A. Program Teknologi Informasi *Software Engineering* (TI SE)

Overview

Software engineering is a discipline that focuses on the creation of software systems. It entails applying engineering principles and techniques to whole software development processes, from design to testing to maintenance. Software engineers create high-quality software applications that meet the needs of their clients or users by utilizing a variety of programming languages, tools, and methodologies.

The purpose of learning software engineering is to provide students with a thorough education in programming, software design, testing, and project management to prepare them for a job in software development. The software engineering program covers a wide range of topics, including programming fundamentals, object-oriented programming, web programming, database concepts and SQL, software engineering principles, advanced Java programming, web application development, software testing and quality assurance, software development methodologies, and project work.

Exit Profile of SE Curriculum

After completing all modules, the
students should be able to:

- Design and develop software applications using programming languages.
- Understand and apply software engineering principles and methodologies to software development projects.
- Develop web-based and mobile applications
- Create and manage databases.
- Develop software using object-oriented programming principles.
- Apply software testing and quality assurance techniques to ensure the functionality and reliability of software applications.
- Work effectively as part of a software development team, collaborating with others to design, develop, and deliver software projects on time and within budget.
- Use software development tools and technologies, including integrated development environments (IDEs), version control systems, and bug tracking tools.
- Communicate effectively with stakeholders, including clients and team members, about software development projects.
- Continuously learn and adapt to new technologies and industry trends to stay up-to-date with the rapidly changing software industry.

Curriculum Contents

Semester 1	
Modules	**Credits**
Introduction to Information Technology	3
Introduction to Information Technology Project	1
Algorithm and Programming	2
Algorithm and Programming Project	1
Relational Database Design	2
Implementing Database Design on MS SQL Server	3
Implementing Database Design on MS SQL Server Project	1
Tools and Technique for Analyzing Data	3
Tools and Technique for Analyzing Data Project	1
Operating System	2
Total Credits	19

Semester 2	
Modules	**Credits**
Object Oriented Programming	3
Object Oriented Programming Project	1
Java Programming	3
Java Programming Project	1
Introduction to Web Programming	3
Introduction to Web Programming Project	1
Web Application	3
Web Application Project	1
Leadership and Communication Skills	2
Algorithm and Data Structure	2
Total Credits	20

Semester 3	
Modules	**Credits**
Developing Enterprises Information System using Framework	3
Developing Enterprises Information System using Framework Project	1
Automated Software Testing	3
Automated Software Testing Project	1
Mobile Computing	3
Mobile Computing Project	1
Project Management using DevOps	2
Project Management using DevOps Project	1
Collaborative Development using Repository System	2
Information Systems Architecture and Technology	2
Total Credits	19

Semester 4	
Modules	**Credits**
Human Computer Interaction	3
Human Computer Interaction Project	1
Web Programming for Mobile Devices	3
Web Programming for Mobile Devices Project	1
Cloud Computing	3
Cloud Computing Project	1
Security Concept	2
Software Engineering	3
Professional Ethics	2
Total Credits	19