**Semester Program for Major in Software Engineering**

**Ⅰ. Introduction**

This major enrolls international students and implements all-English teaching . Software engineering program is aimed to cultivate the national IT industry pillars and social elites with solid Chinese culture background, extensive general knowledge in software engineering, strong innovation awareness and innovative skills in the IT field and a broad global perspective. In order to promote students' development in ethics, intelligence, athletics, aesthetics and work, this program is focused on cultivating students' capacities of independent thinking, innovation and entrepreneurship, teamwork and social responsibility. By expanding knowledge in the field of software engineering, students are able to integrate the basic methods, tools, and processes of software engineering. Students can gain an in-depth understanding and solutions to the large-scale and complex issues or problems in software engineering through engineering practices and mentors’ project experience. Graduates are qualified for the intermediate or senior positions in both technology and administration in government, enterprises, institutions and other organizations, or they can prepare for further graduate studies.

**Subject category:**  **Engineering**

**Major code:** **080902**

**Length of study: one semester/ two semesters**

**Ⅱ.Training objectives and requirements**

Through one semester or two semesters’ studies at our program, students can obtain the following learning results and should be capable of:

1. Applying knowledge in mathematics, natural sciences and engineering;
2. Designing and conducting experiments, as well as analysis and interpretation of experimental data;
3. Designing systems, components or processes that meet requirements under realistic constraints such as economy, environment, society, politics, ethnic, health and safety, productivity and sustainability;
4. Playing a role in multidisciplinary teams;
5. Identifying, formalizing description and solving engineering problems;
6. Understanding professional and ethical responsibilities;
7. Effective communication;
8. Understanding the impact of engineering solutions on the global, economic, environmental and social environment;
9. With the knowledge of contemporary issues;
10. Applying necessary technology, skills and modern engineering tools in engineering practice;
11. Transforming engineering concepts and theories into practical engineering applications;
12. Recognizing the necessity of life-long learning and the ability to engage in lifelong learning.

**Ⅲ. Main Discipline**

Engineering

**Ⅳ. Core Courses:**

Introduction to Object-Oriented Programming; Data Structure and Algorithms; Operating Systems; Database Systems; Introduction to Software Engineering; Computer Networks; etc.

**Ⅴ. Distribution Schedule of Hours and Credits**

|  |  |  |  |
| --- | --- | --- | --- |
| Course Categories | Course Platform | Class hours（week） | Credits |
| Compulsory | Optional | Compulsory | Optional | Total/Proportion |
| Subject Education Course | Subject Basis |  | 48(hours) |  | 3 | 3 |
| Professional education course | Professional core | 288（hours） |  | 18 |  | 37 |
| Professional Development |  | 304（hours） |  | 19 |
| Total | Total Credits ：40 |

**Ⅵ. Curriculum and study requirements**

**Courses (**"★" represents core course**)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course Categories** | **Course Platform** | **Course Code** | **Course Title** | **Course Type** | **Credits** | **Hours** | **Period Distribution** | **Semester** | **Assessment****mode** |
| Theory | Experiment | Operating PC | Practice |
| **Subject Education Courses** | **Subject basis** |  | Probability Statistics | Optional | 3 | 48 | 48 |  |  |  | 4/6 | Examination |
| **Requirements: Totaled 3 credits, of which 3 credits are elective.** |
| **Professional education course** | **Professional Core** |  | Operating System  ★ | Compulsory | 4 | 64 | 48 |  | 16 |  | 5 | Examination |
|  | Data Structure and Algorithm ★ | Compulsory | 3 | 48 | 32 |  | 16 |  | 5 | Examination |
|  | Database System ★ | Compulsory | 4 | 64 | 32 |  | 32 |  | 6 | Examination |
|  | Software Engineering ★ | Compulsory | 3 | 48 | 32 |  | 16 |  | 4/6 | Examination |
|  | Computer Network ★ | Compulsory | 4 | 64 | 48 |  | 16 |  | 6 | Examination |
| **Professional Development** |  | Professional English | Optional | 2 | 32 | 32 |  |  |  | 4/6 | Test |
|  | Multimedia Technology | Optional | 2 | 32 | 16 |  | 16 |  | 4 | Test |
|  | Introduction to Artificial Intelligence | Optional  | 2 | 32 | 32 |  |  |  | 4 | Test |
|  | Image Processing | Optional | 2 | 32 | 16 |  | 16 |  | 4 | Test |
|  | Neural Modeling and Data Analysis  | Optional | 2 | 32 | 32 |  |  |  | 5 | Test |
|  |  System-Level Programming | Optional | 3 | 48 | 32 |  | 16 |  | 5 | Test |
|  | Computer Graphics | Optional | 3 | 48 | 32 |  | 16 |  | 5 | Test |
|  | Computer Architecture | Optional | 3 | 48 | 48 |  |  |  | 5 | Test |
| **Requirements:**Totaled 37 credits, of which 18 credits  are compulsory and 19 credits are optional. |