

Internet of Things Engineering Tianjin University Curriculum

** The information below is extracted from the curriculum for current Chinese students at the university, which will be adjusted for international students according to relevant requirements as appropriate. Therefore, please refer to the curriculum used in the year of entry as the final curriculum.*

1. Program Overview

University/School: School of Electrical and Information Engineering, Tianjin University

Major: Internet of Things Engineering

Awarding Degree: Bachelor of Engineering

Duration: 4 years

Credit Requirement for Graduation: 170.5

2. Teaching Outcomes

This major aims to develop excellent talents with modern scientific literacy, liberal arts qualities, sense of social responsibility and professional ethics, in addition to the mastery of fundamental theories and professional skills of the discipline. Students should also be equipped with global vision, a mind for innovation and practical capabilities to lead the development of electrical information industry.

The program will offer fundamental theories of the discipline related to Internet of Things (IoT), principles and design approaches of IoT system composition. Students will receive basic training on the IoT engineering practices and gain fundamental abilities of design, development, testing and engineering application of modern IoT system. Graduates from this program should possess the following knowledge, skills and competencies:

- 1) The basic and professional knowledge about mathematics, natural science and engineering required to address complex IoT engineering

issues;

- 2) The ability to leverage fundamental principles of mathematics, natural science and IoT technologies to identify, present, analyze and review complex IoT engineering issues and get effective solutions with information search and literature research;
- 3) The ability to leverage fundamental principles and approaches in IoT engineering disciplines to develop systems that can satisfy specific requirements and provide solutions to complex IoT engineering issues; and the ability to bring innovation to the design while fully considering the requirements of laws, health, safety, culture, society, environment, etc.;
- 4) The ability to study engineering issues with scientific principles and approaches, address complex IoT engineering problems and get reasonable and effective conclusions with experiment design, data analytics and information integration;
- 5) The ability to select, use and develop right technologies, resources, modern engineering tools and IT tech levers/tools to address complex IoT engineering problems in design, manufacturing and operation; and the ability to conduct predictions and simulations to understand the limitations of relevant technologies and tools in addressing complex engineering problems based on prediction and simulation results;
- 6) The ability to analyze IoT engineering practices and solutions to complex engineering problems based on background knowledge about mechanic engineering, assess the impact of engineering practices and solutions over the society, health, safety, laws and culture, understand and assume corresponding responsibilities;
- 7) The ability to understand and assess the impact of engineering practices to address complex problems in IoT design, manufacturing and operation over the environment and sustainable social development;
- 8) Qualities for liberal arts and social science literacy, sense of social responsibility, and the ability to understand and abide by the professional ethics and fulfill responsibilities in IoT engineering practices;

- 9) The ability to take the role as a professional, team member and leader in a multidisciplinary team;
- 10) The ability to effectively communicate and exchange with peers in the industry and the public on complex IoT engineering issues, including writings of report and design descriptions, delivery of presentations and statements; and the international vision to enable cross-cultural communications;
- 11) The knowledge and mastery of engineering management principles and economic decision-making skills; and the ability to use the principles and skills in multidisciplinary context of IoT engineering design, manufacturing, operations, etc.;
- 12) The knowledge about new IoT theories, technologies, domestic and international development trends; the initiative for independent learning and lifelong learning; and the ability to learn sustainably and adapt to new developments.

3. Curriculum

Main Discipline: Information and Telecommunication Engineering

Core Modules: Introduction to Internet of Things, Wireless Sensor Network and RFID, Computer Communication and Network, Big Data Analytics; IoT Technologies and Applications, etc.