

| Enterprise Application Programming | | | |
|--|-------------------------------------|-------------|-----|
| Course Code | 22SSE31 | CIE Marks | 50 |
| Teaching Hours/Week (L:P:SDA) | 3:0:2 | SEE Marks | 50 |
| Total Hours of Pedagogy | 50 | Total Marks | 100 |
| Credits | 04 | Exam Hours | 03 |
| Course Learning objectives: | | | |
| <ul style="list-style-type: none"> • Set out Web Application Development and related terminologies • Demonstrate persistent framework and other ORM tools • Exhibit solutions using Design Patterns • Outline latest WEB frameworks | | | |
| Module-1 | | | |
| 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, explaining the servlet life cycle, creating a sample servlet, creating a servlet by using annotation, working with servlet config and servlet context objects. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-2 | | | |
| 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. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-3 | | | |
| 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. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-4 | | | |
| 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. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT / Web resources | | |

| Module- 5 | |
|---|----------------------------------|
| <p>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. Securing java EE 6 applications: Introducing security in java EE 6, exploring security mechanisms, implementing security on an application server.</p> | |
| Teaching-Learning Process | Chalk and Talk/ PPT / Case Study |
| <p>Assessment Details (both CIE and SEE) The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.</p> <p>Continuous Internal Evaluation:</p> <ol style="list-style-type: none"> 1. Three Unit Tests each of 20 Marks 2. Two assignments each of 20 Marks or one Skill Development Activity of 40 marks to attain the COs and POs <p>The sum of three tests, two assignments/skill Development Activities, will be scaled down to 50 marks CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.</p> <p>Semester End Examination:</p> <ol style="list-style-type: none"> 1. The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50. 2. The question paper will have ten full questions carrying equal marks. 3. Each full question is for 20 marks. There will be two full questions (with a maximum of four sub-questions) from each module. 4. Each full question will have a sub-question covering all the topics under a module. 5. The students will have to answer five full questions, selecting one full question from each module | |
| <p>Suggested Learning Resources:</p> <p>Books</p> <ol style="list-style-type: none"> 1. Kogent learning solution: JAVA SERVER PROGRAMMING JAVA EE6(J2EE 1.6), Dreamtech press. | |
| <p>Web links and Video Lectures (e-Resources):</p> <ol style="list-style-type: none"> 1. https://www.youtube.com/@FullStackDevelopmentwithDotNet 2. https://www.youtube.com/watch?v=x3tMYUiAUN4 3. https://www.youtube.com/watch?v=_yinh8m3M78 4. https://www.youtube.com/watch?v=BWaqFX79vO8 | |
| <p>Skill Development Activities Suggested The students with the help of the course teacher can take up relevant technical activities which will enhance their skill. The prepared report shall be evaluated for CIE marks.</p> | |

Course outcome (Course Skill Set)

At the end of the course the student will be able to :

| Sl. No. | Description | Blooms Level |
|---------|---|--------------|
| C01 | Describe the creation of web applications and associated terms. | L1 |
| C02 | Exhibit ORM tools that include the continual framework in action. | L2 |
| C03 | Apply design patterns to illustrate the alternatives. | L3 |

Mapping of COS and POs

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| C01 | x | X | | | | | | | | |
| C02 | | x | X | | | | | | | |
| C03 | | | x | x | | | | | | |

| Database Security | | | |
|--|-------------------------------------|-------------|-----|
| Course Code | 22SSE321 | CIE Marks | 50 |
| Teaching Hours/Week (L:P:SDA) | 3:0:0 | SEE Marks | 50 |
| Total Hours of Pedagogy | 40 | Total Marks | 100 |
| Credits | 03 | Exam Hours | 03 |
| Course Learning objectives: | | | |
| <ul style="list-style-type: none"> • Demonstrate understanding of current database technology and typical database products. • Explore understanding of security architecture in modern computer systems in a typical enterprise. • Formulate a working definition of database security and administration. • Manage database security on application level. | | | |
| Module-1 | | | |
| Introduction: Introduction to Databases, Security Problems in Databases Security Controls Conclusions. Security Models 1: Introduction, Access Matrix Model, Take-Grant Model, Acten Model, PN Model, Hartson and Hsiao's Model, Fernandez's Model, Bussolati and Martella's Model for Distributed databases. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-2 | | | |
| Security Models 2: Bell and LaPadula's Model, Biba's Model, Dion's Model, Sea View Model, Jajodia and Sandhu's Model, The Lattice Model for the Flow Control conclusion. Security Mechanisms: Introduction, User Identification/Authentication, Memory Protection, Resource Protection, Control Flow Mechanisms, Isolation, Security Functionalities in Some Operating Systems, Trusted Computer System, Evaluation Criteria. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-3 | | | |
| Security Software Design: Introduction, A Methodological Approach to Security, Software Design, Secure Operating System Design, Secure DBMS Design, Security Packages, Database Security Design. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-4 | | | |
| Statistical Database Protection & Intrusion Detection Systems: Introduction, Statistics, Concepts and Definitions, Types of Attacks, Inference Controls, evaluation Criteria for Control Comparison, Introduction IDES System, RETISS System, ASES System Discovery. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT / Web resources | | |
| Module-5 | | | |
| Models For The Protection Of New Generation Database Systems 1: Introduction, A Model for the Protection of Frame Based Systems, A Model for the Protection of Object-Oriented Systems, SORION Model for the Protection of Object-Oriented Databases. Models For The Protection Of New Generation Database Systems 2: A Model for the Protection of New Generation Database Systems, the Orion Model, Jajodia and Kogan's Model, A Model for the Protection of Active Databases Conclusions. | | | |
| Teaching- | | | |

| | | |
|--|--|---------------------|
| Learning Process | Chalk and Talk/ PPT / Case Study | |
| Assessment Details (both CIE and SEE) | | |
| <p>The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.</p> | | |
| Continuous Internal Evaluation: | | |
| <ol style="list-style-type: none"> 1. Three Unit Tests each of 20 Marks 2. Two assignments each of 20 Marks or one Skill Development Activity of 40 marks to attain the COs and POs | | |
| <p>The sum of three tests, two assignments/skill Development Activities, will be scaled down to 50 marks</p> | | |
| CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course. | | |
| Semester End Examination: | | |
| <ol style="list-style-type: none"> 1. The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50. 2. The question paper will have ten full questions carrying equal marks. 3. Each full question is for 20 marks. There will be two full questions (with a maximum of four sub-questions) from each module. 4. Each full question will have a sub-question covering all the topics under a module. 5. The students will have to answer five full questions, selecting one full question from each module | | |
| Suggested Learning Resources: | | |
| Books | | |
| <ol style="list-style-type: none"> 1. Database Security and Auditing, Hassan A. Afyoun, CENGAGE Learning, 2009. 2. Database Security, Castano, Pearson Education. 3. Database security, Alfred Basta, Melissa Zgola, CENGAGE learning. | | |
| Web links and Video Lectures (e-Resources): | | |
| <ol style="list-style-type: none"> 1. https://youtu.be/uakTCU5Z_pg 2. https://www.youtube.com/watch?v=SARJMo0G2nI | | |
| Skill Development Activities Suggested | | |
| <p>The students with the help of the course teacher can take up relevant technical activities which will enhance their skill. The prepared report shall be evaluated for CIE marks.</p> | | |
| Course outcome (Course Skill Set) | | |
| At the end of the course the student will be able to : | | |
| Sl. No. | Description | Blooms Level |
| CO1 | Detail the overview of standard database products and contemporary database systems. | L2 |
| CO2 | Provide a working definition of database management and security. | L2 |
| CO3 | Control application-level database security. | L3, L4 |

Mapping of COS and POs

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| C01 | x | x | | | | | | | | |
| C02 | | x | x | | | | | | | |
| C03 | | | x | x | | | | | | |

SSE 2022 Syllabus

| Agile Technologies | | | |
|---|-------------------------------------|-------------|-----|
| Course Code | 22SSE32 2 | CIE Marks | 50 |
| Teaching Hours/Week (L:P:SDA) | 3:0:0 | SEE Marks | 50 |
| Total Hours of Pedagogy | 40 | Total Marks | 100 |
| Credits | 03 | Exam Hours | 03 |
| Course Learning objectives: | | | |
| <ul style="list-style-type: none"> Set out the Agile core principles Make a transparent and collaborative environment where the team works as a single unit | | | |
| Module-1 | | | |
| Why Agile?: Understanding Success, Beyond Deadlines, The Importance of Organizational Success, Enter Agility, How to Be Agile?: Agile Methods, Don't Make Your Own Method, The Road to Mastery, Find a Mentor. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-2 | | | |
| Understanding XP: The XP Lifecycle, The XP Team, XP Concepts, Adopting XP: Is XP Right for Us?, Go!, Assess Your Agility. Practicing XP: Thinking: Pair Programming, Energized Work, Informative Workspace, RootCause Analysis, Retrospectives, Collaborating: Trust, Sit Together, Real Customer Involvement, Ubiquitous Language, Stand-Up Meetings, Coding Standards, Iteration Demo, Reporting. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-3 | | | |
| Releasing: "Done Done", No Bugs, Version Control, Ten-Minute Build, Continuous Integration, Collective Code Ownership, Documentation. Planning: Vision, Release Planning, The Planning Game, Risk Management, Iteration Planning, Slack, Stories, Estimating. Developing: Incremental requirements, Customer Tests, Test-Driven Development, Refactoring, Simple Design, Incremental Design and Architecture, Spike Solutions, Performance Optimization, Exploratory Testing. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-4 | | | |
| Mastering Agility: Values and Principles: Commonalities, About Values, Principles, and Practices, Further Reading, Improve the Process: Understand Your Project, Tune and Adapt, Break the Rules, Rely on People :Build Effective Relationships, Let the Right People Do the Right Things, Build the Process for the People, Eliminate Waste :Work in Small, Reversible Steps, Fail Fast, Maximize Work Not Done, Pursue Throughput | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT / Web resources | | |
| Module-5 | | | |
| Deliver Value: Exploit Your Agility, Only Releasable Code Has Value, Deliver Business Results, Deliver Frequently, Seek Technical Excellence: Software Doesn't Exist, Design Is for Understanding, Design Trade-offs, Quality with a Name, Great Design, Universal Design Principles, Principles in Practice, Pursue Mastery. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT / Case Study | | |

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation:

1. Three Unit Tests each of **20 Marks**
2. Two assignments each of **20 Marks** or **one Skill Development Activity of 40 marks** to attain the COs and POs

The sum of three tests, two assignments/skill Development Activities, will be **scaled down to 50 marks**
CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

Semester End Examination:

1. The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50.
2. The question paper will have ten full questions carrying equal marks.
3. Each full question is for 20 marks. There will be two full questions (with a maximum of four sub-questions) from each module.
4. Each full question will have a sub-question covering all the topics under a module.
5. The students will have to answer five full questions, selecting one full question from each module

Suggested Learning Resources:**Books**

1. James shore, Chromatic, "The Art of Agile Development", O'Reilly.
2. Robert C. Martin, "Agile Software Development, Principles, Patterns, and Practices", Prentice Hall, 1st edition
3. Craig Larman, "Agile and Iterative Development A Manger's Guide", Pearson Education, First Edition

Web links and Video Lectures (e-Resources):

1. <https://www.youtube.com/watch?v=Z9QbYZh1YXY>
2. <https://www.youtube.com/watch?v=WjwEh15M5Rw>

Skill Development Activities Suggested

The students with the help of the course teacher can take up relevant technical activities which will enhance their skill. The prepared report shall be evaluated for CIE marks.

Course outcome (Course Skill Set)

At the end of the course the student will be able to :

| Sl. No. | Description | Blooms Level |
|---------|---|--------------|
| CO1 | Understand the core beliefs of Agile. | L2 |
| CO2 | Develop a collaborative and open environment where the team functions as a single entity. | L3 |
| CO3 | Manage process not only in framing the organization structure but also in achieving the enterprise objective. | L3,L4 |

Mapping of COS and POs

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| C01 | x | x | | | | | | | | |
| C02 | | x | x | | | | | | | |
| C03 | | | x | x | | | | | | |

SSE 2022 Syllabus

| Supply Chain Management | | | |
|--|-------------------------------------|-------------|-----|
| Course Code | 22SSE32 3 | CIE Marks | 50 |
| Teaching Hours/Week (L:P:SDA) | 3:0:0 | SEE Marks | 50 |
| Total Hours of Pedagogy | 40 | Total Marks | 100 |
| Credits | 03 | Exam Hours | 03 |
| Course Learning objectives: | | | |
| <ul style="list-style-type: none"> • Develop an understanding of basic concepts and role of Logistics and supply chain management in business. • Supply chain management are to improve efficiency, reduce costs, increase profits and keep the business going | | | |
| Module-1 | | | |
| Introduction to Supply Chain Management: Supply chain – objectives – importance – decision phases – process view – competitive and supply chain strategies – achieving strategic fit – supply chain drivers – obstacles – framework – facilities – inventory – transportation – information – sourcing – pricing. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-2 | | | |
| Designing the supply chain network :Designing the distribution network – role of distribution – factors influencing distribution – design options – e-business and its impact – distribution networks in practice – network design in the supply chain – role of network – factors affecting the network design decisions – modeling for supply chain. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-3 | | | |
| Designing and Planning Transportation Networks.: Role of transportation - modes and their performance - transportation infrastructure and policies - design options and their trade-offs - Tailored transportation. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-4 | | | |
| Sourcing and Pricing: Sourcing – In-house or Outsource – 3rd and 4th PLs – supplier scoring and assessment, selection – design collaboration – procurement process – sourcing planning and analysis. Pricing and revenue management for multiple customers, perishable products, seasonal demand, bulk and spot contracts. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT / Web resources | | |
| Module-5 | | | |
| Information Technology in the supply chain: IT Framework – customer relationship management – internal supply chain management – supplier relationship management – transaction management – future of IT. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT / Case Study | | |

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation:

1. Three Unit Tests each of **20 Marks**
2. Two assignments each of **20 Marks** or **one Skill Development Activity of 40 marks** to attain the COs and POs

The sum of three tests, two assignments/skill Development Activities, will be **scaled down to 50 marks**
CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

Semester End Examination:

1. The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50.
2. The question paper will have ten full questions carrying equal marks.
3. Each full question is for 20 marks. There will be two full questions (with a maximum of four sub-questions) from each module.
4. Each full question will have a sub-question covering all the topics under a module.
5. The students will have to answer five full questions, selecting one full question from each module

Suggested Learning Resources:**Books**

1. Supply Chain Management Strategy, Planning and Operation, Sunil Chopra and Peter Meindl, Pearson/PHI,3rd Edition.
2. The management of Business, Coyle, Bardi, Thomson Press.

Web links and Video Lectures (e-Resources):

1. <https://www.youtube.com/watch?v=raqi4gjMLm8>
2. <https://www.youtube.com/watch?v=Lpp9bHtPAN0>

Skill Development Activities Suggested

The students with the help of the course teacher can take up relevant technical activities which will enhance their skill. The prepared report shall be evaluated for CIE marks.

Course outcome (Course Skill Set)

| Sl.No | At the end of the course the student will be able to | Description | Blooms Level |
|-------|--|--|--------------|
| CO1 | | Understand the basic ideas behind supply chain management | L2 |
| CO2 | | Understand the logistics in business with chain management | L2 |
| CO3 | | To create benefits, minimize expenses, boost earnings, and maintain the business | L3 |

Mapping of COS and POs

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| C01 | x | x | | | | | | | | |
| C02 | | x | x | | | | | | | |
| C03 | | | x | x | | | | | | |

SSE 2022 Syllabus

| Web Mining | | | |
|---|-------------------------------------|-------------|-----|
| Course Code | 22SSE32 4 | CIE Marks | 50 |
| Teaching Hours/Week (L:P:SDA) | 3:0:0 | SEE Marks | 50 |
| Total Hours of Pedagogy | 40 | Total Marks | 100 |
| Credits | 03 | Exam Hours | 03 |
| Course Learning objectives: | | | |
| <ul style="list-style-type: none"> • Discover and extract information automatically from documents and Web services. • Discover and retrieve useful and interesting patterns from large data sets. • Gain experience of doing independent study and research. | | | |
| Module-1 | | | |
| INTRODUCTION: Crawling and Indexing, Topic Directories, Clustering and Classification, Hyperlink Analysis, Resource Discovery and Vertical Portals, Structured vs. Unstructured Data Mining .INFRASTRUCTURE and WEB SEARCH -- Crawling the web – HTML and HTTP Basics – Crawling Basics – Engineering Large Scale Crawlers- Putting together a Crawler Boolean Queries and the Inverted Index – Relevance Ranking – Similarity Search. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-2 | | | |
| INFORMATION RETRIEVAL: Information Retrieval and Text Mining - Keyword Search - Nearest-Neighbor Methods -Measuring Similarity - Web-Based Document Search - Document- Matching - Inverted Lists - Evaluation of Performance - Structure in a Document Collection - Clustering Documents by Similarity- Evaluation of Performance - Information Extraction - Patterns and Entities from Text- Co reference and Relationship Extraction - Template Filling and Database Construction | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-3 | | | |
| LEARNING I: Similarity and Clustering – Formulations and approaches- Bottom up and Top down Partitioning Paradigms – Clustering and Visualization via Embedding's – Probabilistic Approaches to clustering – Collaborative Filtering, SUPERVISED LEARNING: The Supervised Learning Scenario, Overview of Classification Strategies, Evaluating Text Classifiers, Nearest Neighbor Learners, Feature Selection. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-4 | | | |
| LEARNING II: SUPERVISED LEARNING – Bayesian Learners, Exploiting Hierarchy among Topics, Maximum Entropy Learners, Discriminative Classification, Hypertext Classification, SEMI SUPERVISEDLEARNING-- Expectation Maximization, Labeling Hypertext Graphs and Co- training. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT / Web resources | | |
| Module-5 | | | |
| APPLICATIONS: Social Network Analysis- Social Sciences and Bibliometry – Page Rank and HITS – Shortcomings of coarse Grained Graph model- Enhanced Models and Techniques Evaluation of Topic Distillation- Measuring and Modeling the Web – Resource Discovery – Collecting Important Pages Preferentially – Similarity Search Using Link Topology – Topical Locality and Focused Crawling – Discovering Communities- The Future of Web Mining. | | | |

| | | |
|---|---|--|
| Teaching-Learning Process | Chalk and Talk/ PPT / Case Study | |
| <p>Assessment Details (both CIE and SEE) The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.</p> <p>Continuous Internal Evaluation:</p> <ol style="list-style-type: none"> 1. Three Unit Tests each of 20 Marks 2. Two assignments each of 20 Marks or one Skill Development Activity of 40 marks to attain the COs and POs <p>The sum of three tests, two assignments/skill Development Activities, will be scaled down to 50 marks</p> <p>CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.</p> <p>Semester End Examination:</p> <ol style="list-style-type: none"> 1. The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50. 2. The question paper will have ten full questions carrying equal marks. 3. Each full question is for 20 marks. There will be two full questions (with a maximum of four sub-questions) from each module. 4. Each full question will have a sub-question covering all the topics under a module. 5. The students will have to answer five full questions, selecting one full question from each module | | |
| <p>Suggested Learning Resources:</p> <p>Books</p> <ol style="list-style-type: none"> 1. Text Mining: Predictive Methods for Analyzing Unstructured Information, Sholom Weiss, Springer. 2. Mining the Web: Discovery Knowledge from Hypertext Data, Soumen Chakrabarti, Elsevier Science. 3. Handbook of Research on Text and Web Mining Technologies", Vol I & II, Min Song, Yi-fang Brook Wu, Information Science Reference (IGI). 4. Web Mining Applications and Techniques, Anthony Scime, Idea Group Publishing. | | |
| <p>Web links and Video Lectures (e-Resources):</p> <ol style="list-style-type: none"> 1. https://www.youtube.com/watch?v=l1BBFygAc_Q 2. https://www.shorturl.at/ | | |
| <p>Skill Development Activities Suggested The students with the help of the course teacher can take up relevant technical activities which will enhance their skill. The prepared report shall be evaluated for CIE marks.</p> | | |
| <p>Course outcome (Course Skill Set)</p> | | |
| Sl.No | of the course the student will be able to | Description |
| CO1 | | Automatically find and extract information from files and Online services. |
| CO2 | | Find and recover interesting and relevant patterns from massive data sets |
| CO3 | | Enhance their spontaneous research and study skills. |

Mapping of COS and POs

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| C01 | x | x | | | | | | | | |
| C02 | | x | x | | | | | | | |
| C03 | | | x | x | | | | | | |

SSE 2022 Syllabus

| Advances In Operating Systems | | | |
|--|-------------------------------------|-------------|-----|
| Course Code | 22SSE32 5 | CIE Marks | 50 |
| Teaching Hours/Week (L:P:SDA) | 3:0:0 | SEE Marks | 50 |
| Total Hours of Pedagogy | 40 | Total Marks | 100 |
| Credits | 03 | Exam Hours | 03 |
| Course Learning objectives: | | | |
| <ul style="list-style-type: none"> Analyze and document an operating system using MacOS, UNIX/Linux like, Windows, Netware and mainframe as practical examples. Modules provide parallel processing systems, distributed systems, real time systems, network operating systems, and open source operating systems. | | | |
| Module-1 | | | |
| Operating System Overview, Process description & Control: Operating System Objectives and Functions, The Evolution of Operating Systems, Major Achievements, Developments Leading to Modern Operating Systems, Microsoft Windows Overview, Traditional UNIX Systems, Modern UNIX Systems, What is a Process?, Process States, Process Description, Process Control, Execution of the Operating System, Security Issues. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-2 | | | |
| Threads, SMP, and Microkernel, Virtual Memory: Processes and Threads, Symmetric Multiprocessing (SMP), Micro Kernels, Windows Vista Thread and SMP Hours Management, Linux Process and Thread Management. Hardware and Control Structures, Operating System Software, UNIX Memory Management, Windows Vista Memory Management, Summary. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-3 | | | |
| Multiprocessor and Real-Time Scheduling: Multiprocessor Scheduling, Real-Time Scheduling, Linux Scheduling, UNIX PreclsSl) Scheduling, Windows Vista Hours Scheduling, Process Migration, Distributed Global States, Distributed Mutual Exclusion, Distributed Deadlock. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-4 | | | |
| Embedded Operating Systems: Embedded Systems, Characteristics of Embedded Operating Systems, eCOS, TinyOS, Computer Security Concepts, Threats, Attacks, and Assets, Intruders, Malicious Software Overview, Viruses, Worms, and Bots, Rootkits. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT / Web resources | | |
| Module-5 | | | |
| Kernel Organization: Using Kernel Services, Daemons, Starting the Kernel, Control in the Machine, Modules and Device Management, MODULE Organization, MODULE Installation and Removal, Process and Resource Management, Running Process Manager, Creating a new Task , IPC and Synchronization, The Scheduler , Memory Manager , The Virtual Address Space, The Page Fault Handler , File Management. The windows NT/2000/XP kernel: Introduction, The NT kernel, Objects , Threads, Multiplication Synchronization, Traps, Interrupts and Exceptions, The NT executive , Object Manager, Process and Thread Manager , Virtual Memory Manager, I/o Manager, The cache Manager Kernel local procedure calls and IPC, The native API, subsystems | | | |

| Teaching-Learning Process | Chalk and Talk/ PPT / Case Study | | | | | | | | | | | | | |
|---|---|--------------|--------------|-----|---|----|-----|---------------------------------|--------|-----|--|--------|--|--|
| <p>Assessment Details (both CIE and SEE) The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.</p> <p>Continuous Internal Evaluation:</p> <ol style="list-style-type: none"> 3. Three Unit Tests each of 20 Marks 4. Two assignments each of 20 Marks or one Skill Development Activity of 40 marks to attain the COs and POs <p>The sum of three tests, two assignments/skill Development Activities, will be scaled down to 50 marks CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.</p> <p>Semester End Examination:</p> <ol style="list-style-type: none"> 1. The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50. 2. The question paper will have ten full questions carrying equal marks. 3. Each full question is for 20 marks. There will be two full questions (with a maximum of four sub-questions) from each module. 4. Each full question will have a sub-question covering all the topics under a module. 5. The students will have to answer five full questions, selecting one full question from each module | | | | | | | | | | | | | | |
| <p>Suggested Learning Resources:</p> <p>Books</p> <ol style="list-style-type: none"> 1. Operating Systems: Internals and Design Principles, William Stallings, Prentice Hall, 6th Edition. 2. Operating Systems, Gary Nutt, Pearson, 3rd Edition. | | | | | | | | | | | | | | |
| <p>Web links and Video Lectures (e-Resources):</p> <ol style="list-style-type: none"> 1. https://www.geeksforgeeks.org/operating-systems/ 2. https://www.udacity.com/course/advanced-operating-systems--ud189 3. https://www.udacity.com/course/advanced-operating-systems--ud189 | | | | | | | | | | | | | | |
| <p>Skill Development Activities Suggested The students with the help of the course teacher can take up relevant technical activities which will enhance their skill. The prepared report shall be evaluated for CIE marks.</p> | | | | | | | | | | | | | | |
| <p>Course outcome (Course Skill Set)</p> <p>At the end of the course the student will be able to :</p> | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Sl. No.</th> <th>Description</th> <th>Blooms Level</th> </tr> </thead> <tbody> <tr> <td>CO1</td> <td>Examine examples from MacOS, Linux operating systems, Window frames, Device drivers, and mainframe.</td> <td>L2</td> </tr> <tr> <td>CO2</td> <td>Examine OS and processing units</td> <td>L2, L3</td> </tr> <tr> <td>CO3</td> <td>Apply and analyze real-time scheduling</td> <td>L3, L4</td> </tr> </tbody> </table> | Sl. No. | Description | Blooms Level | CO1 | Examine examples from MacOS, Linux operating systems, Window frames, Device drivers, and mainframe. | L2 | CO2 | Examine OS and processing units | L2, L3 | CO3 | Apply and analyze real-time scheduling | L3, L4 | | |
| Sl. No. | Description | Blooms Level | | | | | | | | | | | | |
| CO1 | Examine examples from MacOS, Linux operating systems, Window frames, Device drivers, and mainframe. | L2 | | | | | | | | | | | | |
| CO2 | Examine OS and processing units | L2, L3 | | | | | | | | | | | | |
| CO3 | Apply and analyze real-time scheduling | L3, L4 | | | | | | | | | | | | |

Mapping of COS and POs

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| C01 | x | x | | | | | | | | |
| C02 | | x | x | | | | | | | |
| C03 | | | x | x | | | | | | |

SSE 2022 Syllabus

| Advanced Java and Web Programming | | | |
|--|-------------------------------------|-------------|-----|
| Course Code | 22SSE33 1 | CIE Marks | 50 |
| Teaching Hours/Week (L:P:SDA) | 3:0:0 | SEE Marks | 50 |
| Total Hours of Pedagogy | 40 | Total Marks | 100 |
| Credits | 03 | Exam Hours | 03 |
| Course Learning objectives: | | | |
| <ul style="list-style-type: none"> • Develop dynamic website using JavaScript, JDBC. • To get expertise of Java Server Pages and Servlets for server-side programming. • To become familiar with the data operations carried out by XML-based web applications. • | | | |
| Module-1 | | | |
| Java Networking Fundamentals: Networks Basics, Socket Overview, Data grams, Java .net Package, server socket, URL and URL Connection.. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-2 | | | |
| JDBC Programming: The JDBC Connectivity Model, The java . SQL package, database programming, creating a SQL query, getting the results, updating the Database data, The statement Interface, The resultant interface, JDBC Types, Executing SQL queries,, Executing SQL Updates, Difference between executequery(), ExecuteUpdate(), and execute(), Transaction management | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-3 | | | |
| Java Web Frameworks: Overview of Spring, Spring Architecture, Create first app with spring, Bean Lifecycle, XML Configuration on spring, Managing Database and Transaction | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-4 | | | |
| Refreshing Java Script and CSS: Introduction to CSS. CSS Syntax and Structure. Location of styles. Selectors. Background. Color and properties. Text and Fonts, Lists, Javascript Syntax, inbuilt objects, DOM, Event and Error Handling, Validators, Ajax. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT / Web resources | | |
| Module-5 | | | |
| Introduction to Angular JS, Node JS and Mongo DB: Directives, Modules, Routes, Forms and Validations. Data Binding. Creating single Page website using JS. Setup node JS environment. Package manager. Console object. Events and Loops. Timers, Error handling, Web module. Basics of Mongo DB, MDB Installation Connect node JS with MongoDB | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT / Case Study | | |

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation:

1. Three Unit Tests each of **20 Marks**
2. Two assignments each of **20 Marks** or **one Skill Development Activity of 40 marks** to attain the COs and POs

The sum of three tests, two assignments/skill Development Activities, will be **scaled down to 50 marks**
CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

Semester End Examination:

1. The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50.
2. The question paper will have ten full questions carrying equal marks.
3. Each full question is for 20 marks. There will be two full questions (with a maximum of four sub-questions) from each module.
4. Each full question will have a sub-question covering all the topics under a module.
5. The students will have to answer five full questions, selecting one full question from each module

Suggested Learning Resources:**Text books:**

1. Puntambekar, Advanced Java Programming for GTU 18 Course (VI - Comp./Prof. Elec.- III - 3160707) – [Print Replica] Kindle Edition, 2021.
2. Anuradha A. Puntambekar, Advanced Web Programming for GTU University (VI- IT/Prof. Elec.- III - 3161611) [Print Replica] Kindle Edition, 2021.

Reference Books:

1. "Core Java 2 Advanced Features, Vol 2", Hortsman & Cornell, Pearson Education, 2002.
2. "Java Network Programming", Elliotte Rusty Harold, O'Reilly publishers, 2000
1. "Internet and WWW", Margaret Levine Young, Tata McGraw Hill, 2nd Edition 2002

1. <https://www.youtube.com/watch?v=s2fRbcAsG-Q>
2. <https://www.youtube.com/watch?v=Ae-r8hsbPUo>
3. <https://www.youtube.com/watch?v=Q33KBiDriJY>
4. <https://www.youtube.com/watch?v=pWbMrx5rVBE>
5. <https://www.udemy.com/course/advanced-java-programming>
- 6.

1.

Skill Development Activities Suggested

The students with the help of the course teacher can take up relevant technical activities which will enhance their skill. The prepared report shall be evaluated for CIE marks.

Course outcome (Course Skill Set)

At the end of the course the student will be able to :

| Sl. No. | Description | Blooms Level |
|---------|---|--------------|
| C01 | Recognise the fundamentals of java and networking programming | L2 |
| C02 | Design and Develop various application by Integrating any of Servlets, JSPs, Swing and Applet using Database, RMI , Spring, Hibernate by analyzing requirements and evaluating existing system. (Analysis, Synthesis, Evaluation) | L2, L3 |
| C03 | Implement the web based applications using effective data base access with rich client interaction | L3, L4 |

| |
|--|
| |
|--|

SSE 2022 Syllabus

Mapping of COS and POs

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|
| C01 | x | x | | | | | | | | |
| C02 | | | x | | | | | | | |
| C03 | | | | x | | | | | | |

SSE 2022 Syllabus

| Business Intelligence & Big Data | | | |
|--|-------------------------------------|-------------|-----|
| Course Code | 22SDS33 2 | CIE Marks | 50 |
| Teaching Hours/Week (L:P:SDA) | 3:0:0 | SEE Marks | 50 |
| Total Hours of Pedagogy | 40 | Total Marks | 100 |
| Credits | 03 | Exam Hours | 03 |
| Course Learning objectives: | | | |
| <ul style="list-style-type: none"> • To get the knowledge of Business Intelligence • To Recognise Key concepts and methods of business intelligence and big data. • To Use standard tools for data collection, integration of different data sources and processing large data sets | | | |
| Module-1 | | | |
| Business Intelligence (BI): introduction. The BI life cycle. Architecture of a BI system; design of a BI system. Main open source and commercial business intelligence tools. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT / Web resources | | |
| Module-2 | | | |
| Big Data (BD): introduction: the 4V+1 model. Data models for Big Data. The Hadoop ecosystem. Yarn 2.0. Pig. Hive. Giraph. Spark. GraphX | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT / Web resources | | |
| Module-3 | | | |
| NoSQL Data Bases: the NoSQL movement. Key-value - Column-family, Graph, Document Database systems. BASE properties vs. transactions. CAP Theorem.. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT / Web resources | | |
| Module-4 | | | |
| Big Data Analytics (BDA): BDA Lifecycle: knowledge discovery in databases, data preparation, model planning, model building, data visualization. Social Networks Analytics. Recommender Systems. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT / Web resources | | |
| Module-5 | | | |
| Examples of commercial and open source tools: Oracle, IBM Business Analytics, Microsoft Power BI, Microsoft Azure. AWS. SAP Hana | | | |

| | |
|--|----------------------------------|
| Teaching-Learning Process | Chalk and Talk/ PPT / Case Study |
| <p>Assessment Details (both CIE and SEE) The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.</p> <p>Continuous Internal Evaluation:</p> <ul style="list-style-type: none"> • Three Unit Tests each of 20 Marks • Two assignments each of 20 Marks or one Skill Development Activity of 40 marks to attain the COs and POs <p>The sum of three tests, two assignments/skill Development Activities, will be scaled down to 50 marks</p> <p>CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.</p> <p>Semester End Examination:</p> <ul style="list-style-type: none"> • The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50. • The question paper will have ten full questions carrying equal marks. • Each full question is for 20 marks. There will be two full questions (with a maximum of four sub-questions) from each module. • Each full question will have a sub-question covering all the topics under a module. • The students will have to answer five full questions, selecting one full question from each module | |
| <p>Suggested Learning Resources:</p> <p>Books</p> <ol style="list-style-type: none"> 1. K.R. Chowdhary, "Fundamentals of AI", Springer. | |
| <p>Web links and Video Lectures (e-Resources):</p> | |
| <p>Suggested Learning Resources:</p> <p>Text Books:</p> <ol style="list-style-type: none"> 1. J. Leskovec, A. Rajarman, J.D. Ullman , "Mining of Massive Datasets", 2014 (e-book) 2. Ramez Elmasri, Shamkant B. Navathe, Fundamentals of Database Systems, Pearson Seventh Edition, 2017. <p>Reference Books:</p> <ol style="list-style-type: none"> 1. Steve Williams, Business Intelligence Strategy and Big Data Analytics, A General Management Perspective Book , 2016 2. Hector Cuesta , Dr. Sampath Kumar , Practical Data Analysis - Second Edition 3.5, Packt, 2016. | |
| <p>Skill Development Activities Suggested</p> <p>The students with the help of the course teacher can take up relevant technical activities which will enhance their skill. The prepared report shall be evaluated for CIE marks.</p> | |
| <ul style="list-style-type: none"> • https://youtu.be/u2zsY-2uZiE • https://www.youtube.com/watch?v=OP8BsGnqi9c • https://www.mygreatlearning.com/blog/courses-on-data-science-big-data-and-business-intelligence/ • https://www.youtube.com/watch?v=Hg8zBJ1DhLQ • https://www.youtube.com/watch?v=OvtolJTbO-E | |

SSE 2022 Syllabus

| Sl. No. | Description | Blooms Level |
|---------|---|--------------|
| C01 | Identify the key concepts and methods of business intelligence and big data. | L1 |
| C02 | Use standard tools for data collection, integration of different data sources, and processing large data sets | L2 |
| C03 | Analyse business benefits, complexity, cost, and challenges of business intelligence and big data projects | L3 |

Mapping of COs and POs

| | P01 | P02 | P03 | P04 | P05 | P06 | P07 | P08 | P09 | P010 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| C01 | X | X | | | | | | | | |
| C02 | | X | X | | | | | | | |
| C03 | | | X | X | | | | | | |

SSE 2022 Syllabus

| Software Quality Assurance and Testing | | | |
|---|---------------------|-------------|-----|
| Course Code | 22SSE33 3 | CIE Marks | 50 |
| Teaching Hours/Week (L:P:SDA) | 3:0:3 | SEE Marks | 50 |
| Total Hours of Pedagogy | 40 | Total Marks | 100 |
| Credits | 03 | Exam Hours | 03 |
| Course Learning objectives: | | | |
| <ul style="list-style-type: none"> • To study the various types of test in the life cycle of the software product. • To build design concepts for system testing and execution • To learn the software quality assurance ,metrics, defect prevention techniques • To learn the techniques for quality assurance and applying for applications. | | | |
| Module-1 | | | |
| <p>Quality Assurance - Root Cause Analysis, modeling, technologies, standards and methodologies for defect prevention. Fault Tolerance and Failure Containment - Safety Assurance and Damage Control, Hazard analysis using fault-trees and event-trees. Comparing Quality Assurance Techniques and Activities. QA Monitoring and Measurement, Risk Identification for Quantifiable Quality Improvement. Case Study: FSM-Based Testing of Web-Based Applications.</p> | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-2 | | | |
| <p>SOFTWARE TESTING - CONCEPTS, ISSUES, AND TECHNIQUES: Quality Revolution, Verification and Validation, Failure, Error, Fault, and Defect, Objectives of Testing, Testing Activities, Test Case Selection White-Box and Black ,test Planning and design, Test Tools and Automation, . Power of Test. Test Team Organization and Management-Test Groups, Software Quality Assurance Group ,System Test Team Hierarchy, Team Building</p> | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-3 | | | |
| <p>System Testing - System Integration Techniques-Incremental, Top Down Bottom Up Sandwich and Big Bang, Software and Hardware Integration, Hardware Design Verification Tests, Hardware and Software Compatibility Matrix Test Plan for System Integration. Built- in Testing. functional testing - Testing a Function in Context. Boundary Value Analysis, Decision Tables. acceptance testing - Selection of Acceptance Criteria, Acceptance Test Plan, Test Execution Test. software reliability - Fault and Failure, Factors Influencing Software, Reliability Models</p> | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-4 | | | |
| <p>System test categories- Taxonomy of System Tests, Interface Tests Functionality Tests. GUI Tests, Security Tests Feature Tests, Robustness Tests, Boundary Value Tests Power Cycling Tests Interoperability Tests, Scalability Tests, Stress Tests, Load and Stability Tests, Reliability Tests, Regression Tests, Regulatory Tests.</p> <p>Test Generation from FSM models- State-Oriented Model. Finite-State Machine Transition Tour Method, Testing with State Verification. Test Architectures-Local, distributed, Coordinated, Remote. system test design- Test Design Factors Requirement Identification, modeling a Test Design Process Test Design Preparedness, Metrics, Test Case Design Effectiveness. system test execution- Modeling</p> | | | |

| | |
|--|-------------------------------------|
| Defects, Metrics for Monitoring Test Execution .Defect Reports, Defect Causal Analysis, Beta testing, measuring Test Effectiveness | |
| Teaching-Learning Process | Chalk and Talk/ PPT / Web resources |
| Module-5 | |
| Software quality - People's Quality Expectations, Frameworks and ISO-9126, McCall's Quality Factors and Criteria – Relationship. Quality Metrics. Quality Characteristics ISO 9000:2000 Software Quality Standard. Maturity models- Test Process Improvement, Testing Maturity Model. | |
| Teaching-Learning Process | Chalk and Talk/ PPT / Case Study |

SSE 2022 Syllabus

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation:

1. Three Unit Tests each of **20 Marks**
2. Two assignments each of **20 Marks** or **one Skill Development Activity of 40 marks** to attain the COs and POs

The sum of three tests, two assignments/skill Development Activities, will be **scaled down to 50 marks**
CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

Semester End Examination:

1. The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50.
2. The question paper will have ten full questions carrying equal marks.
3. Each full question is for 20 marks. There will be two full questions (with a maximum of four sub-questions) from each module.
4. Each full question will have a sub-question covering all the topics under a module.
5. The students will have to answer five full questions, selecting one full question from each module

Suggested Learning Resources:**Text Books**

1. Kshirasagar Nak Priyadarshi Tripathy, John Wiley & Sons, Software Testing And Quality Assurance- Theory and Practice, Inc, 2008
2. Milind Limaye, Software Quality Assurance, , TMH ,New Delhi, 2011

Reference Books

1. Daniel Galin, Software Quality Assurance - From Theory to Implementation, Pearson Education Ltd UK, 2004
1. Jeff Tian, John Wiley & Sons, Software Quality Engineering: Testing, Quality Assurance, and Quantifiable Improvement, , Inc., Hoboken, New Jersey. 2005.

1. <https://www.youtube.com/watch?v=ReKh3BqeEhY>
2. <https://www.youtube.com/watch?v=p8SYmtuJv10>
3. https://www.youtube.com/watch?v=axQI_YKH6BI
4. <https://www.youtube.com/watch?v=YmscnVRLwy0>
5. <https://www.guru99.com/software-testing.html>
- 6.

Skill Development Activities Suggested

The students with the help of the course teacher can take up relevant technical activities which will enhance their skill. The prepared report shall be evaluated for CIE marks.

Course outcome (Course Skill Set)

At the end of the course the student will be able to :

Mapping of COS and POs

| Sl. No. | Description | Blooms Level |
|---------|---|--------------|
| C01 | Define the functional and non-functional tests in life cycle of the software product. | L1 |
| C02 | Describe the system testing and test execution process. | L2 |
| C03 | Identify defect prevention techniques and software quality assurance metrics. | L1 |
| C04 | Apply techniques of quality assurance for typical applications | L3 |

| | P01 | P02 | P03 | P04 | P05 | P06 | P07 | P08 | P09 | P010 |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| C01 | x | | | | | | | | | |
| C02 | | | | | | | | | | |
| C03 | | | x | | x | | | | | |
| C04 | | | | x | | | | | | |

| WEB APPLICATION AND PENETRATION TESTING | | | |
|---|---------------------|-------------|-----|
| Course Code | 22SSE33 4 | CIE Marks | 50 |
| Teaching Hours/Week (L:P:SDA) | 3:0:0 | SEE Marks | 50 |
| Total Hours of Pedagogy | 40 | Total Marks | 100 |
| Credits | 03 | Exam Hours | 03 |
| Course Learning objectives: | | | |
| <ul style="list-style-type: none"> To build an end-to-end threat model landscape for web application security. To learn both web application vulnerabilities and web intrusion testing. To identify the network vulnerabilities with a web application infrastructure | | | |
| Module-1 | | | |
| <p>Building a Vulnerable Web Application Lab: Downloading Mutillidae, Installing Mutillidae on Windows, Downloading and installing XAMPP, Mutillidae installation, Installing Mutillidae on Linux, Downloading and installing XAMPP, Mutillidae installation, Using Mutillidae, User registration, Showing hints and setting security levels, Application reset.</p> <p>Kali Linux Installation: Introducing Kali Linux, Installing Kali Linux from scratch, Installing Kali on VMware, Installing Kali on VirtualBox, Bridged versus NAT versus Internal Network, Updating Kali LinuxStyling.</p> | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-2 | | | |
| <p>Delving Deep into the Usage of Kali Linux: The Kali filesystem structure, Handling applications and packages, The Advanced Packaging Tool, Debian's package management system, Using dpkg commands, Handling the filesystem in Kali, File compression commands, Security management, Secure shell protocol, Configuring network services in Kali, Setting a static IP on Kali, Checking active connections in Kali, Process management commands, Htop utility, Popular commands for process management, System info commands</p> | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-3 | | | |
| <p>Understanding Web Application Vulnerabilities: File Inclusion, Local File Inclusion, Remote File Inclusion, Cross-Site Scripting, Reflected XSS, Stored XSS, Cross-Site Request Forgery, Step 01 – victim, Step 02 – attacker, Results, SQL Injection, Authentication bypass, Extracting the data from the database, Error-based SQLi enumeration, Blind SQLi, Command Injection, Application Security Pre-Engagement: Introduction, The first meeting, The day of the meeting with the client, Non-Disclosure Agreement, Kick-off meeting, Time and cost estimation, Statement of work, Penetration Test Agreement, External factors,</p> | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-4 | | | |
| <p>Network Penetration Testing: Passive information gathering – reconnaissance – OSINT, Web search engines, Google Hacking Database – Google dorks, Online tools, Kali Linux tools, WHOIS lookup, Domain name system – DNS enumeration, Gathering email addresses, Active information gathering – services enumeration, Identifying live hosts, Identifying open ports/services, Service probing and enumeration, Vulnerability assessment, OpenVas, Exploitation, Finding exploits, Listener setup, Generating a shell payload using msfvenom, Custom shells, Privilege escalation, File transfers, Using PowerShell, Using VBScript, Administrator or root, Web Intrusion Tests, Web Intrusion Test workflow, Identifying hidden</p> | | | |

contents, Common web page checklist, Special pages checklist, Reporting, Common Vulnerability Scoring System – CVSS, First case – SQLi, Second case – Reflected XSS, Report template.

**Teaching-
Learning
Process**

Chalk and Talk/ PPT / Web resources

Module-5

Pentest Automation Using Python: Python IDE, Downloading and installing PyCharm, PyCharm quick overview, Penetration testing automation, Automate.py in action, Utility functions, Service enumeration, DTO service class, The scanner core, Nmap Cheat Sheet, Target specification, Host discovery, Scan types and service versions, Port specification and scan order, Script scan, Timing and performance, Firewall/IDS evasion and spoofing, Output, Metasploit Cheat Sheet, Metasploit framework, Using the database, More database-related commands, Getting around, Using modules, Miscellaneous, Msfvenom, Listener scripting, Meterpreter, Netcat Cheat Sheet, Netcat command flags, Practical examples.

SSE 2022 Syllabus

| Teaching-Learning Process | Chalk and Talk/ PPT / Case Study | | | | | | | | | | | | | | |
|--|---|--------------|--------------|-----|---|----|-----|---|----|-----|---|----|--|--|--|
| <p>Assessment Details (both CIE and SEE) The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.</p> <p>Continuous Internal Evaluation:</p> <ol style="list-style-type: none"> 1. Three Unit Tests each of 20 Marks 2. Two assignments each of 20 Marks or one Skill Development Activity of 40 marks to attain the COs and POs <p>The sum of three tests, two assignments/skill Development Activities, will be scaled down to 50 marks CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.</p> <p>Semester End Examination:</p> <ul style="list-style-type: none"> • The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50. • The question paper will have ten full questions carrying equal marks. • Each full question is for 20 marks. There will be two full questions (with a maximum of four sub-questions) from each module. • Each full question will have a sub-question covering all the topics under a module. • The students will have to answer five full questions, selecting one full question from each module | | | | | | | | | | | | | | | |
| <p>Suggested Learning Resources:</p> <p>Text Book:</p> <ol style="list-style-type: none"> 1. Gus Khawaja, Practical Web Penetration Testing, O'Reilly Packt Publishing, 2018. <p>Reference Book:</p> <ol style="list-style-type: none"> 2. Christian Martorella, Learning Python Web Penetration Testing: Automate web penetration testing activities using Python Paperback, 2018 | | | | | | | | | | | | | | | |
| <p>Web links and Video Lectures (e-Resources):</p> <ol style="list-style-type: none"> 1. https://www.google.co.in/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwiziqg9rH6AhWm-TgGHTiMDEcQwqsBegQIKxAB&url=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv%3DX4eRbHgRawI&usg=AOvVaw0JZABUg_IAdGjY7L3DVuHu 2. extension://elhekieabhbkpmcefcobjddigjcaadp/https://dsxte2q2nyjxs.cloudfront.net/Syllabus_WAPTv3.pdf 3. https://www.youtube.com/watch?v=2_lswM1S264 4. https://www.youtube.com/watch?v=CktYFft7K8Q 5. | | | | | | | | | | | | | | | |
| <p>Skill Development Activities Suggested</p> <p>The students with the help of the course teacher can take up relevant technical activities which will enhance their skill. The prepared report shall be evaluated for CIE marks.</p> | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Sl. No.</th> <th>Description</th> <th>Blooms Level</th> </tr> </thead> <tbody> <tr> <td>CO1</td> <td>Examine the web application hacking tools for intrusion tests using Kali Linux.</td> <td>L1</td> </tr> <tr> <td>CO2</td> <td>Analyze a web application using application threat modelling.</td> <td>L4</td> </tr> <tr> <td>CO3</td> <td>Experiment with network infrastructure tests and penetration testing functions for maximum efficiency using Python.</td> <td>L3</td> </tr> </tbody> </table> | Sl. No. | Description | Blooms Level | CO1 | Examine the web application hacking tools for intrusion tests using Kali Linux. | L1 | CO2 | Analyze a web application using application threat modelling. | L4 | CO3 | Experiment with network infrastructure tests and penetration testing functions for maximum efficiency using Python. | L3 | | | |
| Sl. No. | Description | Blooms Level | | | | | | | | | | | | | |
| CO1 | Examine the web application hacking tools for intrusion tests using Kali Linux. | L1 | | | | | | | | | | | | | |
| CO2 | Analyze a web application using application threat modelling. | L4 | | | | | | | | | | | | | |
| CO3 | Experiment with network infrastructure tests and penetration testing functions for maximum efficiency using Python. | L3 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

SSE 2022 Syllabus

| | P01 | POPs02 | P03 | P04 | P05 | P06 | P07 | P08 | P09 | P010 |
|-----|-----|--------|-----|-----|-----|-----|-----|-----|-----|------|
| C01 | x | | | x | | | | | | |
| C02 | | | x | | | | | | | |
| C03 | | | | | | | | | | |

| Multimedia and Rich Internet Applications | | | |
|---|---------------------|-------------|-----|
| Course Code | 22SSE33 5 | CIE Marks | 50 |
| Teaching Hours/Week (L:P:SDA) | 3:0:0 | SEE Marks | 50 |
| Total Hours of Pedagogy | 40 | Total Marks | 100 |
| Credits | 03 | Exam Hours | 03 |
| Course Learning objectives: | | | |
| <ul style="list-style-type: none"> • Articulate the organization of the Internet. • List and define the appropriate Video signals. • Identify the different types of web based applications. • Despite and Define the tremendous technological growth of the Internet | | | |
| Module-1 | | | |
| Introduction to Multimedia: Internet and Multimedia communications, Multimedia Networks, Multimedia Applications, Multimedia Information representation- Digitization Principles, Text, Images, Audio and Video, Compression Methods-Basic Coding Methods – Run Length coding, Huffman coding, Arithmetic coding, Discrete Cosine Transform, Differential PCM, Motion Compensated Prediction, Video Compression – JPEG, H.261, MPEG-1 Video, MPEG 2 and 3 Video, H.263, Wavelet and Fractal Image Compression, Audio Compression. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-2 | | | |
| Multimedia Applications in Networks: Introduction. Application Level Framing. Audio/Video Conferencing-Session Directories. Audio/Video Conferencing. Adaptive Applications. Receiver Heterogeneity. Real Time Application with Resource Reservation .Video Server. Applications requiring reliable multicast – White Board . Network Text Editor for Shared Text Editing. Multi Talk. Multicast file transfer. Multimedia Applications on the World Wide Web – Multicast Web Page Sharing, Audio/Video Streams in the www, Interactive Multiplayer Games.. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-3 | | | |
| Web 2.0: What is web 2.0, Search, Content Networks, User Generated Content, Blogging, Social Networking, Social Media, Tagging, Social Marking, Rich Internet Applications, Web Services, Mashups, Location Based Services, XML, RSS, Atom, JSON, and VoIP, Web 2.0 Monetization and Business Models, Future of the Web. | | | |
| Teaching-Learning Process | Chalk and Talk/ PPT | | |
| Module-4 | | | |

| | |
|---|-------------------------------------|
| Rich Internet Applications (RIAs) with Adobe Flash and Flex: Adobe Flash- Introduction, Flash Movie Development, Learning Flash with Hands-on Examples, Publish your flash movie, Creating special effects with Flash, Creating a website splash screen, action script, web sources. Adobe Flex 2- Introduction, Flex Platform Overview, Creating a Simple User Interface, Accessing XML data from your application, Interacting with Server Side Applications, Customizing your User Interface, Creating Charts and Graphs, Connection Independent RIAs on the desktop -Adobe Integrated Runtime (AIR), Flex 3 Beta. | |
| Teaching-Learning Process | Chalk and Talk/ PPT / Web resources |
| Module-5 | |
| Ajax- Enabled Rich Internet Application: Introduction, Traditional Web Applications Vs Ajax Applications, Rich Internet Application with Ajax, History of Ajax, Raw Ajax example using xml http request object, Using XML, Creating a full scale Ajax Enabled application, Dojo ToolKit. | |
| Teaching-Learning Process | Chalk and Talk/ PPT / Case Study |
| <p>Assessment Details (both CIE and SEE)</p> <p>The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.</p> <p>Continuous Internal Evaluation:</p> <ol style="list-style-type: none"> 1. Three Unit Tests each of 20 Marks 2. Two assignments each of 20 Marks or one Skill Development Activity of 40 marks to attain the COs and POs <p>The sum of three tests, two assignments/skill Development Activities, will be scaled down to 50 marks CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.</p> <p>Semester End Examination:</p> <ol style="list-style-type: none"> 1. The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50. 2. The question paper will have ten full questions carrying equal marks. 3. Each full question is for 20 marks. There will be two full questions (with a maximum of four sub-questions) from each module. 4. Each full question will have a sub-question covering all the topics under a module. 5. The students will have to answer five full questions, selecting one full question from each module | |
| <p>Suggested Learning Resources:</p> <p>TEXT BOOKS:</p> <ol style="list-style-type: none"> 1. Multimedia Communications: Protocols and Applications, Franklin F Kuo, J. Joaquin Garcia, Wolfgang Effelsberg, Prentice Hall Publications. 2. Multimedia Communications: Applications, Networks, Protocols and Standards, Fred Halsall, Addison Wesley Publications. 3. AJAX, Rich Internet Applications, and Web Development for Programmers, Paul J Deitel and Harvey M Deitel, Deitel Developer Series, Pearson education. <p>REFERENCE BOOKS:</p> <ol style="list-style-type: none"> 1. Professional Adobe Flex 2, Rich Tretola, Simon barber and Renaun Erickson, Wrox, Wiley India Edition. 2. Multimedia Information Networking, Nalin K Sharda, PHI Learning. | |

1.

1. <https://www.smartzworld.com/notes/multimedia-rich-internet-applications-notes-pdf-mria-notes-pdf/>
2. <https://www.ignitesocialmedia.com/twitter-marketing/rich-internet-applications/>
3. extension://elhekieabhbkpmcefcoobjddigjcaadp/https://www.iare.ac.in/sites/default/files/PP_T/IARE_MRI_PPT.pdf
4. <extension://elhekieabhbkpmcefcoobjddigjcaadp/https://elearningatria.files.wordpress.com/2013/10/cse-viii-web-2-0-rich-internet-application-06cs832-notes.pdf>
5. <extension://elhekieabhbkpmcefcoobjddigjcaadp/https://www.pearsonhighered.com/assets/samplechapter/0/1/3/2/0132106426.pdf>
- 6.

Skill Development Activities Suggested

The students with the help of the course teacher can take up relevant technical activities which will enhance their

skill. The prepared report shall be evaluated for CIE marks.

Course outcome (Course Skill Set)

At the end of the course the student will be able to :

| Sl. No. | Description | Blooms Level |
|---------|---|--------------|
| CO1 | Define the tremendous technological growth of the Internet. | L1 |
| CO2 | Define the appropriate Video signals. | L1 |
| CO3 | Identify the different types of web based applications. | L3 |
| CO4 | Describe the organization of multimedia Internet. | L4 |

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1 | X | | | | | | | | | | | X |
| CO2 | | X | | | | | | | | | | |
| CO3 | | | | X | | | | | | | | |
| CO4 | X | | | | | | | | | | | |

| PROJECT WORK PHASE - 1 | | | |
|---|---------|------------|-----|
| Course Code | 22SSE34 | CIE Marks | 100 |
| Number of contact Hours/Week | 6 | SEE Marks | -- |
| Credits | 03 | Exam Hours | -- |
| <p>Course objectives:</p> <ul style="list-style-type: none"> • Support independent learning. • Guide to select and utilize adequate information from varied resources maintaining ethics. • Guide to organize the work in the appropriate manner and present information (acknowledging the sources) clearly. • Develop interactive, communication, organisation, time management, and presentation skills. • Impart flexibility and adaptability. • Inspire independent and team working. • Expand intellectual capacity, credibility, judgement, intuition. • Adhere to punctuality, setting and meeting deadlines. • Instil responsibilities to oneself and others. • Train students to present the topic of project work in a seminar without any fear, face audience confidently, enhance communication skill, involve in group discussion to present and exchange ideas. | | | |
| <p>Project Phase-1 Students in consultation with the guide/s shall carry out literature survey/ visit industries to finalize the topic of the Project. Subsequently, the students shall collect the material required for the selected project, prepare synopsis and narrate the methodology to carry out the project work.</p> <p>Seminar: Each student, under the guidance of a Faculty, is required to</p> <ul style="list-style-type: none"> • Present the seminar on the selected project orally and/or through power point slides. • Answer the queries and involve in debate/discussion. • Submit two copies of the typed report with a list of references. <p>The participants shall take part in discussion to foster friendly and stimulating environment in which the students are motivated to reach high standards and become self-confident.</p> | | | |
| <p>Course outcomes:</p> <p>At the end of the course the student will be able to:</p> <ul style="list-style-type: none"> • Demonstrate a sound technical knowledge of their selected project topic. • Undertake problem identification, formulation, and solution. • Design engineering solutions to complex problems utilising a systems approach. • Communicate with engineers and the community at large in written and oral forms. • Demonstrate the knowledge, skills and attitudes of a professional engineer. | | | |
| <p>Continuous Internal Evaluation</p> <p>CIE marks for the project report (50 marks), seminar (30 marks) and question and answer (20 marks) shall be awarded (based on the quality of report and presentation skill, participation in the question and answer session by the student) by the committee constituted for the purpose by the Head of the Department. The committee shall consist of three faculty from the department with the senior most acting as the Chairperson.</p> | | | |

| Societal Project | | | |
|---|---------|------------|-----|
| Course Code | 22SSE35 | CIE Marks | 100 |
| Number of contact Hours/Week | 6 | SEE Marks | — |
| Credits | 3 | Exam Hours | 03 |
| Course objectives: | | | |
| <ul style="list-style-type: none"> • Build creative solutions for development problems of current scenario in the Society. • Utilize the skills developed in the curriculum to solve real life problems. • Improve understanding and develop methodology for solving complex issues. | | | |
| Some of the domains to choose for societal projects: | | | |
| <ul style="list-style-type: none"> • Infrastructure • Health Care • Social security • Security for women • Transportation • Business Continuity • Remote working and Education • Digital Finance • Food Security • Rural employment • Water and land management • Pollution • Financial Independence • Agricultural Finance • Primary Health care • Nutrition • Child Care • E-learning • Distance parenting • Mentorship Etc | | | |
| Course outcomes: | | | |
| At the end of the course the student will be able to: | | | |
| <ul style="list-style-type: none"> • Building solution for real life societal problems. • Improvement of their technical/curriculum skills | | | |
| Continuous Internal Evaluation: | | | |
| Identifying the real life problems and producing literature report : 20 marks | | | |
| Data sampling and Cleaning :10 Marks | | | |
| Establishing the right Objective: 10 Marks | | | |
| Developing the solution : 20 Marks | | | |
| Propagating the solution to the stake holders 1)Lectures 2)Social Meetings 3)Social media 4)Street plays 5)Advertisement Either of the 3(evidence of the work through Geo tag photo) Certified by stake holders and authorized by concerned government authorities. | | | |
| Project Report: 20 marks. The basis for awarding the marks shall be the involvement of the student in the project and in the preparation of project report. To be awarded by the internal guide in consultation with external guide if any. | | | |
| Project Presentation: 10 marks. | | | |
| The Project Presentation marks of the Project Work Phase -II shall be awarded by the committee constituted for the purpose by the Head of the Department. The committee shall consist of three faculty from the department with the senior most acting as the Chairperson. | | | |
| Evaluation: 10 marks. | | | |
| The student shall be evaluated based on the ability in the Question and Answer session for 10 marks. | | | |

| INTERNSHIP / PROFESSIONAL PRACTICE | | | |
|---|----------|------------|----|
| Course Code | 22SSEI36 | CIE Marks | 50 |
| Number of contact Hours/Week | 3 | SEE Marks | 50 |
| Credits | 06 | Exam Hours | 03 |
| <p>Course objectives: Internship/Professional practice provide students the opportunity of hands-on experience that include personal training, time and stress management, interactive skills, presentations, budgeting, marketing, liability and risk management, paperwork, equipment ordering, maintenance, responding to emergencies etc. The objective are further, To put theory into practice. To expand thinking and broaden the knowledge and skills acquired through course work in the field. To relate to, interact with, and learn from current professionals in the field. To gain a greater understanding of the duties and responsibilities of a professional. To understand and adhere to professional standards in the field. To gain insight to professional communication including meetings, memos, reading, writing, public speaking, research, client interaction, input of ideas, and confidentiality. To identify personal strengths and weaknesses. To develop the initiative and motivation to be a self-starter and work independently.</p> | | | |
| <p>Internship/Professional practice: Students under the guidance of internal guide/s and external guide shall take part in all the activities regularly to acquire as much knowledge as possible without causing any inconvenience at the place of internship. Seminar: Each student, is required to</p> <ul style="list-style-type: none"> • Present the seminar on the internship orally and/or through power point slides. • Answer the queries and involve in debate/discussion. • Submit the report duly certified by the external guide. • The participants shall take part in discussion to foster friendly and stimulating environment in which the students are motivated to reach high standards and become self-confident. | | | |
| <p>Course outcomes: At the end of the course the student will be able to:</p> <ul style="list-style-type: none"> • Gain practical experience within industry in which the internship is done. • Acquire knowledge of the industry in which the internship is done. • Apply knowledge and skills learned to classroom work. • Develop a greater understanding about career options while more clearly defining personal career goals. • Experience the activities and functions of professionals. • Develop and refine oral and written communication skills. • Identify areas for future knowledge and skill development. • Expand intellectual capacity, credibility, judgment, intuition. • Acquire the knowledge of administration, marketing, finance and economics. | | | |
| <p>Continuous Internal Evaluation CIE marks for the Internship/Professional practice report (30 marks), seminar (10 marks) and question and answer session (10 marks) shall be awarded (based on the quality of report and presentation skill, participation in the question and answer session by the student) by the committee constituted for the purpose by the Head of the Department. The committee shall consist of three faculty from the department with the senior most acting as the Chairperson.</p> | | | |
| <p>Semester End Examination SEE marks for the internship report (20 marks), seminar (20 marks) and question and answer session (10 marks) shall be awarded (based on the quality of report and presentation skill, participation in the question and answer session) by the examiners appointed by the University.</p> | | | |

| PROJECT WORK PHASE -2 | | | |
|---|---------|------------|-----|
| Course Code | 22SSE41 | CIE Marks | 100 |
| Practical /Field work/Week | 8 | SEE Marks | 100 |
| Credits | 18 | Exam Hours | 03 |
| <p>Course objectives:</p> <ul style="list-style-type: none"> • To support independent learning. • To guide to select and utilize adequate information from varied resources maintaining ethics. • To guide to organize the work in the appropriate manner and present information (acknowledging the sources) clearly. • To develop interactive, communication, organization, time management, and presentation skills. • To impart flexibility and adaptability. • To inspire independent and team working. • To expand intellectual capacity, credibility, judgement, intuition. • To adhere to punctuality, setting and meeting deadlines. • To instill responsibilities to oneself and others. • To train students to present the topic of project work in a seminar without any fear, face audience confidently, enhance communication skill, involve in group discussion to present and exchange ideas. | | | |
| <p>Project Work Phase - II: Each student of the project batch shall involve in carrying out the project work jointly in constant consultation with internal guide, co-guide, and external guide and prepare the project report as per the norms avoiding plagiarism.</p> <ul style="list-style-type: none"> • Follow the Software Development life cycle • Data Collection ,Planning • Design the Test cases • Validation and verification of attained results • Significance of parameters w.r.t scientific quantified data. • Publish the project work in reputed Journal. | | | |
| <p>Course outcomes:</p> <p>At the end of the course the student will be able to:</p> <ul style="list-style-type: none"> • Present the project and be able to defend it. • Make links across different areas of knowledge and to generate, develop and evaluate ideas and information so as to apply these skills to the project task. • Habituated to critical thinking and use problem solving skills • Communicate effectively and to present ideas clearly and coherently in both the written and oral forms. • Work in a team to achieve common goal. • Learn on their own, reflect on their learning and take appropriate actions to improve it. | | | |
| <p>Continuous Internal Evaluation:</p> <p>Project Report: 20 marks. The basis for awarding the marks shall be the involvement of the student in the project and in the preparation of project report. To be awarded by the internal guide in consultation with external guide if any.</p> <p>Project Presentation: 20 marks.</p> <p>The Project Presentation marks of the Project Work Phase -II shall be awarded by the committee constituted for the purpose by the Head of the Department. The committee shall consist of three faculty from the department with the senior most acting as the Chairperson.</p> <p>Project Execution: 50 Marks</p> <p>The Project Execution marks of the Project Work Phase -II shall be awarded by the committee constituted for the purpose by the Head of the Department. The committee shall consist of three faculty from the department with the senior most acting as the Chairperson.</p> <p>Question and Answer: 10 marks.</p> <p>The student shall be evaluated based on the ability in the Question and Answer session for 10 marks.</p> <p>Semester End Examination</p> <p>SEE marks for the project report (60 marks), seminar (30 marks) and question and answer session (10 marks) shall be awarded (based on the quality of report and presentation skill, participation in the question and answer session) by the examiners appointed by the University.</p> | | | |

SSE 2022 Syllabus