2021 Curriculum Roadmap - Computer Engineering UMN

Expected Learning Outcome (ELO) Color Code

ELO A | ELO B | ELO C | ELO D | ELO E | ELO F | ELO G | ELO H | ELO I | ELO J

Category color code
Compulsory
Elective

Connection
From
To

Semester

8 (Credits 6)

- Final Project (ELO E, ELO F) — 6

7 Elective (Credits 20)

- Student Exchange (ELO B)
- Community Outreach (ELO B)
- Research (ELO E, ELO F)
- Entrepreneurship (ELO C)
- Independent Project (ELO E, ELO F)
- Internship 2 (ELO C, ELO E, ELO F)
- Communication & Personal Relationship (ELO B) — 2
- Mechatronic Systems Design (ELO G) — 3
- Basic Control System (ELO G) — 3
- Data Analysis (ELO I) — 4
- Data Visualization (ELO I) — 2
- Artificial Intelligence (ELO I) — 3
- Mobile Application Programming (ELO I) — 3

6 (Credits 20)

- Internship 1 (ELO C, ELO E, ELO F) — 20

5 (Credits 20)

- English 3 (ELO E) — 2
- Embedded System Design (ELO D, ELO G, ELO I) — 3
- Image Processing (ELO D, ELO F, ELO I) — 3
- Mobile Pervasive Computing (ELO D, ELO F, ELO I) — 3
- Research Methodology (ELO B, ELO E, ELO F) — 2
- System Administration (ELO H, ELO I) — 2
- Computer Network Security (ELO B, ELO H) — 2
- Wireless Mobile Communication (ELO H) — 3

4 (Credits 20)

- Microprocessor Systems (ELO G) — 3
- Interfacing & Instrumentation (ELO G) — 3
- Electronic Fundamentals (ELO G) — 3
- Digital Signal Processing (ELO D, ELO F) — 2
- Computer Network Management (ELO H) — 3
- Web Programming (ELO I) — 3
- Operating System (ELO J) — 3

3 (Credits 22)

- English 2 (ELO E) — 2
- Linear Signal & System (ELO F) — 3
- Electrical Circuits (ELO G) — 3
- Computer Architecture & Organization (ELO J) — 3
- Computer Networks (ELO H) — 2
- Introduction to Internet Technology (ELO I) — 3
- Object Oriented Programming (ELO J) — 3
- Database System (ELO I) — 3

2 (Credits 20)

- Civics (ELO B) — 2
- Religion (ELO A) — 2
- Technopreneurship (ELO C) — 3
- Probability & Statistics (ELO D, ELO F) — 3
- Physics (ELO J) — 3
- Digital Systems (ELO J) — 3
- Algorithms & Data Structure (ELO J) — 4

1 (Credits 19)

- Pancasila (ELO A) — 2
- English 1 (ELO E) — 2
- Indonesian Language (ELO E) — 2
- Calculus (ELO J) — 4
- Linear Algebra (ELO J) — 3
- Discrete Mathematics (ELO J) — 3
- Programming Fundamentals (ELO J) — 3