SURAT KEPUTUSAN
DIREKTUR / KEPALA UKK PPM CEP - CCIT FAKULTAS TEKNIK UNIVERSITAS INDONESIA
NOMOR : 19 TAHUN 2025

TENTANG :
KURIKULUM CEP-CCIT FTUI TAHUN 2025
PROGRAM TEKNOLOGI INFORMASI (TI) DAN *CREATIVE MULTIMEDIA* (CM)

Menimbang :
1. Telah dilaksanakan kegiatan *workshop*, diskusi, dan evaluasi secara berkala untuk melakukan perbaikan terhadap kurikulum pembelajaran program profesional;
2. CEP-CCIT FTUI perlu menetapkan kurikulum yang akan dipergunakan sebagai acuan penyelenggaraan pendidikan program profesional hingga peserta program lulus atau habis masa studi.

Mengingat :
1. Surat Keputusan Dekan Fakultas Teknik Universitas Indonesia Nomor: 653/D/SK/FTUI/X/2003 tanggal 1 Oktober 2003 perihal Pembentukan Pusat Komputasi dan Teknologi Informasi (Center for Computing & Information Technology) Fakultas Teknik Universitas Indonesia;
2. Surat Keputusan Rektor Universitas Indonesia Nomor: 1369/ SK/R/UI/2009 tanggal 17 November 2009 perihal Penetapan Nama Unit Usaha di lingkungan Universitas Indonesia;
3. Surat Keputusan Rektor Universitas Indonesia Nomor: 1020/SK/R/UI/2018 tanggal 27 April 2018 perihal Alih Bentuk *Continuing Education Program – Center for Computing and Information Technology* Fakultas Teknik Universitas Indonesia sebagai Unit Kerja Khusus Pelayanan dan Pengabdian Masyarakat Universitas Indonesia;
4. Peraturan Rektor UI Nomor : 25 Tahun 2019 tentang UKK PPM Universitas Indonesia;
5. Surat Keputusan Dekan Fakultas Teknik Universitas Indonesia Nomor: 265/D/SK/FTUI/II/2022 tanggal 7 Februari 2022 perihal Pengangkatan Kepala *Continuing Education Program – Center for Computing and Information Technology* Fakultas Teknik Universitas Indonesia.

M E M U T U S K A N :

Menetapkan : KURIKULUM CEP-CCIT FTUI TAHUN 2025 PROGRAM TEKNOLOGI INFORMASI (TI) DAN *CREATIVE MULTIMEDIA* (CM).

KESATU : Program Teknologi Informasi (TI) program ini 5 peminatan sebagai berikut:
a. *Full Stack Developer* (FSD)
b. *Internet-based System Automation* (ISA)
c. Cyber Security (CS)
d. *Artificial Intelligence and Data Analytics* (AIDA)
e. Digital Marketing (DM)

KEDUA : Program *Creative Multimedia* (CM) program ini memiliki 2 peminatan yaitu *Multimedia Design* (MD) dan *Animation* (AN).

Surat Keputusan ini akan ditinjau dan diperbaiki kembali seperlunya, bila di kemudian hari terdapat kekeliruan dalam keputusan ini.

Ditetapkan di : Depok
Pada Tanggal : 20 Agustus 2025
Direktur (Kepala UKK PPM),

Prof. Dr. Muhammad Suryanegara. S.T., M.Sc., IPU
NIP 198105142012121001

LAMPIRAN SURAT KEPUTUSAN DIREKTUR / KEPALA UKK PPM CEP - CCIT FAKULTAS TEKNIK UNIVERSITAS INDONESIA
Nomor : 19 Tahun 2025
Tentang : Kurikulum CEP-CCIT FTUI Tahun 2025 Program Teknologi Informasi (TI) dan Creative Multimedia (CM)

A. Program Teknologi Informasi *Full Stack Developer* (TI FSD)

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 designed for students who have the desire to work as an Full Stack Developer, but this could be applied for a student who wants to be either a Front-End Developer or a Back-End Developer

Prerequisites

Student should be able to interact in an English Classroom Environment

Entry Profile

• Student at least having a high school graduate certificate
• Student should already comfortable using the any OS smartphone, internet, Microsoft Windows / Linux Operating System PC
• Knowledge of basic programming as well as basic networking would be an advantage

Curriculum Contents

Semester 1		
Modules	**Credits**	**Exit Profile**
Introduction to Information Technology	3	After completing this course, the students will be able to: • Identify application areas of IT • Explore various components of a computer • Explore the Windows Operating System • Work effectively on the computer • Explore the usage of Internet • Troubleshoot PC and its peripherals • Classify network architecture and topologies • Identify resources used to connect a network • Secure your system and mobile devices • Use the Microsoft Office Application Suite including Word, Excel, PowerPoint, and Outlook
Introduction to Information Technology Project	1	
Algorithm and Data Structure	3	After completing this module, the student will be able to: • Understand the fundamentals of algorithms and programming. • Interpret and create flowcharts. • Write and compile simple programs in C. • Implement conditional statements and loops. • Work with arrays and matrices. • Define and invoke functions in C. • Implement Bubble Sort, Insertion Sort, and Selection Sort algorithms. • Implement Linear Search and Binary Search algorithms. • Create and manipulate singly, doubly, and circular linked lists. • Understand and implement queues.
Algorithm and Data Structure Project	1	
Relational Database Design	2	After completing this module, the student will be able to: • Understand how to design a relational database • Create an entity-relationship model • Map an entity-relationship diagram to tables • Normalize and denormalize data in tables • Apply the ER / Normalization while designing a database
Tools and Technique for Analyzing Data*	3	After completing this course, the students will be able to: • Process data from business transactions • Summarize data • Analyze data for decision making • Exchange data between various sources • Analyze and present complex data • Collaborate with other users • Automate the business operations

Implementing Database Design on MySQL Server	3	After completing this module, the student should be able to: • create and implement a database using database management system • Query data from tables • Manage and manipulate databases • Implement stored procedures, triggers and functions • Implement triggers and transactions • Map an entity-relationship diagram to tables • Normalize and denormalize data in tables
Implementing Database Design on MySQL Server Project	1	
Information Systems Architecture and Technology	2	After completing this module, the student will be able to: • Understanding the analysis and design of an information system architecture • Understanding of methodological due to process and best practice for ISA development; • Understanding of the challenges and critical success factors of ISA development. • Understand the individual architectural component and the relations
Operating System	2	After completing this module, the student will be able to: • Understand what is an operating system and the role it plays • Have a high level understanding of the structure of operating systems, applications, and the relationship between them • Explain some knowledge of the services provided by operating systems • Explore some details of major OS concepts
Total Credits	21	Output of Semester 1 : Database Developer or Junior Analysts

*) Khusus Program Kerja Sama CCIT – PNJ Prodi TI, Modul Tools and Technique for Analyzing Data (termasuk Project) di semester 1 dipertukarkan dengan Modul Software Engineering di semester 2

Semester 2		
Modules	**Credits**	**Exit Profile**
Object Oriented Programming	3	After completing this course, the students will be able to: • Get familiar with Java • Implement operators • Work with conditional and loop constructs • Work with arrays, enums, and strings • Implement inheritance and polymorphism • Handle errors • Design a user interface • Handle events
Object Oriented Programming Project	1	
Introduction to Web Programming	3	After completing this module, the student will be able to: • Create an HTML Web page • Enhance Web pages • Work with tables and frames • Add interactivity to Web pages • Create dynamic Web pages • Work with graphics • Add visual effects to Web pages • Implement geolocation and offline support for data
Introduction to Web Programming Project	1	

Software Engineering*	3	After completing this module, the student will be able to: • Understand the software development life cycle and the importance of software engineering principles and practices in creating high-quality software products. • Gain a thorough understanding of software requirements engineering and the process of eliciting, analyzing, specifying, validating, and managing software requirements. • Develop skills in designing software systems, including the ability to create software architecture, make design decisions, and apply design patterns and principles. • Understand the principles of software project management, including agile methodologies, project planning and estimation, risk management, and project monitoring and control.
NoSQL - MongoDB Fundamentals	3	After completing this course, the students will be able to: • Understand the Basics of NoSQL and MongoDB • MongoDB Installation and Configuration • Data Modeling in MongoDB • CRUD Operations • Working with MongoDB's Aggregation Framework • Indexing and Performance Tuning • Scalability and Replication • Application Integration • Data Security and Backup Procedures • Real-world Applications and Case Studies
NoSQL - MongoDB Fundamentals Project	1	
Management Information System	2	After completing this module, the student will be able to: • Define and explain the fundamental concepts and components of Management Information Systems. • Apply systematic approaches to analyze organizational processes and information requirements. • Design and implement relational databases to manage organizational data. • Utilize SQL for querying and manipulating databases. • Understand the role of DBMS in supporting business operations and decision-making.
Leadership and Communication Skills	2	After completing this module, the student will be able to: • Improve communication skills • Improve self-presentation skills • Work effectively in a team environment • Understand methods of planning and prioritizing • Understand the need for values and ethics at the workplace
Total Credits	19	Output of Semester 2 : Junior IT Professional

*) Khusus Program Kerja Sama CCIT – PNJ Prodi TI, Modul Tools and Technique for Analyzing Data (termasuk Project) di semester 1 dipertukarkan dengan Modul Software Engineering di semester 2

Semester 3		
Modules	**Credits**	**Exit Profile**
Human Computer Interaction	3	After completing this module, the student will be able to: • Understand the fundamental principles of Human-Computer Interaction (HCI) in user interface design. • Plan applications for mobile devices by considering touch-based interaction. • Design wireframes for mobile applications using Figma. • Create User Interface (UI) designs with attention to aesthetics, consistency, and readability. • Apply common User Experience (UX) patterns in mobile application design. • Build interactive prototypes in Figma to test user flows and interactions. • Incorporate user feedback through basic usability testing into design improvements. • Apply principles of accessibility and inclusivity in interface design. • Present and demonstrate design prototypes as UI/UX solutions.
Human Computer Interaction Project	1	
Web Application	3	After completing this module, the student should be able to: • Understand the concepts of web programming • Develop Web applications using MySQL and PHP. • Design interactive Web applications
Web Application Project	1	
System Analysis and Design	2	After completing this module, the student should be able to: • Understand the basic concepts of systems, information, and information systems. • Conduct system analysis effectively. • Apply Object-Oriented Analysis and create UML diagrams. • Design systems to meet specified requirements. • Implement Object-Oriented Design principles in system development.
Project Management using DevOps	3	After completing this module, the student will be able to: • Understand the principles of DevOps culture and its role in modern project management. • Apply version control to support collaboration and automate development workflows with the help of AI tools such as GitHub Copilot. • Configure portable and reproducible development environments for team projects. • Adopt iterative deployment practices by implementing Continuous Integration and Continuous Delivery (CI/CD). • Perform configuration management using automation tools. • Implement application monitoring, logging, and feedback loops in a DevOps pipeline. • Leverage AI-assisted coding and project management to enhance productivity and team collaboration.
Project Management using DevOps Project	1	
Distributed System	3	After completing this module, the student will be able to: • Understand Distributed System Concepts • Design Distributed Applications • Implement Distributed Algorithms • Use Distributed Databases • Explore Communication Protocols • Address Fault Tolerance

Distributed System Project	1	• Optimize Performance • Analyze Scalability • Security in Distributed Systems • Cloud Computing Integration • Real-world Application • Evaluate Ethical and Legal Implications • Collaboration and Teamwork
Security Concept	2	After completing this module, the student will be able to: • Understand what is security concept • Identify various security concept in computer science • Identify the various method to solve a threat in computer science • Identify benefit of implementing such algorithm in a computer program • Better understanding of benefit the security concept usage to solve problems
Total Credits	20	Output of Semester 3 : Junior DevOps Engineer

Semester 4		
Modules	**Credits**	**Exit Profile**
Developing Enterprises Information System using Framework	3	After completing this course, the students will be able to: • Introduce MVC • Build Web applications using the PHP framework Laravel • Implement API (Application Programming Interface)
Developing Enterprises Information System using Framework Project	1	
Mobile Programming	3	After completing this module, the student will be able to: • Understand the fundamentals of mobile app development using Flutter. • Set up the Flutter development environment for Android (and optionally iOS). • Build responsive and adaptive user interfaces using Flutter widgets. • Add interactivity and functionality to the user interface. • Debug and test Flutter applications effectively. • Work with navigation, routes, and state management. • Store and retrieve local data using shared preferences and databases. • Integrate apps with external APIs and cloud services. • Implement notifications and background processes. • Enhance user experience with themes, custom widgets, and animations. • Utilize device features such as location services, camera, and sensors. • Incorporate multimedia (images, audio, and video) into apps. • Apply security best practices in mobile applications. • Prepare, test, and deploy Flutter apps
Mobile Programming Project	1	
Software Quality Assurance	3	After completing this module, the student will be able to: • Contribute to the development of a plan to integrate automated testing within the testing process

Software Quality Assurance Project	1	• Evaluate tools and technology for automation best fit to each project and organization • Create an approach and methodology for building a test automation architecture (TAA) • Design and develop (new or modified) test automation solutions that meet the business needs • Enable the transition of testing from a manual to an automated approach • Create automated test reporting and metrics collection • Manage and optimize testing assets to facilitate maintainability and address evolving (test) systems
Writing Methodology	1	After completing this module, the student will be able to: • Develop hypotheses based on research questions. • Identify the relevance and significance of research problems. • Identify gaps and opportunities for further research through literature analysis. • Choose between qualitative, quantitative, or mixed-methods approaches. • Develop data collection instruments and procedures. • Analyze qualitative and quantitative data using appropriate statistical or thematic techniques. • Apply ethical considerations to the design, implementation, and reporting of research. • Effectively communicate research findings through written reports and presentations.
Capstone Project	4	The student should possess a well-rounded set of technical and soft skills, enabling them to contribute effectively in a professional development team and build web applications from both front-end and back-end perspectives.
Professional Ethics	2	After completing this module, the student will be able to: • Improve business communication skills • Develop knowledge, skills, and competence • Develop interview skills • Understand concepts of organization policies and procedures • Understand what is a job and the related tasks in an organization • Practice aptitude questions to prepare for interview • Understand the basic concepts related to sales, finance and accounting, customer service, email and business communication
Total Credits	19	Output of Semester 4 : Junior Software Engineer