UNIT I
INTRODUCTION TO MANAGEMENT:
Concepts of Management and organization- nature, importance and Functions of Management, Taylor's Scientific Management Theory, Fayol's Principles of Management, Mayo's Hawthorne Experiments, Maslow's Theory of Human Needs, Douglas McGregor's Theory X and Theory Y, Herzberg's Two-Factor Theory of Motivation, Systems Approach to Management, Leadership Styles, Social responsibilities of Management.

UNIT II
DESIGNING ORGANIZATIONAL STRUCTURES:
Basic concepts related to Organisation - Departmentation and Decentralisation, Types of mechanistic and organic structures of organisation (Line organization, Line and staff organization, functional organization, Committee organization, matrix organization, Virtual Organisation, Cellular Organisation, team structure, boundaryless organization, inverted pyramid structure, lean and flat organization structure) and their merits, demerits and suitability.

UNIT III
OPERATIONS MANAGEMENT:
Principles and Types of Plant Layout-Methods of production (Job, batch and Mass Production), Work Study -Basic procedure involved in Method Study and Work Measurement- Statistical Quality Control: chart, R chart, c chart, p chart, (simple Problems), Acceptance Sampling, Deming's contribution to quality.

UNIT IV
MATERIALS MANAGEMENT:
Objectives, Need for Inventory control, EOQ, ABC Analysis, Purchase Procedure, Stores Management and Stores Records.
Marketing: Functions of Marketing, Marketing Mix, Marketing Strategies based on Product Life Cycle, Channels of distribution

UNIT V
HUMAN RESOURCES MANAGEMENT (HRM):
Concepts of HRM, HRD and Personnel Management and Industrial Relations (PMIR), HRM vs.PMIR, Basic functions of HR Manager: Manpower planning, Recruitment, Selection, Training and Development, Placement, Wage and Salary Administration, Promotion, Transfer, Separation, Performance Appraisal, Grievance Handling and Welfare Administration, Job Evaluation and Merit Rating.

UNIT VI
PROJECT MANAGEMENT (PERT/CPM):
Network Analysis, Programme Evaluation and Review Technique (PERT), Critical Path Method (CPM), Identifying critical path, Probability of Completing the project within given time, Project Cost Analysis, Project Crashing. (simple problems)

UNIT VII
STRATEGIC MANAGEMENT:
Mission, Goals, Objectives, Policy, Strategy, Programmes, Elements of Corporate Planning Process, Environmental Scanning, Value Chain Analysis, SWOT Analysis, Steps in Strategy Formulation and Implementation, Generic Strategy alternatives.

UNIT VIII
CONTEMPORARY MANAGEMENT PRACTICES:
Basic concepts of MIS, End User Computing, Materials Requirement Planning (MRP), Just-In-Time (JIT) System, Total Quality Management (TQM), Six sigma and Capability Maturity Model (CMM) Levels, Supply Chain Management, Enterprise Resource Planning (ERP), Performance Management, Business Process outsourcing (BPO), Business Process Re-engineering and Bench Marking, Balanced Score Card.

TEXT BOOKS:
1. Aryasri: Management Science, TMH, 2004.
2. Stoner, Freeman, Gilbert, Management, 6th Ed, Pearson Education, New Delhi, 2004.

REFERENCES:

1. Kotler Philip & Keller Kevin Lane: Marketing Mangement 12/e, PHI, 2005.
2. Koontz & Weihrich: Essentials of Management, 6/e, TMH, 2005.
3. Thomas N.Duening & John M.Ivancevich Management—Principles and Guidelines, Biztantra, 2003.
4. Kanishka Bedi, Production and Operations Management, Oxford University Press, 2004.
5. Memoria & S.V.Gauker, Personnel Management, Himalaya, 25/e, 2005
6. Samuel C.Certo: Modern Management, 9/e, PHI, 2005
7. Schermerhorn, Capling, Poole & Wiesner: Management, Wiley, 2002.
8. Parnell: Strategic Management, Biztantra, 2003.
9. Lawrence R Jauch, R.Gupta &William F.Glueck: Business Policy and Strategic Management, Frank Bros., 2005.
10. L.S.Srinath: PERT/CPM,Affiliated East-West Press, 2005.

(9A05801) DESIGN PATTERNS
(Common to CSE, CSSE, IT)

UNIT I
Review of Formal Notations & Foundation Classes In C++: Class diagram, Object diagram, Interaction diagram Examples. List, Iterator, ListIterator, Point, Rect, coding in C++.

UNIT II
Introduction To Design Patterns: Design Pattern Definition, Design Patterns in Small Talk MVC, Describing Design Patterns, Catalog of Design Patterns, Organizing the Catalog, Solving of Design Problems using Design Patterns, Selection of a Design Pattern, use of Design Patterns.

UNIT III
Designing A Document Editor: A Case Study: Design problems, Document structure, Formatting, Embellishing the User Interface, Supporting Multiple Look and Feel standards, Supporting Multiple Window Systems, User Operations, Spelling Checking and Hyphenation.

UNIT IV
Design Patterns Catalog: Creational Patterns, Abstract Factory, Builder, Factory Method, Prototype, Singleton. Discussion of Creational Patterns.

UNIT V
Structural Patterns-1: Adapter, Bridge, Composite, Decorator.

UNIT VI
Structural Patterns-2 & Behavioral Patterns-1: Structural patterns: Façade. Flyweight, Proxy, Discuss of Structural Patterns. Behavioral Patterns: Chain of Responsibility Command, Interpreter.

UNIT VII
Behavioral Patterns-2: Iterator, Mediator, Observer, State, Strategy, Template Method, Visitor, Discussion of Behavioral Patterns.

UNIT VIII
Behavioral Patterns-3: State. Strategy. Template Method. Visitor. Discussion of Behavioral Patterns. Expectations from Design Patterns.

TEXT BOOKS:
1. Design Patterns: Elements of Reusable Object Oriented Software, Gamma, Belm, Johnson, 1995, PEA.
2. Head First Design Patterns By Eric Freeman-Oreilly-SPD.

REFERENCES:
1. Java Design Paterns, Cooper, Pearson.
2. Object Oriented Design and Pattetrns, Horstmann, Wiley.
3. Object Oriented Systems Development, Ali Bahrami, 1999, MCG.
4. Applying UML Patterns, Larman, PEA.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR
B.Tech. IV-II-Sem. (C.S.E)
(9A05802) SERVICE ORIENTED ARCHITECTURE
(Common to CSE, CSSE)
(ELECTIVE III)

UNIT I
Introduction to SOA, Evolution of SOA: Fundamental SOA, Common Characteristics of contemporary SOA, Benefits of SOA, A SOA timeline(from XML to Web Services to SOA), The continuing evolution of SOA (Standards organizations and Contributing vendors), The roots of SOA(comparing SOA to Past architectures).

UNIT II
Principles of Service- Orientation: Services-orientation and the enterprise, Anatomy of a service-oriented architecture, Common Principles of Service-orientation, Service orientation and Object-orientation, Service layer abstraction, Business service layer, Orchestration service layer.

UNIT III
Web Services and SOA: The Web services framework, Services (as Web Services), Service Registry, Service descriptions (with WSDL), Messaging (with SOAP), Transactions, Coordination, Business Activity, Orchestration, Choreography.

UNIT IV
Addressing, Reliable Messaging, Policies, Metadata, Security, Notification and Events, Semantic Web Services, RESTful Services.

UNIT V
Business Process Design: Business Process Management basics, WS-BPEL language basics, WS-Coordination overview, Service oriented business process design.

UNIT VI
WS-addressing language basics, WS-Reliable Messaging language basics, Service Component Architecture basics.

UNIT VII
Enterprise Platforms and SOA: SOA platform basics, Enterprise Service Bus basics (including basic and complex patterns).

UNIT VIII
SOA support in J2EE, SOA support in .NET, SOA Reference Architecture.

TEXT BOOKS:
1.   Service-Oriented Architecture Concepts and Technology and Design, Thomas Erl, Pearson Education, 2005.

REFERENCES:
1. IT Architecture and Middleware, Strategies for Building Large Integrated Systems, Chris Britton, ISBN 0-201-70907-4.
2.   Understanding SOA with Web Services, Eric Newcomer, Greg Lomow, Pearson   Education, 2005.
3.   Developing Enterprise Web Services: An Architect's Guide, Sandeep Chatterjee, James Webber, Pearson Education, ISBN 81-297-0491-9

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR
B.Tech. IV-II-Sem. (C.S.E)
(9A05803) WEB SERVICES
(ELECTIVE - III)

UNIT I
Evolution and Emergence of Web Services: Evolution of distributed computing, Core distributed computing technologies, client/server, CORBA, JAVA RMI, Micro Soft DCOM, MOM, Challenges in Distributed Computing, role of J2EE and XML in distributed computing, emergence of Web Services and Service Oriented Architecture (SOA).

UNIT II
Introduction to Web Services: The definition of web services, basic operational model of web services, tools and technologies enabling web services, benefits and challenges of using web services.

UNIT III
Web Services Architecture, Web services Architecture and its characteristics, core building blocks of web services, standards and technologies available for implementing web services, web services communication, basic steps of implementing web services, developing web services enabled applications.

UNIT IV
Core fundamentals of SOAP: SOAP Message Structure, SOAP Encoding , SOAP message exchange models, SOAP communication and messaging, SOAP security.

UNIT V
Developing Web Services using SOAP: Building SOAP Web Services, developing SOAP Web Services using Java, limitations of SOAP.

UNIT VI
Describing Web Services: WSDL, WSDL in the world of Web Services, Web Services life cycle, anatomy of WSDL definition document, WSDL bindings, WSDL Tools, limitations of WSDL.

UNIT VII
Discovering Web Services: Service discovery, role of service discovery in a SOA, service discovery mechanisms, UDDI: UDDI Registries, uses of UDDI Registry, Programming with UDDI, UDDI data structures, support for categorization in UDDI Registries, Publishing API,
Publishing information to a UDDI Registry, searching information in a UDDI Registry, deleting information in a UDDI Registry, limitations of UDDI.

UNIT VIII
Web Services Interoperability: Means of ensuring Interoperability, Overview of .NET and J2EE. Web Services Security: XML security frame work, XML encryption, XML digital signature, XKMS structure, guidelines for signing XML documents.

TEXT BOOKS:
1.   Developing Java Web Services, R. Nagappan, R. Skoczylas, R.P. Sriganesh, Wiley India,   rp – 2008.
2.   Developing Enterprise Web Services, S. Chatterjee, J. Webber, Pearson Education, 2008.
3.   XML, Web Services, and the Data Revolution, F.P.Coyle, Pearson Education.

REFERENCES:
1. Building Web Services with Java, Second Edition, S. Graham and others, Pearson Edn., 2008.
2. Java Web Services, D.A. Chappell and T. Jewell, O'Reilly, SPD.
3. Java Web Services Architecture, McGovern, et al., Morgan Kaufmann Publishers, 2005.
4. J2EE Web Services, Richard Monson-Haefel, Pearson Education.
5. Web Services, G. Alonso, F. Casati and others, Springer, 2005.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR
B.Tech. IV-II-Sem. (C.S.E)
(9A05804) SEMANTIC WEB
(ELECTIVE - III)

UNIT I
The Future of the Internet: Introduction, The Syntactic Web, The Semantic Web, How the Semantic Web Will Work.

UNIT II
Ontology in Computer Science: Defining the Term Ontology, Differences Among Taxonomies, Thesauri, and Ontologies, Classifying Ontologies, Web Ontologies, Web Ontology Description Languages, Ontology, Categories, and Intelligence.

UNIT III
Knowledge Representation in Description Logic: Introduction, An Informal Example, The Family of Attributive Languages, Inference Problems.

UNIT IV
RDF and RDF Schema: Introduction, XML Essentials, RDF, RDF Schema, A Summary of the RDF/RDF Schema Vocabulary. OWL: Introduction, Requirements for Web Ontology Description Languages, Header Information, Versioning, and Annotation Properties, Properties, Classes, Individuals, Data types, A Summary of the OWL Vocabulary.

UNIT V
Rule Languages: Introduction, Usage Scenarios for Rule Languages, Datalog, RuleML, SWRL, TRIPLE. Semantic Web Services: Introduction, Web Service Essentials, OWL-S Service Ontology, An OWL-S Example.

UNIT VI
Methods for Ontology Development: Introduction, Uschold and King Ontology Development Method, Toronto Virtual Enterprise Method, Methontology, KACTUS Project Ontology Development Method, Lexicon-Based Ontology Development Method, Simplified Methods. Ontology Sources: Introduction, Metadata, Upper Ontologies, Other Ontologic of Interest, Ontology Libraries.

UNIT VII
Semantic Web Software Tools: Introduction, Metadata and Ontology Editors, Reasoners, Other tools.

UNIT VIII
Software Agents: Introduction, Agent Forms, Agent Architecture, Agents in the Semantic web Context. Semantic Desktop: Introduction, Semantic Desktop Metadata, Semantic Desktop Ontologies, Semantic Desktop Architecture, Semantic Desktop Related Applications. Ontology Application in Art: Introduction, Ontologies for the Description of Works of Art, Metadata Schemas for The Description of Works of Art, Semantic Annotation of Art Images.

TEXT BOOKS:
1. Semantic Web- Concepts, Technologies and applications, Karin K. Breitman, Marco Antonio Casanova and Walter Truszowski, Springer.

REFERENCES:
1. Information Sharing on the Semanting Web, Heiner Stuckenschmidt, Frank van Harmelen, Springer.
2. Semantic Web Primer, Grigoris Antoniou, Frank Van
3. Semantic Web Services: Concepts, Technologies and Applications, Rudi Studer, Stephan Grimm, Andrees Abeker, Springer
4. Towards the Semantic Web: Ontology Driven Knowledge Management, John Davis, Dieter Fensal, Frank Van Harmelen, J. Wiley.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR
B.Tech. IV-II-Sem. (C.S.E)
(9A05805) STORAGE AREA NETWORKS
(ELECTIVE - IV)

UNIT I
Review data creation and the amount of data being created and understand the value of data to a business, challenges in data storage and data management, Solutions available for data storage, Core elements of a data center infrastructure, role of each element in supporting business activities.

UNIT II
Hardware and software components of the host environment, Key protocols and concepts used by each component, Physical and logical components of a connectivity environment ,Major physical components of a disk drive and their function, logical constructs of a physical disk, access characteristics, and performance Implications.

UNIT III

Concept of RAID and its components , Different RAID levels and their suitability for different application environments: RAID 0, RAID 1, RAID 3, RAID 4, RAID 5, RAID 0+1, RAID 1+0, RAID 6, Compare and contrast integrated and modular storage systems ,High-level architecture and working of an intelligent storage system.

UNIT IV

Evolution of networked storage, Architecture, components, and topologies of FC-SAN, NAS, and IP-SAN, Benefits of the different networked storage options, Understand the need for long-term archiving solutions and describe how CAS fulfills the need, Understand the appropriateness of the different networked storage options for different application environments

UNIT V

List reasons for planned/unplanned outages and the impact of downtime, Impact of downtime, Differentiate between business continuity (BC) and disaster recovery (DR) ,RTO and RPO, Identify single points of failure in a storage infrastructure and list solutions to mitigate these failures.

UNIT VI

Architecture of backup/recovery and the different backup/recovery topologies , replication technologies and their role in ensuring information availability and business continuity, Remote
replication technologies and their role in providing disaster recovery and business continuity capabilities.

UNIT VII

Identify key areas to monitor in a data center, Industry standards for data center monitoring and management, Key metrics to monitor for different components in a storage infrastructure, Key management tasks in a data center. Information security, Critical security attributes for information systems, Storage security domains, List and analyzes the common threats in each domain

UNIT VIII

Virtualization technologies, block-level and file-level virtualization technologies and processes.
Case Studies, The technologies described in the course are reinforced with EMC examples of actual solutions. Realistic case studies enable the participant to design the most appropriate solution for given sets of criteria.

TEXT BOOKS:
1.   Information Storage and Management, EMC Corporation, Wiley.

REFERENCES:
1.   Storage Networks: The Complete Reference, Robert Spalding, Tata McGraw Hill , Osborne, 2003.
2.   Building Storage Networks, Marc Farley, Tata McGraw Hill, Osborne, 2001.
3.   Storage Area Network Fundamentals, Meeta Gupta, Pearson Education Limited, 2002.

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR
B.Tech. IV-II-Sem. (C.S.E)
(9A05806) INTERNETWORKING WITH TCP/IP
(ELECTIVE - IV)

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UNIT I

The OSI Model and the TCP/IP Protocol suite: TCP/IP Protocol Suite, Addressing. Internet Protocol Version 4 (IPv4): Datagrams, Fragmentation, Options, Checksum.

UNIT II

IPv4 Addresses: Introduction, Classful Addressing, Classless Addressing, Special Addresses, NAT.

UNIT III

Address Resolution Protocol (ARP): Address Mapping, The ARP Protocol, ATMARP, ARP PACKAGE. Internet Control Message Protocol Version 4: Introduction, Messages, Debugging Tools, ICMP Package.

UNIT IV

Unicast Routing Protocols (RIP, OSPE, and BGP): Introduction, Intra- and Inter-Domain Routing, Distance Vector Routing, RIP, Link State Routing, OSPF, Path Vector Routing, BGP.

UNIT V

User Datagram Protocol (UDP): Introduction, User Datagram, UDP Services, UDP Applications, UDP Package. Transmission Control Protocol (TCP): TCP Services, TCP Features, Segment, A TCP Connection.

UNIT VI

Windows in TCP, Flow Control, Error Control, Congestion Control, TCP Timers, Options, TCP Package.

UNIT VII

Remote Login: TELNET and SSH**:** TELNET, Secure Shell (SSH). File Transfer: FTP and FTP**:** FTP, TFTP.

UNIT VIII

Internet Protocol Version 6: Introduction, Advantages of IPv6, IPv6 Addressing Format, IPv6 Header, IPv6 Extension Headers, ICMPv6.

TEXT BOOKS:
1. TCP/IP Protocol Suite, Behrouz A.Forouzan- Fourth Edition- TATA McGraw-Hill.
2. Introduction to Data Communications and Networking, Wayne Tomasi, Pearson.

REFERENCES:
1. Internetworking with TCP/IP, Second Edition, Douglas E. Comier, Stevens, PHI.
2. CP/IP Network Administration, Third Edition, Craig Hunt, O'Reilly.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR
B.Tech. IV-II-Sem. (C.S.E)
(9A05807) WIRELESS SENSOR NETWORKS
(Common to CSE, CSSE, IT)
(ELECTIVE - IV)

UNIT I

HIPERLAN: Protocol Architecture, Physical Layer, Channel Access Control Sub-layer, MAC Sub-layer, Information Bases and Networking. WLAN: Infrared vs. RadioTransmission, Infrastructure and Ad Hoc Networks, IEEE 802.11. Bluetooth: User Scenarios, Physical Layer, MAC layer, Networking, Security, LinkManagement. GSM: Mobile Services, System Architecture, RadioInterface, Protocols, Localization and calling, Handover, Security, and New Data Services. Mobile Computing (MC): Introduction to MC, Novel Applications, Limitations, and Architecture.

UNIT II

Motivation for a Specialized MAC (Hidden and Exposed Terminals, Near and Far Terminals), SDMA, FDMA, TDMA, CDMA. MAC Protocols for GSM, Wireless LAN (IEEE802.11), Collision Avoidance (MACA, MACAW) Protocols.

UNIT III

IP and Mobile IP Network Layers, Packet Delivery and Handover Management, Location Management, Registration, Tunneling and Encapsulation, Route Optimization, DHCP.

UNIT IV

Conventional TCP/IP Protocols, Indirect TCP, Snooping TCP, Mobile TCP, Other Transport Layer Protocols for Mobile Networks.

UNIT V

Basics of Wireless Sensors and Applications, The Mica Mote, Sensing and Communication Range, Design Issues, Energy consumption, Clustering of Sensors, Applications

UNIT VI

Data Retrieval in Sensor Networks, Classification of WSNs, MAC layer, Routing layer, High-level application layer support, Adapting to the inherent dynamic nature of WSNs.

UNIT VII

Sensor Network Platforms and Tools, Sensor Network Hardware, Sensor Network Programming Challenges, Node-Level Software Platforms.

UNIT VIII

Operating System – TinyOS, Imperative Language: nesC, Dataflow style language: TinyGALS, Node-Level Simulators, ns-2 and its sensor network extension, TOSSIM

TEXT BOOKS:
1. Raj Kamal, Mobile Computing, Oxford University Press, 2007, ISBN: 0195686772
2. Jochen Schiller, Mobile Communications, Addison-Wesley, Second Edition, 2004
3. Ad Hoc and Sensor Networks – Theory and Applications, Carlos Corderio Dharma P.Aggarwal, World Scientific Publications / Cambridge University Press, March 2006
4. Wireless Sensor Networks: An Information Processing Approach, Feng Zhao, Leonidas Guibas, Elsevier Science imprint, Morgan Kauffman Publishers, 2005, rp2009

REFERENCES:
1. Adhoc Wireless Networks – Architectures and Protocols, C.Siva Ram Murthy, B.S.Murthy, Pearson Education, 2004
2. Wireless Sensor Networks – Principles and Practice, Fei Hu, Xiaojun Cao, An Auerbach book, CRC Press, Taylor & Francis Group, 2010
3. Wireless Ad hoc Mobile Wireless Networks – Principles, Protocols and Applications, Subir Kumar Sarkar, et al., Auerbach Publications, Taylor & Francis Group, 2008.
4. Ad hoc Networking, Charles E.Perkins, Pearson Education, 2001.
5. Wireless Ad hoc Networking, Shih-Lin Wu, Yu-Chee Tseng, Auerbach Publications, Taylor & Francis Group, 2007
6. Wireless Ad hoc and Sensor Networks – Protocols, Performance and Control, Jagannathan Sarangapani, CRC Press, Taylor & Francis Group, 2007, rp 2010.
7. Security in Ad hoc and Sensor Networks, Raheem Beyah, et al., World Scientific Publications / Cambridge University Press, 2010
8. Ad hoc Wireless Networks – A communication-theoretic perspective, Ozan K.Tonguz, Gialuigi Ferrari, Wiley India,2006, rp2009.
9. Wireless Sensor Networks – Signal processing and communications perspectives, Ananthram Swami, et al., Wiley India, 2007, rp2009.