II Sem M.Tech (SE)

Semester II Year: 2014-2015

<table>
<thead>
<tr>
<th>Course Title: Software Project Planning And Management</th>
<th>Course Code: 14SSE21</th>
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<tr>
<td>Credits(L:T:P): 3:0:1</td>
<td>Core/Elective: Core</td>
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<tr>
<td>Type of Course: Lecture &amp; Practical</td>
<td>Total Contact Hours: 50</td>
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COURSE OBJECTIVES

- To define and highlight importance of software project management.
- To formulate strategy in managing projects
- To estimate the cost associated with a project
- To plan, schedule and monitor projects for the risk management
- To define the software management metrics

TOPICS

MODULE-I

Metrics: Introduction, The Metrics Roadmap, A Typical Metrics Strategy, What Should you Measure?, Set Targets and track Them, Understanding and Trying to minimize variability. Act on data, People and Organizational issues in Metrics Programs, Common Pitfalls to watch out for in Metrics Programs, Matrices implementation checklists and tools. **Software configuration management**: Introduction, Some Basic Definitions and terminology, the processes and activities of software configuration management, configuration status accounting, configuration audit, software configuration management in geographically distributed teams, Metrics in software configuration management, software configuration management tools and automation.

10 hours

MODULE-II


10 hours

MODULE-III

Software Requirements gathering: Inputs and start criteria for requirements gathering. Dimensions of requirements gathering. Steps to be followed during requirements gathering, outputs and quality records from the requirements phase, skill sets required during requirements phase, differences for a shrink-wrapped software, challenges during the requirements management phase, Metrics for requirements phase. **Estimation**: What is Estimation? when and why is Estimation done?, the three phases of Estimation, Estimation methodology, formal models for size Estimation, Translating size Estimate into...
effort Estimate, Translating effort Estimates into schedule Estimate, common challenges during Estimation, Metrics for the Estimation processes. **Design and Development Phases:** Some differences in our chosen approach, salient features of design, evolving an architecture/ blueprint, design for reusability, technology choices/ constraints, design to standards, design for portability, user interface issues, design for testability, design for diagnose ability, design for maintainability, design for install ability, interoperability design, challenges during design and development phases, skill sets for design and development, metrics for design and development phases.

**10 hours**

**MODULE-IV**

**Project management in the testing phase:** Introduction, What is testing?, what are the activities that makeup testing?, test scheduling and types of tests, people issues in testing, management structures for testing in global teams, metrics for testing phase. **Project management in the Maintenance Phase:** Introduction, Activities during Maintenance Phase, management issues during Maintenance Phase, Configuration management during Maintenance Phase, skill sets for people in the maintenance phase, estimating size, effort, and people resources for the maintenance phase, advantages of using geographically distributed teams for the maintenance phase, metrics for the maintenance phase.

**10 hours**

**MODULE-V**

**Globalization issues in project management:** Evolution of globalization, challenges in building global teams, Models for the execution of global projects, some effective management techniques for managing global teams. **Impact of the internet on project management:** Introduction, the effect of internet on project management, managing projects for the internet, Effect on the project management activities. **People focused process models:** Growing emphasis on people centric models, people capability maturity model(P-CMM), other people focused models in the literature, how does an organization choose the models to use?

**10 hours**

**LABORATORY WORK**

USE STAR UML TOOL or VISUAL PARADIGMN or any other equivalent tool to develop ATM and Restaurant systems

**UML diagrams to be developed are:**

1. Use Case Diagram.
2. Class Diagram.
3. Sequence Diagram.
5. State Diagram
6. Activity Diagram.
7. Component Diagram
8. Deployment Diagram.
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1. ATM SYSTEM

The software to be designed will control a simulated automated teller machine (ATM) having a magnetic stripe reader for reading an ATM card, a customer console (keyboard and display) for interaction with the customer, a slot for depositing envelopes, a dispenser for cash (in multiples of Rs. 100, Rs. 500 and Rs. 1000), a printer for printing customer receipts, and a key-operated switch to allow an operator to start or stop the machine. The ATM will communicate with the bank's computer over an appropriate communication link. (The software on the latter is not part of the requirements for this problem.) The ATM will service one customer at a time. A customer will be required to insert an ATM card and enter a personal identification number (PIN) - both of which will be sent to the bank for validation as part of each transaction. The customer will then be able to perform one or more transactions. The card will be retained in the machine until the customer indicates that he/she desires no further transactions, at which point it will be returned - except as noted below. The ATM must be able to provide the following services to the customer:

1. A customer must be able to make a cash withdrawal from any suitable account linked to the card, in multiples of Rs. 100 or Rs. 500 or Rs. 1000. Approval must be obtained from the bank before cash is dispensed.
2. A customer must be able to make a deposit to any account linked to the card, consisting of cash and/or checks in an envelope. The customer will enter the amount of the deposit into the ATM, subject to manual verification when the envelope is removed from the machine by an operator. Approval must be obtained from the bank before physically accepting the envelope.
3. A customer must be able to make a transfer of money between any two accounts linked to the card.
4. A customer must be able to make a balance inquiry of any account linked to the card.
5. A customer must be able to abort a transaction in progress by pressing the Cancel key instead of responding to a request from the machine.

The ATM will communicate each transaction to the bank and obtain verification that it was allowed by the bank. Ordinarily, a transaction will be considered complete by the bank once it has been approved. In the case of a deposit, a second message will be sent to the bank indicating that the customer has deposited the envelope. (If the customer fails to deposit the envelope within the timeout period, or presses cancel instead, no second message will be sent to the bank and the deposit will not be credited to the customer.)

If the bank determines that the customer's PIN is invalid, the customer will be required to re-enter the PIN before a transaction can proceed. If the customer is unable to successfully enter the PIN after three tries, the card will be permanently retained by the machine, and the customer will have to contact the bank to get it back. If a transaction fails for any reason other than an invalid PIN, the ATM will display an explanation of the problem, and will then ask the customer whether he/she wants to do another transaction. The ATM will provide the customer with a printed receipt for each successful transaction.

The ATM will have a key-operated switch that will allow an operator to start and stop the servicing of customers. After turning the switch to the "on" position, the operator will be required to verify and enter the total cash on hand. The machine can only be turned off when it is not servicing a customer. When the switch is moved to the "off" position, the machine will shut down, so that the operator may remove deposit envelopes and reload the machine with cash, blank receipts, etc.
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2. **Restaurant System**
The system is intended to support the day-to-day operations of a restaurant by improving the processes of making reservations and allocating tables to customers. The Restaurant system provides the facilities like

- Record Booking
- Cancel Booking
- Record Arrival
- Table Transfer

The new system can offer diners eat at the restaurant without making an advance booking, if a free table is available. This is known as Walk-in.

The new system should display the same information as the existing booking sheet and in same format, to make it easy for restaurant staff to transfer, to the new system. When new bookings are recorded or changes made to existing bookings, the display should be immediately updated, so that restaurant staff is working with the latest information available.

**COURSE OUTCOMES:**
At the end of this course students will be able to:
- Evaluate a project to develop the scope of work, provide accurate cost estimates and to plan the various activities
- Apply risk management analysis techniques that identify the factors that put a project at risk and to quantify the likely effect of risk on project timescales
- Identify the resources required for a project and to produce a work plan and resource schedule
- Monitor the progress of a project and to assess the risk of slippage, revising targets counteract drift
- Use appropriate metrics to management the software development outcome
- Develop research methods and techniques appropriate to defining, planning and carrying out a research project within your chosen specialist area within the management of software projects.

**Text Book**

**REFERENCES:**
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Semester II

Year: 2014-2015

| Course Title: Enterprise Application Programming | Course Code: 14SSE22 |
| credits(L:T:P): 3:0:1 | Core/Elective: Core |
| Type of Course: Lecture & Practical | Total Contact Hours: 50 |

COURSE OBJECTIVES:

- To gain knowledge about metrics Web Application Development and related terminologies
- To gain knowledge about persistent framework and other ORM tools.
- To learn to build solutions using Design Patterns
- To get introduced to latest WEB frameworks

TOPICS

MODULE-I

Web application and java EE 6: Exploring the HTTP Protocol, Introducing web applications, describing web containers, exploring web architecture models, exploring the MVC architecture. Working with servlets 3.0: Exploring the features of java servlet, Exploring new features in servlet 3.0, Exploring the servlet API, explain the servlet life cycle, creating a sample servlet, creating a servlet by using annotation, working with servletconfig and servlet context objects, working with the Http servlet request and Http servlet response interfaces, Exploring request delegation and request scope, implementing servlet collaboration.

10 hours

MODULE-II

Handling sessions in servlet 3.0: Describing a session, introducing session tracking, Exploring the session tracking mechanisms, using the java servlet API for session tracking, creating login application using session tracking. Implementing event handling: Introducing events, Introducing event handling, working with the servlet events, developing the online shop web application. Working with java server pages: Introducing JSP technology, Exploring new features of JSP2.1, listing advantages of JSP over java servlet, Exploring the architecture of a JSP page, Describing the life cycle of a JSP page, working with JSP basic tags and implicit objects, working with the action tags in JSP, exploring the JSP unified EL, using functions with EL.

10 hours

MODULE-III

Implementing JSP tag extensions: Exploring the elements of tag extensions, Working with classic tag handlers, Exploring the tag extensions, Working with simple tag handlers. Implementing java server pages standard tag library 1.2: Introducing JSTL, Exploring the tag libraries JSTL, working with the core tag library. Implementing filters: Exploring the need of filters, exploring the working of filters, exploring filters API, configuring a filter, creating a web application using filters, using initializing parameter in filters.

10 hours

MODULE-IV
Persistence Management and Design Patterns: Implementing java persistence using hibernate
Introducing hibernate, exploring the architecture of hibernate, downloading hibernate, exploring HQL, understanding hibernate O/R mapping, working with hibernate, Implementing O/R mapping with hibernate. Java EE design patterns: Describing the java EE application architecture, Introducing a design patterns, discussing the role of design patterns, exploring types of patterns.

10 hours

MODULE-V

Web Frameworks: Working with struts 2
Introducing struts 2, understanding actions in struts 2. Working with java server faces 2.0: Introducing JSF, Explaining the features of JSF, Exploring the JSF architecture, describing JSF elements, Exploring the JSF request processing life cycle. Working with spring 3.0: Introducing features of the spring framework, exploring the spring framework architecture, exploring dependency injection & inversion of control, exploring AOP with spring, managing transactions. Securing java EE 6 applications: Introducing security in java EE 6, exploring security mechanisms, implementing security on an application server.

10 hours

LABORATORY WORK

Design Develop and Implement the following modules using any suitable language/tools.

1. Developing the profile management module
   - Design, develop and implement the following theory models using any suitable language tools
   - Implementing logic with servlet.
   - creating the people_employee servlet.
   - creating the employeeobj class.
   - creating the employeedbmethods class.
   - creating the generateid class, creating views.
   - creating the people_insert JSP page.
   - creating the people_search JSP page.
   - creating the people_edit JSP page.
   - creating the people_list JSP page.
   - creating the people_profile JSP page.

2. Developing the recruitment module
   - Registering a new applicant.
   - creating the people_applicant servlet.
   - creating the applicantDBObj class.
   - creating the applicantDBmethods class.
   - creating the generated class.
   - creating an interface for applicant registration.
   - conducting rounds of test.
   - creating the applicant_test_dtl servlet.
   - designing JSP views.
   - working of the recruitment module.

3. Developing the payroll module
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- Updating salary statement,
- creating the people_payroll servlet.
- creating the empsal class.
- creating the employee agreement class.
- creating the payrollbean methods class.
- designing JSP views.
- creating the people_agreement JSP page.
- creating the people_agreement_edit JSP page.
- creating the salary_search.jsp file.
- creating the salary_slip JSP page.

COURSE OUTCOMES:
Upon completion of the course, students shall be able to
- Implement a WEB application.
- Manage deployment configurations are
- Implement Security mechanisms

Text Book:
1. Kogent learning solution: JAVA SERVER PROGRAMMING JAVA EE6(J2EE 1.6), Dreamtech press 2014
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Semester II  Year: 2014-2015

<table>
<thead>
<tr>
<th>Course Title: Design Patterns</th>
<th>Course Code: 14SSE23</th>
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<td>Credits(L:T:P): 4:0:0</td>
<td>Core/Elective: Core</td>
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<tr>
<td>Type of Course: Lecture</td>
<td>Total Contact Hours: 50</td>
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OBJECTIVES:
- To Learn How to add functionality to designs while minimizing complexity.
- What code qualities are required to maintain to keep code flexible?
- To Understand the common design patterns.
- To explore the appropriate patterns for design problems.

TOPICS

MODULE-I

Introduction: what is a design pattern? , describing design patterns, the catalog of design pattern, organizing the catalog, how design patterns solve design problems, how to select a design pattern, how to use a design pattern. What is object-oriented development? , key concepts of object oriented design other related concepts, benefits and drawbacks of the paradigm.

10 hours

MODULE-II

Analysis a System: overview of the analysis phase, stage 1: gathering the requirements functional requirements specification, defining conceptual classes and relationships, using the knowledge of the domain. Design and Implementation, discussions and further reading.

10 hours

MODULE-III

Design Pattern Catalog: Structural patterns, Adapter, bridge, composite, decorator, facade, flyweight, proxy.

10 hours

MODULE-IV

Interactive systems and the MVC architecture: Introduction, The MVC architectural pattern, analyzing a simple drawing program, designing the system, designing of the subsystems, getting into implementation, implementing undo operation, drawing incomplete items, adding a new feature, pattern based solutions.

10 hours
MODULE-V

Designing with Distributed Objects: Client server system, java remote method invocation, implementing an object oriented system on the web (discussions and further reading) a note on input and output, selection statements, loops arrays.  

COURSE OUTCOMES:
The student should be able to

- Design and implement codes with higher performance and lower complexity
- Be aware of code qualities needed to keep code flexible
- Experience core design principles and be able to assess the quality of a design with respect to these principles.
- Capable of applying these principles in the design of object oriented systems.
- Demonstrate an understanding of a range of design patterns. Be capable of comprehending a design presented using this vocabulary.
- Be able to select and apply suitable patterns in specific contexts.

TEXT BOOKS
1. Object-oriented analysis, design and implementation, brahma dathan, sarnath rammath, universities press, 2013

REFERENCES:
1. Frank Bachmann, Regine Meunier, Hans Rohnert “Pattern Oriented Software Architecture” –Volume 1, 1996.
Semester II

Course Title: Software Metrics and Quality Assurance

Year: 2014-2015

Course Code: 14SSE24

Credits (L:T:P): 4:0:0

Type of Course: Lecture

Total Contact Hours: 50

COURSE OBJECTIVES:

- To gain basic knowledge about metrics, measurement theory and related terminologies
- To learn measure the quality level of internal and external attributes of the software product
- To introduce the basics of software reliability and to illustrate how to perform planning, executing and testing for software reliability
- To explore various metrics and models of software reliability
- To compare various models of software reliability based on its application

TOPICS

MODULE-I


10 hours

MODULE-II

Applying The Seven Basic Quality Tools In Software Development: Ishikawa’s Seven Basic Tools, Checklist, Pareto Diagram, Histogram, Run Charts, Scatter Diagram, Control Chart, Cause And Effect Diagram. The Rayleigh Model: Reliability Models, The Rayleigh Model Basic Assumptions, Implementation, Reliability And Predictive Validity.

10 hours

MODULE-III


10 hours

MODULE-IV

MODULE-V


COURSE OUTCOMES:
Upon completion of the course, students shall be able to
- Identify and apply various software metrics, which determines the quality level of software
- Identify and evaluate the quality level of internal and external attributes of the software product
- Compare and Pick out the right reliability model for evaluating the software
- Evaluate the reliability of any given software product
- Design new metrics and reliability models for evaluating the quality level of the software based on the requirement

Text Book

REFERENCES:
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Semester II Year: 2014-2015

| Course Title: Information And Network Security | Course Code: 14SSE251 |
| Credits(L:T:P): 4:0:0 | Core/Elective: Elective |
| Type of Course: Lecture | Total Contact Hours: 50 |

COURSE OBJECTIVES:

- To understand the fundamentals of Cryptography
- To acquire knowledge on standard algorithms used to provide confidentiality, integrity and authenticity.
- To understand the various key distribution and management schemes.
- To understand how to deploy encryption techniques to secure data in transit across data networks
- To design security applications in the field of Information technology

MODULE-I

Classical Encryption Techniques: Symmetric Cipher Model, Cryptography, Cryptanalysis and Brute-Force Attack, Substitution Techniques, Caesar Cipher, Monoalphabetic Cipher, Playfair Cipher, Hill Cipher, Polyalphabetic Cipher, One Time Pad. **Block Ciphers and the data encryption standard:** Traditional block Cipher structure, stream Ciphers and block Ciphers, Motivation for the feistel Cipher structure, the feistel Cipher, The data encryption standard, DES encryption, DES decryption, A DES example, results, the avalanche effect, the strength of DES, the use of 56-Bit Keys, the nature of the DES algorithm, timing attacks, Block cipher design principles, number of rounds, design of function F, key schedule algorithm.

10 hours

MODULE-II

Public-Key Cryptography and RSA: Principles of public-key cryptosystems. Public-key cryptosystems. Applications for public-key cryptosystems, requirements for public-key cryptosystems. public-key cryptanalysis. The RSA algorithm, description of the algorithm, computational aspects, the security of RSA. **Other Public-Key Cryptosystems:** Diffie-hellman key exchange, The algorithm, key exchange protocols, man in the middle attack, Elgamal Cryptographic systems, Elliptic curve arithmetic, abelian groups, elliptic curves over real numbers, elliptic curves over Zp, elliptic curves over GF(2m), Elliptic curve cryptography, Analog of Diffie-hellman key exchange, Elliptic curve encryption/ decryption, security of Elliptic curve cryptography, Pseudorandom number generation based on an asymmetric cipher, PRNG based on RSA.

10 hours

MODULE-III

Key Management and Distribution: Symmetric key distribution using Symmetric encryption, A key distribution scenario, Hierarchical key control, session key lifetime, a transparent key control scheme, Decentralized key control, controlling key usage, Symmetric key distribution using asymmetric encryption, simple secret key distribution, secret key distribution with confidentiality and authentication, A hybrid scheme, distribution of public keys, public announcement of public keys, publicly available directory, public key authority, public keys certificates, X-509 certificates. Certificates, X-509 version 3,
public key infrastructure. **User Authentication:** Remote user Authentication principles, Mutual Authentication, one way Authentication, remote user Authentication using Symmetric encryption, Mutual Authentication, one way Authentication, Kerberos, Motivation, Kerberos version 4, Kerberos version 5, Remote user Authentication using Asymmetric encryption, Mutual Authentication, one way Authentication, federated identity management, identity management, identity federation, personal identity verification.

**MODULE-IV**


**MODULE-V**


**COURSE OUTCOMES:**

Upon Completion of the course, the students will be able to

- Implement basic security algorithms required by any computing system
- Analyze the vulnerabilities in any computing system and hence be able to design a security solution.
- Analyze the possible security attacks in complex real time systems and their effective counter measures
- Identify the security issues in the network and resolve it.
- Evaluate security mechanisms using rigorous approaches, including theoretical derivation, modeling, and simulations
- Formulate research problems in the computer security field

**Text Book.**

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References

Semester II Year: 2014-2015

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<tr>
<th>Course Title: Data Mining &amp; Data Warehousing</th>
<th>Course Code: 14SSE252</th>
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<td>Credits(L:T:P): 4:0:0</td>
<td>Core/Elective: Elective</td>
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<td>Total Contact Hours: 50</td>
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COURSE OBJECTIVES:
- To expose the students to the concepts of Data warehousing Architecture and Implementation
- To understand data mining principles and techniques and introduce DM as a cutting edge business intelligence
- To learn to use association rule mining for handling large data
- To understand the concept of classification for the retrieval purposes
- To know the clustering techniques in details for better organization and retrieval of data

TOPICS

MODULE-I

Introduction: What is a Data Warehouse?, A Multidimensional Data Model, Data Warehouse Architecture, Data Warehouse Implementation, Data cube Technology, From Data warehousing to Data Mining, Data Mining Functionalities, Data cleaning, Data Integration and Transformation, Data Reduction. 10 hours

MODULE-II

Data Mining Primitives, Languages And System Architectures: Data Mining primitives, Presentation and Visualization of Discovered patterns, A Data Mining Query Language. MINING ASSOCIATION RULES IN LARGE DATA BASES: Association Rule Mining Single –Dimensional Boolean Association Rules From Transactional Databases, Mining Multilevel Association Rules from Transactional Databases. 10 hours

MODULE-III

Classification And Prediction: Issues regarding Classification and Prediction, classification by Decision tree induction, Bayesian classification, Classification by back propagation, Classification Based on the concepts from association rule mining. Other classification methods, prediction. 10 hours

MODULE-IV

Cluster Analysis: What is Cluster Analysis? Types of data in cluster Analysis: a Categorization of Major Clustering Methods, Partitioning Methods, And Hierarchical methods, Density-Based Methods, Model-Based Clustering Methods: Statistical Approach, Neural Network Approach Outliner Analysis. 10 hours

14
MODULE-V

Applications And Trends In Data Mining: Data mining application, Data mining system Products research Prototypes, Additional Themes on Data Mining, Data Mining and Intelligent Query Answering, Tends in Data Mining.

COURSE OUTCOMES:
Upon completion of the course, students shall be able to
- Store voluminous data for online processing
- Preprocess the data for mining applications
- Apply the association rules for mining the data
- Design and deploy appropriate classification techniques
- Cluster the high dimensional data for better organization of the data
- Discover the knowledge imbibed in the high dimensional system

Text Books:
OBJECTIVES:

- To understand the basics of Information Retrieval with pertinence to modeling, query operations and indexing
- To get an understanding of machine learning techniques for text classification and clustering
- To understand the various applications of Information Retrieval giving emphasis to Multimedia IR, Web Search
- To understand the concepts of queries specification judgment and search engines

TOPICS

MODULE-I

**Introduction:** Motivation, Basic concepts, Past, present, and future, The retrieval process. **Modeling:** Introduction, A taxonomy of information retrieval models, Retrieval: Adhoc and filtering, A formal characterization of IR models, Classic information retrieval, Alternative set theoretic models, Alternative algebraic models, Alternative probabilistic models, Structured text retrieval models, Models for browsing. 10 hours

MODULE-II

**Retrieval Evaluation:** Introduction, Retrieval performance evaluation, Reference collections. **Query Languages:** Introduction, keyword-based querying, Pattern matching, Structural queries, Query protocols. **Query Operations:** Introduction, User relevance feedback, Automatic local analysis, Automatic global analysis. 10 hours

MODULE-III

**Text and Multimedia Languages and Properties:** Introduction, Metadata, Text, Markup languages, Multimedia. **Text Operations:** Introduction, Document preprocessing, Document clustering, Text compression, Comparing text compression techniques. 10 hours

MODULE-IV

**Indexing and Searching:** Introduction; Inverted Files; Other indices for text; Boolean queries; Sequential searching; Pattern matching; Structural queries; Compression. **Parallel and Distributed IR:** Introduction, Parallel IR, Distributed IR. 10 hours

MODULE-V
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**User Interfaces and Visualization:** Introduction, Human-Computer interaction, The information access process, Starting points, Query specification, Context, Using relevance judgments, Interface support for the search process. **Searching the Web:** Introduction, Challenges, Characterizing the web, Search engines, Browsing, Meta searchers, Finding the needle in the haystack, Searching using hyperlinks. 10 hours

**COURSE OUTCOMES:**
Upon completion of the course, the students will be able to
- Build an Information Retrieval system using the available tools
- Identify and design the various components of an Information Retrieval system
- Apply machine learning techniques to text classification and clustering which is used for efficient Information Retrieval
- Analyze the Web content structure
- Design an efficient search engine

**TEXT BOOKS:**

**REFERENCE BOOKS:**
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Semester II

Course Title: Information Storage Management
Course Code: 14SSE254
Credits(L:T:P): 4:0:0
Type of Course: Lecture

Total Contact Hours: 50

Core/Elective: Elective

COURSE OBJECTIVES:
- To outline basic terminology and components in information storage and retrieval systems
- To compare and contrast information retrieval models and internal mechanisms such as Boolean, Probability, and Vector Space Models
- To describe current trends in information retrieval such as information visualization.
- To understand Backup process and securing of management storage infrastructure

TOPIC

MODULE-I


10 hours

MODULE-II


10 hours

MODULE-III


**MODULE-IV**


**MODULE-V**


**COURSE OUTCOMES**

The student shall be able to

- Recognize the role and use are technology in business systems and operations
- Identify and describe organizational structure and business processes within these
- Implement information systems in industry.
- Choose backup method and replication method.
- Provide securing of management storage infrastructure.

**Text Book:**

1. EMC2: Information Storage and Management, Willey India 2013.

**REFERENCES:**

1. EMC Corporation, Information Storage and Management, Wiley, India.
4. Additional resource material on www.emc.com/resource-library/resource-library.esp
OBJECTIVES:
- To understand the need of design pattern to solve problems of different context.
- To understand the common design patterns and to implement them.
- To explore the appropriate patterns for design problems.

LABORATORY WORK

Note: Use appropriate tools/language to implement the following experiment:

1. Design, develop and implement an intercepting Filter Pattern which intercepts and intermediates the request received. Implement an HTML to send a request to a server, where the request is intercepted by the filter and the following details are extracted and displayed. Date, Content-Encoding, Content-Length, Content-Location ,Content-MD5

2. Design, develop and implement a front controller pattern , which forms the centralized control to handle multiple user request for effectively managing the activities of content retrieval, view management and security service invocation. Implement a java Servlet, which forms the controller and decision maker for the entire application .

3. To implement a data access object pattern to separate the data processing logic from data access logic. Implement the java class that decouples the persistence management from business logic.

4. To implement an object pooling mechanism using N-TON design pattern. Implement a Java class which creates 10 connection objects and forms a pool , and another java class to consume the connection and to persist data into the EIS.

5. Implement the session façade pattern to de-couple the business logic from accessing the third party application object in the distributed environment using EJB.

COURSE OUTCOMES:

The student should be able to
- Design and implement codes with higher performance and lower complexity
- Be aware of code qualities needed to keep code flexible
- Experience core design principles and be able to assess the quality of a design with respect to these principles.
- Be able to select and apply suitable patterns in specific contexts.