PROGRAM OUTCOMES (PO)	STATEMENTS
PO1	**Engineering Knowledge:** To apply knowledge of mathematics, science, engineering fundamentals, problem solving skills, algorithmic analysis to solve complex engineering problems.
PO2	**Problem analysis:** To analyze the problem by finding its domain and applying domain specific skills.
PO3	**Design/development of solutions:** To understand the design issues of the product/software and develop effective solutions with appropriate consideration of public health and safety, cultural, societal, and environmental issues.
PO4	**Conduct investigations of complex problems:** To find solutions of complex problems by conducting investigations applying suitable techniques.
PO5	**Modern tool usage:** To adapt the usage of modern tools and recent software.
PO6	**The engineer and society:** To contribute towards the society by understanding the impact of Engineering on global aspect.
PO7	**Environment and sustainability:** To understand environment issues and design a sustainable system.
PO8	**Ethics:** To understand and follow professional ethics.
PO9	**Individual and team work:** To function effectively as an individual and as member or leader in diverse teams and interdisciplinary settings.
PO10	**Communication:** To demonstrate effective communication at various levels.
PO11	**Project Management and finance:** To apply the knowledge of Computer Engineering for development of projects, and its finance and management.
PO12	**Life-Long Learning:** To keep in touch with current technologies and inculcate the practices of lifelong learning.

Final Year of Computer Engineering (2012 Course)

410441 Design and Analysis of Algorithms

COURSE OUTCOMES (CO)	STATEMENTS
CO1	To survey algorithmic strategies give presentations using open source documentation tools like Latex and soft skill methodologies.
CO2	To write mathematical modeling of algorithms for problem solving.
CO3	To develop SRS in the UG projects.
CO4	To solve problems for multi-core or distributed or concurrent/Parallel/Embedded environments.

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12
CO 1	✓	✓						✓	✓		✓	✓
CO 2	✓	✓		✓	✓	✓		✓	✓		✓	✓
CO 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CO 4	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓

410442 Principles of Modern Compiler Design

COURSE OUTCOMES (CO)	STATEMENTS
CO1	To write symbol tables, different types of grammars to solve problem of parsing.
CO2	To design and write simple compiler using FOSS tools.
CO3	To practice compiler tools in basic, concurrent, distributed and embedded environments.
CO4	To survey and use latest trends and advances in compilers.

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12
CO 1	✓	✓			✓	✓		✓	✓		✓	✓
CO 2	✓	✓		✓	✓	✓		✓	✓		✓	✓
CO 3	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓
CO 4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

410443 Smart System Design and Applications

COURSE OUTCOMES (CO)	STATEMENTS
CO1	To write and survey solution for multidisciplinary case-study using mathematical modeling give presentations using soft skills methodologies.
CO2	To write and survey embedded systems applications using machine learning.
CO3	To solve problems for multi-core or distributed, concurrent and embedded environments.

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12
CO 1	✓	✓			✓	✓			✓		✓	✓
CO 2	✓	✓			✓		✓		✓		✓	✓
CO 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

410444D Elective-I: Data Mining Techniques and Applications

COURSE OUTCOMES (CO)	STATEMENTS
CO1	To present survey on different learning, classification and data mining foundations.
CO2	To write programs and methods for data Mining applications.
CO3	To solve problems for multi-core or distributed, concurrent/Parallel environments.

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12
CO 1	✓	✓			✓			✓	✓		✓	✓
CO 2	✓	✓	✓		✓	✓			✓	✓	✓	✓
CO 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

410445B Elective-II: Pervasive Computing

COURSE OUTCOMES (CO)	STATEMENTS
CO1	To present a survey on pervasive computing building blocks.
CO2	To create presentations using pervasive computing techniques and devices.
CO3	To solve problems for multi-core or distributed, concurrent/Parallel environments.

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12
CO 1	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓
CO 2	✓	✓			✓			✓	✓		✓	✓
CO 3	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓

410445D Elective-II: Multidisciplinary NLP

COURSE OUTCOMES (CO)	STATEMENTS
CO1	To present a survey on NLP and Machine learning paradigms.
CO2	To write programs using NLP open source tools.
CO3	To create presentation for applying NLP for multi-core or distributed, concurrent/Parallel environments.

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12
CO 1	✓	✓			✓			✓	✓	✓	✓	✓
CO 2	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓
CO 3	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓

410446 Computer Laboratory-I

COURSE OUTCOMES (CO)	STATEMENTS
CO1	To write efficient mathematical design, analysis and testing of algorithmic assignments.
CO2	To debug and demonstrate the Testing of functioning using Software Engineering for OOP-programming.
CO3	To write programs using advanced FOSS tools and technologies
CO4	To write test case using multi-core or distributed, concurrent/Parallel environments

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO 1	✓	✓	✓	✓	✓			✓	✓		✓	✓
CO 2	✓	✓			✓	✓		✓	✓		✓	✓
CO 3	✓	✓	✓	✓	✓			✓	✓		✓	✓
CO 4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

410447 Computer Laboratory-II

COURSE OUTCOMES (CO)	STATEMENTS
CO1	To write mathematical modeling for problem solving.
CO2	To write programs for smart devices using FOSS Tools.
CO3	To write Programs for gamifications.
CO4	To write test cases to solve problems for pervasiveness embedded security and NLP applications.
CO5	To write test cases for multi-core or distributed, concurrent/Parallel environments.

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO 1	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
CO 2	✓	✓	✓	✓	✓			✓	✓		✓	✓
CO 3	✓	✓	✓	✓	✓			✓	✓		✓	✓
CO 4	✓	✓	✓	✓	✓			✓	✓		✓	✓
CO 5	✓	✓		✓	✓			✓	✓	✓	✓	✓

410448 Project

COURSE OUTCOMES (CO)	STATEMENTS
CO1	To write problem solutions in projects using mathematical modeling, using FOSS programming tools and devices or commercial tools.
CO2	To write SRS and other software engineering documents in the project report using mathematical models developed and NP-Hard analysis.
CO3	To write test cases using multi-core, distributed, embedded, concurrent/Parallel environments.
CO4	To write a conference paper.
CO5	To practice presentation, communication and team-work skills.

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12
CO 1	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
CO 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CO 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CO 4	✓			✓	✓			✓	✓		✓	✓
CO 5	✓			✓	✓			✓	✓		✓	✓

410449 Software Design Methodologies and Testing

COURSE OUTCOMES (CO)	STATEMENTS
CO1	To present a survey on design techniques for software system.
CO2	To present a design and model using UML for a given software system.
CO3	To present a design of test cases and implement automated testing for client server, Distributed, mobile application

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO 1	✓	✓			✓				✓		✓	✓
CO 2	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓
CO 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

410450 High Performance Computing

COURSE OUTCOMES (CO)	STATEMENTS
CO1	To transform algorithms in the computational area to efficient

	programming code for modern computer architectures.
CO2	To write, organize and handle programs for scientific computations.
CO3	To create presentation of using tools for performance optimization and debugging.
CO4	To present analysis of code with respect to performance and suggest and implement performance improvements.
CO5	To present test cases to solve problems for multi-core or distributed, concurrent/Parallel environments.

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12
CO 1	✓	✓			✓	✓		✓	✓	✓	✓	✓
CO 2	✓	✓	✓	✓	✓			✓	✓		✓	✓
CO 3	✓	✓			✓			✓	✓		✓	✓
CO 4	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
CO 5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

410451A Elective-III: Mobile Computing

COURSE OUTCOMES (CO)	STATEMENTS
CO1	To write a survey on Mobile Computing Building Blocks.
CO2	To write a presentation on survey FOSS tools and Technologies.
CO3	To write test cases to solve problems using Mobile Computing algorithms.

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12
CO 1	✓	✓			✓			✓	✓	✓	✓	✓
CO 2	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
CO 3	✓	✓	✓	✓	✓			✓	✓		✓	✓

410451D Elective-III:Cyber Security

COURSE OUTCOMES (CO)	STATEMENTS
CO1	To write a survey on cyber security concepts.
CO2	To create a case study report on practice administrating using Cyber Security open source tools.
CO3	To write problem solutions for multi-core or distributed, concurrent/Parallel environments.

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO 1	✓	✓			✓				✓		✓	✓
CO 2	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
CO 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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

COURSE OUTCOMES (CO)	STATEMENTS
CO1	To write case studies in Business Analytic and Intelligence using mathematical models.
CO2	To present a survey on applications for Business Analytic and Intelligence.
CO3	To write problem solutions for multi-core or distributed, concurrent/Parallel environments

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12
CO 1	✓	✓			✓				✓		✓	✓
CO 2	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓
CO 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

410453 Computer Laboratory-III

COURSE OUTCOMES (CO)	STATEMENTS
CO1	To write problem solutions using mathematical modeling.
CO2	To write reports of application of software design methods and testing.
CO3	To write programs using FOSS tools.
CO4	To write problem solutions using multi-core or distributed, concurrent/Parallel environments.

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12
CO 1	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
CO 2	✓	✓			✓			✓	✓		✓	✓
CO 3	✓	✓	✓	✓	✓			✓	✓		✓	✓
CO 4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

410454 Computer Laboratory-IV

COURSE OUTCOMES (CO)	STATEMENTS
CO1	To write programs to develop applications using BIA Technologies using mathematical modeling.
CO2	To write programs using OR and Mobile Programming Technologies using mathematical modeling.
CO3	To write programs using FOSS tools and devices.
CO4	To write problem solutions using multi-core or distributed, concurrent/Parallel environments.

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO 1	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓
CO 2	✓	✓	✓		✓			✓	✓		✓	✓
CO 3	✓	✓	✓		✓			✓	✓	✓	✓	✓
CO 4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

410454 Project

COURSE OUTCOMES (CO)	STATEMENTS
CO1	To write review SRS, reliability testing reports, and other software engineering documents in the project report.
CO2	To write problem solution using multi-core, distributed, embedded, concurrent/Parallel environments.
CO3	To write the test cases to demonstrate the results of the project.
CO4	To write conference paper.
CO5	To write code using FOSS tools and technologies or propitiatory Tools as per requirements.
CO6	To practice presentation, communication and team-work skills

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12
CO 1	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓
CO 2	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
CO 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CO 4	✓	✓			✓	✓	✓	✓	✓		✓	✓
CO 5	✓	✓	✓	✓	✓			✓	✓		✓	✓
CO 6	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓