

Final Year of Computer Engineering (2012 Course)

410441 Design and Analysis of Algorithms

Course Objectives:

1. To develop problem solving abilities using mathematical theories.
2. To apply algorithmic strategies while solving problems.
3. To develop time and space efficient algorithms.
4. To study algorithmic examples in distributed, concurrent and parallel environments.

Course Outcomes:

1. To survey algorithmic strategies give presentations using open source documentation tools like Latex and soft skill methodologies.
2. To write mathematical modelling of algorithms for problem solving.
3. To develop SRS in the UG projects.
4. To solve problems for multi-core or distributed or concurrent/Parallel/Embedded environments.

410442 Principles of Modern Compiler Design Course Objectives

Course Objectives:

1. To write programs with concepts in assembling, parsing and compiling the target code for execution.
2. To survey the systems and methods of compilation.
3. To practice basic FOSS tools for compiler writing and expose the latest techniques and advances in compiler.
4. To verify and use concurrent, embedded and distributed compilation tools and techniques.

Course Outcomes:

1. To write symbol tables, different types of grammars to solve problem of parsing.
2. To design and write simple compiler using FOSS tools.
3. To practice compiler tools in basic, concurrent, distributed and embedded environments.
4. To survey and use latest trends and advances in compilers.

410443 Smart System Design and Applications

Course Objectives:

1. To study multidisciplinary requirements of problem solving.
2. To study concepts of Artificial Intelligence.
3. To study smart systems programming and application development.
4. To study examples in distributed, concurrent and parallel environments.

Course Outcomes:

1. To write and survey solution for multidisciplinary case-study using mathematical modelling give presentations using soft skills methodologies.
2. To write and survey embedded systems applications using machine learning.
3. To solve problems for multi-core or distributed, concurrent and embedded environments.

410444A Elective-I: Image Processing Course Objectives:

Course Objectives:

1. To study image processing concepts.
2. To study mathematics and algorithms for image processing.
3. To study applications in image processing.
4. To study algorithmic examples in distributed, concurrent and parallel environments.

Course Outcomes:

1. To survey image processing techniques, FOSS tools and related mathematics.
2. To write image processing programs with applying concepts using open source tools.
3. To solve Image Processing problems using multi-core or distributed, concurrent/Parallel environments.

410444B Elective-I: Computer Network Design and Modelling

Course Objectives:

1. To expose students to the area of network design, modelling and analysis.
2. To expose students to the complete life cycle of the network design.
3. To motivate students to think performance perspective towards design & analysis of the computer net-work.
4. To expose students to the various open source network design tools.
5. To study algorithmic examples in distributed, concurrent and parallel environments.

Course Outcomes:

1. To design, model and analyse computer network.
2. To practice using FOSS tools for network design, modelling and analysis.
3. To solve problems for multi-core or distributed, concurrent/Parallel environments.

410444C Elective-I: Advanced Computer Programming

Course Objectives:

1. To survey advanced computer programming technologies and give presentation using soft skill and FOSS tools.
2. To write programs using advanced programming tools, data technologies, sensors, multimedia data.
3. Write applications using the concept of Object Distribution and invoking its services remotely in Distributed environment.
4. To study algorithmic examples in distributed, concurrent and parallel environments.

Course Outcomes:

1. To present a survey on building blocks of advance programming tools.
2. To practice programming problems using advance open source programming tools.
3. To solve problems for multi-core or distributed, concurrent/Parallel environments.

410444D Elective-I: Data Mining Techniques and Applications

Course Objectives:

1. To understand Data Mining Concepts.
2. To understand Data Mining needs and Application.
3. To study concepts of pattern based data mining for decision making.
4. To study algorithmic examples in distributed, concurrent and parallel environments.

Course Outcomes:

1. To present survey on different learning, classification and data mining foundations.
2. To write programs and methods for data Mining applications.
3. To solve problems for multi-core or distributed, concurrent/Parallel environments.

410445A Elective-II: Problem Solving with Gamification

Course Objectives:

1. To develop problem solving abilities using gamification.
2. To apply gamifications for Web Applications.
3. To apply gamifications for Mobile Applications.

Course Outcomes:

1. To write survey on the gamification paradigms.
2. To write programs to solve problems using gamification and open source tools.
3. To solve problems for multi-core or distributed, concurrent/Parallel environments.

410445B Elective-II: Pervasive Computing

Course Objectives:

1. To introduce pervasive computing abilities.
2. To introduce tools and techniques used while solving problems using pervasive computing.
3. To study algorithmic examples in distributed, concurrent and parallel environments.

Course Outcomes:

1. To present a survey on pervasive computing building blocks.
2. To create presentations using pervasive computing techniques and devices.
3. To solve problems for multi-core or distributed, concurrent/Parallel environments.

410445C Elective-II: Embedded Security

Course Objectives:

1. To learn Embedded Security in Portable Computing.
2. To learn advances in security in Embedded Technology, IoT.
3. To study algorithmic examples in distributed environments.

Course Outcomes:

1. To write a survey on the embedded security concepts and technologies.
2. To write programs using open source embedded technologies.
3. To create presentation for solving Embedded Security problems.

410445D Elective-II: Multidisciplinary NLP

Course Objectives:

1. To develop problem solving abilities using Mathematics.
2. To apply algorithmic strategies while solving problems.
3. To develop time and space efficient algorithms.
4. To study algorithmic examples in distributed, concurrent and parallel environments.

Course Outcomes:

1. To present a survey on NLP and Machine learning paradigms.
2. To write programs using NLP open source tools.
3. To create presentation for applying NLP for multi-core or distributed, concurrent/Parallel environments.

410446 Computer Laboratory-I

Course Objectives:

1. To develop problem solving abilities using Mathematical Modelling.
2. To apply algorithmic strategies, Software Engineering and Testing while solving problems.
3. To develop time and space efficient algorithms.
4. To study algorithmic examples in distributed, concurrent and parallel environments.

Course Outcomes:

1. To write efficient mathematical design, analysis and testing of algorithmic assignments.
2. To debug and demonstrate the Testing of functioning using Software Engineering for OO-programming.
3. To write programs using advanced FOSS tools and technologies
4. To write test case using multi-core or distributed, concurrent/Parallel environments.

410447 Computer Laboratory-II

Course Objectives:

1. To develop problem solving abilities for smart devices.
2. To develop problem solving abilities for gamifications.
3. To develop problem solving abilities of pervasiveness, embedded security and NLP.
4. To apply algorithmic strategies while solving problems.
5. To develop time and space efficient algorithms.
6. To study algorithmic examples in distributed, concurrent and parallel environments.

Course Outcomes:

1. To write mathematical modelling for problem solving.
2. To write programs for smart devices using FOSS Tools.
3. To write Programs for gamifications.
4. To write test cases to solve problems for pervasiveness, embedded security and NLP applications.
5. To write test cases for multi-core or distributed, concurrent/Parallel environments.

410448 Project

Course Objectives:

1. To develop problem solving abilities using mathematics.
2. To apply algorithmic strategies while solving problems.
3. To develop time and space efficient algorithms.
4. To develop software engineering documents and testing plans.
5. To use algorithmic solutions using distributed, Embedded, concurrent and parallel environments.
6. To encourage and expose students for participation in National/ International paper presentation activities.
7. Exposure to Learning and knowledge access techniques using Conferences, Journal papers and participation in research activities.

Course Outcomes:

1. To write problem solutions in projects using mathematical modelling, using FOSS programming tools and devices or commercial tools.
2. To write SRS and other software engineering documents in the project report using mathematical models developed and NP-Hard analysis.
3. To write test cases using multi-core, distributed, embedded, concurrent/Parallel environments.
4. To write a conference paper.
5. To practice presentation, communication and team-work skills.

410449 Software Design Methodologies and Testing

Course Objectives:

1. To understand and apply different design methods and techniques.
2. To understand architectural design and modelling.
3. To understand and apply testing techniques.
4. To implement design and testing using current tools and techniques in distributed, concurrent and parallel environments.

Course Outcomes:

1. To present a survey on design techniques for software system.
2. To present a design and model using UML for a given software system.
3. To present a design of test cases and implement automated testing for client server, Distributed, mobile application.

410450 High Performance Computing

Course Objectives:

1. To develop problem solving abilities using HPC.
2. To develop time and space efficient algorithms.
3. To study algorithmic examples in distributed, concurrent and parallel environments.

Course Outcomes:

1. To transform algorithms in the computational area to efficient programming code for modern computer architectures.
2. To write, organize and handle programs for scientific computations.
3. To create presentation of using tools for performance optimization and debugging.
4. To present analysis of code with respect to performance and suggest and implement performance im-provements.
5. To present test cases to solve problems for multi-core or distributed, concurrent/Parallel environments.

410451A Elective-III: Mobile Computing

Course Objectives:

1. To develop problem solving abilities using Mobile Computing.
2. To study foundations of Mobile Computing.

Course Outcomes:

1. To write a survey on Mobile Computing Building Blocks.
2. To write a presentation on survey FOSS tools and Technologies.
3. To write test cases to solve problems using Mobile Computing algorithms.

410451B Elective-III: Web Technology

Course Objectives:

1. To learn advanced Web Technologies.
2. To apply technologies while solving problems.

Course Outcomes:

1. To present a survey on building blocks of Web Technologies and open source tools.
2. To write presentations on using Web Technologies with case studies.
3. To write test cases to use technologies for solving problems using Web Technologies.

410451C Elective-III: Cloud Computing

Course Objectives:

1. To study cloud computing concepts.
2. Enhancing cloud computing environment.
3. To study various platforms.
4. To study the applications that uses cloud computing.

Course Outcomes:

1. To install cloud computing environments.
2. To present a survey on cloud building blocks and technologies.
3. To perform cloud computing admin and programming using open source tools.

410451D Elective-III: Cyber Security

Course Objectives:

1. To develop problem solving abilities using Cyber Security.
2. To apply algorithmic strategies for cyber security.
3. To develop time and space efficient algorithms.
4. To study algorithmic examples in distributed, concurrent and parallel environments.

Course Outcomes:

1. To write a survey on cyber security concepts.
2. To create a case study report on practice administrating using Cyber Security open source tools.
3. To write problem solutions for multi-core or distributed, concurrent/Parallel environments.

410452A Elective-IV (Open Elective): Business Analytic and Intelligence

Course Objectives:

1. To develop problem solving abilities using Mathematics.
2. To apply algorithmic strategies while solving problems.
3. To develop time and space efficient algorithms.
4. To study algorithmic examples in distributed, concurrent and parallel environments.

Course Outcomes:

1. To write case studies in Business Analytic and Intelligence using mathematical models.
2. To present a survey on applications for Business Analytic and Intelligence.
3. To write problem solutions for multi-core or distributed, concurrent/Parallel environments

410452B Elective-IV (Open Elective): Operations Research for Algorithms in Scientific Applications

Course Objectives:

1. To develop problem solving abilities using Mathematics.
2. To apply algorithmic strategies while solving problems.
3. To develop time and space efficient algorithms.
4. To study algorithmic examples in distributed, concurrent and parallel environments.

Course Outcomes:

1. To write a presentation on mathematical Concepts applied in Operations Research.
2. To write a survey on applications of Operations Research.
3. To write case studies for solving problems using multi-core or distributed, concurrent/Parallel environments.

410452C Elective-IV (Open Elective): Mobile Applications

Course Objectives:

1. To develop problem solving abilities using Mobile Applications.
2. To study mobile programming technology.

Course Outcomes:

1. To write a survey on tools and architectures for Mobile Applications.
2. To write using mathematical models the problem solutions using Mobile Applications.
3. To write develop mobile applications using open source tools.

410452D Elective-IV (Open Elective)

Course Objectives:

1. To develop problem solving abilities using Mathematics.
2. To apply algorithmic strategies while solving problems.
3. To develop time and space efficient algorithms.
4. To study algorithmic examples in distributed, concurrent and parallel environments.

Course Outcomes:

1. To write a presentation for solving problem of Inter-disciplinary challenges using mathematical modelling.
2. To write case studies to apply algorithmic skills for computing Applications.
3. To write a problem solutions for multi-core or distributed, concurrent/Parallel environments.

410453 Computer Laboratory-III

Course Objectives:

1. To develop problem solving abilities using Mathematical Modelling.
2. To apply algorithmic strategies while solving problems.
3. To develop time and space efficient algorithms.
4. To implement software design and testing in distributed, concurrent and parallel environments.

Course Outcomes:

1. To write problem solutions using mathematical modelling.
2. To write reports of application of software design methods and testing.
3. To write programs using FOSS tools.
4. To write problem solutions using multi-core or distributed, concurrent/Parallel environments.

410454 Computer Laboratory-IV

Course Objectives:

1. To develop problem solving abilities using HPC.
2. To Develop problem solving abilities using Business Analytics, OR and Mobile Programming.
3. To develop time and space efficient algorithms.
4. To study algorithmic examples in distributed, concurrent and parallel environments.

Course Outcomes:

1. To write programs to develop applications using BIA Technologies using mathematical modelling.
2. To write programs using OR and Mobile Programming Technologies using mathematical modelling.
3. To write programs using FOSS tools and devices.
4. To write problem solutions using multi-core or distributed, concurrent/Parallel environments.

410454 Project

Course Objectives:

1. To develop problem solving abilities using mathematics.
2. To apply algorithmic strategies while solving problems.
3. To develop time and space efficient algorithms.
4. To develop software engineering documents and testing plans.
5. To use algorithmic solutions using distributed, Embedded, concurrent and parallel environments.
6. To encourage and expose students for participation in National/ International paper presentation activities.
7. Exposure to Learning and knowledge access techniques using Conferences, Journal papers and participation in research activities.

Course Outcomes:

1. To write review SRS, reliability testing reports, and other software engineering documents in the project report.
2. To write problem solution using multi-core, distributed, embedded, concurrent/Parallel environments.
3. To write the test cases to demonstrate the results of the project.
4. To write conference paper.
5. To write code using FOSS tools and technologies or proprietary Tools as per requirements.
6. To practice presentation, communication and team-work skills.