepts

UNIT-I

Introduction to Object-Oriented Programming: Overview of software engineering, Introduction to Object-Oriented Programming (OOP) concepts (classes, objects, inheritance, polymorphism), Unified Modelling Language (UML) basics, Introduction to software development process and software development life cycle (SDLC).

UNIT-II

Requirements Analysis and Design: Requirements analysis and specification, Use cases and scenarios, Object-oriented analysis and design (OOAD), Design patterns, UML modelling techniques (class diagrams, sequence diagrams, state machine diagrams, activity diagrams)

UNIT-III

Software Construction and Testing: Software construction basics, Object-oriented design principles, Object-oriented programming languages (Java, C++, Python), Software testing basics (unit testing, integration testing, system testing), Test-driven development (TDD)

UNIT-IV

Software Maintenance and Evolution: Software maintenance basics, refactoring techniques Software version control, Code review and inspection, Software evolution and reengineering

UNIT-V

Advanced Topics in Object-Oriented Software Engineering: Model-driven engineering (MDE), Aspect-oriented programming (AOP), Component-based software engineering (CBSE), Service-oriented architecture (SOA), Agile software development and Scrum methodologies.

Text Book(s)

1. An Introduction to Object-Oriented Analysis and Design and the Unified Process, 3rd Edition, Craig Larman, Prentice-Hall.
2. Programming in Java by Sachin Malhotra, Oxford University Press

Reference Books

1. Requirements engineering: processes and techniques, G.Kotonya and, I.Sommerville, 1998, Wiley
2. Design Patterns, E.Gamma, R. Helm, R. Johnson, and J. Vlissides
3. The Unified Modeling Language Reference Manual, J. Rumbaugh, I.Jacobson and G. Booch, Addison Wesley

SUGGESTED CO-CURRICULAR ACTIVITIES & EVALUATION METHODS:

Unit 1: Activity: Group Activity: Design and implement a small OOP project

Evaluation Method: Presentation evaluation rubric, Project evaluation based on OOP principles.

Unit 2: Activity: Use Case Scenario Presentation & Peer Activity: Review and provide feedback on each other's use case diagrams

Evaluation Method: Presentation evaluation rubric, Peer feedback assessment.

Unit 3: Activity: Poster Presentation: Illustrate TDD principles and benefits

Evaluation Method: Poster presentation evaluation

Unit 4: Activity: Peer Activity: Analyze and discuss different maintenance strategies

Evaluation Method: Peer discussion participation evaluation

Unit 5: Activity: Seminar on Design Patterns

Evaluation Method: Depth of research, clarity of explanations, ability to address questions and engage the audience.

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5 6

Computer Science Minor: IV Semester
Course 4: Object Oriented Software Engineering
Credits -1

Suggested Software Tools: StarUML/UMLGraph/Topcased/Umberollo/ArgoUML/ Eclipse IDE, Visual Paradigm for UML/Rational Software Architect/Any other Open Source Tool

List of Experiments:

Select domain of interest (e.g. College Management System) and identify multi-tier software application to work on (e.g. Online Fee Collection). Analyze, design and develop this application using OOSE approach:

1. Develop an IEEE standard SRS document. Also develop risk management and project plan (Gantt chart).
2. Understanding of System modeling: Data model i.e. ER – Diagram and draw the ER Diagram with generalization, specialization and aggregation of specified problem statement
3. Understanding of System modeling: Functional modeling: DFD level 0 i.e. ContextDiagram and draw it
4. Understanding of System modeling: Functional modeling: DFD level 1 and DFD level 2 and draw it.
5. Identify use cases and develop the use case model.
6. Identify the business activities and develop an UML Activity diagram.
7. Identity the conceptual classes and develop a domain model with UML Class diagram.
8. Using the identified scenarios find the interaction between objects and represent them using UML Interaction diagrams.
9. Draw the state chart diagram.
10. Identify the user interface, domain objects, and technical services. Draw the partial layered, logical architecture diagram with UML package diagram notation.
11. Implement the technical services layer.
12. Implement the domain objects layer.
13. Implement the user interface layer.
14. Draw component and deployment diagrams.