Information Technology - Full Stack Developer (FSD) Curriculum

Designed and delivered by **CEP-CCIT FTUI** started on new academic year of 2024

Overview

The Full Stack Developer course is a comprehensive discipline designed to provide individuals with the broad skill set and knowledge required to excel in front-end and back-end web development. It entails applying engineering ideas and processes across the software development spectrum, from web design to testing and continuous maintenance. This course prepares students for a successful career as full-stack developers. Mastering full-stack development's primary goal is to equip students with a well-rounded education in programming, software design, testing, and project management, successfully preparing them for a career in online development. Fundamental programming concepts, object-oriented programming, web development, database fundamentals, SQL proficiency, software engineering principles, web application creation, software testing and quality assurance, software development methodologies, and hands-on project work.

Exit Profile of FSD 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.
- 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.

Target Students

The course is designed for students who desire to work as a full-stack developer, but this could be applied to a student who wants to be either a front-end developer or a back-end developer.

Prerequisites

Students should be able to interact in an English classroom environment.

Entry Profile

- Student having at least a high school graduate certificate.
- The student should already be comfortable using any OS smartphone, the internet, or a Microsoft Windows/ Linux operating system PC.
- Knowledge of basic programming as well as basic networking would be an advantage.

Curriculum Contents

Semester 1

Code	Modules	Credits
IIT-24	Introduction to Information Technology	3
IIT/P-24	Introduction to Information Technology Project	1
ADS-24	Algorithm and Data Structure	3
ADS/P-24	Algorithm and Data Structure Project	1
RDD-24	Relational Database Design	2
TAD-24	Tools and Techniques for Analysing Data*	3
IDD-24	Implementing Database Design on MySQL	3
IDD/P-24	Implementing Database Design on MySQL Project	1
IST-24	Information Systems Architecture and Technology	2
ISAS-OPS-24	Operating System	2
	Total Credits	**21**

Semester 2

Code		Credits
OOP-FSD-24	Object Oriented Programming	3
OOP/P-FSD-24	Object Oriented Programming Project	1
IWP-FSD-24	Introduction to Web Programming	3
IWP/P-FSD-24	Introduction to Web Programming Project	1
SEN-24-1	Software Engineering*	3
MDB-FSD-24	NoSQL - MongoDB Fundamentals	3
MDB/P-FSD-2	NoSQL - MongoDB Fundamentals Project	1
ISAS - MIS-24	Management Information System	2
LCS	Leadership and Communication Skills	2
	Total Credits	**19**

Semester 3

Code	Modules	Credits
HCI-FSD-24	Human-Computer Interaction	3
HCI/P-FSD-24	Human-Computer Interaction Project	1
WAP-FSD-24	Web Application	3
WAP/P-FSD-24	Web Application Project	1
SAD-FSD-24	System Analysis and Design	2
PMD-FSD-24	Project Management Using DevOps	3
PMD/P-FSD-24	Project Management Using DevOps Project	1
DTS-FSD-24	Distributed System	3
DTS/P-FSD-24	Distributed System Project	1
ISAS-SCO-24	Security Concept	2
	Total Credits	**20**

Semester 4

Code	Modules	Credits
DIS-FSD-24	Developing Enterprises Information System using Framework	3
DIS/P-FSD-24	Developing Enterprises Information System using Framework Project	1
MOP-FSD-24	Mobile Programming	3
MOP/P-FSD-24	Mobile Programming Project	1
SQA-FSD-24	Software Quality Assurance	3
SQA/P-FSD-24	Software Quality Assurance Project	1
WM-24	Writing Methodology	1
PRE-24	Professional Ethics	2
CPR-FSD-24	Capstone Project	4
	Total Credits	**19**

*Note: *The order of these two modules is reversed specifically for the Teknik Informatika (TI) study programme within the CCIT-PNJ Collaboration Program.*

Total Credit in 2 Years	**79**