

National Taiwan Normal University

Department of Computer Science and Information Engineering

Bachelor Program Regulations

(Applicable for Students Enrolled in School Year 2021)

Adopted by the first Department Affairs Meeting in the second semester of 2016 school year on March 13, 2017.

Adopted by the third Department Affairs Meeting in the second semester of 2017 school year on June 22, 2018.

Adopted by the first Department Affairs Meeting in the second semester of 2019 school year on March 31, 2020.

Adopted by the first Curriculum Committee Meeting in the first semester of 2020 school year on November 4, 2020.

Article 1 The Regulations are stipulated based on the University's Regulations.

Article 2 The degree conferred by the Department's bachelor program is Bachelor of Science, (B.S.).

Article 3 The credit required for graduation is 128 credits. The curriculum mapping for undergraduate program is detailed in the Appendix (students enrolled in minor and double major program shall take courses as required in Rules for Additional Studies).

Article 4 Core courses for undergraduate studies total 28 credits.

Article 5 Professional Curriculum

I. 33 credits are required for the Department's core courses.

(I) Information Courses: 15 credits.

(II) Required elective courses in mathematics: 12 credits.

(III) Required elective seminar courses in information: 6 credits.

II. At least 36 credits of the Department's elective courses.

(I) Field Electives Courses: 30 credits.

(II) Electives in the Department: 6 credits.

III. 31 credits of free electives.

All credits earned from other departments, outside of the University or additional required/elective credits of the Department or Constants in the University.

IV. Students need to take certain pre-requisite courses for the courses within the Department.

The pre-requisite of the Constants is listed below:

*Computer Programming I → Data Structure

*Computer Programming I → Algorithm

*Computer Programming I → Computer Programming II

V. Unless otherwise agreed by the Department's Curriculum Committee, students of the Department shall take the Department's mandatory courses within the Department.

Article 6 Students may apply for education program with 26 credits total and shall refer to the relevant rules of the University.

Article 7 Students in the bachelor program must satisfy one of the following for their foreign language proficiency:

I. Scoring 120 points or above in the University's English examination (equivalent to 850 points in Lexile Online Reading Level).

II. Passing the first stage of GEPT Intermediate Level.

III. Scoring 750 points or above in TOEIC.

IV. Scoring 78 points or more on the new internet-based TOEFL.

V. If a student provides a copy of failing any of the above examination (except for absence and 0 points), the student may be considered satisfying the graduation requirement for foreign language proficiency provided that the student has met either of the following:

(I) Take and pass the University's "English Grammar" course (400L).

(II) Participate in exchange program in a non-Mandarin speaking country for at least one semester.

VI. Students who graduated from high schools in English speaking countries or who were

admitted as foreign student and whose English capacity is recognized by the Department's Curriculum Committee to meet the same requirement or exceed the same.

Article 8 The *Regulations* has been approved at the Faculty Meeting of the Department and submitted to the Office of Academic Affairs for approval before the announcement and implementation. The same applies to any amendments.

National Taiwan Normal University
Department of Computer Science and Information Engineering
Bachelor Program Regulations Appendix

Curriculum Mapping for Undergraduate Program:

- A. Total credits: 128
- B. Core courses for the University: 28
- C. Credit requirement for the Department's Core Courses: 33
 - a. Information courses: 15
 - b. Required elective courses in mathematics: 12
 - c. Required elective seminar courses in information: 6
- D. The Department's elective: 36
 - a. Field Electives Courses: 30
 - b. Electives in the Department: 6
- E. Free electives: 31

Curriculum Mapping:

- I. Required Core Courses: (15+12+6)
 - 1. Information engineering (15 credits)
Computer Programming (I), Computer Programming (II), Data Structures, Computer Algorithms, Computer Structures
 - 2. Required elective in mathematics (12 credits)
 - (1) Calculus A/Calculus B (at least 3 credits)
 - (2) Discrete Mathematics
 - (3) Theory of Probability
 - (4) Linear Algebra
 - 3. Required elective in information seminar (6 credits)
Special Topics on Computer Science: Information Theories (I, II), Information Systems (I, II) (2 out of 4) (the same course can be chosen only once)
- II. Field Electives Courses (30)
4 to 5 courses for undergraduate studies in each field are listed below (at least 3 credits for each field)
 - 1. Information Theory
Introduction to Computer Science, Programming Language Constructs, Object-Oriented Analysis and Design, Database Theory, Automata Theory and Formal Languages
 - 2. Hardware
Basic Electronics, Computer-Aided Design VLSI Design, Assembly Language, Digital Logic
 - 3. Information System
System Programming, Operating Systems, Software Engineering, Information Security, Compiler Design
 - 4. Computer Network
Computer Networks, Local Area Networks, Data Communication, Wireless Communications
 - 5. Multimedia Processing
Computer Graphics, Image Processing, Artificial Intelligence, Data Mining
- III. Electives in the Department (6)
6 credits total for field electives and the following.
 - 1. Mathematical Theory

- Numerical Methods, Engineering Mathematics, Mathematical Statistics
2. Programming
Functional Programming, Logic Programming, Programming Technique Practicum, the Practice of Programming
 3. Other information science and information engineering fields
Introduction to Logic, Speech Processing, Web Computing and XML Microprocessors (including Lab.), Basic Electronics Laboratory, Digital Logic Laboratory, Introduction and Application of Internet of Things, Mobile Application Development, Trends and Practices in Information Technology Industry, Information Security: A Hands-On Approach, Cyber-Physical Systems, Projects in Computer Music and Audio Technology
- IV. Free Electives (31)