



UNIVERSITAS
INDONESIA

CEP-CCIT

FAKULTAS TEKNIK

FAKULTAS TEKNIK UNIVERSITAS INDONESIA
CONTINUING EDUCATION PROGRAM
CENTER FOR COMPUTING AND INFORMATION TECHNOLOGY

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.

MEMUTUSKAN :

- 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



C. Program Teknologi Informasi *Cyber Security* (TI CS)

Overview

In the development of increasingly sophisticated technology where the internet can be accessed anywhere and anytime, human activity seamlessly integrates the internet. This makes it important to secure data to avoid data being lost or leaked. User credential and confidential data are exchanged through the internet which ease to be leaked. Security awareness become a mandatory thing, since every aspect of daily activity are managed or use the information technology by means of computer, laptops, or smartphones. Thus, security measure will playing important role due to the increasing amount of data delivered over the internet. Cyber security refers to the practice of ensuring confidentiality, integrity and availability of information. The three points just now are known as the CIA Triad. Starting from understanding the operating system, the Python programming language, analyzing and anticipating risks against attacks from within or outside.

Exit Profile of CS Curriculum

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

- Define how the security measure should be implemented so the data is not damaged and leaked.
- Implement a system design which enable security measures
- Transmit the data on the means of secured system of devices or computers which hardened to minimize cyber attacks
- Designing and Implementing a security measure for such a network

Target Students

This course is designed for students who have the desire to work as experts in network security by analysing security, incident response, and security controls to prevent data loss or leakage from outside or inside.

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 any OS smartphone, internet, Microsoft Windows / Linux Operating System PC
- Knowledge of electronic circuit or basic networking as well as basic programming would be an advantage

Curriculum Contents

Semester 1		
Modules	Credits	Exit Profile
Introduction to Information Technology	3	<p>After completing this course, the students will be able to:</p> <ul style="list-style-type: none"> • 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
Introduction to Information Technology Project	1	<ul style="list-style-type: none"> • 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
Algorithm and Data Structure	3	<p>After completing this module, the student will be able to:</p> <ul style="list-style-type: none"> • Understand the fundamentals of algorithms and programming. • Interpret and create flowcharts. • Write and compile simple programs in C. • Implement conditional statements and loops.
Algorithm and Data Structure Project	1	<ul style="list-style-type: none"> • 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.
Relational Database Design	2	<p>After completing this module, the student will be able to:</p> <ul style="list-style-type: none"> • 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	<p>After completing this course, the students will be able to:</p> <ul style="list-style-type: none"> • 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	3	After completing this module, the student should be able to:
Implementing Database Design on MySQL Project	1	<ul style="list-style-type: none"> • 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
Information Systems Architecture and Technology	2	After completing this module, the student will be able to: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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

Semester 2

Modules	Credits	Exit Profile
Computer network	2	After completing this module, the student should be able to :
Computer network Project	1	<ul style="list-style-type: none"> • Understand about Computer network architecture • Understand about network topology and IP addressing • Understand how to do server installation • Able for doing network installation and configuration
Administering Network Operating System	3	After completing this module, the student should be able to: <ul style="list-style-type: none"> • Install distro linux and add feature from the repository • Introduce bash command, configure the hardware, system operation architecture • Implement network management, configuring email and Securing system • Administering a network based operating system and configure as a client or as a server.
Linux Server Configuration	3	After completing this module, the student should be able to :
Linux Server Configuration Project	1	<ul style="list-style-type: none"> • Install a Linux Server for Enterprise scale • Configure a Linux Server • Implement a Web Server, Mail Server, Proxy Server, Samba Server, FTP Server, DNS Server, etc. • Understand and implement a DHCP and Firewall • Understand the Linux Server as a router

Installing and Configuring Windows Server	3	After completing this module, the student will be able to: <ul style="list-style-type: none"> • Identify windows server • Installation • Configuration ipv4 • Configuration ipv6
Installing and Configuring Windows Server Project	1	<ul style="list-style-type: none"> • Configuration dhcp • Configuration dns • Configuration file and print services • Configuration Active Directory • Configuration Group Policy • Information basic security on Windows Server
Administering and Advanced Windows Server	3	After completing this module, the student will be able to: <ul style="list-style-type: none"> • Configure Advanced DNS Services • Configure Advanced DHCP Services • Configure IP Address Management (IPAM)
Administering and Advanced Windows Server Project	1	<ul style="list-style-type: none"> • Configure Dynamic Access Control (DAC) • Configure Active Directory Domain Services (AD DS) • Configure Active Directory Certificate Services (AD CS) • Configure Active Directory Right Management Services (AD RMS) • Configure Hyper-V virtual machines • Implement disaster recovery
Leadership and Communication Skills	2	After completing this module, the student should be able to:-understand personal leadership skills and styles, apply personal values, passions, and interests, will articulate a personalized leadership definition .-understand how to capitalize on their communication strengths, adjust to accommodate their weaknesses, effectively use office communication tools, and better handle difficult people
Cyber Security Review	2	After completing this module, the student will be able to: <ul style="list-style-type: none"> • Understand problems in cyber security • Analyze a cyber security threat to know the kind of entity who posed the threat • Understand a platform for information exchange and cooperation between stakeholder of cyber security expert • Identify emerging threats and plan a cyber security strategy to avoid future threats • Increase the cyber security concern of internet-connected systems
Total Credits	22	Output of Semester 2 : System Administrator Associate

Semester 3

Modules	Credits	Exit Profile
Object Oriented Programming	2	After completing this module, the student should be able to : <ul style="list-style-type: none"> • Understand the basic of phyton programming • Understand structure of phyton programming language • Design an application with phyton based on the study case
Object Oriented Programming Project	1	
IT Security Introduction	2	After completing this course, the students will be able to: <ul style="list-style-type: none"> • Understand basic goals, tools, and computer security techniques • Understand about organizational and operational security concepts

IT Security Introduction Project	1	<ul style="list-style-type: none"> Explains the importance of application and data security and determines procedures appropriate for building host security. Identify the various attacks that are understood, and the tools that can be used to detect attacks
Ethical Hacking	2	After completing this course, the students will be able to understand process of detecting vulnerabilities in an application, system, or organization's infrastructure that an attacker can use to exploit an individual or organization.
Introduction to Cybersecurity	2	<p>After completing this course, the students will be able to:</p> <ul style="list-style-type: none"> getting to know cybersecurity and its general impact on everyday life, getting to know threats, attacks and shortcomings, getting to know the process of how to protect a business from attacks, as well as the prospects for cybersecurity in the world of work
Cybersecurity Essentials	3	<p>After completing this course, the students will be able to:</p> <ul style="list-style-type: none"> Understand security controls for networks, servers, and applications, understand valuable security principles and how to develop compliant policies, Implement appropriate procedures for data confidentiality and availability, have critical thinking and problem solving skills using real equipment and Cisco Packet Tracer.
Cyberops	4	<p>After completing this course, the students will be able to:</p> <ul style="list-style-type: none"> understand basic security concepts, be able to monitor security, be able to host-based analysis, be able to analyze network intrusions, and create security policy procedures
Cyber Operations Project	1	<p>After completing this course, the students will be able to:</p> <ul style="list-style-type: none"> understand basic security concepts, be able to monitor security, be able to host-based analysis, be able to analyze network intrusions, and create security policy procedures
Cyber Security Review II	2	<p>After completing this module, the student will be able to:</p> <ul style="list-style-type: none"> Understand problems in cyber security Analyze a cyber security threat to know the kind of entity who posed the threat Understand a platform for information exchange and cooperation between stakeholder of cyber security expert Identify emerging threats and plan a cyber security strategy to avoid future threats Increase the cyber security concern of internet-connected systems
Total Credits	20	Output of Semester 3 : Security Operation Associate

Semester 4

Modules	Credits	Exit Profile
OPNsense Beginner to Professional	3	<p>After completing this course, the students will be able to:</p> <ul style="list-style-type: none"> • Build a comprehensive network defense strategy • Defense network using an OPNsense firewall using basic until advanced features • Understand the end-to-end OPNsense firewall implementation and management • Defend against attacks by leveraging third-party plugins such as Nginx and Sensei • Implement a next-generation firewall using OPNsense firewall
Penetration Test	3	<p>After completing this course, the students will be able to:</p> <ul style="list-style-type: none"> • Explain the importance of planning for an engagement • Explain key legal concepts
Penetration Test Project	1	<ul style="list-style-type: none"> • Explain the importance of scoping an engagement properly • Explain the key aspects of compliance-based assessments • Given a scenario, perform a vulnerability scan.
Cyber Analyst	3	<p>After completing this course, the students will be able to:</p> <ul style="list-style-type: none"> • Explain an attack and how to prevent it
Cyber Analyst Project	1	<ul style="list-style-type: none"> • Understand how to manage the system vulnerability • Explain the Incident Response and how to mitigate a cyber security incident • Understand the Management Reporting and Communication
Writing Methodology	1	<p>After completing this course, the students will be able to communicate scientific information in a document or any written form. This topic will covers brief explanation of writing methodology, how to mention it into writings, objectivity facts, clarity terms on writings, formal language usage, awareness of existing literature. Last but not least, this topic will also try to describe, prove, develop and discover certain knowledge or theories or actions or products.</p>
Internship	4	<p>After completing this course, the students will be able to get sufficient experience, direct learning that is relevant to the knowledge gained during lectures in the workplace, both hard skills and soft skills</p>
Final Project	2	<p>After completing this course, the students will be able to solve problems using their abilities and express them in scientific writing where there are research and development results, reviews, comments, studies or thoughts by individuals or groups which are presented in written form and arranged systematically and based on scientific principles.</p>
Professional Ethics	2	<p>After completing this course, the students will be able to have an attitude of life in the form of justice to be able to provide a professional service to the community with full order and expertise, namely as a service in order to carry out tasks that are an obligation to the community.</p>
Cryptography	1	<p>After completing this course, the students will be able to students are able to have knowledge of cryptography and investigate the security of encrypted data in communications and information systems.</p>
Total Credits	20	Output of Semester 4 : Cyberanalyst or Penetration Tester