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|  | **BS(IT) Session 2018-22 Sem-4****(List of Courses to be Offered)** |  |
| 1 | CSI-402 | Operating Systems | 3(2-1) |
| 2 | CSI-619 | Information Security | 3(3-0) |
| 3 | CSI-512 | Computer Networks | 4(3-1) |
| 4 | CIT-406 | Web Technologies | 3(3-0) |
| 5 | FIN-301 | Financial Accounting-1 | 3(3-0) |
| **Total** | **15** |

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| **Operating Systems** |
| **Course Contents:** |
| Operating systems basics, system calls, process concept and scheduling, inter-process communication, multithreaded programming, multithreading models, threading issues, process scheduling algorithms, thread scheduling, multiple-processor scheduling, synchronization, critical section, synchronization hardware, synchronization problems, deadlocks, detecting and recovering from deadlocks, memory management, swapping, contiguous memory allocation, segmentation & paging, virtual memory management, demand paging, thrashing, memory-mapped files, file systems, file concept, directory and disk structure, directory implementation, free space management, disk structure and scheduling, swap space management, system protection, virtual machines, operating system security  |
| **Reference Material:** |
| 1. Operating Systems Concepts, 9th edition by Abraham Silberschatz 2. Modern Operating Systems, 4th edition by Andrew S. Tanenbaum 3. Operating Systems, Internals and Design Principles, 9th edition by William Stallings  |

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| **Information Security** |
| **Course Contents:** |
| Information security foundations, security design principles; security mechanisms, symmetric and asymmetric cryptography, encryption, hash functions, digital signatures, key management, authentication and access control; software security, vulnerabilities and protections, malware, database security; network security, firewalls, intrusion detection; security policies, policy formation and enforcement, risk assessment, cybercrime, law and ethics in information security, privacy and anonymity of data.  |
| **Reference Material:** |
| 1. Computer Security: Principles and Practice, 3rd edition by William Stallings 2. Principles of Information Security, 6th edition by M. Whitman and H. Mattord 3. Computer Security, 3rd edition by Dieter Gollmann 4. Computer Security Fundamentals, 3rd edition by William Easttom 5. Official (ISC)2 Guide to the CISSP CBK, 3rd edition  |

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| **Web Technologies** |
| **Course Contents:** |
| Introduction to Web Applications, TCP/IP Application Services. Web Servers: Basic Operation, Virtual hosting, Chunked transfers, Caching support, Extensibility. SGML, HTML5, CSS3. XML Languages and Applications: Core XML, XHTML, XHTM MP. Web Service: SOAP, REST, WML, XSL. Web Services: Operations, Processing HTTP Requests, Processing HTTP Responses, Cookie Coordination, Privacy and P3P, Complex HTTP Interactions, Dynamic Content Delivery. Server Configuration. Server Security. Web Browsers Architecture and Processes. Active Browser Pages: JavaScript, DHTML, AJAX. JSON, Approaches to Web Application Development. Programing in any Scripting language. Search Technologies. Search Engine Optimization. XML Query Language, Semantic Web, Future Web Application Framework.  |
| **Reference Material:** |
| 1. Web Application Architecture: Principles, protocols and practices by Leon Shklar and Richard Rosen, Wiley; 2nd Edition (May 5, 2009). ISBN-10:047051860X **2.** Web Technologies: A Computer Science Perspective by Jeffrey C. Jackson, Prentice Hall; 1st Edition (August 27, 2006). ISBN-10:0131856030  |

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| **Computer Networks** |
| **Course Contents:** |
| Introduction and protocols architecture, basic concepts of networking, network topologies, layered architecture, physical layer functionality, data link layer functionality, multiple access techniques, circuit switching and packet switching, LAN technologies, wireless networks, MAC addressing, networking devices, network layer protocols, IPv4 and IPv6, IP addressing, sub netting, CIDR, routing protocols, transport layer protocols, ports and sockets, connection establishment, flow and congestion control, application layer protocols, latest trends in computer networks.  |
| **Reference Material:** |
| 1. Computer Networking: A Top-Down Approach Featuring the Internet, 6th edition by James F. Kurose and Keith W. Ross 2. Computer Networks, 5th Edition by Andrew S. Tanenbaum 3. Data and Computer Communications, 10th Edition by William Stallings 4. Data Communication and Computer Networks, 5th Edition by Behrouz A. Forouzan  |

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| **Financial Accounting-1** |
| **Course Contents:** |
| **Week** | **Contents** |
| Week 1 | **Accounting and its role** • Development of accounting • Accounting Theory and Conceptual framework • Accounting Defined • Why study Accounting • Financial statements • Major fields of Accounting • Accounting as a Career |
| Week 2 | **Basic Accounting Concepts** • The Entity Concept • The Reliability (or Objectivity) principle • The cost Principle • The Going-Concern Assumptions • The Stable Currency Assumptions • Ethics-the-Most Fundamental Principle of Accounting • Qualitative characteristics of Financial statements |
| Week 3 & 4 | **The recording process** • The Recognition Issue • The Valuation Issue • The Classification Issue • The Recording Process • Analysis of Transaction • The Journal • The Ledger • Balancing the Accounts |
| Week 5 & 6 | **Preparation of Financial Statements** • Preparing Trial Balance • Locating and correcting errors in recording process • Preparing Profit and Loss Account and Balance Sheet |
| Week 6 & 7 | **The adjusting and closing entries** • Need for Adjusting Entries • Recording adjusting entries • Preparing adjusted trial balance • Recording closing entries • Preparing post-closing trial balance • Preparing work-sheet • Preparation of Financial Statements |
| Week 8 & 9 | **Accounting for trading organization** • The Purchase Function • Accounting for Purchases and Sales • Return and allowances • Periodic System• Perpetual System • Worksheet • Preparation of financial Statements • Departmental Accounts |
| Week 10 & 11 | **Accounting Systems** • Developing a System • Subsidiary Journals • Subsidiary ledgers • Cash Book • Petty cash book • Control Accounts |
| Week 12 | **Cash and temporary investment** • Nature and Composition of Cash • Cash Management and Control • Maintaining Bank Account • Bank Reconciliation • Short term investments |
| Week 13 & 14 | **Accounting for debtors and stock** • Accounting Treatment of Bad Debts • Direct write-Off Method • Aging Schedule • Percentage of Sales Method • Recoveries of Bad debts • Stock• Measurement of Stock Quantity • Measurement of Stock Cost • Perpetual Stock System • Periodic Stock System |
| Week 15 & 16 | **Accounting for property, plant and equipment** • Property, Plant and Equipment • Lump-sum Purchase • Subsequent Expenditure • Depreciation methods • Revaluation • Review of Useful life • Intangible Assets and Amortization • Wasting Assets and Depletion |
| **Reference Material:** |
| 1. Williams, Haka, Bettner: Financial & Managerial Accounting, Latest Edition, Prentice Hall 2. Professor Muhammad Ammanullah Khan: Financial Accounting, Latest Edition 3. Frank Wood‟s: Business Accounting 1, Eleventh Edition 4. Meigs and Meigs, Accounting for Business Decision, 9th Edition/Latest Edition |