



School of Computer Science & IT Devi Ahilya Vishwavidyalaya

SYLLABUS

PGDCA 1 year

Program Educational Objectives (PEOs)

- PEO 1:** Ability to develop technically sound, financially viable and socially ethical solutions.
- PEO 2:** Produce competent team leaders, good communicators and ability to work in a multidisciplinary context while upholding moral principles.
- PEO 3:** Flexibility to adopt new technology and challenges with lifetime learning perspective.

Program Specific Outcomes (PSOs)

- PSO 1:** Acquire proficiency in key programming languages (such as C, C++, Java, Python) and development tools to design, develop, and test software applications tailored for various platforms.
- PSO 2:** Develop/ Customise IT solutions for e-governance, e-commerce, and other business applications.

II - SEMESTER

CS-2301: MANAGEMENT INFORMATION SYSTEMS

Course Outcomes (COs):

- CO1:** Define the concepts of management information systems and their related topics and techniques and describe their effective organizational roles.
- CO2:** Design, implement, and manage computer-based information systems that support business operations, decision-making, and planning for functional and strategic contexts.
- CO3:** Use appropriate methodologies to analyse, design, and implement information systems for business development and manage database systems for business applications.
- CO4:** Demonstrate the core business knowledge that is required for MIS specialists to do their role effectively in various business environments.
- CO5:** Demonstrate the ability to solve problems, communicate effectively, and work individually and in teams on Information Systems related tasks.
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Course Contents

UNIT-I

No. of Hours: 8

STRATEGIC VIEW OF MIS: Management Information System in a Digital Firm, E-Business Enterprise, Strategic Management of Business Performance: Creating a Model of Organisation Excellence, Information Security: Threats and Management, Information Technology: Impact on Society.

UNIT-II

No. of Hours: 8

BASICS OF MANAGEMENT INFORMATION SYSTEMS: Decision Making, Information, Knowledge, Business Intelligence, Systems Engineering: Analysis and Design, Development Process of MIS, Strategic Design of MIS, Business Intelligence for MIS.

UNIT-III

No. of Hours: 8

APPLICATIONS OF MANAGEMENT INFORMATION SYSTEMS TO E-BUSINESS: Applications in the Manufacturing Sector, Applications in the Service Sector, Decision Support Systems and Knowledge Management, Management of Global Enterprise.

UNIT-IV

No. of Hours: 8

INFOTECH INFRASTRUCTURE: Technology of Information Systems, Unified Communications and Networks, DBMS, Client Server and Service Oriented Architecture, Data Warehouse, E-Business Technology.

UNIT-V

No. of Hours: 8

COMPREHENSIVE CASES ON MIS: Management Information Systems in a Digital Firm, Techno-Cases in E-Enterprise Management, Case Digest of SCM, FS Square Infotech Ltd. (FSIT), Home Land Groceries and Stores (HLGS).

Text Books:

1. Jawadekar, W.S., "Management Information Systems: Text and Cases", Tata McGraw Hill Private Limited, New Delhi, 5th Ed.

Reference Books:

1. Kenneth C. Laudon and Jane P. Laudon: "Management Information Systems" 9/e, Pearson Education, New Delhi.

Online Resources:

CS-2301: MANAGEMENT INFORMATION SYSTEMS - PRACTICAL

Course Outcomes (COs):

- CO1:** Define the concepts of management information systems and their related topics and techniques and describe their effective organizational roles.
- CO2:** Design, implement, and manage computer-based information systems that support business operations, decision-making, and planning for functional and strategic contexts.
- CO3:** Use appropriate methodologies to analyse, design, and implement information systems for business development and manage database systems for business applications.
- CO4:** Demonstrate the core business knowledge that is required for MIS specialists to do their role effectively in various business environments.
- CO5:** Demonstrate the ability to solve problems, communicate effectively, and work individually and in teams on Information Systems related tasks.
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Course Contents

UNIT-I

No. of Hours: 4

Case Study 1: MIS: PRECISION WATCHES LTD. (PWL)

Case Study 2: E-Business Enterprise: LOGITECH LTD./ LG ELECTRONICS/ SUNDARAM CLAYTON LTD. (SCL)

UNIT-II

No. of Hours: 4

Case Study 3: Information Security: BALLARPUR INDUSTRIES LTD. (BILT)

Case Study 4: Information Technology: LEGAL NOTICE/ EMAIL PRIVACY POLICY/ LIABILITY DISCLAIMER

UNIT-III

No. of Hours: 4

Case Study 5: Decision Making: UNIVERSAL FOODS AND DRINKS LIMITED (UFDL)/ BLUELINE BEARINGS LIMITED (BBL)

Case Study 6: Business Intelligence: KILLICKS KULKARNI COMBINE (KKC)/ SANJEEVAN MEDICAL CENTRE (SMC)

UNIT-IV

No. of Hours: 4

Case Study 7: Applications of MIS: SUNRISE CONSTRUCTIONS LTD. (SCL-II)/ SEMINARS, CONFERENCES AND CONVENTIONS (SCC) SERVICES LTD

Case Study 8: Decision Support Systems: EXCEL SPREADSHEET/ FORECASTING MODELS/ FISHBONE DIAGRAM MODEL FOR PROBLEM-SOLVING/ DECISION TREE FOR DECISION ANALYSIS

UNIT-V

No. of Hours: 4

Case Study 9: Management of Global Enterprise: ARABIAN FOODS AND BEVERAGES (AFB)

Text Books:

1. Jawadekar, W.S., "Management Information Systems: Text and Cases", Tata McGraw Hill Private Limited, New Delhi, 5th Ed.

Reference Books:

1. Kenneth C. Laudon and Jane P. Laudon: "Management Information Systems" 9/e, Pearson Education, New Delhi.

Online Resources:

1. https://onlinecourses.nptel.ac.in/noc25_mg52/preview

2. https://onlinecourses.nptel.ac.in/noc25_mg71/preview

CS-4305: SOFTWARE ENGINEERING

Course Outcomes (COs):

CO1: Understand the applications of software engineering processes and models.

CO2: Inculcate ability to plan, schedule and estimate software projects.

CO3: Develop skills for analysis and design of software projects using structured and object-oriented approaches.

CO4: Apply testing and quality assurance mechanisms to produce and reliable system.

CO5: Ability to develop software systems using software engineering approaches.

Course Contents

UNIT-I

No. of Hours: 8

Introduction to Software Engineering and Software Processes: Software, Software Classifications and Characteristics, Software Crisis. What is Software Engineering? System Engineering Vs. Software Engineering, Software Engineering Challenges. Software Processes: Process model, Elements and Characteristics of Process model, Process Classification, Software Development Processes: SDLC, Waterfall, Iterative Waterfall, Prototyping, Incremental, Spiral, RAD, Agile Software Development: Principles, Practices & Methods; RUP process, Component-Based Development model etc.

UNIT-II

No. of Hours: 8

Project Management and Planning: Project management essentials, Project success and failures, Project Life Cycle, Project team structure and organization, Software Configuration Management, Risk Management. Project planning activities: Metrics and Measurements, Project Size Estimation, Effort Estimation Techniques, Staffing and Personnel Planning, Project Scheduling and Miscellaneous Plans.

UNIT-III

No. of Hours: 8

Requirements Engineering: Software Requirements, Requirements Engineering Process, Requirements Elicitation. Requirements Analysis: Structured Analysis, Object-oriented Analysis. Requirements Specification, Requirements Validation, and Requirements Management.

UNIT-IV

No. of Hours: 8

Software Design and Coding: Software Design Process, Characteristics of a Good Design, Design Principles, Modular Design (Coupling and Cohesion). Software Architecture. Design Methodologies: Function-oriented Design (Structured Design Methodology in brief). Object-oriented Design using UML, Logical Design.

UNIT-V

No. of Hours: 8

Software Testing, Quality and Maintenance: Testing Fundamentals, Test Planning, Black-Box and White-Box Testing strategy, Levels of Testing, Debugging Approaches. Quality Concept, Quality

Factors, Verification and Validation, Quality Assurance Activities, Quality Standards: Capability Maturity Model (CMM). Software Reliability, Software Maintenance and Reengineering.

Text Books:

1. Software Engineering: Concepts & Practices- Ugrasen Suman, Cengage Learning, 2nd Edition.
2. Fundamentals of Software Engineering- Rajib Mall, PHI, New Delhi.
3. Object Oriented Analysis and Design Using UML, Ugrasen Suman et al, Cengage Learning.

Reference Books:

1. An Integrated Approach to Software Engineering - Pankaj Jalote, Narosa Publishing House.
2. Software Engineering - A practitioner's approach - R. S. Pressman, Tata McGraw-Hill International Editions, New York.

Online Resources:

1. https://onlinecourses.nptel.ac.in/noc21_cs65/preview
2. <http://www.rspa.com/spi/>
3. <https://sei.cmu.edu/>
4. <https://dl.acm.org/journal/tosem>

CS-4405: DATABASE MANAGEMENT SYSTEM

Course Outcomes (COs):

CO1: Conceptual Clarity on database systems and their evolution.

CO2: Theoretical foundation of query languages through relational algebra.

CO3: Understand the database design issues from E-R model to Normalization.

CO4: Proficiency in SQL, PLSQL and NoSQL through Case Studies/Real Life Problems.

CO5: Exposure to advance topics like transaction management, concurrency control and physical data storage.

Course Contents

UNIT-I

No. of Hours: 8

Introduction and Relational Model: Advantages of DBMS approach, various views of data, data independence, schema & sub-schema, primary concept of data models, database languages, transaction management, database administrator & user, data dictionary, database structure & architectures. Relational Model: Domains, relation, kind of relation, Relational databases, Various types of keys: candidate, primary, alternate & foreign keys, relational algebra with fundamental and extended operations, modification of database.

UNIT-II

No. of Hours: 12

ER Model and SQL: Basic concept, design issues, mapping constraint, keys, ER diagram, weak & strong entity-sets, specialization & generalization, aggregation, inheritance, design of ER schema, Reduction of ER Schema to tables. SQL: Basic structure of SQL, Set operation, Aggregate functions, Null values, Nested Sub queries, derived relations, views, Modification of database, join relation, Domain, relation & keys, DDL in SQL, integrity rules, Domain rules, Attributes rules, assertion, integrity & SQL. Query Optimization. PL/SQL: Programming concepts, stored procedure, function, packages and triggers. Database connectivity with ODBC/JDBC 9.

UNIT-III

No. of Hours: 6

Functional Dependencies: Basic definitions, Trivial & non trivial dependencies, closure set of dependencies & of attributes, Irreducible set of dependencies, FD diagram. Normalization: Introduction to normalization, non loss decomposition, First, second and third normal forms, dependency preservation, BCNF, Multivalued dependencies and fourth normal form, join dependencies and fifth normal form.

UNIT-IV

No. of Hours: 7

Storage Structure & File Organization: Basic concept, RAID. File Organization. Basic concept of Indexing. Transaction Management: Basic concept, ACID properties, transaction state, Implementation of atomicity & durability, Concurrent execution, Basic idea of serializability. Concurrency & Recovery: Basic idea of concurrency control, Failure Classification, storage structure-

types, stable storage implementation, data access, recovery & Atomicity: log based recovery, deferred database modification, immediate database modification, checkpoints.

UNIT-V

No. of Hours: 7

The concept of NoSQL, Brief history of NoSQL, SQL verses NoSQL, CAP Theorem (Brewer's Theorem), NoSQL pros/cons, Categories of NoSQL database, Production deployment, MongoDB, Key Features, practical with MongoDB.

Text Books:

1. Database System concepts –Henry F. Korth , Tata McGraw Hill 6th Edition.
2. NoSQL Distilled- Pramod J. Sadalage, Martin Fowler, Addison-Wesley, 2013

Reference Books:

1. Fundamentals of Database Systems, Elmasri R, Navathe S, Addison Wesley 6th Ed.
2. An introduction to database system-Bipin C. Desai
3. An introduction to Database System -C.J Date
4. SQL, PL/SQL The programming language of Oracle-Ivan Bayross

Online Resources:

1. https://onlinecourses.nptel.ac.in/noc22_cs91
2. https://onlinecourses.swayam2.ac.in/cec19_cs05

CS-4405: DATABASE MANAGEMENT SYSTEM - PRACTICAL

Course Outcomes (COs):

CO1: Knowledge of SQL queries and relational algebra.

CO2: Apply normalization techniques for refining of databases.

CO3: Construct triggers, procedures, function, packages and cursors using PL/SQL.

CO4: Construct database for Case Study/ Real Life Problem.

CO5: Knowledge of MongoDB queries.

Course Contents

UNIT-I

No. of Hours: 8

Oracle Installation.

Create tables according to the following definition

1. Deposit (actno, cname, bname, amount, adate)
2. Branch (bname, city)
3. Customer(cname , city)
4. Borrow(loanno, cname, bname, amount)

actno	cname	bname	amount	adate
100	Anil	VRCE	1000	1-mar-2005
101	Sunil	Ajni	5000	4-jan-2006
102	Mehul	Karolbagh	3500	17-nov-2005
104	Madhuri	Chandani	1200	17-dec-2006
105	Pramod	M.G road	3000	27-mar-2006
106	Sandip	Andheri	2000	31-mar-2006
107	Shivani	Virar	1000	5-sep-2005
108	Kranti	Nehru place	5000	2-jul-2005
109	Naren	Powai	7000	10-aug-2005

Table: Deposit

bname	City
VRCE	Nagpur
Ajni	Nagpur
Karolbagh	Delhi
Chandani	Delhi
Dharmpheth	Nagpur
M.G road	Banglore
Andheri	Bombay
Virar	Bombay
Nehru place	Delhi
Powai	Bombay

Table: Branch

cname	city
Anil	Calcutta
Sunil	Delhi
Mehul	Baroda
Mandar	Patna
Mahuri	Nagpur
Pramod	Nagpur
Sandip	Surat
Shivani	Bombay
Kranti	Bombay
Naren	Bombay

Table: Customer

loanno	cname	bname	Amount
201	Anil	VRCE	1000
206	Mehul	Ajni	5000
311	Sunil	Dharampeth	3000
321	Madhuri	Andheri	2000
375	Pramod	Virar	8000
481	Kranti	Nehru place	3000

Table: Borrow

Selecting Data from Single Table

1. List all the data from table deposit.
2. List all the data from table borrow.
3. List all the data from table customer.
4. List all the data from table branch.
5. Give account no. and amount of depositors.
6. Give cname and account no. of depositors.
7. Give names of customers.
8. Give names of branches.
9. Give names of borrowers
10. Give names of customers living in city Nagpur.
11. Give names of depositors having amount greater than 4000.
12. Give account date of customer Anil.
13. Give names of all branches located in city Bombay.
14. Give names of borrower having loan no. 206.
15. Give names of depositor having account at VCRE.
16. Give names of all branches located in Delhi;
17. Give account number and deposit amount of customer having account opened between 1-12-2005 and 1-6-2005.
18. Give details of customer Anil.
19. Give name of the city where branch Karolbagh is located.

UNIT-II

No. of Hours: 8

Join and Cartesian product

1. Give name of customer having living city Bombay and branch city Delhi.
2. Give name of customers having same living city as their branch city.
3. Give names of customers who are borrowers as well as depositors and having living city Nagpur.
4. Give names of customers who are depositors and having the same branch city as that of Sunil.
5. Give the names of depositors having the same city as that of Shivani and having deposit amount greater than 2000.
6. Give the names of borrowers having deposit amount greater than 1000 and the loan amount greater than 2000.
7. Give names of depositors having the same branch as the branch of sunil.
8. Give names of borrowers having loan amount greater than the loan amount of Anil.
9. Give the names of customers living city where branch of depositor sunil is located.
10. Give loan no and loan amount of borrower having the same branch as that of depositor sunil.
11. Give loan no., loan amount, account no. and deposit amount of customers living in city Nagpur.
12. Give loan no., loan amount , account no. and deposit amount of customers having deposit branch located in Delhi
13. Give loan no., loan amount, account no., deposit amount, branch name, branch city and living city of Pramod.
14. Give deposit details and loan details of customer in the city where Pramod is living.
15. Give name of depositors having the same branch city as that of sunil and having the same living city as that of Anil.
16. Give names of depositors having amount greater than 1000 and having the same living city as Pramod.
17. Give city of customer having the same branch city as that of Pramod.
18. Give branch city and living city of Pramod.
19. Give branch city of Sunil or branch city of Anil.
20. Give the living city of Anil and living city of Sunil.

Set operations

1. List all the customers who are depositors but not borrowers.
2. List all the customers who are both depositors and borrowers.
3. List all the customers, along with their amount, who are either borrowers or depositors and living in city Nagpur.
4. List all the depositors having in all the branches where Sunil is having account.
5. List all the customers living in city Nagpur and having branch city Bombay or Delhi.
6. List all the depositors living in city Nagpur.
7. List all the depositors living in city Nagpur and having branch in city Delhi.
8. List the branch cities of Anil and Sunil.
9. List the borrowers having branch city same as that of Sunil.
10. List the customer having deposit greater than 1000 and loan less than 10000.

11. List the borrowers having branch city same as that of Sunil.
12. List the cities of depositors having branch VRCE.
13. List the depositors having the same living city as that of Sunil and the same branch city as that of Anil.
14. List the depositors having amount less than 8000 and living in the same city as Ms. Shivani.
15. List all the customers who are both depositors and borrowers and living in the same city as Anil.
16. List all the cities where branches of Anil and Sunil are located.
17. List all the customer names and the amount for depositors living in the city where either Anil or Sunil is living.
18. List the amount for the depositors living in the city where Anil is living.
19. List the cities which are either branch city of Anil or living city of Sunil.
20. List the customers who are borrowers and depositors and having living city Bombay and branch city same as that of Sandip.
21. List the customers who are both borrowers and depositors and having the same branch city as that of Anil.

UNIT-III

No. of Hours: 8

1. List total loan.
 2. List total deposit
 3. List total loan taken from Andheri branch.
 4. List total deposit of customer having account date later than 1-Jan-2006.
 5. List total deposit of customers living in city Nagpur.
 6. List maximum deposit of customer living in Bombay.
 7. List total deposit of customers having branch city Delhi.
 8. List total deposit of customers living in the city where Sunil is living.
 9. Count total number of branch cities.
 10. Count total number of customer cities.
 11. Give branch name and branch-wise deposit.
 12. Give city name and city wise deposit.
 13. Give city wise name and branch wise deposit.
 14. Give the branch wise deposit of customer after account date 1-jan -2006.
 15. Give branch wise loan of customer living in Nagpur.
 16. Count total no. of customers.
 17. Count total no. of depositor branch wise.
 18. Give maximum loan from branch VRCE.
 19. Give living city wise loan of borrowers.
 20. Give the number of customers who are depositor as well as borrowers.
- Group by and having Clause
1. List the branches having sum of deposit more than 4000.
 2. List the branches having a sum deposit more than 1000 and location in city Bombay.

3. List the names of customers having deposit in the branches where the average deposit is more than 1000.
4. List the name of customers having maximum deposit.
5. List the name of customers having maximum deposit in the customers living in Nagpur.
6. List the name of branch having highest number of depositors.
7. Count the number of depositors living in Nagpur.
8. Give the name of customers in Powai branch having more deposit than all customer VRCE branch.
9. Give names of customers in Karolbagh branch having more deposit than any other in Virar branch.
10. Give names of customers having highest deposit in the branch where Sunil is having deposit.
11. Give the highest deposit of the city where branch of Sunil is located.
12. Give names of customers having more deposit than the average deopait in their respective branches.
13. Give names of customers having maximum deposit among deposits of Nagpur for branch VRCE.
14. Give the name of branch where name of depositors is less than 2.
15. Give name and city having more customers living in than Nagpur.
16. Give names of branches having the number of depositors more than the number of borrowers.
17. Give the names of customers living in the city where the maximum numbers of depositors are located.
18. Give the name of cities in which the maximum numbers of branches are located.
19. Give the names of borrowers having the same branch city and highest borrower.
20. Count the number of customers living in the city where branch is located.

UNIT-IV

No. of Hours: 8

1. Give 10% interest to all depositors.
2. Give 10% interest to all depositors having branch vrce.
3. Give 10% interest to all depositors living in Nagpur.
4. Give 10% interest to all depositors living in Nagpur and having branch in city Bombay.
5. Add hundred rupees to the deposit of Anil and assign it to Sunil.
6. Change the deposit of VCRE branch to 1000 and change the branch as VCRE_Ambhazari.
7. Assign to all deposit of Anil the maximum deposit from VRCE branch.
8. Change the living city of VRCE branch borrowers to Nagpur.
9. Update deposit of Anil give him maximum deposit from depositors in living city Nagpur.
10. Deposit the sum of the deposits of Sunil and Vijay in an account of Anil.
11. Transfer Rs 10 from the account of Anil to the account of Sunil.
12. Transfer Rs 10 from the account of Anil to the account of Sunil if both are having the same branch.
13. Transfer Rs 10 from the account of Madhuri to the account of Parmod if both are lining in Nagpur.
14. Delete from customer.
15. Delete depositors of branches having number of customer between 1 and 3.
16. Delete branches having average deposit less than 5000.
17. Delete branches having maximum loan more than 5000.

18. Delete branches having deposit from Nagpur.
19. Delete deposit of Anil and Sunil if both are having branch Virar.
20. Delete deposit of Anil and Sunil if both are having living city Nagpur.
21. Delete deposit of Anil and Sunil if both are having same living city.
22. Delete deposit of Anil and Sunil if they are having less deposit than Vijay.
23. Delete deposit of Vijay.
24. Delete deposit of Ajay if Vijay is not a depositor.
25. Delete customer from Bombay city.
26. Delete depositors if the branch is Virar and depositor name is Ajay.
27. Delete depositors having deposit less than 500.
28. Delete borrower having loan more than 10000.
29. Delete borrower having loan more than 10000 and branch Karolbagh.
30. Delete the names of those depositors of VRCE branch who live in the city Bombay.
31. Delete borrower having branch name Chandani.
32. Delete borrower of branches having average loan less than 1000.
33. Delete borrower of branches having the minimum number of customers.

UNIT-V

No. of Hours: 8

1. PLSQL code to find sum of two numbers
2. PLSQL code to print Fibonacci series
3. PLSQL code to find whether given number is even or odd
4. Create function to display square of given number.
5. Create procedure to display division of student.
6. Create package having one procedure to add two numbers and one function to subtract two numbers.
7. Demonstrate cursor.
8. Demonstrate trigger.
9. CASE STUDY: STUDENT PROGRESS MONITORING SYSTEM
A database is to be designed for a college to monitor students' progress throughout their course of study. The students are reading for a degree (such as BA, BCA(Hons) MSc, etc) within the framework of the modular system. The college provides a number of modules, each being characterised by its code, title, credit value, module leader, teaching staff and the department they come from. A module is co-ordinated by a module leader who shares teaching duties with one or more lecturers. A lecturer may teach (and be a module leader for) more than one module. Students are free to choose any module they wish but the following rules must be observed: some modules require pre-requisites modules and some degree programmes have compulsory modules. The database is also to contain some information about students including their numbers, names, addresses, degrees they read for, and their past performance (i.e. modules taken and examination results).
10. Illustration of Where Clause, AND, OR operations in MongoDB.
11. Execute the Commands of MongoDB and operations in MongoDB : Insert, Query, Update, Delete and Projection. (Note: use any collection)

Text Books:

1. NoSQL Distilled- Pramod J. Sadalage, Martin Fowler, Addison-Wesley, 2013

2. SQL, PL/SQL The programming language of Oracle-Ivan Bayross

Reference Books:

1. Oracle Database 10g: The Complete reference, Kevin Loney.

Online Resources:

1. https://onlinecourses.nptel.ac.in/noc22_cs91

2. https://onlinecourses.swayam2.ac.in/cec19_cs05

CS-4640: IT INFRASTRUCTURE MANAGEMENT

Course Outcomes (COs):

- CO1:** Understand the evolution and role of IT infrastructure in modern businesses.
- CO2:** Design IT infrastructure and organizations based on system and customer needs.
- CO3:** Comprehend networking principles, protocols, devices, and emerging technologies.
- CO4:** Apply security principles to address IT system threats and vulnerabilities.
- CO5:** Evaluate ethical and legal aspects of IT, including cybersecurity and data protection.
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Course Contents

UNIT-I

No. of Hours: 8

IT Infrastructure: Overview: Definitions and Key Concepts of IT Infrastructure, Infrastructure Management Activities, Evolution of IT Systems: Mainframes to Modern Systems (Mainframes-to-Mid-range-to-PCs-to-Client-server Computing-to-New Age Systems), Growth of the Internet and Its Impact on IT Systems, Current Business Demands and Challenges in IT Systems, Green IT and Sustainable Practices in Infrastructure Management.

UNIT-II

No. of Hours: 8

IT Infrastructure Management: Key Factors in Designing IT Organizations and Infrastructure, Understanding and Determining Customer Requirements, Identifying Critical System Components for Management, Existing Processes, Data, Applications, Tools, and Their Integration, Patterns for IT Systems Management.

UNIT-III

No. of Hours: 8

Networking: Reference Models: OSI Model and TCP/IP Model, Network Topologies: Bus, Star, Ring, Mesh, and Hybrid, Network Devices: Routers, Switches, Firewalls, Overview of Different Network Protocols, Basics of Wireless Networking and Emerging Technologies.

UNIT-IV

No. of Hours: 8

Information Security: Introduction to Cyber Threats and Vulnerabilities, Principles of Information Security: Confidentiality, Integrity, Availability, Basics of Encryption, Authentication, and Authorization.

UNIT-V

No. of Hours: 8

IT Ethics and Cybersecurity: Cyber Ethics and Ethical Considerations in IT, Intellectual Property Rights and Legal Aspects of IT, Privacy and Data Protection Laws, Fundamentals of Computer Forensics, Ethical Issues on the Internet, Including Cybercrimes and Their Implications, Overview of IT Act 2000.

Text Books:

1. IT Infrastructure and Management - Phalguni Gupta, Tata McGraw Hill.
2. Foundations of IT Service Management - Jan van Bon, Van Haren Publishing, 1st Edition.

Reference Books:

1. Modern Operating Systems: Andrew S. Tanenbaum, Prentice Hall, 3rd Edition.
2. Data Communications and Networking - Behrouz A. Forouzan, McGraw Hill.
3. Computer Security: Principles & Practices- William Stallings and Lawrie Brown, Pearson.

Online Resources:

1. https://onlinecourses.nptel.ac.in/noc25_cs15/preview
2. https://onlinecourses.swayam2.ac.in/cec25_ge02/preview
3. <https://cse.iitkgp.ac.in/~ksrao/caos2018files/OS-introduction.pdf>
4. <https://archive.nptel.ac.in/courses/106/105/106105214/>

IC-4915: ORGANIZATION AND MANAGEMENT CONCEPTS

Course Outcomes (COs):

- CO1:** Identify the key management processes and the relevance of management in organizations.
- CO2:** Understand the management skills required in organizations and how these might be applied.
- CO3:** Understand how to structure organizations, delegate authority, and manage human resources.
- CO4:** Apply analytical skills to solve organizational problems and make informed, non-programmed decisions
- CO5:** Evaluate their own managerial skills.
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Course Contents

UNIT-I

No. of Hours: 8

Introduction To Management, Definition of Management, Management functions, Role of Managers, Principles of Management, Management Thought- Classical School, Systems Theory School.

UNIT-II

No. of Hours: 8

Planning Nature and purpose of planning, types of planning, planning process, Decision making.

UNIT-III

No. of Hours: 8

Organising And Staffing Formal and Informal Organization, Basis of Departmentation, Span of Management, Line and Staff Conflicts, Definition of Staffing, Selection Process, Performance Appraisal, Career Strategy.

UNIT-IV

No. of Hours: 8

Motivation And Leadership- Motivation, Theories- Maslow's Need Hierarchy Theory, McGregor's Theory X and Theory Y, Herzberg's two-factor theory, Leadership, Managerial grid.

UNIT-V

No. of Hours: 8

Controlling The basic control process, Control as a feedback system, Real-time control, organizational time management, Goal setting, prioritization, and stress management.

Text Books:

1. R.D Agrawal, Organization & Management.1/E PHI 1997.
2. Tripathy PC And Reddy PN, Principles of Management, Tata McGraw-Hill, 5th Edition, 2012.

Reference Books:

1. Harold Koontz Heinz Weihrich- Essentials of Management- Tata McGraw Hill Publishing Company Ltd.

Online Resources: