**Annamalai**  **University**

**Affiliated Colleges**

**311 M.Com. Computer Applications**

Programme Structure and Scheme of Examination for affiliated Colleges (under CBCS)

(Applicable to the candidates admitted from the academic year 2023 -2024 onwards)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Part** | **Course Code** | **Study Components & Course Title** | **Credit** | **Hours/ Week** | **Maximum Marks** | | |
| **CIA** | **ESE** | **Total** |
|  |  | **SEMESTER – I** |  |  |  |  |  |
| Part A | 23PCOAC11 | Core 1: Business Finance | 5 | 7 | 25 | 75 | 100 |
| 23PCOAC12 | Core 2: Digital Marketing | 5 | 7 | 25 | 75 | 100 |
| 23PCOAC13 | Core 3: Banking and Insurance | 4 | 6 | 25 | 75 | 100 |
| 23PCOAE14-1  23PCOAE14-2 | Elective 1:  Introduction to Industry 4.0  Big Data Analytics | 3 | 5 | 25 | 75 | 100 |
| 23PCOAE15-1  23PCOAE15-2 | Elective 2:  Enterprise Resource Planning  Database Management System | 3 | 5 | 25 | 75 | 100 |
|  |  | **Total** | **20** | **30** |  |  | **500** |
|  |  | **SEMESTER – II** |  |  |  |  |  |
| Part A | 23PCOAC21 | Core 4: Strategic Cost Management | 5 | 6 | 25 | 75 | 100 |
| 23PCOAC22 | Core 5: Corporate Accounting | 5 | 6 | 25 | 75 | 100 |
| 23PCOAC23 | Core 6: Setting up of Business Entities | 4 | 6 | 25 | 75 | 100 |
| 23PCOAE24-1  23PCOAE24-2 | Elective 3:  Data Mining and Data Warehousing  Technology in Banking | 3 | 4 | 25 | 75 | 100 |
| 23PCOAE25-1  23PCOAE25-2 | Elective 4:  Financial Analytics (Practical)  Management Information System | 3 | 4 | 25 | 75 | 100 |
| Part B | 23PCOAS26 | **Skill Enhancement Course SEC 1:**  **GOODS AND SERVICES TAX** | 2 | 4 | 25 | 75 | 100 |
|  |  | **Total** | **22** | **30** |  |  | **600** |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 23PCOAC11 | **CORE COURSE - 1**  23PCOAC11**- BUSINESS FINANCE** | **L** | **P** | **C** |
| **Semester-1** | **7** |  | **5** |

|  |  |
| --- | --- |
| Learning Objectives: | |
| LO1: | To outline the fundamental concepts in finance |
| LO2: | To estimate and evaluate risk in investment proposals |
| LO3: | To evaluate leasing as a source of finance and determine the sources of startup financing |
| LO4 | To examine cash and inventory management techniques |
| LO5 | To appraise capital budgeting techniques for MNCs |

|  |  |
| --- | --- |
| Course Outcomes: | |
|  | After the successful completion of the course, the students will be able to: |
| CO1: | Explain important finance concepts |
| CO2: | Estimate risk and determine its impact on return |
| CO3: | Explore leasing and other sources of finance for startups |
| CO4: | Summarise cash receivable and inventory management techniques |
| CO5: | Evaluate techniques of long term investment decision incorporating risk factor |

Unit I:**Introduction to Business Finance and Time vale of money**

Business Finance: Meaning, Objectives, Scope -Time Value of money: Meaning, Causes – Compounding – Discounting – Sinking Fund Deposit Factor – Capital Recovery Factor – Multiple Compounding – Effective rate of interest – Doubling period (Rule of 69 and Rule of 72) – Practical problems.

Unit II:**Risk Management**

Risk and Uncertainty: Meaning – Sources of Risk – Measures of Risk – Measurement of Return – General pattern of Risk and Return – Criteria for evaluating proposals to minimise Risk (Single Asset and Portfolio) – Methods of Risk Management – Hedging currency risk.

Unit III:**Startup Financing and Leasing**

Startup Financing: Meaning, Sources, Modes (Bootstrapping, Angel investors, Venture capital fund) - Leasing: Meaning – Types of Lease Agreements – Advantages and Disadvantages of Leasing – Financial evaluation from the perspective of Lessor and Lessee.

**Unit IV:Cash, Receivable and Inventory Management**

Cash Management: Meaning, Objectives and Importance – Cash Cycle – Minimum Operating Cash – Safety level of cash – Optimum cash balance - Receivable Management: Meaning – Credit policy – Controlling receivables: Debt collection period, Ageing schedule, Factoring – Evaluating investment in accounts receivable - Inventory Management: Meaning and Objectives – EOQ with price breaks – ABC Analysis.

**Unit V:Multi National Capital Budgeting**

Multi National Capital Budgeting: Meaning, Steps involved, Complexities, Factors to be considered – International sources of finance – Techniques to evaluate multi-national capital expenditure proposals: Discounted Pay Back Period, NPV, Profitability Index, Net Profitability Index and Internal Rate of Return – Capital rationing -Techniques of Risk analysis in Capital Budgeting.

|  |
| --- |
| **Recent Trends in Business Finance** |
| Faculty member will impart the knowledge on recent trends in Business Finance to the students and these components will not cover in the examination. |

|  |  |
| --- | --- |
| Text Books: | |
| 1. | Maheshwari S.N., (2019), “Financial Management Principles and Practices”, 15th Edition, Sultan Chand & Sons, New Delhi. |
| 2. | Khan M.Y & Jain P.K, (2011), “Financial Management: Text, Problems and Cases”, 8th Edition, McGraw Hill Education, New Delhi. |
| 3. | Prasanna Chandra, (2019), “Financial Management, Theory and Practice”, 10th Edition, McGraw Hill Education, New Delhi. |
| 4 | Apte P.G, (2020), “International Financial Management” 8th Edition, Tata McGraw Hill, New Delhi. |

|  |  |
| --- | --- |
| Supplementary Readings: | |
| 1. | Pandey I. M., (2021), “Financial Management”, 12th Edition, Pearson India Education Services Pvt. Ltd, Noida. |
| 2. | Kulkarni P. V. &Satyaprasad B. G., (2015), “Financial Management”, 14th Edition, Himalaya Publishing House Pvt Ltd, Mumbai. |
| 3. | Rustagi R. P., (2022), “Financial Management, Theory, Concept, Problems”, 6th  Edition, Taxmann Publications Pvt. Ltd, New Delhi. |
| 4 | Arokiamary Geetha Rufus, Ramani N. & Others, (2017), “Financial Management”, 1st Edition, Himalaya Publishing House Pvt Ltd, Mumbai. |

|  |  |
| --- | --- |
| Web Reference: | |
| 1. | https://resource.cdn.icai.org/66674bos53808-cp8.pdf |
| 2. | https://resource.cdn.icai.org/66677bos53808-cp10u2.pdf |
| 3. | https://resource.cdn.icai.org/66592bos53773-cp4u5.pdf |
| 4 | https://resource.cdn.icai.org/65599bos52876parta-cp16.pdf |

Note: Latest edition of the books may be used

## Outcome Mapping

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Programme Outcomes** | | | | | | | | | | | | **Programme Specific Outcomes** | | | | |
| **CO** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **1** | **2** | **3** | **4** | **5** |
| **CO1** | 3 | 3 | 1 | 3 | 1 | 3 | 3 | 3 | 1 | 3 | 3 | 1 | 3 | 3 | 3 | 2 | 2 |
| **CO2** | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 2 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 |
| **CO3** | 2 | 2 | 1 | 2 | 1 | 2 | 2 | 2 | 1 | 2 | 2 | 1 | 2 | 2 | 2 | 3 | 2 |
| **CO4** | 2 | 2 | 1 | 2 | 1 | 2 | 2 | 2 | 1 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 |
| **CO5** | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 2 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 |

**\*3**– Strong, **2**- Medium, **1**- Low

**Note: Question Paper shall cover 40%Theory and 60% Problems.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **23PCOAC12** | **CORE COURSE - 2**  **23PCOAC12 -** **DIGITAL MARKETING** | **L** | **P** | **C** |
| **Semester-1** | **7** |  | **5** |

|  |  |
| --- | --- |
| Learning Objectives: | |
| LO1: | To assess the evolution of digital marketing |
| LO2: | To appraise the dimensions of online marketing mix |
| LO3: | To infer the techniques of digital marketing |
| LO4: | To analyse online consumer behaviour |
| LO5: | To interpret data from social media and to evaluate game based marketing |

|  |  |
| --- | --- |
| Course Outcomes: | |
|  | After the successful completion of the course, the students will be able to: |
| CO1: | Explain the dynamics of digital marketing |
| CO2: | Examine online marketing mix |
| CO3: | Compare digital media channels |
| CO4: | Interpret online consumer behavior |
| CO5: | Analyse social media data |

Unit I: **Introduction to Digital Marketing**

Digital Marketing – Transition from traditional to digital marketing – Rise of internet – Growth of e-concepts – Growth of e-business to advanced e-commerce – Emergence of digital marketing as a tool – Digital marketing channels – Digital marketing applications, benefits and limitations – Factors for success of digital marketing – Emerging opportunities for digital marketing professionals.

Unit II: **Online Marketing Mix**

Online marketing mix – E-product – E-promotion – E-price – E-place – Consumer segmentation – Targeting – Positioning – Consumers and online shopping issues – Website characteristics affecting online purchase decisions – Distribution and implication on online marketing mix decisions.

Unit III:**DigitalMediaChannels**

Digital media channels – Search engine marketing – ePR – Affiliate marketing – Interactive display advertising – Opt-in-email marketing and mobile text messaging, Invasive marketing – Campaign management using – Facebook, Twitter, Corporate Blogs – Advantages and disadvantages of digital media channels – Metaverse marketing

Unit IV: **Online Consumer Behavior**

Online consumer behavior – Cultural implications of key website characteristics – Dynamics of online consumer visit – Models of website visits – Web and consumer decision making process – Data base marketing – Electronic consumer relationship management – Goals – Process – Benefits – Role – Next generation CRM.

Unit V:**Analytics and Gamification**

Digital Analytics – Concept – Measurement framework – Demystifying web data - Owned social metrics – Measurement metrics for Facebook, Twitter, YouTube, Slide Share, Pinterest, Instagram, Snapchat and LinkedIn – Earned social media metrics - Digital brand analysis – Meaning – Benefits – Components – Brand share dimensions – Brand audience dimensions – Market influence analytics – Consumer generated media and opinion leaders – Peer review – Word of mouth – Influence analytics – Mining consumer generated media – Gamification and game based marketing – Benefits – Consumer motivation for playing online games.

|  |
| --- |
| **Recent Trends in Digital Marketing** |
| Faculty member will impart the knowledge on recent trends in Digital Marketing to the students and these components will not cover in the examination. |

|  |  |
| --- | --- |
| Text Books: | |
| 1. | Kailash Chandra Upadhyay, (2021) “Digital Marketing: Complete Digital Marketing Tutorial”, Notion Press, Chennai. |
| 2. | Michael Branding, (2021) “Digital Marketing”, Empire Publications India Private Ltd, New Delhi. |
| 3. | Seema Gupta, (2022) “Digital Marketing” 3rd Edition, McGraw Hill Publications Noida. |
| 4 | Puneet Singh Bhatia, (2019) “Fundamentals of Digital Marketing”, 2nd Edition, Pearson Education Pvt Ltd, Noida. |

|  |  |
| --- | --- |
| Supplementary Readings: | |
| 1. | MaityMoutusy, (2022) “Digital Marketing” 2nd Edition, Oxford University Press, London. |
| 2. | Simon Kingsnorth, Digital Marketing Strategy, (2022) “An Integrated approach to Online Marketing”, Kogan Page Ltd. United Kingdom |
| 3. | Vandana Ahuja, (2016) “Digital Marketing”, Oxford University Press. London. |
| 4 | Alan Charlesworth, (2014), “Digital Marketing - A Practical Approach”, Routledge, London. |
| Supplementary Readings: | |
| 1. | MaityMoutusy, (2022) “Digital Marketing” 2nd Edition, Oxford University Press, London. |
| 2. | Simon Kingsnorth, Digital Marketing Strategy, (2022) “An Integrated approach to Online Marketing”, Kogan Page Ltd. United Kingdom |
| 3. | Vandana Ahuja, (2016) “Digital Marketing”, Oxford University Press. London. |
| 4 | Alan Charlesworth, (2014), “Digital Marketing - A Practical Approach”, Routledge, London. |

Note: Latest edition of the books may be used

|  |  |
| --- | --- |
| Web Reference: | |
| 1. | https://www.digitalmarketer.com/digital-marketing/assets/pdf/ultimate-guide-to-digital-marketing.pdf |
| 2. | https://uwaterloo.ca/centre-for-teaching-excellence/teaching-resources/teaching-tips/educational-technologies/all/gamification-and-game-based-learning |
| 3. | https://journals.ala.org/index.php/ltr/article/download/6143/7938  **Outcome Mapping**   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | **Programme Outcomes** | | | | | | | | | | | | **Programme Specific Outcomes** | | | | | | **CO** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **1** | **2** | **3** | **4** | **5** | | **CO1** | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | | **CO2** | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | | **CO3** | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 2 | | **CO4** | 3 | 3 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | | **CO5** | 3 | 3 | 1 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 1 | 3 | 3 | 2 | 3 | 3 | 2 | |

**\***3– Strong, 2- Medium, 1- Low

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **23PCOAC13** | **CORE COURSE - 3**  **23PCOAC13 BANKING AND INSURANCE** | **L** | **P** | **C** |
| **Semester-1** | **6** |  | **4** |

|  |  |
| --- | --- |
| Learning Objectives: | |
| LO1: | To understand the evolution of new era banking |
| LO2: | To explore the digital banking techniques |
| LO3: | To analyse the role of insurance sector |
| LO4: | To evaluate the mechanism of customer service in insurance and the relevant regulations |
| LO5: | To analsye risk and its impact in banking and insurance industry |

|  |  |
| --- | --- |
| Course Outcomes: | |
|  | After the successful completion of the course, the students willbe able to: |
| CO1: | Relate the transformation in banking from traditional to new age |
| CO2: | Apply modern techniques of digital banking |
| CO3: | Evaluate the role of insurance sector |
| CO4: | Examine the regulatory mechanism |
| CO5: | Assess risk mitigation strategies |

Unit I: **Introduction to Banking**

Banking:Brief History of Banking - Rapid Transformation in Banking: Customer Shift - Fintech Overview - Fintech Outlook - The Financial Disruptors - Digital Financial Revolution - New Era of Banking. Digital Banking – Electronic Payment Systems–Electronic Fund Transfer System – Electronic Credit and Debit Clearing – NEFT – RTGS –VSAT–SFMS–SWIFT.

Unit II: **Contemporary Developments in Banking**

Distributed Ledger Technology – Blockchain: Meaning - Structure of Block Chain - Types of Block Chain - Differences between DLT and Block chain - Benefits of Blockchain and DLT - Unlocking the potential of Block chain – Crypto currencies, Central Bank Digital Currency (CBDC) - Role of DLT in financial services - AI in Banking: Future of AI in Banking - Applications of AI in Banking - Importance of AI in banking - Banking reimagined with AI. Cloud banking - Meaning - Benefits in switching to Cloud Banking.

Unit III: **Indian Insurance Market**

History of Insurance in India – Definition and Functions of Insurance – Insurance Contract – Indian Insurance Market – Reforms in Insurance Sector – Insurance Organisation – Insurance organisation structure. Insurance Intermediaries: Insurance Broker – Insurance Agent - Surveyors and Loss Assessors - Third Party Administrators (Health Services) – Procedures - Code of Conduc

# Unit IV: Customer Services in Insurance

Customer Service in Insurance – Quality of Service - Role of Insurance Agents in Customer Service-Agent’s Communication and Customer Service –Ethical Behaviour in Insurance – Grievance Redressal System in Insurance Sector –Integrated Grievance Management System- Insurance Ombudsman - Insurance Regulatory and Development Authority of India Act (IRDA) – Regulations and Guidelines

Unit V: **Risk Management**

Risk Management and Control in banking and insurance industries – Methods of Risk Management – Risk Management by Individuals and Corporations – Tools for Controlling Risk.

|  |
| --- |
| **Recent Trends in Banking and Insurance** |
| Faculty member will impart the knowledge on recent trends in Banking and Insurance to the students and these components will not cover in the examination. |

|  |  |
| --- | --- |
| Text Books: | |
| 1. | Indian Institute of Banking and Finance (2021), “Principles & Practices of Banking”, 5th Edition, Macmillan Education India Pvt. Ltd, Noida, Uttar Pradesh. |
| 2. | Mishra M N & Mishra S B, (2016), “Insurance Principles and Practice”, 22nd Edition, S. Chand and Company Ltd, Noida, Uttar Pradesh. |
| 3. | Emmett, Vaughan, Therese Vaughan M., (2013), “Fundamentals of Risk and Insurance”, 11th Edition, Wiley & Sons, New Jersey, USA. |
| 4 | Theo Lynn , John G. Mooney, Pierangelo Rosati, Mark Cummins (2018), Disrupting Finance: FinTech and Strategy in the 21st Century (Palgrave Studies in Digital Business & Enabling Technologies), Macmillan Publishers, NewYork (US) |

|  |  |
| --- | --- |
| Supplementary Readings: | |
| 1. | Sundharam KPM & Varshney P. N., (2020), “Banking Theory, Law and Practice”, 20th Edition, Sultan Chand & Sons, New Delhi. |
| 2. | Gordon & Natarajan, (2022), “Banking Theory, Law and Practice”, 9th Edition, Himalaya Publishing House Pvt Ltd, Mumbai. |
| 3. | Gupta P. K. (2021), “Insurance and Risk Management” 6th Edition, Himalaya Publishing House Pvt Ltd, Mumbai. |
| Web Reference: | |
| 1. | https://corporatefinanceinstitute.com/resources/knowledge/finance/fintech-financial-technology |
| 2. | <https://mrcet.com/downloads/digital_notes/CSE/IV%20Year/CSE%20B.TECH%20IV%20YEAR%20II%20SEM%20BCT%20(R18A0534)%20NOTES%20Final%20PDF.pdf> |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **23PCOAE14-1** | **Elective Course - 1** 23PCOAE14-1INTRODUCTION TO INDUSTRY 4.0 | **L** | **P** | **C** |
| **Semester-1** | **5** |  | **3** |

|  |  |
| --- | --- |
| Learning Objectives: | |
| LO1: | To enable the students to comprehend the change from industry 1.0 to 4.0 |
| LO2: | To gain knowledge on the challenges and future prospects of applying artificial intelligence |
| LO3: | To learn the applications of big data for industrial growth and development |
| LO4: | To understand the applications of IoT in various sectors |
| LO5: | To understand why education has to be aligned with industry 4.0 |

|  |  |
| --- | --- |
| Course Outcomes: | |
|  | After the successful completion of the course, the students will be able to: |
| CO1: | Discuss on the change from industry 1.0 to 4.0 |
| CO2: | Discover the challenges and future prospects of applying artificial intelligence |
| CO3: | Apply big data for industrial growth and development |
| CO4: | Apply IoT in various sectors like Manufacturing, Healthcare, Education, Aerospace and Défense |
| CO5: | Appraise why education has to be aligned with industry 4.0 |

Unit I: Introduction

Industry: Meaning, Types - Industrial Revolution: Industrial Revolution 1.0 to 4.0: Meaning, Goals and Design Principles - Technologies of Industry 4.0 - Big Data – Artificial Intelligence (AI) – Industrial Internet of Things - Cyber Security – Cloud – Augmented Reality.

Unit II: **Artificial Intelligence**

Artificial Intelligence (AI): Need, History and Foundations -The AI - environment - Societal Influences of AI – Application Domains and Tools - Associated Technologies of AI - Future prospects of AI – Challenges of AI

Unit III: **Big Data**

Evolution - Data Evolution - Data : Terminologies - Essential of Big Data in Industry 4.0 - Big Data Merits and Limitations - Big Data Components : Big Data Characteristics - Big Data Processing Frameworks - Big Data Tools - Big Data Applications - Big Data Domain Stack : Big Data in Data Science – Big Data in IoT - Big Data in Machine Learning - Big Data in Databases - Big Data Usecases: Big Data in Social Causes - Big Data for Industry - Big Data Roles - Learning Platforms; Internet of Things (IoT) : Introduction to IoT – Architecture of IoT Technologies for IoT - Developing IoT Applications - Applications of IoT - Security in IoT.

Unit IV: **Applications of IoT**

IoT in Manufacturing – Healthcare – Education – Aerospace and Defence – Agriculture – Transportation and Logistics – Impact of Industry 4.0 on Society: Impact on Business, Government, People - Tools for Artificial Intelligence - Big Data and Data Analytics - Virtual Reality - Augmented Reality – IoT - Robotics

Unit V: **Industry 4.0**

Education 4.0 – Curriculum 4.0 – Faculty 4.0 – Skills required for Future - Tools for Education – Artificial Intelligence Jobs in 2030 – Jobs 2030 - Framework for aligning Education with Industry 4.0.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Recent Trends in Industry 4.0** | | | | | |
| Faculty member will impart the knowledge on recent trends in Industry 4.0 to the students and these components will not cover in the examination. | | | | | |
| Text Books: | | | |
|  | | | |
| 1. | | Seema Acharya J, Subhashini Chellappan, (2019) “Big Data and Analytics”, 2nd Edition, Wiley Publication, New Delhi. | |
| 2. | | Russel S, Norvig P (2010), “Artificial Intelligence: A Modern approach”, 3rd Edition, Prentice Hall, New York. | |
| 3. | | Pethuru Raj and Anupama C. Raman, (2017), "The Internet of Things: Enabling Technologies, Platforms, and Use Cases", Auerbach Publications | |
| Supplementary Readings: | | | | | |
| 1. | | | Judith Hurwitz, Alan Nugent, Fern Halper, Marcia Kaufman, “Big Data for Dummies”, John Wiley & Sons, Inc. | | |
| 2. | | | Nilsson (2000), Artificial Intelligence: A new synthesis, Nils J Harcourt Asia PTE Ltd | | |
|  | | |  | | |
| Web Reference: | | | | | |
| 1. | | https://sist.sathyabama.ac.in/sist\_coursematerial/uploads/SEEA1403.pdf | | | |
| 2. | | https://library.oapen.org/bitstream/handle/20.500.12657/43836/external\_content.pdf? sequence=1 | | | |
| 3. | | https://www.vssut.ac.in/lecture\_notes/lecture1428643004.pdf | | | |

Note: Latest edition of the books may be used

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Outcome Mapping**   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | **Programme Outcomes** | | | | | | | | | | | | **Programme Specific Outcomes** | | | | | | | **CO** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | | **1** | **2** | **3** | **4** | **5** | | **CO1** | 1 | 1 | 3 | 1 | 1 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | | 1 | 1 | 3 | 3 | 3 | | **CO2** | 1 | 1 | 3 | 2 | 1 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | | 1 | 1 | 3 | 3 | 3 | | **CO3** | 1 | 2 | 2 | 3 | 1 | 2 | 3 | 3 | 3 | 3 | 2 | 2 | | 1 | 1 | 2 | 3 | 2 | | **CO4** | 3 | 3 | 2 | 3 | 1 | 2 | 3 | 3 | 3 | 3 | 2 | 2 | | 2 | 3 | 2 | 3 | 3 | | **CO5** | 1 | 2 | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 1 | 3 | | 3 | 2 | 2 | 3 | 2 | |

**\***3– Strong, 2- Medium, 1- Low

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **23PCOAE14-2** | **Elective Course - 1**  **23PCOAE14-2 BIG DATA ANALYTICS** | **L** | **P** | **C** |
| **Semester-1** | **5** |  | **3** |

|  |  |
| --- | --- |
| Learning Objectives: | |
| LO1: | To understand the various aspects of data science and applying them in health care |
| LO2: | To learn the applications of big data for industrial growth and development |
| LO3: | To understand the characteristics of 5 V’s |
| LO4: | To know the big data problems |
| LO5: | To understand the Hadoop |

|  |  |
| --- | --- |
| Course Outcomes: | |
|  | After the successful completion of the course, the students will be able to: |
| CO1: | Describe the Big Data landscape including examples of realworld big data problems |
| CO2: | Explain the advantages of Big Data. |
| CO3: | Explain the Vs of Big Data and its impacts of data collection, monitoring, storage, analysis and reporting |
| CO4: | Identify what are and what are not big data problems and be able to recast big data problems as data science questions |
| CO5: | Explain Hadoop technology |

**Unit I: Introduction to Data Science**

Introduction to data science – Case Studies – Data Science in Biomedicine and Healthcare – Sequence Processing – Medical Image Analysis – Natural Language Processing – Network Modelling and Probabilistic Modelling.

**Unit II: Big Data**

Big data: Meaning – Importance of Big Data – Example of Big Data – Source of Big Data - Machine -Generated Data - Advantages – Big Data generated by people – Organization of Generated Data - Integrating the data.

**Unit III: Characteristics of Big Data**

Characteristics of big data volume – Variety –Velocity – Characteristics of Big Data – Veracity – Valence and Value – Getting value out of Big Data using 5-step process to structure your analysis.

**Unit IV: Data Science: Getting value out of Big Data**

Building a Big Data Strategy – Happening of Big Data science – Five Components of Data Science. Steps in Data Science: Acquiring Data, Preprocessing and Exploring Data – Analysing Data – Communicating results – Turning insights into action.

**Unit V: Big Data Systems and Hadoop**

Meaning of Distributed File System – Scalable Computing over the Internet – Programming Models for Big Data – Introduction to Hadoop systems – The Hadoop Distributed File System: A Storage System for Big Data – YARN: A Resource Manager for Hadoop – Map Reduce: Simple Programming for Big Results – When to Reconsider Hadoop? – Cloud Computing: An important Big Data enabler.

|  |
| --- |
| **Recent Trends in Big Data Analysis** |
| Faculty member will impart the knowledge on recent trends in Big Data Analysis to the students and these components will not cover in the examination. |

|  |  |
| --- | --- |
| Text Books: | |
| 1. | Peter Guerra and Kirk Borne (2016), "Ten Signs of Data Science Maturity", O’Reily Media Pvt Ltd, USA |
| 2. | Tom White (2012), "Hadoop: The Definitive Guide” Third Edition, O’Reily Media, USA. |
| 3. | Seema Acharya (2015), Subhasini Chellappan, "Big Data Analytics", Wiley, USA |

|  |  |
| --- | --- |
| Supplementary Readings: | |
| 1. | Howard Wen, Big Ethics for Big Data, O'Reilly Media, USA. |
| 2. | Michael Mineli, Michele Chambers, Ambiga Dhiraj (2013), Big Data, Big Analytics: Emerging Business Intelligence and Analytic Trends for Today's Businesses, Wiley Publications, USA . |
| 3. | Judith S.Hurwitz, Alan Nugent, Fern Halper, Marcia Kaufman (2015), "Big Data for Dummies", John Wiley & Sons, Inc., USA. |

|  |  |
| --- | --- |
| Web Reference: | |
| 1. | https://www.coursera.org/learn/big-data-introduction/home/welcome |
| 2. | https://www.coursera.org/learn/bioconductor?action=enroll&authMode=login |

Note: Latest edition of the books may be used

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Outcome Mapping**   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | **Programme Outcomes** | | | | | | | | | | | | **Programme Specific Outcomes** | | | | | | | **CO** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | | **1** | **2** | **3** | **4** | **5** | | **CO1** | 3 | 3 | 2 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 3 | | 2 | 3 | 3 | 3 | 3 | | **CO2** | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | | 3 | 3 | 3 | 3 | 3 | | **CO3** | 3 | 3 | 1 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 2 | | 3 | 3 | 2 | 3 | 2 | | **CO4** | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | | 3 | 3 | 3 | 3 | 3 | | **CO5** | 3 | 3 | 1 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 1 | 3 | | 3 | 3 | 2 | 3 | 2 | |

**\***3– Strong, 2- Medium, 1- Low

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **23PCOAE15-1** | **Elective Course - 2**  **23PCOAE15-1ENTERPRISE RESOURCE PLANNING** | **L** | **P** | **C** |
| **Semester-1** | **5** |  | **3** |

|  |  |
| --- | --- |
| Learning Objectives: | |
| LO1: | To learn the history and growth of ERP |
| LO2: | To understand the risks involved while using ERP |
| LO3: | To gain knowledge on the various ERP technologies |
| LO4: | To learn the dynamics of ERP marketplace |
| LO5: | To choose appropriate ERP solutions or packages |

|  |  |
| --- | --- |
| Course Outcomes: | |
|  | After the successful completion of the course, the students will be able to: |
| CO1: | Recall the history and growth of ERP |
| CO2: | Appraise the risks involved while using ERP |
| CO3: | Select from among various ERP technologies |
| CO4: | Analyse the dynamics of ERP marketplace |
| CO5: | Distinguish and choose appropriate ERP solutions or packages |

Unit I: **Enterprise an Overview**

Business Functions and Business Processes - Integrated Management Information - Business Modelling - Integrated Data Model. Business Processes: Major Business Processes. Introduction to ERP: Common ERP Myths - A Brief History of ERP - Reasons for the Growth of ERP Market - Advantages of ERP.

Unit II: **Risk of ERP**

People Issues - Process Risks - Technological Risks - Implementation Issues-Operation and Maintenance Issues - Unique Risks of ERP Projects - Managing Risks on ERP Projects. Benefits of ERP: Information Integration - Reduction of Lead Time - On-Time Shipment - Reduction in Cycle Time - Improved Resource Utilization - Better Customer Satisfaction - Improved Supplier Performance - Increased Flexibility - Reduced Quality Costs - Better Analysis and Planning Capabilities - Improved Information Accuracy and Decision Making Capability - Use of Latest Technology.

Unit III**: ERP and Related Technologies**

Business Process Reengineering (BPR) - Business Intelligence (BI) - Business Analytics (BA) - Data Warehousing- Data Mining - On - Line Analytical Processing (OLAP) - Product Life Cycle Management (PLM) - Supply Chain Management (SCM) - Customer Relationship Management (CRM) - Geographic Information Systems (GIS) - Intranets and Extranets. Advanced Technology and ERP Security: Technological Advancements - Computer Crimes - ERP and Security - Computer Security - Crime and Security.

Unit IV: **ERP Market Place and Market Place Dynamics**

Market Overview - ERP Market Tiers. Market Place Dynamics - Industry - Wise ERP Market Share - ERP: The Indian Scenario. Business Modules of an ERP Package: Functional Modules of ERP Software: Integration of ERP, Supply Chain, and Customer Relationship Applications.

Unit V: **ERP Implementation**

Benefits of Implementing ERP - Implementation Challenges. ERP Implementation Life Cycle: Objectives of ERP Implementation - Different Phases of ERP Implementation- Reasons for ERP Implementation Failure. ERP Package Selection: ERP Package Evaluation and Selection - The Selection Process - ERP Packages: Make or Buy.

|  |
| --- |
| **Recent Trends in Enterprise Resource Planning** |
| Faculty member will impart the knowledge on recent trends in Enterprise Resource Planning to the students and these components will not cover in the examination. |

|  |  |
| --- | --- |
| Text Books: | |
| 1. | Alexis Leon (2008), “Enterprise Resource Planning”, 2nd edition, Tata McGraw-Hill, Noida. |
| 2. | Jagan Nathan Vaman (2008), “ERP in Practice”, Tata McGraw-Hill, Noida. |
| 3. | Mahadeo Jaiswal and Ganesh Vanapalli (2009), “ERP”, Macmillan India, Noida. |
|  |  |

|  |  |
| --- | --- |
| Supplementary Readings: | |
| 1. | Sinha P. Magal and Jeffery Word (2012), “Essentials of Business Process and Information System”, Wiley India, USA. |
| 2. | Summer (2008), “ERP”, Pearson Education, Noida. |
| 3. | Vinod Kumar Grag and N.K. Venkitakrishnan (2006), “ERP- Concepts and Practice”, Prentice Hall of India, New Delhi. |

|  |  |
| --- | --- |
| Web Reference: | |
| 1. | https://mrcet.com/downloads/digital\_notes/CSE/III%20Year/ERP%20Digital% 20notes.pdf |
| 2. | https://mrcet.com/downloads/digital\_notes/ME/III%20 year/ERP%20Complete%20Digital%20notes.pdf |
| 3. | https://www.vssut.ac.in/lecture\_notes/lecture1428643004.pdf |

Note: Latest edition of the books may be used

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Outcome Mapping**   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | **Programme Outcomes** | | | | | | | | | | | | **Programme Specific Outcomes** | | | | | | | **CO** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | | **1** | **2** | **3** | **4** | **5** | | **CO1** | 1 | 3 | 1 | 3 | 2 | 1 | 3 | 3 | 3 | 3 | 2 | 3 | | 2 | 1 | 1 | 3 | 3 | | **CO2** | 3 | 3 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | | 1 | 1 | 3 | 3 | 3 | | **CO3** | 3 | 3 | 2 | 3 | 1 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | | 1 | 2 | 2 | 3 | 2 | | **CO4** | 3 | 3 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | | 2 | 1 | 3 | 3 | 3 | | **CO5** | 1 | 2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 1 | 3 | | 3 | 1 | 2 | 3 | 2 | |

**\***3– Strong, 2- Medium, 1- Low

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 23PCOAE15-2 | | **Elective Course - 2**  **23PCOAE15-2**  **DATABASE MANAGEMENT SYSTEM** | L | P | C |
| Semester-1 | | 5 |  | 3 |
|  |  | | | | | |

|  |  |
| --- | --- |
| Learning Objectives: | |
| LO1: | To introduce the basic concepts of Relational Database Management System and the working knowledge of Linux environment |
| LO2: | To understand designing databases and queries in SQL |
| LO3: | To learn RDBMS |
| LO4: | To upskill the functions and operators |
| LO5: | To understand the constraints, locks and MySQL |

|  |  |
| --- | --- |
| Course Outcomes: | |
|  | After the successful completion of the course, the students willbe able to: |
| CO1: | Identify models and schemas in DBMS and LINUX |
| CO2: | Demonstrate Queries in SQL |
| CO3: | Discuss handling files and databases |
| CO4: | Apply skills on functions and operators in RDBMS |
| CO5: | Apply constraints and locks in SQL |

Unit I: **Introduction to Database Systems and Linux**

Introduction to File and Database systems Database System Structure - Data Models Introduction to Network Models: ER Model, Relational Model - Introduction to Linux Operating System - Properties of Linux - Desktop Environment - Linux basics commands - Working with Files - Text Editors - I/O Redirections - Pipes, Filters, and Wildcards - Changing Access Rights.

Unit II: **SQL Definition and Normalization**

SQL – Data Definition - Queries in SQL - Updates - Views - Integrity and Security. Relational Database design – Functional dependences and Normalization for relational databases (up to BCNF) - Query Forms.

Unit III: **Files and RDBMs**

Record Storage and Primary File Organization - Secondary Storage Devices - Operations on Files - Heap File - Sorted Files - Hashing Techniques - Index Structure for Files - Different Types of Indexes - B-Tree - B+Tree - Query Processing - Multimedia Databases - Basic Concepts and Applications - Indexing and Hashing - Text Databases - Overview of RDBMs - Advantages of RDBMs over DBMs – Introduction to Data Mining.

Unit IV: **Data Definition and Manipulation Language**

Data Definition Language - Data Manipulation Language - Transaction Control - Data Control Language Grant - Revoke Privilege Command - Set Operators - Joins- Kinds of Joins - Table Aliases - Sub queries - Multiple and Correlated Sub Queries - Functions - Single Row - Date, Character, Numeric, Conversion and Group Functions

Unit V: **Constraints and MYSQL**

Constraints - Domain, Equity, Referential Integrity Constraints - Locks - Types of Locks, Table Partitions - Synonym - Introduction to PL/SQL - Introduction - MySQL as an RDBMS Tool - Data types and Commands.

|  |  |
| --- | --- |
| **Recent Trends in Database Management System** | |
| Faculty member will impart the knowledge on recent trends in Data Base Management System to the students and these components will not cover in the examination. | |
| Text Books: | |
| 1. | Ramakrishnan Raghu and Gehrke Johannes, “Database Management Systems”, McGraw–Hill, USA. |
| 2. | Rajendra Prasad Mahapatra and Govind Verma, “Database Management System”, Khanna Publications, New Delhi. |
|  |  |

|  |  |
| --- | --- |
| Supplementary Readings: | |
| 1. | Ramon A Mata-Toledo and Pauline K Cushman, “Database Management System”, Schaun’s Outlines, New York. |
| 2. | Abraham Silberschatz, Henry F Korth and S. Sudarshan, “Database System Concepts” McGraw–Hill, USA. |

Note: Latest edition of the books may be used

|  |  |
| --- | --- |
| Web Reference: | |
| 1. | http://education-portal.com/academy/lesson/what-is-a-database-management-systempurpose-and-function.html. |
| 2. | http://www.comptechdoc.org/os/linux/usersguide/linux\_ugbasics.html. |
| 3. | http://www.dummies.com/how-to/content/common-linux-commands.html. |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Outcome Mapping**   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | **Programme Outcomes** | | | | | | | | | | | | **Programme Specific Outcomes** | | | | | | **CO** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **1** | **2** | **3** | **4** | **5** | | **CO1** | 2 | 2 | 1 | 2 | 1 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 1 | 1 | 2 | 3 | 3 | | **CO2** | 2 | 3 | 2 | 3 | 1 | 1 | 3 | 3 | 3 | 3 | 2 | 3 | 1 | 1 | 2 | 3 | 3 | | **CO3** | 2 | 2 | 3 | 2 | 1 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 1 | 2 | 3 | 3 | 2 | | **CO4** | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | | **CO5** | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 1 | 3 | 2 | 1 | 3 | 3 | 2 | |

**\***3– Strong, 2- Medium, 1- Low

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **23PCOAC21** | **CORE COURSE - 4**  **23PCOAC21: STRATEGIC COST MANAGEMENT** | **L** | **P** | **C** |
| **Semester-2** | **6** |  | **5** |

|  |  |
| --- | --- |
| Learning Objectives: | |
| LO1: | To analyse the aspects of strategic and quality control management |
| LO2: | To analyse and select cost control techniques |
| LO3: | To apply activity-based costing for decision making |
| LO4: | To utilise transfer pricing methods in cost determination |
| LO5: | To apply cost management techniques in various sectors |

|  |  |
| --- | --- |
| Course Outcomes: | |
|  | After the successful completion of the course, the students willbe able to: |
| CO1: | Discuss strategic cost management and QC |
| CO2: | Choose the appropriate technique for cost control |
| CO3: | Utiliseactivity based costing in practice |
| CO4: | Adopt transfer pricing methods |
| CO5: | Build cost structure for Agriculture and IT sector |

Unit I: **Introduction to Strategic Cost Management**

Introduction to Strategic Cost Management (SCM) – Need for SCM – Differences between SCM and Traditional Cost Management - Value Chain Analysis: Meaning and steps - Quality Cost Management: Meaning of Quality and Quality Management – Cost of Quality – Indian Cost Accounting Standard 21 on Quality Control - Introduction to Lean System – Benefits of Lean System – Just in Time (JIT) – Kaizen Costing.

Unit II: **Cost Control and Reduction**

Cost Management Techniques: Cost Control: Meaning and Prerequisites - Cost Reduction: Meaning and Scope – Differences between Cost control and cost reduction - Pareto Analysis: Meaning, importance and applications - Target Costing: Meaning, steps and Principles – Life Cycle Costing: Meaning, Strategies for each stage of product life cycle, Benefits – Learning Curve: Meaning, Learning curve ratio and applications

Unit III: **Activity Based Cost Management**

Activity Based Cost Management: Concept, Purpose, Stages, Benefits, Relevance in Decision making and its Application in Budgeting – Practical problems.

Unit IV: **Transfer Pricing**

Transfer Pricing: Meaning, Benefits, Methods: Pricing based on cost, Market price on transfer price, Negotiated pricing and Pricing based on opportunity costs – Practical Problems.

Unit V: **Cost Management in Agriculture and IT sector**

Agriculture Sector: Features, Cost Structure, Cost Management, Tools to measure the performance, Minimum Support Price and International Perspective – Information Technology Sector: Features, Cost Structure, Cost Management and International Perspective.

|  |
| --- |
| Recent Trends inStrategic Cost Management |
| Faculty member will impart the knowledge on recent trends in Strategic Cost Management to the students and these components will not cover in the examination. |

|  |  |  |
| --- | --- | --- |
| Text Books: | | |
| 1. | Ravi M Kishore (2018), “Strategic Cost Management”, 5th Edition, Taxmann Publications Pvt. Ltd, New Delhi. | |
| 2. | Bandgar P. K., (2017), “Strategic Cost Management”, 1st Edition, Himalaya Publishing House Pvt Ltd, Mumbai. | |
| 3. | Sexena V. K., (2020), “Strategic Cost Management and Performance Evaluation”, 1st Edition, Sultan Chand & Sons, New Delhi. | |
| 4. | Jain S.P. and Narang KL 2016,Cost Accounting, Kalyani Publishers, Ludhiana | |
| Supplementary Readings: | | |
| 1. | | John K Shank and Vijay Govindarajan (2008), Strategic Cost Management, Simon & Schuster; Latest edition, UK |
| 2. | | Jawahar Lal, (2015), “Strategic Cost Management”, 1st Edition, Himalaya Publishing House Pvt Ltd, Mumbai.) |
| 3. | | Arora M. N., (2021), “A Text Book of Cost and Management Accounting”, 11th Edition, Vikas Publishing House Pvt. Ltd., New Delhi. |
| 4. | | Lal Nigam B.M. and Jain I.C 2017, Cost Accounting Principles and Practice Hall of India, New Delhi,. |

Note: Latest edition of the books may be used

|  |  |
| --- | --- |
| Web Reference: | |
| 1. | https://www.accountingtools.com/articles/strategic-cost-management.html#:~:text=  Strategic%20cost%20management%20is%20the,it%20or%20have%20no%20impact. |
| 2. | https://ca-final.in/wp-content/uploads/2018/09/Chapter-4-Cost-Management-Techniques.pdf |
| 3. | https://resource.cdn.icai.org/66530bos53753-cp5.pdf  **Note: Question Paper shall cover 40%Theory and 60% Problems.** |
|  | **Outcome Mapping**   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | **Programme Outcomes** | | | | | | | | | | | | **Programme Specific Outcomes** | | | | | | **CO** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **1** | **2** | **3** | **4** | **5** | | **CO1** | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | | **CO2** | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | | **CO3** | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | 3 | 3 | 2 | | **CO4** | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | | **CO5** | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 3 | 2 | |

**\***3– Strong, 2- Medium, 1- Low

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **23PCOAC22** | **CORE COURSE - 5**  **23PCOAC22 : CORPORATE ACCOUNTING** | **L** | **P** | **C** |
| **Semester-2** | **6** |  | **5** |

|  |  |
| --- | --- |
| Learning Objectives: | |
| LO1: | To understand the accounting treatment for issue of shares |
| LO2: | To determine profits for fire and marine insurance |
| LO3: | To prepare consolidated financial statements |
| LO4: | To account for price level changes |
| LO5: | To adopt financial reporting standards |

|  |  |
| --- | --- |
| Course Outcomes: | |
|  | After the successful completion of the course, the students will be able to: |
| CO1: | PrepareFinancialStatementsofcompaniesasperscheduleIIIofCompaniesAct,2013 |
| CO2: | Apply the provisions of IRDA Regulations, 2002 in the preparation of final accounts of Life Insurance and General Insurance Companies. |
| CO3: | PrepareConsolidatedFinancialStatementsofHoldingCompaniesin accordancewithAS21. |
| CO4: | Assess contemporary accounting methods |
| CO5: | ExamineFinancialReporting based on appropriate AccountingStandardsand provisionsofCompaniesAct2013withrespecttoCorporateSocial Responsibility |

Unit I:**Issue of Shares and Final Accounts of Companies**

Issue of Shares: ESOPs - ESPS - Sweat Equity Shares - Book Building - Buy-back of Shares - Conversion of debentures into shares - Final accounts of Companies as per Schedule III of the Companies Act, 2013 – Managerial remuneration.

Unit II: **Insurance Company Accounts**

Insurance Company Accounts: Types of Insurance - Final accounts of life assurance Companies- Ascertainment of profit - Valuation Balance Sheet - Final accounts of Fire, Marine and miscellaneous Insurance Companies.

Unit III: **Consolidated Financial Statements**

Consolidated financial statements as per AS 21: Consolidated Profit and Loss Account – Minority interest – Cost of control – Capital reserve – Inter-company holdings – Preparation of consolidated Balance Sheet.

Unit IV:**Contemporary Accounting Methods**

Accounting for price level changes – Social responsibility accounting – Human resource accounting - Forensic Accounting.

Unit V: **Financial Reporting**

Financial reporting: Meaning, Objectives, Characteristics – Indian Accounting Standards (AS 5, AS 10, AS 19, AS 20) – Corporate Social Responsibility: Meaning, Key provisions of Companies Act, 2013, Accounting for CSR expenditure, Reporting of CSR, Presentation and disclosure in the financial statements.

|  |
| --- |
| Recent Trends in Corporate Accounting |
| Faculty member will impart the knowledge on recent trends in Corporate Accounting to the students and these components will not cover in the examination. |

|  |  |
| --- | --- |
| Text Books: | |
| 1. | Gupta R. L. &Radhaswamy M. (2021), “Corporate Accounting – Volume I & II”, 14th Edition, Sultan Chand & Sons, New Delhi. |
| 2. | Maheshwari S. N., Sharad K. Maheshwari & Suneel K. Maheshwari, (2022), “Advanced Accountancy - Volume I & II”, 11th Edition, Vikas Publishing House Pvt. Ltd., New Delhi. |
| 3. | Jain S. P., Narang K. L., Simmi Agrawal and Monika Sehgal (2019), “Advanced Accountancy - Corporate Accounting – Volume - II”, 22nd Edition, Kalyani Publishers, New Delhi. |
| 4. | Reddy T. S. & Murthy A., (2022), “Corporate Accounting – Volume I & II”, 17th Edition, Margham Publications, Chennai. |

|  |  |
| --- | --- |
| Supplementary Readings: | |
| 1. | Arulanandam M.A & Raman K.S., (2021), “Advanced Accounting (Corporate Accounting – II)”, 8th Edition, Himalaya Publishing House Pvt Ltd, Mumbai. |
| 2. | Shukla M C, Grewal T S and Gupta S C, (2022), “Advanced Accounts Volume II”, 19th Edition, Sultan Chand & Sons, New Delhi. |
| 3. | 1. Gupta R. L., (2022), “Problems and Solutions in Company Accounts”, 2nd Edition, Sultan Chand & Sons, New Delhi. |
| 4. | 1. Singh S.K 2017, Corporate Accounting, SBPD Publications, New Delhi |

Note: Latest edition of the books may be used

**Note: Question Paper shall cover 20%Theory and 80% Problems.**

|  |  |  |
| --- | --- | --- |
| Web Reference: | | |
| 1 | https://resource.cdn.icai.org/66550bos53754-p1-cp9.pdf | |
| 2 | https://resource.cdn.icai.org/66545bos53754-p1-cp4.pdf | |
| 3 | https://resource.cdn.icai.org/66638bos53803-cp1.pdf | |
|  | | **Outcome Mapping**   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | **Programme Outcomes** | | | | | | | | | | | | **Programme Specific Outcomes** | | | | | | **CO** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **1** | **2** | **3** | **4** | **5** | | **CO1** | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | | **CO2** | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | | **CO3** | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | 3 | 3 | 2 | | **CO4** | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | | **CO5** | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 3 | 2 | |

**\***3– Strong, 2- Medium, 1- Low

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **23PCOAC23** | **CORE COURSE - 6**  **23PCOAC23 :**  **SETTING UP OF BUSINESS ENTITIES** | **L** | **P** | **C** |
| **Semester-2** | **6** |  | **4** |

|  |  |
| --- | --- |
| Learning Objectives: | |
| LO1: | To understand the startup landscape and its financing |
| LO2: | To analyse the formation and registration of Section 8 company |
| LO3: | To outline the concept of LLP and business collaboration |
| LO4: | To understand the procedure for obtaining registration and license |
| LO5: | To create awareness about the legal compliances governing business entities |

|  |  |
| --- | --- |
| Course Outcomes: | |
|  | Afterthe successful completion of the course, the students will be able to: |
| CO1: | Assess the various avenues of acquiring finance to setup a business entity |
| CO2: | Recall the legal requirements for Section 8 Company |
| CO3: | Examine the proceedings for LLP and joint venture |
| CO4: | Describe the registration and licensing procedure |
| CO5: | Examine the compliance of regulatory framework |

Unit I: **Startups in India**

Types of business organisations – Factors governing selection of an organisation - Startups – Evolution – Definition of a Startup – Startup landscape in India – Startup India policy – Funding support and incentives – Indian states with Startup policies – Exemptions for startups – Life cycle of a Startup – Important points for Startups – Financing options available for Startups – Equity financing – Debt financing – Venture capital financing – IPO – Crowd funding – Incubators - Mudra banks – Successful Startups in India.

Unit II: **Not-for-Profit Organisations**

Formation and registration of NGOs – Section 8 Company – Definition – Features – Exemptions – Requirements of Section 8 Company – Application for incorporation – Trust: Objectives of a trust – Persons who can create a trust – Differences between a public and private trust – Exemptions available to trusts – Formation of a trust - Trust deed –Society – Advantages – Disadvantages – Formation of a society – Tax exemption to NGOs.

Unit III: **Limited Liability Partnership and Joint Venture**

Limited Liability Partnership: Definition – Nature and characteristics – Advantages and disadvantages – Procedure for incorporation – LLP agreement – Annual compliances of LLP - Business collaboration: Definition – Types – Joint venture: Advantages and disadvantages – Types – Joint venture agreement - Successful joint ventures in India– Special Purpose Vehicle – Meaning – Benefits – Formation.

Unit IV: **Registration and Licenses**

Registration and Licenses: Introduction – Business entity registration – Mandatory registration – PAN – Significance – Application and registration of PAN – Linking of PAN with Aadhar – TAN – Persons liable to apply for TAN – Relevance of TAN – Procedure to apply for TAN – GST: Procedure for registration – Registration under Shops and Establishment Act – MSME registration – Clearance from Pollution Control Board – FSSAI registration and license – Trade mark, Patent and Design registration.

Unit V:**Environmental Legislations in India**

Geographical Indication of Goods (Registration and Protection) Act, 1999: Objectives, Salient Features - The Environmental Protection Act, 1986: Prevention, control and abatement of environmental pollution - The Water (Prevention And Control of Pollution) Act, 1974: The Central and State Boards for Prevention and Control of Water Pollution - Powers and Functions of Boards - Prevention and Control of Water Pollution - Penalties and Procedure- The Air (Prevention and Control of Pollution) Act, 1981: Central and State Boards for The Prevention and Control of Air Pollution - Powers And Functions - Prevention and Control of Air Pollution - Penalties and Procedure.

|  |  |  |
| --- | --- | --- |
| Recent Amendments in Setting up of Business Entities | | |
| Faculty member will impart the knowledge on recent Amendments in Setting up of new Business Entities to the students and these components will not cover in the examination. | | |
| |  |  | | --- | --- | | Text Books: | | | 1. | Kailash Thakur, (2007) “Environment Protection Law and Policy in India”, 2nd Edition, Deep & Deep Publication Pvt. Ltd., New Delhi. | | 2. | Avtar Singh, (2015), “Intellectual Property Law”, Eastern Book Company, Bangalore | | 3. | Zad N.S and Divya Bajpai, (2022) “Setting up of Business Entities and Closure” (SUBEC), Taxmann, Chennai | | 4. | Amit Vohra & Rachit Dhingra (2022) “Setting Up Of Business Entities & Closure”, 6th Edition, Bharath Law House, New Delhi |  |  |  |  | | --- | --- | --- | | Supplementary Readings: | | | | 1. | | Setting up of Business Entities and Closure (2021), Module 1, Paper 3, The Institute of Company Secretaries of India, MP Printers, Noida | | 2. | | The Air/Water(Prevention and Control of Pollution) Act, 1981, Bare Act, 2022 Edition, Universal/LexisNexis, Noida | | 3. | | Cliff Ennico, (2005) “Small Business Survival Guide Starting Protecting and Securing your Business for Long-Term Success”, Adams Media, USA | | 4. | | 1. Daniel Sitarz, (2011) “Sole Proprietorship: Small Business Start-up Kit”, 3rd Edition, ‏Nova Publishing, USA | |  | |  | | Web Reference: | | | | 1 | https://www.icsi.edu/media/webmodules/FINAL\_FULL\_BOOK\_of\_EP\_ SBEC\_2018.pdf | | | 2 | https://www.mca.gov.in/MinistryV2/incorporation\_company.html 3) | | | 3 | https://legislative.gov.in/sites/default/files/The%20Limited%20Liability%20 Partnership%20 Act,%202008.pdf | | | 4 | https://legislative.gov.in/sites/default/files/A1999-48.pdf | | | | |
|  | **Outcome Mapping**   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | **Programme Outcomes** | | | | | | | | | | | | **Programme Specific Outcomes** | | | | | | **CO** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **1** | **2** | **3** | **4** | **5** | | **CO1** | 2 | 2 | 1 | 2 | 1 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 1 | 1 | 2 | 3 | 3 | | **CO2** | 2 | 3 | 2 | 3 | 1 | 1 | 3 | 3 | 3 | 3 | 2 | 3 | 1 | 1 | 2 | 3 | 3 | | **CO3** | 2 | 2 | 3 | 2 | 1 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 1 | 2 | 3 | 3 | 2 | | **CO4** | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | | **CO5** | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 1 | 3 | 2 | 1 | 3 | 3 | 2 | |

**\***3– Strong, 2- Medium, 1- Low

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **23PCOAE24-1** | **Elective Course - 3**  **23PCOAE24-1**  **DATA MINING AND DATA WAREHOUSING** | **L** | **P** | **C** |
| **Semester-2** | **4** |  | **3** |

|  |  |
| --- | --- |
| Learning Objectives: | |
| LO1: | To understand the basic concepts, principles and need of data warehousing |
| LO2: | To gain knowledge on the data warehouse architecture, modelling and its implementation. |
| LO3: | To understand steps in implementing data mart and its various dimensions |
| LO4: | To learn the features, types and challenges of data mining |
| LO5: | To aid the students to understand the various data mining tools and techniques |

|  |  |
| --- | --- |
| Course Outcomes: | |
|  | After the successful completion of the course, the students will be able to: |
| CO1: | Explain the basic concepts, principles and need of data warehousing |
| CO2: | Appraise data warehouse architecture, modelling and its implementation. |
| CO3: | Choose various steps in implementing data mart and its dimensions |
| CO4: | Recall the features and types of data mining |
| CO5: | Apply various data mining tools and techniques |

Unit I: **Data Warehouse**

Definition - history of data warehouse - features of data warehouses - characteristics of data warehouse - goals of data warehousing- principles of data warehousing - need for data warehouse - benefits of data warehouse - need for separate data warehouse - difference between database and data warehouse - applications of data warehouses - components of data warehouse- data staging component.

Unit II:**Data Warehouse Architecture**

Data warehouse architecture - properties of data warehouse architectures - types of data warehouse architectures- three-tier data warehouse architecture - ETL (extract, transform, and load) process - selecting an ELT tool- Difference between ETL and ELT types of data warehouses - data warehouse modelling - data modelling life cycle - types of data warehouse models- data warehouse design - data warehouse implementation- implementation guidelines - meta data - necessary of metadata in data warehouses - types of metadata- metadata repository - benefits of metadata repository.

Unit III: **Data Mart**

Data Mart- Reasons for creating a data mart- Types of Data Marts- Steps in Implementing a Data Mart- Difference between Data Warehouse and Data Mart. - Dimensional Modeling-Objectives of Dimensional Modeling- Advantages of Dimensional Modeling - Elements of Dimensional Modeling - Dimension Table- Multidimensional Data Model-Data Cube.

Unit IV: **Data Mining**

Definition - History of Data Mining- Features of Data Mining - Types of Data Mining - Data Mining Vs Data Warehousing- Advantages and Disadvantages of Data Mining - Data Mining Applications - Challenges of Implementation in Data mining - Steps involved in Data Mining - Classification of Data Mining Systems.

Unit V: **Data Mining Tools & Techniques**

0 Implementation Process - Data Mining Architecture - Clustering in Data Mining - Different types of Clustering - Text Data Mining - Bitcoin Data Mining - Data Mining Vs Big Data - Data Mining Models - Trends in Data Mining.

|  |
| --- |
| Recent Trends in Data Mining & Data Warehousing |
| Faculty member will impart the knowledge on recent trends in Data Mining & Data Warehousing to the students and these components will not cover in the examination. |

|  |  |
| --- | --- |
| Text Books: | |
| 1. | Jiawei Han, MichelineKamber (2011), Data Mining, Concepts and Techniques, Morgan Kauffman Publishers, California. |
| 2. | Pang Ning Tan, Michael Steinbach, Vipin Kumar (2005), Introduction to Data Mining, Addison Wesley, USA. |
| 3. | K. P. Soman, ShyamDiwakar, V. Ajay (2006), Insight into Data Mining: Theory & Practice, Prentice Hall of India, New Delhi. |

|  |  |  |
| --- | --- | --- |
| Supplementary Readings: | | |
| 1. | | BPB Editorial Board (2004), “Data Mining”, BPB publications, Noida. |
| 2. | | Ian H. Witten &Eibe Frank (2011), “Data Mining, Practical Machine Learning Tools and Techniques”, Morgan Kaufmann series. |
| 3. | | Ramesh Sharda, Dursun Delen, Efraim Turban (2018), “Business Intelligence”, Pearson Education Services Pvt Ltd, Noida. |
| Web Reference: | | | |
| 1 | https://mrcet.com/downloads/digital\_notes/ME/III%20 year/ERP%20 Complete%20Digital%20notes.pdf | | |
| 2 | https://mrcet.com/pdf/Lab%20Manuals/IT/DATA%20WAREHOUSING%20AND% 020DATA%20MINING%20(R18A0524).pdf00 | | |

Note: Latest edition of the books may be used

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Outcome Mapping**   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | **Programme Outcomes** | | | | | | | | | | | | **Programme Specific Outcomes** | | | | | | **CO** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **1** | **2** | **3** | **4** | **5** | | **CO1** | 2 | 2 | 1 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 1 | 3 | 2 | 1 | | **CO2** | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 1 | 3 | 2 | 1 | | **CO3** | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 1 | 3 | 2 | 1 | | **CO4** | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | | **CO5** | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 1 | 3 | 3 | 1 | 3 | 3 | 3 | |

**\***3– Strong, 2- Medium, 1- Low

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **23PCOAE24-2** | **Elective Course - 3**  **23PCOAE24-2**  **TECHNOLOGY IN BANKING** | **L** | **P** | **C** |
| **Semester-2** | **4** |  | **3** |

|  |  |
| --- | --- |
| Learning Objectives: | |
| LO1: | To understand the network essentials for an operational core banking system |
| LO2: | To provide an overview of customer centric electronic banking. |
| LO3: | To understand the evolution of electronic fund transfer systems in the banking sector |
| LO4: | To analyse the digital technologies offered in banking services. |
| LO5: | To understand the information security system |

|  |  |
| --- | --- |
| Course Outcomes: | |
|  | After the successful completion of the course, the students will be able to: |
| CO1: | Discuss the utility of stand-alone and multi-user systems access in Core banking. |
| CO2: | Assess the multi-faceted electronic payment options available to customer and host transactions in banking. |
| CO3: | Evaluate the dynamic transitions in Electronic Fund transfer systems. |
| CO4: | Evaluate the enhanced utility and user interface and other recent developments in banking technologies. |
| CO5: | Assess the information security system |

Unit I: **Introduction to Core Banking Computerization**

Essentials of Bank Computerization – Stand Alone and Multi-User System – Local Area Network and Wide Area Network: Features, Advantages and Limitations – Core Banking: Essential Requirements and Benefits.

Unit II: **Electronic Payment System and Banking Facilities**

Electronic Payment Systems – ATM: Features – Advantages – Disadvantages – Brown Labe l and White Label ATM, PIN, Electro Magnetic Cards, Credit Cards, Debit Cards and Smart Cards: Features, Benefits and Limitations – Multiple Pin in Smart Card – Electronic Purse – Electronic Cheque – Electronic Cash – Electronic Banking – Home Banking (Corporate and Personal) – Update Facilities – Internet Banking – Mobile Banking: Features, Advantages and Limitations – Signature Storage and Retrieval System – Cheque Truncation – MICR and OCR: Characteristics – Advantages and Limitations.

Unit III: **Electronic Fund Transfer and Its Transitions**

Electronic Fund Transfer System – Electronic Credit and Debit Clearing – NEFT, RTGS, VSAT, SFMS, SWIFT: Features, Advantages and Limitations – Digital Signature -Unified Payments Interface (UPI): Concept, Mechanism and Services Covered – Digital Wallets (E- Wallets): Features, Benefits and Types.

Unit IV: **Trends in Banking Technology**

Recent Developments in Banking Technology: Digital Account Opening – Application Programming Interface – Video Collaboration – Person-to-Person Payments – Cloud Computing – NUUP (National Unified USSD Platform), AePS (Aadhaar enabled Payment System) –APBS (Aadhaar Payments Bridge System) - Role of IDBRT (Institute of Development and Research in Banking) in banking technology development - Status of E-banking in India - Process of E-Banking - Benefits of E-banking - Emerging challenges in banking industry - Scope of IT to tackle the key challenges.

Unit V: **Information Security System**

Information security - Software based security systems - Hardware based security systems (smart card, M chip) – Hackers: Techniques used by the hackers, Phishing, Pharming, Key loggers, Screen loggers, Phishing - Trojans transaction poisoning - Card related fraud - Site cloning – False merchant site - Authentication methodologies and security measures (Password protection - Smart cards - Biometric characteristics) - Encryption and security - Customer confidentiality - Regulatory environment of internet banking - Legal Framework for Electronic Transactions – Cyber security as per Information Technology Act, 2000 – RBI Guidelines on Internet Banking.

|  |
| --- |
| Recent Trends in Technology in Banking |
| Faculty member will impart the knowledge on recent trends in Technology in Banking to the students and these components will not cover in the examination. |

|  |  |
| --- | --- |
| Text Books: | |
| 1. | Sangeetha R, (2013) “Technology in Banking”, 1st Edition, Charulatha Publications, Chennai. |
| 2. | Sohani, A K, (2012) “Technology in Banking Sector”, SBS Publishers and Distributors Pvt Ltd, New Delhi. |
| 3. | Uppal R K and Dhiraj Sharma, (2017) “Banking with Technology: A New Vision -2020”, Bharti Publication, New Delhi |
| 4. | Indian Institute of Banking and Finance, (2017) “Information Technology, Data Communications and Electronic Banking”, 3rd Edition, Macmillan Publishers India Private Limited, Noida. |

|  |  |
| --- | --- |
| Supplementary Readings: | |
| 1. | Vadlamani Ravi, (2007) “Advances in Banking Technology and Management: Impacts of ICT and CRM”, 1st Edition, Information Science Reference, Hershey, (USA |
| 2. | Lucian Morris and  Tim Walker, (2021) “ The Handbook of Banking Technology” , John Wiley & Sons, New York. |
| 3. | Indian Institute of Banking and Finance, (2017), “Security in Electronic Banking”, 3rd Edition, Macmillan Publishers India Private Limited, Noida. |
| 4. | Uppal R.K., Agrim Uppal (2008) “Banking Services and Information Technology: The Indian Experience”, New Century Publications, New Delhi. |
| Web Reference: | |
| 1 | https://rbidocs.rbi.org.in/rdocs/Bulletin/PDFs/64767.pdf |
| 2 | https://www.researchgate.net/profile/Ravi-Vadlamani/publication/237383828\_Chapter\_I\_Introduction\_to\_Banking\_Technology\_and\_Management/links/572a89bc08aef7c7e2c4fbc3/Chapter-I-Introduction-to-Banking-Technology-and-Management.pdf |
| 3 | https://eprocure.gov.in/cppp/rulesandprocs/kbadqkdlcswfjdelrquehwuxcfmijmuixngudufgbuub gubfugbububjxcgfvsbdihbgfGhdfgFHytyhRtMjk4NzY=#:~:text=%5B9th%20June%2C%202000%5D%20An,communication%20and%20storage%20of%20information%2C |

Note: Latest edition of the books may be used

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Outcome Mapping**   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | **Programme Outcomes** | | | | | | | | | | | | **Programme Specific Outcomes** | | | | | | **CO** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **1** | **2** | **3** | **4** | **5** | | **CO1** | **2** | **2** | **1** | **2** | **3** | **3** | **3** | **3** | **3** | **3** | **2** | **3** | **3** | **1** | **3** | **2** | **1** | | **CO2** | **3** | **3** | **3** | **3** | **3** | **3** | **3** | **3** | **3** | **3** | **2** | **3** | **3** | **1** | **3** | **2** | **1** | | **CO3** | **3** | **3** | **3** | **3** | **3** | **3** | **3** | **3** | **3** | **3** | **2** | **2** | **3** | **1** | **3** | **2** | **1** | | **CO4** | **3** | **3** | **2** | **3** | **3** | **3** | **3** | **3** | **3** | **3** | **2** | **2** | **3** | **2** | **3** | **3** | **3** | | **CO5** | **2** | **2** | **2** | **3** | **3** | **3** | **3** | **3** | **3** | **3** | **1** | **3** | **3** | **1** | **3** | **3** | **3** | |

**\***3– Strong, 2- Medium, 1- Low

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **23PCOAE25-1** | **Elective Course - 4**  **23PCOAE25-1 FINANCIAL ANALYTICS (PRACTICALS)** | **L** | **P** | **C** |
| **Semester-2** | **4** |  | **3** |

|  |  |
| --- | --- |
| Learning Objectives: | |
| LO1: | To understand the statistical concepts relating to Probability, decision making under uncertainty and analysis of exploratory data |
| LO2: | To learn the use of regression, time series analysis and building of models using accounting data |
| LO3: | To gain knowledge on R and python programming |
| LO4: | To prepare, analyse and forecast financial statements using cash flow statements |
| LO5: | To gain knowledge on concept, application, and issues in capital budgeting |

|  |  |
| --- | --- |
| Course Outcomes: | |
|  | After the successful completion of the course, the students will be able to: |
| CO1: | Analyse decisions under uncertainty and also analyse exploratory |
| CO2: | Build models using accounting data and analyse using regression and time series tools |
| CO3: | Apply R and python programming |
| CO4: | Estimate and analyse financial statements using cash flow statements |
| CO5: | Select appropriate capital budgeting techniques for decision making |

Unit I: **Statistical Concepts**

Probability, Normal, Lognormal distribution properties, Decision making under uncertainty - Cleaning and pre-processing financial data, Exploratory Data Analysis in Finance.

Unit II: **Simple Linear Models**

Use of Regression in Finance, Building Models using Accounting Data, Understanding stock price behaviour, time series analysis in finance.

Unit III: **Using R for Analysis of Data**

Quick introduction to R and Python, understanding data in finance, sources of data, Using R for analysis of data.

Unit IV: **Cash Flow Concepts**

Cash flow statement – Prepare and Analyse, Modelling and forecasting of financial statements.

Unit V: **Capital Budgeting**

NPV, IRR – Concept, application, and issues, Use of real options for better financial outcomes..

|  |  |  |  |
| --- | --- | --- | --- |
| Recent Trends in Financial Analytics | | | |
| Faculty member will impart the knowledge on recent trends in Financial Analytics the students and these components will not cover in the examination. | | | |
| Text Books: | | | | | |
| 1. | | | Gary Koop, “Analysis of Economic Data”, 4th Edition, Wiley, USA. | | |
| 2. | | | David Ruppert, David S. Matteson, “Statistics and Data Analysis for Financial Engineering: with R examples”, Springers, USA. | | |
|  | | |  | | |
| Supplementary Readings: | | | | | | |
| 1. | | | | | Ang Clifford, “Analyzing Financial Data and Implementing Financial Models Using ‘R’”, Springers, USA. | |
| 2. | | | | | Wayne L. Winston, “Microsoft Excel 2013: Data Analysis and Business Modeling”, Microsoft Publishing, USA. | |
|  | | | | |  | |
| Web Reference: | | | | | | | |
| 1 | | | | | https://personal.ntu.edu.sg/nprivault/MH8331/financial\_risk\_analytics.pdf | | |
| 2 | | | | | https://dynamics.microsoft.com/en-us/finance/what-is-financial-analytics/ | | |
|  | | | | | **Note: Latest edition of the books may be used** | | |
|  | | **Outcome Mapping**   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | **Programme Outcomes** | | | | | | | | | | | | **Programme Specific Outcomes** | | | | | | **CO** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **1** | **2** | **3** | **4** | **5** | | **CO1** | 2 | 2 | 1 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 1 | 3 | 2 | 1 | | **CO2** | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 1 | 3 | 2 | 1 | | **CO3** | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 1 | 3 | 2 | 1 | | **CO4** | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | | **CO5** | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 1 | 3 | 3 | 1 | 3 | 3 | 3 | | | | | | |

**\***3– Strong, 2- Medium, 1- Low

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **23PCOAE25-2** | **Elective Course - 4**  **23PCOAE25-2**  **MANAGEMENT INFORMATION SYSTEM** | **L** | **P** | **C** |
| **Semester - 2** | **4** |  | **3** |

|  |  |
| --- | --- |
| Learning Objectives: | |
| LO1: | To understand the basic concept of Information system |
| LO2: | To identify the importance of MIS |
| LO3: | To understand the Functional Management Information System |
| LO4: | To learn the role of system analyst |
| LO5: | To apply the concept of Enterprise Resource Planning |

|  |  |
| --- | --- |
| Course Outcomes: | |
|  | After successful completion of the course, the students will be able to: |
| CO1: | Identify the basic concept of Information system |
| CO2: | Discuss the importance of MIS |
| CO3: | Explain the functional MIS |
| CO4: | Describe the role of system analyst |
| CO5: | Apply the concept of Enterprise resource planning |

Unit I: **Information System**

Introduction to information system - Management - Structure and Activities - Information needs and sources - Types of management decisions and information need - System classification - Elements of system, input, output, process and feedback.

Unit II: **Types of Management Information Systems**

Transaction Processing Information System - Information system for managers - Intelligence information system – Decision support system - Executive information systems.

Unit III: **Functional Management Information Systems**

Functional Management Information System: Production Information system - Marketing Information Systems - Accounting Information System - Financial Information System - Human Resource Information System.

Unit IV: **System design and Database**

System Analysis and Design: The work of a system analyst - SDLC- System design – Requirement analysis - Data flow diagram - Relationship diagram - Design -Implementation - Evaluation and maintenance of MIS - Database System: Overview of Database - Components - Advantages and disadvantages of database.

Unit V:

The Origin **Enterprise Resource Planning**

Enterprise Resource Planning (ERP) System - Benefits of the ERP - How ERP is different from conventional packages - Need for ERP - ERP components - Selection of ERP Package - ERP implementation - Customer Relationship management - Organisation & Types - Decision Making - Data & information - Characteristics & Classification of information - Cost & value of information - Various channels of information and MIS

|  |
| --- |
| **Recent Developments in Management Information System** |
| Faculty member will impart the knowledge on recent Management Information System to the students and these components will not cover in the examination. |

|  |  |
| --- | --- |
| Text Books: | |
| 1. | Azam, M (2012), "Management Information System", McGrawHill Education, Noida |
| 2. | Laudon, K., Laudon, J. and Dass, R. (2010), "Management Information Systems – Managing the Digital Firm", 11th Edition, Pearson, Noida. |
| 3. | Murdick, R.G., Ross, J.E. and Claggett, J.R. (2011), "Information Systems for Modern Management", 3rd Edition, PHI, New Delhi. |
|  |  |
|  |  |
| Supplementary Readings: | |
| 1. | O’Brien, J.A., Morakas, G.M. and Behl, R. (2009), "Management Information Systems", 9th Edition, Tata McGraw-Hill Education, Noida. |
| 2. | Saunders, C.S. and Pearson, K.E. (2009), "Managing and Using Information Systems", 3rd Edition, Wiley India Pvt. Ltd., New Delhi. |
| 3. | Stair, R. and Reynolds, G. (2012), "Information Systems", 10th Edition, Cengage Learning, Noida. |
|  |  |
|  | **Web references:**  https://cleartax.in/g/terms/mis-meaning-mis-full-form-marketing-information-system/amp https://www.techtarget.com/searchitoperations/definition/MIS-management-information-systems |
|  |  |
|  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **23PCOAS26** | **SKILL ENHANCEMENT COURSE SEC-1 23PCOAS26: GOODS AND SERVICES TAX** | **L** | **P** | **C** |
| **Semester 2** | **4** |  | **2** |

|  |  |  |
| --- | --- | --- |
| **Learning Objectives:** | | |
| **LO1:** | | To enable the students to understand the basic concept of indirect tax |
| **LO2:** | | To provide the students to know the structure of GST |
| **LO3:** | | To educate the students with registration process of GST |
| **LO4:** | | To educate the students for Input Tax Credit |
| **LO5:** | | To understand the filing of returns and payment procedure of GST and Refund process and assessment. |
| Course Outcomes: | | |
|  | After the successful completion of the course, the students will be able to: | |
| **CO1:** | Comprehend the fundamentals of indirect tax and need for GST | |
| **CO2:** | Understand the structure of GST and their schemes in practice | |
| **CO3:** | Disseminate various modes of registration of GST | |
| **CO4:** | Familiarize themselves with the adjustment of debit and credit notes | |
| **CO5:** | Understand and apply the e-filling of GST in practice | |

Unit I: **Introduction to Goods and Services Tax**

Indirect Taxes – Problems of Indirect taxes – Need for introduction of GST – Commodities kept out the preview of GST – Other indirect Taxes

Unit II: **Structure of GST**

GST Structure – CGST –SGST- IGST – Futures – Exemptions – Schemes – Composition Schemes – Ordinary Scheme – GST Structured Rates

Unit III: **GST Registration Process**

Registration process in GST – Types – Compulsory Registration - Cancellation

Unit IV:**Input Tax Credit**

Input Tax Credit – Adjustment of Debit Notes and Credit Notes – Problems in Input Tax Credit

Unit V: **Returns, Payments, Refund Process and Assessment**

Process of Return Filing-Types of Returns - E-Ledger and E-Payment Process in GST- Assessment Methods – Refund under GST – Refund under Special Occasions - Authorities of GST

|  |
| --- |
| **RecentAmendments in Goods and Services Tax** |
| Thefacultymember willimparttheknowledgeonrecent trends in Goods and Services Tax tothestudentsandthesecomponentswillnotcoverin theexamination. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Text Books: | | | | | |
| 1. | | Bal Balachandran V., 2024, Indirect Taxes, Sultan Chand and Sons, New Delhi | | | |
| 2. | | SSar Sarangi 2024Goods and Services Tax Precept and Practice 2024,CentaxPublications, New Delhi | | | |
| 3. | | Anandaday Mishra, 2024, GST Law and Procedure, Taxmann Publications Pvt Limited,New Delhi | | | |
| 4. | | Raj. C. A., Agarwa. K, 2019, Taxation and Indirect Taxes, Taxmann Publications Pvt Limited,New Delhi | | | |
|  | |  | | | |
|  | |  | | | |
| Supplementary Readings: | | | | |
| 1. | | | | Anjali Agarwal, 2024, Goods and Service Tax, New Century Publications, New Delhi |
| 2. | | | | Sanjeet Sharma and Shaileja Anand, 2024, VK Global Publications (P) Ltd., New Delhi |
| 3. | | | | Mishra. SK, 2024, Simplified Approach to GST, Educreation Publishing, New Delhi |
| 4. | | | | Viswanthan.B, 2024, Goods and Services Tax in India, New Century Publications, New Delhi |
| Web Reference: | | | | | |
| 1 | | https://taxguru.in/goods-and-service-tax/download-free-book-goods-services-tax-gst-india.html | | | |
| 2 | | https://cleartax.in/s/gst-book-online-pdf | | | |