ZJU-UIUC INSTITUTE
Zhejiang University/University of Illinois at Urbana-Champaign Institute
浙江大学伊利诺伊大学厄巴纳香槟校区联合学院

ZJUI INSTITUTE STUDENT HANDBOOK

Contents

1.Preface

These policies and regulations serve as a supplement to the *Detailed Regulations of the International Campus of Zhejiang University on Student Status Management (Trial)*. They also supplement the *Student Code of the University of Illinois at Urbana-Champaign* (http://studentcode.illinois.edu).

Unless otherwise noted, the rules stated here apply to all undergraduate students enrolled at the ZJU-UIUC Institute (ZJUI).

The most current version of the code is maintained online at http://zjui.zju.edu.cn. The print version may not reflect the most recent changes to the Student Code.

In this document, the ZJU-UIUC Institute is referred to as ZJUI, the International Campus of Zhejiang University as ZJUIntl, Zhejiang University as ZJU, and the University of Illinois at Urbana-Champaign as UIUC.

2.General Information

2.1 Mission

The ZJU-UIUC Institute is a collaboration between ZJU and UIUC to prepare engineers in unique ways for global leadership and impact. The Institute strives for technical and scientific excellence, innovation and creativity, and new solutions for societal needs. The ZJU-UIUC Institute aims to further the frontiers of knowledge, especially in engineering sciences, through multi-disciplinary research and education. It seeks to be widely recognized as one of the best engineering colleges in the world by 2025. The goals are to instill in students the attitudes, values, vision, and training that will prepare them for lifetimes of continued learning and leadership in engineering and other fields; to generate new knowledge for the benefit of society; and to provide special services when there are needs that the institute is uniquely qualified to meet.

2.2 Vision

The vision of our joint institute is to embrace the best of the east and west for a distinct and exciting learning environment for students in engineering and science; to attract a diverse international student body and prepare them for global leadership in scholarship, professions, and society; to attract a diverse international group of exceptionally talented faculty to support multidisciplinary research and education on global issues; to bring the best innovations in engineering science to bear on the world's greatest challenges, and contribute in myriad ways to the local community, China, and the world.

2.3 ZJUI Model

The ZJU-UIUC Institute breaks down boundaries between traditional engineering disciplines and does not plan to establish discipline-based departments. Instead, it

creates cross-disciplinary teams and activities, and encourages multidisciplinary knowledge convergence and cross cooperation. Courses that emphasize entrepreneurship and creative problem solving are incorporated throughout the curriculum. Design courses include students from multiple degree programs, working together. These activities cultivate innovative talents with cross-cutting and multidisciplinary knowledge.

Graduates of the ZJUI program will receive a Bachelor of Science degree from the University of Illinois Urbana-Champaign and a Bachelor of Engineering degree from Zhejiang University.

3. Undergraduate Degree Programs

ZJUI offers undergraduate degree programs in Civil Engineering, Electrical Engineering, Mechanical Engineering, and Computer Engineering.

3.1 Educational Objectives

ZJUI prepares men and women for professional careers in engineering and related positions in industry, commerce, education, and government. Graduates at the bachelor's level are prepared to begin the practice of engineering or to continue their formal education at a graduate school of their choice. Based on the mission and vision statement of the institute, each engineering program has developed educational objectives which are broad statements that describe what graduates are expected to attain within a few years of graduation. In general, all the programs provide students with a comprehensive education that includes in-depth instruction in their chosen fields of study. The programs are designed to emphasize analysis and problem solving and to provide exposure to open-ended problems and design methods. The courses are taught in a manner that fosters teamwork, communication skills, and individual professionalism, including ethics and environmental awareness. The classroom experiences, along with outside activities, prepare students for lifetimes of continued learning and leadership. Thus, the engineering programs enable graduates to make significant contributions in their chosen fields while at the same time recognizing their responsibilities to society.

3.2 Outcomes and Assessment

To accomplish the educational objectives and to fulfill current engineering accreditation criteria, all engineering programs provide the knowledge, experience, and opportunities necessary for students to demonstrate their attainment of the following outcomes:

- Successfully enter a diverse range of careers as engineers, consultants, and entrepreneurs in respective engineering fields.
- Pursue graduate education and research in leading programs in engineering and interdisciplinary areas to emerge as researchers, experts, and educators.
- Advance in their chosen fields to leadership positions.
- Learn and create new knowledge in ever-changing environments of the 21st century, and communicate their work and ideas to colleagues and the public at large.
- Engage in continued learning through professional development.

- Practice and inspire high ethical and technical standards, participate in, contribute to, and lead their professional disciplines, organizations, and communities globally.

An assessment system for continuous measurement, evaluation, and improvement is in place within each program. In addition, the institute collects data and provides coordination and assistance to the programs for the overall process.

3.3 Civil and Environmental Engineering

This program produces civil and environmental engineers who are responsible for the design and construction of the nation's civil and marine infrastructure (buildings, bridges, and offshore structures; highway systems, airports, and energy transport systems; dams, locks, levees, and canals; all water treatment and distribution systems; and all aspects of environmental management and pollution prevention and remediation.

3.3.1 Overview

Civil engineering is a profession that applies the basic principles of science in conjunction with mathematical and computational tools to solve problems associated with developing and sustaining civilized life on our planet. Civil engineering works are generally one-of-a-kind projects; they are often grand in scale; and they usually require cooperation among professionals of many different disciplines. The completion of a civil engineering project involves the solution of technical problems in which uncertainty of information and myriad non-technical factors often play a significant role. Some of the most common examples of civil engineering works include bridges, buildings, dams, airports, highways, tunnels, and water distribution systems. Civil engineers are concerned with flood control, landslides, air and water pollution, and the design of facilities to withstand earthquakes and other natural hazards, in addition to protecting our environment for a sustainable future.

The Civil Engineering program comprises seven main areas (construction engineering and management, construction materials engineering, environmental engineering, geotechnical engineering, environmental hydrology and hydraulics, structural engineering, and transportation engineering) and three cross-cutting programs (**sustainable and resilient infrastructure systems; energy, water, and environmental sustainability; and societal risk management**). Although each area has its own special body of knowledge and engineering tools, they all rely on the same fundamental core principles. Civil engineering projects often draw on expertise from many of these areas and programs.

Our Education Objectives are to educate Civil Engineering students to:

1. Keep exploring new techniques and new knowledge for the sustainable development of human society.
2. Successfully enter the civil and environmental engineering profession as practicing engineers and consultants with prominent companies and organizations in diverse areas that include structural, transportation, geotechnical, materials, environmental, and hydrologic engineering; construction management; or other related or emerging fields.
3. Pursue graduate education and research at major research universities in civil and environmental engineering, and related fields.
4. Pursue professional licensure and advance to leadership positions in the profession.
5. Engage in continued learning through professional development.
6. Participate in and contribute to professional societies and community services.

During their junior and senior years, students are encouraged to take courses and involve themselves in research projects in cross-disciplinary areas with Electrical Engineering, Mechanical Engineering, Computer Engineering, and others.

3.3.2 Graduation Requirement

1) Grade Point Average Requirement

A student must have a grade point average of at least 2.0 (A=4.0) in order to remain in good standing and to graduate.

2) Curriculum Requirement

The curriculum leading to the degree of Bachelor of Science in Civil Engineering from UIUC requires 128 hours and is organized into required courses; science electives; technical electives; liberal education; and other electives.

i. Required courses (72 hours), see section 4.3.3 for detail.
   a) Orientation and Professional Development (4 hours)
   b) Foundational Mathematics and Science (34 hours)
   c) Civil Engineering Technical Core (25 hours)
   d) Composition (9 hours)
ii. Science Electives (3 hours), see section 4.3.4 for detail.
iii. Technical Electives (34 hours), see section 4.3.5 for detail.
iv. Liberal Education (18 hours), see section 4.3.6 for detail.
v. Free Electives (1-3 hours), see section 4.3.7 for detail.

In addition to the 128 hours set out above, the curriculum leading to the degree of Bachelor of Engineering from ZJU requires students to complete extra ZJU required liberal education courses (varying from 28 to 32.5 hours depending on the year of enrollment) for domestic students and five courses (20 hours) in Chinese language and social studies for international students. Please see section 4.3.7 for details.

3.3.3 Curriculum

Orientation and Professional Development (Credit: 4 hour)

These courses introduce the opportunities and resources our institute and curriculum can offer you as you work to achieve your career goals. They also provide the skills to work effectively and successfully in the engineering profession.

CEE 195	About Civil Engineering	3
CEE 495	Professional Practice	0
ENG 100	Engineering Orientation	1

Foundational Mathematics and Science (Credit: 34 hours)

These courses stress the basic mathematical and scientific principles upon which the engineering discipline is based.

MATH 221	Calculus Ⅰ	4
MATH 225*	Introductory Matrix Theory	2
MATH 231	Calculus Ⅱ	3
MATH 241	Calculus Ⅲ	4
MATH 285*	Intro to Differential Eq	3
CHEM 102	General Chemistry Ⅰ	3
CHEM 103	General Chemistry Lab Ⅰ	1
CHEM 104	General Chemistry II	3
CHEM 105	General Chemistry Lab II	1
PHYS 211	University Physics: Mechanics	4
PHYS 212	University Physics: Elec& Mag	4
PHYS 213	Univ Physics: Thermal Physics	2

**Math 225 can be substituted by Math 415 (Applied Linear Algebra, 3 hours); Math 285 can be substituted by Math 286 (Introduction to Differential Equation Plus, 4 hours).*

Civil Engineering Technical Core (Credit: 25 hours)

These courses stress fundamental concepts and basic laboratory techniques that comprise the common intellectual understanding of civil engineering.

CEE 201	Systems Engineering & Economics	3
CEE 202	Engineering Risk & Uncertainty	3
CS 101	Introduction to Computing: Engineering & Science	3
SE 101	Engineering Graphics & Design	3
TAM 211	Statics	3
TAM 212	Introductory Dynamics	3
TAM 251	Introductory Solid Mechanics	3
TAM 335	Introductory Fluid Mechanics	4

Composition (Credit: 9 hours)

These courses teach the fundamentals of expository writing.

RHET 101	Principles of Writing	3
RHET 102	Principles of Research	3
BTW 261	Principles Tech Comm (satisfies the Advanced Composition requirement)	3

3.3.4 Science Electives (Credit: 3 hours)

This elective allows the student to gain additional depth in science. The course should be selected according to the requirements and recommendations for the selected area of study, which is subject to approval by ZJUI.

Science elective, selected in accordance with recommendations for the chosen primary field in civil engineering.

ATMS 120	Severe and Hazardous Weather	3

CHBE 321	Thermodynamics	4
CHEM 222	Quantitative Analysis Lecture	2
CS 357	Numerical Methods I	3
ECE 110	Introduction to Electronics	3
ECE 205	Electrical and Electronic Circuits	3
GEOL 107	Physical Geology	4
GEOL 118	Natural Disasters	3
ME 200	Thermodynamics	3
STAT 420	Methods of Applied Statistics	3 or 4

3.3.5 Technical Electives (Credit: 34 hours)

This course work is designed to give each student a broad background in the areas of civil engineering through the core courses and to allow each student to develop a focused program through advanced technical electives in chosen primary and secondary fields. Briefly, there are two types of civil engineering courses: **(1) core courses and (2) advanced technical courses**.

The core courses provide prerequisites for all of the advanced technical courses. The advanced technical courses are subdivided into a primary area of emphasis and a secondary area of emphasis. The core and secondary area courses assure adequate breadth in civil engineering subjects, while the primary area courses allow the student to study a certain subject in greater depth.

Students cannot use an advanced technical course to meet both primary and secondary requirements and each student must have **12 hours from the primary area and 6 hours from the secondary area.** The sum of credit hours of core courses and technical electives must be at least 34.

Core Courses (Credits: 15 hours)
The courses that are required and recommended for the primary and secondary fields are listed below. Select **at least 5 courses** from the following list:

CEE 300	Behavior of Materials	4
CEE 310	Transportation Engineering	3
CEE 320	Construction Engineering	3
CEE 330	Environmental Engineering	3
CEE 340	Energy and Global Environment	3

CEE 350	Water Resources Engineering	3
CEE 360	Structural Engineering	3
CEE 380	Geotechnical Engineering	3

Core courses cannot be used as advanced technical courses, but additional core courses can be taken if all of the requirements for advanced technical courses are met.

Advanced Technical Electives

The advanced technical electives are selected to satisfy the requirements of a primary area of emphasis (i.e., a major field within civil engineering) and a secondary area of emphasis (i.e., a minor field within civil engineering). The program must have at least 12 hours in the primary field and 6 hours in the secondary field.

(1) Primary area of emphasis (take at least 12 hours)

The courses in the primary area of emphasis are chosen to be an appropriate program of study within one of the ten disciplines of civil engineering: (1) construction engineering and management, (2) construction materials engineering, (3) environmental engineering, (4) geotechnical engineering, (5) structural engineering, (6) transportation engineering, (7) water resources engineering and science, (8) energy-water-environment sustainability, (9) societal risk management, and (10) sustainable and resilient infrastructure systems.

ZJUI students are recommended to choose: I. Environmental/Water Resources Engineering & Science (EWRES), II. Structural Engineering (STRUCTURES), III. Transportation Engineering (TRANSPORTATION) as primary areas.

I. Environmental / Water Resources Engineering & Science (EWRES)

Recommended Science Elective – ME 200 (or ECE 110, ECE 205 or GEOL 107)
Required Core Courses – CEE 330 & CEE 350
Required Advanced Technical Electives – CEE 434, CEE 437, CEE 449 & CEE 452

II. Structural Engineering (STRUCTURES)

Recommended Science Elective – ECE 110, ECE 205, GEOL 107, GEOL 118 or ME 200
Required Core Courses – CEE 300, CEE 360 & CEE 380
Required Advanced Technical Electives – CEE 460, CEE 461, CEE 465 & CEE 470

III. Transportation Engineering (TRANSPORTATION)

Recommended Science Elective – ECE 110, ECE 205, GEOL 107 or ME 200
Required Core Courses – CEE 300 & CEE 310
Required Advanced Technical Electives – CEE 406, CEE 415, CEE 416 & CEE 418

(2) Secondary area of emphasis (take at least 6 hours)

The courses in the secondary area of emphasis are chosen to complement the primary area and add breadth to the program of study. Courses that make up a secondary area can be taken in one of the above three recommended areas of civil and environmental engineering, but there are also some additional options-CEE Multidisciplinary that give flexibility to the program. A secondary program cannot be taken in the same area as the primary. The secondary area requirement is meant to provide the student both with additional breadth and with an additional area of special focus.

I. Environmental / Water Resources Engineering & Science (EWRES)

Recommended Science Elective – ME 200 (or ECE 110, ECE 205 or GEOL 107)
Required Core Courses – CEE 330 & CEE 350
Recommended Advanced Technical Electives – Two of CEE 434, CEE 437 & CEE 452

II. Structural Engineering (STRUCTURES)

Recommended Science Elective – ECE 110, ECE 205, GEOL 107, GEOL 118 or ME 200
Required Core Course – CEE 360
Required Advanced Technical Electives – CEE 460 & CEE 461

III. Transportation Engineering (TRANSPORTATION)

Recommended Science Elective – ECE 110, ECE 205, GEOL 107 or ME 200
Required Core Course – CEE 310
Recommended Advanced Technical Electives – Two of CEE 406, CEE 416 & CEE 418

IV. CEE Multidisciplinary – Construction & Geotechnical (MULTIDISCIPLINARY—C&G)

Recommended Science Elective – ECE 110, ECE 205, GEOL 107, GEOL 118 or ME 200

Required Core Courses – CEE 320 & CEE 380

Required Advanced Technical Electives – CEE 421 & CEE 480

V. CEE Multidisciplinary – ECE (MULTIDISCIPLINARY—ECE)

Required Science Elective – ECE 110

Required Core Course – ECE 210

Recommended Advanced Technical Electives – Two of ECE 310/311, ECE 329, ECE 333, ECE 437 & ECE 486

VI. CEE Multidisciplinary – ME (MULTIDISCIPLINARY—ME)

Required Science Elective – ME 200

Required Core Course – ME 270

Required Advanced Technical Electives – Two of ME 340, ME 370, ME 371 & ME 430

List of Some Key CEE Advanced Technical Electives

CEE 401	Concrete Materials	4
CEE 405	Asphalt Materials I	3 or 4
CEE 406	Pavement Design I	3 or 4
CEE 407	Airport Design	3 or 4
CEE 408	Railroad Transportation Engrg	3 or 4
CEE 409	Railroad Track Engineering	3 or 4
CEE 410	Railway Signaling & Control	3 or 4
CEE 411	RR Project Design & Constr	3 or 4
CEE 412	High-Speed Rail Engineering	3 or 4
CEE 415	Geometric Design of Roads	4
CEE 416	Traffic Capacity Analysis	3 or 4
CEE 417	Urban Transportation Planning	4
CEE 418	Public Transportation Systems	3 or 4
CEE 420	Construction Productivity	3 or 4
CEE 421	Construction Planning	3 or 4
CEE 422	Construction Cost Analysis	3 or 4
CEE 424	Sustainable Const Methods	4
CEE 430	Ecological Quality Engineering	2
CEE 432	Stream Ecology	3 or 4
CEE 433	Water Technology and Policy	3 or 4

CEE 434	Environmental Systems I	3
CEE 437	Water Quality Engineering	3
CEE 438	Science & Environmental Policy	3
CEE 440	Fate Cleanup Environ Pollutant	4
CEE 442	Environmental Engineering Principles, Physical	4
CEE 443	Env Eng Principles, Chemical	4
CEE 444	Env Eng Principles, Biological	4
CEE 445	Air Quality Modeling	4
CEE 447	Atmospheric Chemistry	4
CEE 449	Environmental Engineering Lab	3
CEE 450	Surface Hydrology	3
CEE 451	Environmental Fluid Mechanics	3
CEE 452	Hydraulic Analysis and Design	3
CEE 453	Urban Hydrology and Hydraulics	4
CEE 457	Groundwater	3
CEE 458	Water Resources Field Methods	4
CEE 460	Steel Structures I	3
CEE 461	Reinforced Concrete I	3
CEE 465	Design of Structural Systems	3
CEE 470	Structural Analysis	4
CEE 472	Structural Dynamics I	3 or 4
CEE 480	Foundation Engineering	3
CEE 483	Soil Mechanics and Behavior	4
CEE 484	Applied Soil Mechanics	4
CEE 491	Decision and Risk Analysis	3 or 4
CEE 493	Sustainable Design Eng Tech	4
CEE 497	Independent Study	1 to 16
CEE 498	Special Topics	1 to 4
ECE 310	Digital Signal Processing	3
ECE 311	Digital Signal Processing Lab	1
ECE 329	Fields and Waves I	3
ECE 333	Green Electric Energy	3
ECE 437	Sensors and Instrumentation	3
ECE 486	Control Systems	4
ME 340	Dynamics of Mechanical Systems	3.5

ME 370	Mechanical Design I	3
ME 371	Mechanical Design II	3
ME 430	Failure of Engineering Materials	3 or 4

3.3.6 liberal Education (Credit: 18 hours)

The liberal education courses develop students' understanding of human culture and society, build skills of inquiry and critical thinking, and lay a foundation for civic engagement and lifelong learning. These include the General Education (GenEd) requirements in the humanities, social sciences, and cultural studies. To satisfy the General Education requirements, students must take all courses for grade and complete a minimum of six courses.

1) **Humanities & Arts** (Six hours, two courses).
2) **Social & Behavioral Sciences** (Six hours, two courses). ECON 101 (Foundation of Economics) or ECON 102 (Microeconomic Principles) or ECON 103 (Macroeconomic Principles) must be one of the social & behavioral sciences courses.
3) **Culture Studies**

   Students entering September 2017 or earlier must complete:

   One course in **Western/Comparative Culture(s)**.

   One course in **Non-Western or U.S. Minority Culture(s)**.

   Students entering September 2018 or later must complete:

   One course in **Western/Comparative Culture(s)**.

   One course in **Non-Western Culture(s)**.

   One course in **U.S. Minority Culture(s)**.

3.3.7 Free Electives (Credit: 1-3 hours)

These unrestricted electives give the student the opportunity to explore any intellectual area of unique interest. This freedom plays a critical role in helping students to define research specialties or to complete minors. Students are encouraged to take cross-discipline courses as free electives.

3.3.8 ZJU Required Liberal Education (Credit: 28-32.5 hours)

These courses introduce Chinese modern history, social development, government policies, etc., help students to improve their English and maintain a healthy lifestyle.

Domestic students must complete all courses below, which can be taught in Chinese, to fulfill the graduate requirement along with the above 128 credit hour courses towards the Bachelor of Engineering Degree at ZJU.

Course Code	Course Name	2016-17	2018	2019
LAW 1001	Character Cultivation and Basic Laws	2.5	3.0	3.0
HIST 2001	Modern Chinese History	2.5	3.0	3.0
PHIL 2001	Intro. To Fundamental Principles of Marxism	2.5	3.0	3.0
PS 2011	Thoughts and Ideology of Socialism with Chinese Characteristics	4	5.0	5.0
PS 1001	Chinese Social Development Situation and Policies Ⅰ	1	1	1
PS 2001	Chinese Social Development Situation and Policies Ⅱ	1	1	1
ENGL 1001	Integrated English Ⅰ	4	4	3
ENGL 1002	Integrated English Ⅱ	2	2	3
PE 1001	Physical Education Ⅰ	1	1	1
PE 1002	Physical Education Ⅱ	1	1	1
PE 2001	Physical Education Ⅲ	1	1	1
PE 2002	Physical Education Ⅳ	1	1	1
PE 3001	Physical Education Ⅴ			1
PE 3002	Physical Education Ⅵ			1
PE 3011	Physical-fitness Test Ⅰ	0.5	0.5	

PE 4011	Physical-fitness Test Ⅱ	0.5	0.5	
PE 4021	Physical Education Ⅶ--Fitness test and exercise			0.5
MITR 1001	Military Training	2	2	2
MITR 2001	Military Theory	1.5	1.5	2
Total Credit Hours for 2016/17, 2018 and 2019 are:		**28**	**30.5**	**32.5**

International students are required to complete five courses (20 credit hours) in Chinese language study and Chinese society to fulfill graduate requirements along with the above 128 credit hour courses towards the Bachelor of Engineering Degree at ZJU.

CHIN 1001	Chinese Ⅰ	4
CHIN 1002	Chinese Ⅱ	5
CHIN 1003	Chinese Ⅲ	4
CHIN 1004	Chinese Ⅳ	4
CULT 2001	China Survey	3
Total Credit Hours		20

3.3.9 Sample Schedule by Semester

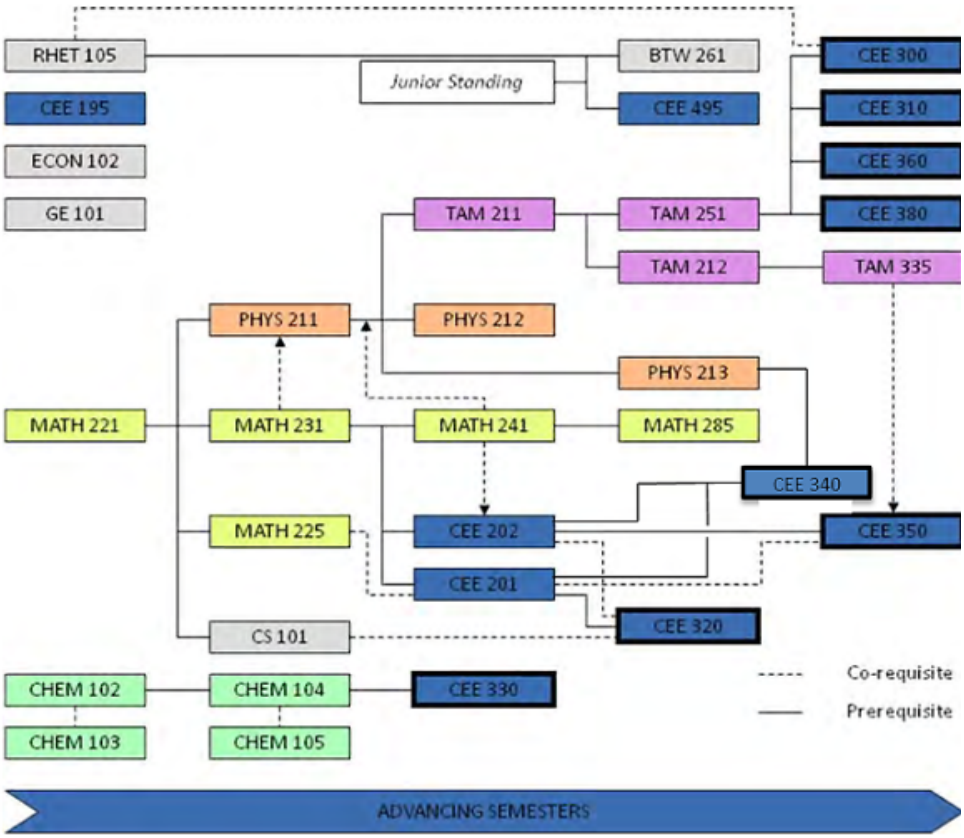
Semester	No	Course Code	Course Title	Credit Hours
0	1	*MITR 1001*	*Military Training*	2
1	1	Rhet 101	Principles of Writing	3
1	2	Chem 102	General Chemistry I	3
1	3	Chem 103	General Chemistry Lab I	1
1	4	Math 221	Calculus I	4
1	5	CS 101	Introduction to Computing: Engineering & Science	3
1	6	CEE 195	About Civil Engineering	3
1	7	Eng 100	Engineering Orientation	1
1	8	*ENGL 1001*	*Integrated English I*	*4 or 3*
1	9	*PE 1001*	*Physical Education I*	1

1	10	*PS 1001*	*Chinese Social Development Situation and Policies I*	
2	1	Rhet 102	Principles of Research	3
2	2	CHEM 104	General Chemistry II	3
2	3	CHEM 105	General Chemistry Lab II	1
2	4	Math 231	Calculus II	3
2	5	Phys 211	University Physics: Mechanics	4
2	6	SE 101	Engineering Graphics & Design	3
2	7	*ENGL 1002*	*Integrated English II*	2
2	8	*PE 1002*	*Physical Education II*	1
2	9	*PS 1001*	*Chinese Social Development Situation and Policies I*	1
2	10	*LAW 1001*	*Character Cultivation and Basic Laws*	2.5 or 3.0
3	1	Math 241	Calculus III	4
3	2	Phys 212	University Physics: Elec& Mag	4
3	3	TAM 211	Statics	3
3	4	CEE 201	Systems Engineering & Economics	3
3	5	GenEd 1	ECON101,102,103 recommended	3
3	6	*PE 2001*	*Physical Education Ⅲ*	1
3	7	*PS 2011*	*Thoughts and Ideology of Socialism with Chinese Characteristics*	4
3	8	*MITR 2001*	*Military Theory*	1.5
4	1	Math 286	Intro to Differential Eq Plus	4
4	2	Phys 213	Univ Physics: Thermal Physics	2
4	3	TAM 212	Introductory Dynamics	3
4	4	TAM 251	Introductory Solid Mechanics	3
4	5	CEE 202	Engineering Risk & Uncertainty	3
4	6	GenEd 2	GenEd Elective 2	3
4	7	*PE 2002*	*Physical Education Ⅳ*	1
4	8	*HIST 2001*	*Modern Chinese History*	2.5 or 3.0
4	9	*PHIL 2001*	*Intro. To Fundamental Principles of Marxism*	2.5 or 3.0
5	1	BTW 261	Principles Tech Comm	3
5	2	TAM 335	Introductory Fluid Mechanics	4
5	3	CEE Core1	CEE Core Course 1	3
5	4	CEE Core2	CEE Core Course 2	3
5	5	GenEd 3	GenEd Elective 3	3
6	1	MATH 415	Applied Linear Algebra	3
6	2	CEE Core 3	CEE Core Course 3	3
6	3	CEE Core 4	CEE Core Course 4	3
6	4	CEE Primary 1	CEE Primary 1	3
6	5	GenEd 4	GenEd Elective 4	3
6	6	*PE 3001*	*Physical-fitness Test Ⅰ*	0.5
7	1	CEE495	Professional Practice	0
7	2	CEE Core 5	CEE Core 5	3

7	3	CEE Primary 2	CEE Primary 2	3
7	4	CEE Secondary 1	CEE Secondary 1	3
7	5	CEE SCI ELEC	CEE SCI ELEC	3
7	6	GenEd 5	GenEd Elective 5	3
7	7	*PS 2001*	*Chinese Social Development Situation and Policies Ⅱ*	
8	1	CEE Primary 3	CEE Primary 3	3
8	2	CEE Primary 4	CEE Primary 4	3
8	3	CEE Secondary 2	CEE Secondary 2	3
8	4	Free Elective		3
8	5	GenEd 6	GenEd Elective 6	3
8	6	*PE 4001*	*Physical-fitness Test Ⅱ*	1
8	7	*PS 2001*	*Chinese Social Development Situation and Policies Ⅱ*	0.5

3.3.10 Curriculum Flow Map

The following flow map offers a quick summary of the main features and also provides a quick reference to the prerequisite flow of the Civil Engineering curriculum.



**RHET 105 is substituted by Rhet 101/102*

Figure 1. The prerequisite structure of the required and civil engineering core courses

3.4 Electrical Engineering

3.4.1 Overview

Electrical engineering is a multifaceted discipline that over the last century has produced an astounding progression of technological innovations that have shaped virtually every aspect of modern life. Electrical engineers need a broad and solid foundation in mathematics and physics to support their education in the engineering principles of analysis, synthesis, design, implementation, and testing of the devices and systems that provide the bedrock of modern energy, communication, sensing, computing, medical, security, and defense infrastructures. Within each sub-discipline one can find application domains that strongly rely on hands-on experimental work or that are based on theoretical, mathematical, and computational approaches. The multidisciplinary nature of electrical engineering education addresses the growing demand for the innovation and design of sensing, communication, computing, and decision-making systems of increasing complexity in consumer, defense, and medical applications.

The core curriculum focuses on fundamental courses on circuits, electromagnetics, solid-state electronics, and computer systems, leading to a comprehensive array of

specialized courses and laboratories in all of the important areas of modern electrical engineering. These range from power and energy systems to electronic, opto-electronic, and photonic devices; integrated circuits; telecommunications and remote sensing; control systems; robotics; signal processing; and biomedical instrumentation and sensing.

Students are encouraged to take courses and involve themselves in research projects in cross-disciplinary areas with Civil and Environmental Engineering, Mechanical Engineering, Computer Engineering, and others during their junior and senior years.

3.4.2 Graduation Requirement

1) Grade Point Average Requirement

A student must have a grade point average of at least 2.0 (A=4.0) in order to remain in good standing and to graduate.

2) Junior Eligibility Requirement

To qualify for registration for the ECE courses shown in the third year of the curriculum, a student must have completed, with a combined 2.25 grade point average, the mathematics, physics, computer science, and electrical and computer engineering courses shown in the first two years.

3) Curriculum Requirement

The curriculum leading to the degree of Bachelor of Science in Electrical Engineering from UIUC requires 128 hours and is organized into required courses; technical electives; liberal education; and other electives.

i. Required courses (69 hours), see section 4.4.3 for detail.

   a) Orientation and Professional Development (1 hour)

   b) Foundational Mathematics and Science (31 hours)

   c) Electrical Engineering Technical Core (31 hours)

   d) Composition (6 hours)

ii. Technical Electives (32 hours), see section 4.4.4 for detail.

iii. Liberal Education (18 hours), see section 4.4.5 for detail.

iv. Free Electives (9 hours), see section 4.4.6 for detail.

In addition to the 128 hours requirement set out above, the curriculum leading to the degree of Bachelor of Engineering from ZJU requires students to complete extra ZJU required liberal education courses (varying from 28 to 32.5 hours depending on enrollment year) for domestic students and five courses (20 hours) in Chinese language and society study for international students. Please see section 4.4.7 for detail.

3.4.3 Required Courses (Credit: 69 hours)

Orientation and Professional Development (Credit: 1 hour)

These courses introduce the opportunities and resources our institute and curriculum can offer you as you work to achieve your career goals. They also provide the skills to work effectively and successfully in the engineering profession.

ENG 100	Engineering Orientation	1

Foundational Mathematics and Science (Credit: 31 hours)

These courses stress the basic mathematical and scientific principles upon which the engineering discipline is based.

MATH 221	Calculus Ⅰ	4
MATH 231	Calculus Ⅱ	3
MATH 241	Calculus Ⅲ	4
MATH 286	Intro to Differential Eq Plus	4
CHEM 102	General Chemistry Ⅰ	3
CHEM 103	General Chemistry Lab Ⅰ	1
PHYS 211	University Physics: Mechanics	4
PHYS 212	University Physics: Elec & Mag	4
PHYS 213	Univ Physics: Thermal Physics	2
PHYS 214	Univ Physics: Quantum Physics	2

Electrical Engineering Technical Core (Credit: 31 hours)

These courses stress fundamental concepts and basic laboratory techniques that comprise the common intellectual understanding of electrical engineering.

ECE 110	Intro to Electronics	3
ECE 120	Intro to Computing	4
ECE 220	Computer Systems & Programming	4
ECE 210	Analog Signal Processing	4

ECE 313	Probability with Engineering Application	3
ECE 329	Fields and Waves Ⅰ	3
ECE 385	Digital Systems Laboratory	3
ECE 340	Semiconductor Electronics	3
ECE 445	Senior Design Project Lab	4

Composition (Credit: 6 hours)

These courses teach the fundamentals of expository writing.

RHET 101	Principles of Writing	3
RHET 102	Principles of Research	3

3.4.4 Technical Electives (Credit: 32 hours)

This elective requirement gives each student the freedom to develop a technical course of study in electrical engineering of considerable breadth and focus. The Advanced Core ECE Electives are introductory to major sub-disciplines of electrical engineering, such as electrical and computer engineering: bioengineering, acoustics, and magnetic resonance engineering; circuits and signal processing; communication and control; computer engineering; electromagnetics, optics, and remote sensing; microelectronics and quantum electronics; power and energy systems.

Students need to complete:

1)	6 hours	Non-ECE courses, see below section "*Non-ECE Courses*" for detail.
2)	3 courses	Selected from the following list of Advanced Core ECE electives:
	4 hours	ECE 391 - Computer Systems Engineering **or** CS 225 - Data Structure
	3 hours	ECE 310 - Digital Signal Processing
	3 hours	ECE 330 - Power Circuits & Electromechanics
	3 hours	ECE 342 - Electronic Circuits
	3 hours	ECE 350 - Fields and Waves II
3)	3 courses	ECE Labs, see below section *"ECE Labs"* for detail.
4)	20 hours	ECE courses, see below section 4.3 *"ECE courses"* for detail.

Non-ECE Courses (6 hours)

Students are encouraged to build up their cross-discipline study by taking non-ECE technical courses from Civil Engineering, Mechanical Engineering, Computer Science, and others at ZJUI or during exchange at UIUC.

Civil & Env. Eng. (CEE): 310, 330, 408, 410, 416, 430, 447, 491

CEE 310	Transportation Engineering	3

CEE 330	Environmental Engineering	3
CEE 408	Railroad Transportation Engineering	3 or 4
CEE 410	Railway Signaling & Control	3 or 4
CEE 416	Traffic Capacity Analysis	3 or 4
CEE 430	Ecological Quality Engineering	2
CEE 447	Atmospheric Chemistry	4
CEE 491	Decision and Risk Analysis	3 or 4

Mechanical Eng. (ME): 200, 310, 320, 330, 340, 370, 371, 400, 401, 402, 403, 404, 410, 411, 412, 420, 430, 431, 440, 445, 450, 451, 452, 460, 461, 471, 472, 485, and 487

ME 200	Thermodynamics	3
ME 310	Fundamentals of Fluid Dynamics	4
ME 320	Heat Transfer	4
ME 330	Engineering Materials	4
ME 340	Dynamics of Mechanical Systems	3.5
ME 370	Mechanical Design I	3
ME 371	Mechanical Design II	3
ME 400	Energy Conversion Systems	3 or 4
ME 401	Refrigeration and Cryogenics	3 or 4
ME 402	Design of Thermal Systems	3 or 4
ME 403	Internal Combustion Engines	3 or 4
ME 404	Intermediate Thermodynamics	4
ME 410	Intermediate Gas Dynamics	3 or 4
ME 411	Viscous Flow & Heat Transfer	4
ME 412	Numerical Thermo-Fluid Mechs	2 to 4
ME 420	Intermediate Heat Transfer	4
ME 430	Failure of Engrg Materials	3 or 4
ME 431	Mechanical Component Failure	3 or 4
ME 440	Kinem & Dynamics of Mech Syst	3 or 4
ME 445	Introduction to Robotics	4
ME 450	Modeling Materials Processing	3
ME 451	Computer-Aided Mfg Systems	3 or 4
ME 452	Num Control of Mfg Processes	3 or 4
ME 460	Industrial Control Systems	4
ME 461	Computer Cntrl of Mech Systems	3 or 4
ME 471	Finite Element Analysis	3 or 4
ME 472	Introduction to Tribology	3 or 4
ME 485	MEMS Devices & Systems	3

ME 487	MEMS-NEMS Theory & Fabrication	4

Theoretical & Applied Mechanics (TAM): 211, 212, 251, 324, 335, 412, 435, 445, 451

TAM 211	Statics	3
TAM 212	Introductory Dynamics	3
TAM 251	Introductory Solid Mechanics	3
TAM 324	Behavior of Materials	4
TAM 335	Introductory Fluid Mechanics	4
TAM 412	Intermediate Dynamics	4
TAM 435	Intermediate Fluid Mechanics	4
TAM 445	Continuum Mechanics	4
TAM 451	Intermediate Solid Mechanics	4

Computer Science (CS): (101, by approval), 173**, 225**, 242, 357, 410, 411, 412, 413, 414, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 431, 433, 436, 438, 439 ,440, 445, 446, 447, 450, 460, 461, 463, 465, 466, 467, 473, 475, 476; 477, 481, 484; CS 398 & 498 Special Topics, as approved.

*** Elective for EEs, required for CompEs*

**** Elective for CompEs*

CS 173	Discrete Structures	3
CS 225	Data Structures	4
CS 242	Programming Studio	3
CS 357	Numerical Methods I	3
CS 410	Text Information Systems	3 or 4
CS 411	Database Systems	3 or 4
CS 412	Introduction to Data Mining	3 or 4
CS 413	Intro to Combinatorics	3 or 4
CS 414	Multimedia Systems	3 or 4
CS 418	Interactive Computer Graphics	3 or 4
CS 419	Production Computer Graphics	3 or 4
CS 420	Parallel Progrmg: Sci & Engrg	3 or 4
CS 421	Programming Languages & Compilers	3 or 4
CS 422	Programming Language Design	3 or 4
CS 423	Operating Systems Design	3 or 4
CS 424	Real-Time Systems	3 or 4
CS 425	Distributed Systems	3 or 4
CS 426	Compiler Construction	3 or 4
CS 427	Software Engineering I	3 or 4

CS 428	Software Engineering II	3 or 4
CS 429	Software Engineering II, ACP	3
CS 431	Embedded Systems	3 or 4
CS 433	Computer System Organization	3 or 4
CS 436	Computer Networking Laboratory	3 or 4
CS 438	Communication Networks	3 or 4
CS 439	Wireless Networks	3 or 4
CS 440	Artificial Intelligence	3 or 4
CS 445	Computational Photography	3 or 4
CS 446	Machine Learning	3 or 4
CS 447	Natural Language Processing	3 or 4
CS 450	Numerical Analysis	3 or 4
CS 460	Security Laboratory	3 or 4
CS 461	Computer Security I	4
CS 463	Computer Security II	3 or 4
CS 465	User Interface Design	3 or 4
CS 466	Introduction to Bioinformatics	3 or 4
CS 467	Social Visualization	3 or 4
CS 473	Algorithms	4
CS 475	Formal Models of Computation	3 or 4
CS 476	Program Verification	3 or 4
CS 477	Formal Software Devel Methods	3 or 4
CS 481	Advanced Topics in Stochastic Processes & Applications	3 or 4
CS 484	Parallel Programming	3 or 4
CS 398	Special Topics (As Approved)	1 to 4
CS 498	Special Topics (As Approved)	1 to 4

ECE Labs (3 courses)

Students must take 3 labs, at least one of which must be a hardware lab.

Hardware Labs

ECE 343	Electronic Circuits Laboratory	1
ECE 391	Computer Systems Engineering	4
ECE 395	Advanced Digital Projects Lab	2 or 3
ECE 402	Electronic Music Synthesis	3
ECE 415	Biomedical Instrumentation Lab	2
ECE 420	Embedded DSP Laboratory	2
ECE 431	Electric Machinery	4

CS 436	Computer Networking Laboratory	3 or 4
ECE 437	Sensors and Instrumentation	3
ECE 438	Communication Networks	3 or 4
ECE 439	Wireless Networks	3 or 4
ECE 443	LEDs and Solar Cells	4
ECE 444	IC Device Theory & Fabrication	4
ECE 446	Principles of Experimental Research in Electrical Engineering	4
ECE 447	Active Microwave Ckt Design	3
ECE 451	Adv Microwave Measurements	3
ECE 453	Wireless Communication Systems	4
ECE 456	Global Nav Satellite Systems	4
ECE 460	Optical Imaging	4
ECE 463	Digital Communications Lab	2
ECE 466	Optical Communications Lab	1
ECE 468	Optical Remote Sensing	3
ECE 469	Power Electronics Laboratory	2
ECE 470	Introduction to Robotics	4
ECE 481	Nanotechnology	4
ECE 486	Control Systems	4
ECE 489	Robot Dynamics and Control	4
ECE 495	Photonic Device Laboratory	3

Software Labs

ECE 311	Digital Signal Processing Lab	1
ECE 314	Probability in Engineering Lab	1
ECE 365	Data Science and Engineering	3
ECE 411	Computer Organization & Design	4

ECE courses (20 hours)

ECE†: 297, 304, 307, 310, 311, 314, 329***, 330, 333, 340***, 342, 343, 350, 365, 374**, 380, 391**, 395, 396, 397, 402, 403, 408, 411, 412, 414, 415, 416, 417, 418, 419, 420, 422, 424, 425, 428, 431, 432, 435, 437, 438, 439, 441, 443, 444, 445***, 446, 447, 448, 451, 452, 453, 454, 455, 456, 457, 458, 459, 461, 460, 462, 463, 464, 465, 466, 467, 468, 469, 470, 472, 473, 476, 478, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 495, 496***, 499***; ECE 398 & 498 Special Topics, as approved.

ECE 297	Individual Study	1
ECE 304	Photonic Devices	3
ECE 307	Techniques for Engrg Decisions	3

ECE 310	Digital Signal Processing	3
ECE 311	Digital Signal Processing Lab	1
ECE 314	Probability in Engineering Lab	1
ECE 329	Fields and Waves I	3
ECE 330	Power Ckts & Electromechanics	3
ECE 333	Green Electric Energy	3
ECE 340	Semiconductor Electronics	3
ECE 342	Electronic Circuits	3
ECE 343	Electronic Circuits Laboratory	1
ECE 350	Fields and Waves II	3
ECE 365	Data Science and Engineering	3
ECE 374	Introduction to Algorithms & Models of Computation	4
ECE 380	Biomedical Imaging	3
ECE 391	Computer Systems Engineering	4
ECE 395	Advanced Digital Projects Lab	2 or 3
ECE 396	Honors Project	1 to 4
ECE 397	Individual Study in ECE	0 to 4
ECE 402	Electronic Music Synthesis	3
ECE 403	Audio Engineering	3
ECE 408	Applied Parallel Programming	4
ECE 411	Computer Organization & Design	4
ECE 412	Microcomputer Laboratory	3
ECE 414	Biomedical Instrumentation	3
ECE 415	Biomedical Instrumentation Lab	2
ECE 416	Biosensors	3
ECE 417	Multimedia Signal Processing	4
ECE 418	Image & Video Processing	4
ECE 419	Security Laboratory	3 or 4
ECE 420	Embedded DSP Laboratory	2
ECE 422	Computer Security I	4
ECE 424	Computer Security II	3 or 4
ECE 425	Intro to VLSI System Design	3
ECE 428	Distributed Systems	3 or 4
ECE 431	Electric Machinery	4
ECE 432	Advanced Electric Machinery	3
ECE 435	Computer Networking Laboratory	3 or 4
ECE 437	Sensors and Instrumentation	3
ECE 438	Communication Networks	3 or 4

ECE 439	Wireless Networks	3 or 4
ECE 441	Physcs & Modeling Semicond Dev	3
ECE 443	LEDs and Solar Cells	4
ECE 444	IC Device Theory & Fabrication	4
ECE 445	Senior Design Project Lab	4
ECE 446	Principles of Experimental Research in Electrical Engineering	4
ECE 447	Active Microwave Ckt Design	3
ECE 448	Artificial Intelligence	3 or 4
ECE 451	Adv Microwave Measurements	3
ECE 452	Electromagnetic Fields	3
ECE 453	Wireless Communication Systems	4
ECE 454	Antennas	3
ECE 455	Optical Electronics	3 or 4
ECE 456	Global Nav Satellite Systems	4
ECE 457	Microwave Devices & Circuits	3
ECE 458	Applic of Radio Wave Propag	3
ECE 459	Communications Systems	3
ECE 460	Optical Imaging	4
ECE 461	Digital Communications	3
ECE 462	Logic Synthesis	3
ECE 463	Digital Communications Lab	2
ECE 464	Power Electronics	3
ECE 465	Optical Communications Systems	3
ECE 466	Optical Communications Lab	1
ECE 467	Biophotonics	3
ECE 468	Optical Remote Sensing	3
ECE 469	Power Electronics Laboratory	2
ECE 470	Introduction to Robotics	4
ECE 472	Biomedical Ultrasound Imaging	3
ECE 473	Fund of Engrg Acoustics	3 or 4
ECE 476	Power System Analysis	3
ECE 478	Formal Software Devel Methods	3 or 4
ECE 480	Magnetic Resonance Imaging	3 or 4
ECE 481	Nanotechnology	4
ECE 482	Digital IC Design	3
ECE 483	Analog IC Design	3
ECE 485	MEMS Devices & Systems	3

ECE 486	Control Systems	4
ECE 487	Intro Quantum Electr for EEs	3
ECE 488	Compound Semicond & Devices	3
ECE 489	Robot Dynamics and Control	4
ECE 490	Introduction to Optimization	3 or 4
ECE 491	Numerical Analysis	3 or 4
ECE 492	Parallel Progrmg: Sci & Engrg	3 or 4
ECE 493	Advanced Engineering Math	3 or 4
ECE 495	Photonic Device Laboratory	3
ECE 496	Senior Research Project	2
ECE 499	Senior Thesis	2
ECE 398	Special Topics in ECE (As approved)	0 to 4
ECE 498	Special Topics in ECE (As approved)	0 to 4
ENG 491	Interdisciplinary Design Proj (CubeSat, Solar Decathlon, Formula SAE, Baja SAE, or by Approval.)	1 to 4

** *Elective for EEs, required for CompEs*

*** *Elective for CompEs*

3.4.5Liberal Education (Credit: 18 hours)

The liberal education courses develop students' understanding of human culture and society, build skills of inquiry and critical thinking, and lay a foundation for civic engagement and lifelong learning. These include the General Education (GenEd) requirements in the humanities, social sciences, and cultural studies. To satisfy the General Education requirements, students must take all courses for grade and complete a minimum of six courses.

1) **Humanities & Arts** (Six hours, two courses).
2) **Social & Behavioral Sciences** (Six hours, two courses).
3) **Culture Studies**

Students entering September 2017 or earlier must complete:
- One course in Western/Comparative Culture(s).
- One course in Non-Western or U.S. Minority Culture(s).

Students entering September 2018 or later must complete:
- One course in Western/Comparative Culture(s).
- One course in Non-Western Culture(s).
- One course in U.S. Minority Culture(s).

3.4.6 Free Electives (Credit: 9 hours)

These unrestricted electives give the student the opportunity to explore any intellectual area of unique interest. This freedom plays a critical role in helping students to define research specialties. Students are encouraged to take cross-discipline courses as free electives.

3.4.7 ZJU Required Liberal Education (Credit: 28-32.5 hours)

These courses introduce Chinese modern history, social development, government policies, etc., help students to improve their English and maintain a healthy lifestyle.

Domestic students must complete all courses below, which can be taught in Chinese, to fulfill the graduate requirement along with the above 128 credit hour courses towards the Bachelor of Engineering Degree from ZJU.

Course Code	Course Name	2016-17	2018	2019
LAW 1001	Character Cultivation and Basic Laws	2.5	3.0	3.0
HIST 2001	Modern Chinese History	2.5	3.0	3.0
PHIL 2001	Intro. To Fundamental Principles of Marxism	2.5	3.0	3.0
PS 2011	Thoughts and Ideology of Socialism with Chinese Characteristics	4	5.0	5.0
PS 1001	Chinese Social Development Situation and Policies Ⅰ	1	1	1
PS 2001	Chinese Social Development Situation and Policies Ⅱ	1	1	1
ENGL 1001	Integrated English Ⅰ	4	4	3
ENGL 1002	Integrated English Ⅱ	2	2	3
PE 1001	Physical Education Ⅰ	1	1	1
PE 1002	Physical Education Ⅱ	1	1	1
PE 2001	Physical Education Ⅲ	1	1	1
PE 2002	Physical Education Ⅳ	1	1	1
PE 3001	Physical Education Ⅴ			1
PE 3002	Physical Education Ⅵ			1
PE 3011	Physical-fitness Test Ⅰ	0.5	0.5	
PE 4011	Physical-fitness Test Ⅱ	0.5	0.5	

PE 4021	Physical Education Ⅶ--Fitness test and exercise			0.5
MITR 1001	Military Training	2	2	2
MITR 2001	Military Theory	1.5	1.5	2
Total Credit Hours for 2016/17, 2018 and 2019 are:		**28**	**30.5**	**32.5**

International students are required to complete five courses (20 credit hours) in Chinese language study and Chinese society to fulfill the graduate requirement along with the above 128 credit hour courses towards the Bachelor of Engineering Degree at ZJU.

CHIN 1001	Chinese Ⅰ	4.0
CHIN 1002	Chinese Ⅱ	5.0
CHIN 1003	Chinese Ⅲ	4.0
CHIN 1004	Chinese Ⅳ	4.0
CULT 2001	China Survey	3.0
Total Credit Hours		20.0

3.4.8 Sample Schedule by Semester

Semester	No	Course Code	Course Title	Credit Hours
0	*1*	*MITR 1001*	*Military Training*	*2*
1	1	Rhet 101	Principles of Writing	3
1	2	Chem 102	General Chemistry I	3
1	3	Chem 103	General Chemistry Lab I	1
1	4	Math 221	Calculus I	4
1	5	ECE 110	Intro to Electronics	3
1	6	CS 101	Introduction to Computing: Engineering & Science	3
1	7	Eng 100	Engineering Orientation	1
1	*8*	*ENGL 1001*	*Integrated English I*	*4 or 3*
1	*9*	*PE 1001*	*Physical Education I*	*1*
1	*10*	*PS 1001*	*Chinese Social Development Situation and Policies I*	
2	1	Rhet 102	Principles of Research	3
2	2	Math 231	Calculus II	3
2	3	Phys 211	University Physics: Mechanics	4
2	4	ECE 120	Intro to Computing	4
2	5	GenEd 1	GenEd Elective 1	3

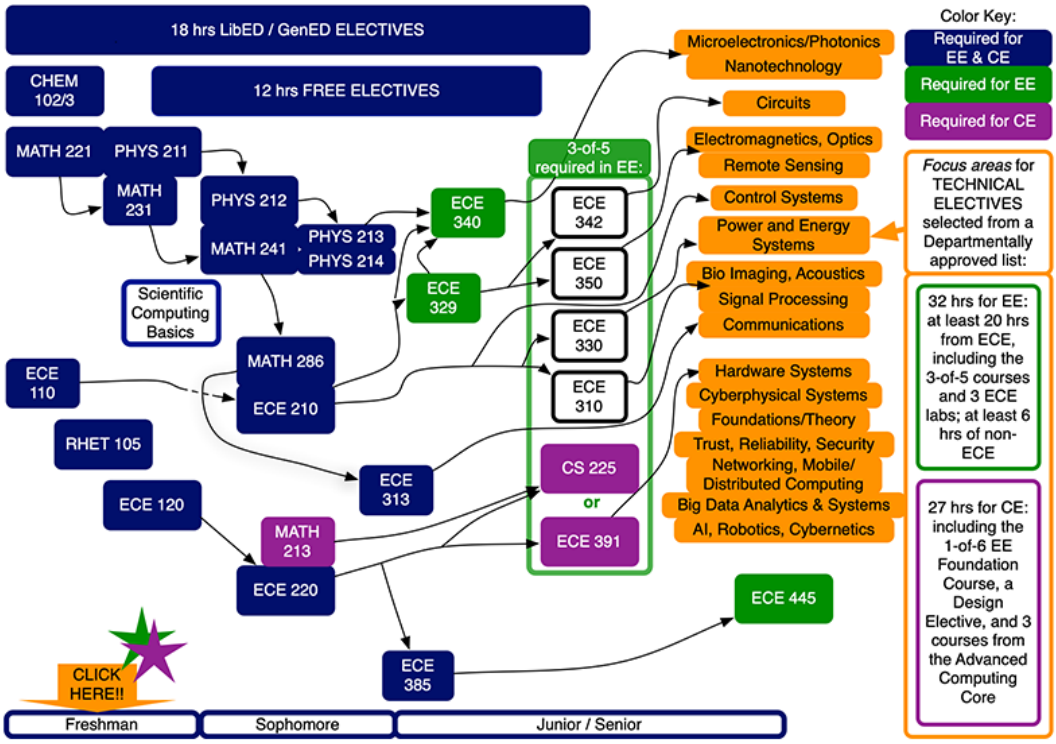
Semester	No	Course Code	Course Title	Credit Hours
2	*6*	*ENGL 1002*	*Integrated English II*	*2 or 3*
2	*7*	*PE 1002*	*Physical Education II*	*1*
2	*8*	*PS 1001*	*Chinese Social Development Situation and Policies I*	*1*
2	*9*	*LAW 1001*	*Character Cultivation and Basic Laws*	*2.5 or 3.0*
3	1	Math 241	Calculus III	4
3	2	Phys 212	University Physics: Elec & Mag	4
3	3	ECE 220	Computer Systems & Programming	4
3	4	*CS 173*	Discrete Structures	3
3	5	GenEd 2	GenEd Elective 2	3
3	*7*	*PE 2001*	*Physical Education Ⅲ*	*1*
3	*8*	*PS 2011*	*Thoughts and Ideology of Socialism with Chinese Characteristics*	*4 or 5*
3	*8*	*MITR 2001*	*Military Theory*	*1.5 or 2*
4	1	Math 286	Intro to Differential Eq Plus	4
4	2	Phys 213	Univ Physics: Thermal Physics	2
4	3	Phys 214	Univ Physics: Quantum Physics	2
4	4	ECE 210	Analog Signal Processing	4
4	5	*CS 225*	Data Structure	4
4	*6*	*PE 2002*	*Physical Education Ⅳ*	*1*
4	*7*	*HIST 2001*	*Modern Chinese History*	*2.5 or 3.0*
4	*8*	*PHIL 2001*	*Intro. To Fundamental Principles of Marxism*	*2.5 or 3.0*
5	1	*ECE 310*	Digital Signal Processing	3
5	2	*ECE 311*	Digital Signal Processing Lab	1
5	3	ECE 329	Fields and Waves Ⅰ	3
5	4	ECE 340	Semiconductor Electronics	3
5	5	*ECE 342*	Electronic Circuits	3
5	6	*ECE 343*	Electronic Circuits Lab	1
5	7	GenEd 3	GenEd Elective 3	3
6	1	ECE 313	Probability with Engrg Applic	3
6	2	*ECE 314*	Probability with Engrg Applic Lab	1
6	3	ECE 385	Digital Systems Laboratory	3
6	4	*ECE 330*	Power Ckts & Electromechanics	3
6	5	*ECE 350*	Fields and Waves II	3
6	6	GenEd 4	US Minority GenEd	3
6	7	PE 3001	Physical-fitness Test Ⅰ	0.5
7	1	ECE 345	Innovation and Engineering Design	3
7	2	EE Lab		4
7	3	EE Elec		3
7	4	Free Elec		3
7	5	GenEd 5	GenEd Elective 5	3

Semester	No	Course Code	Course Title	Credit Hours
7	6	*PS 2001*	Chinese Social Development Situation and Policies Ⅱ	
8	1	*ECE 445*	Senior Design Project Lab	4
8	2	EE Lab		3
	3	Free Elec		3
	4	Free Elec		3
8	5	GenEd 6		3
8	6	*PE 4001*	*Physical-fitness Test Ⅱ*	*1*
8	7	*PS 2001*	*Chinese Social Development Situation and Policies Ⅱ*	*0.5*

CS 173, 225, count as 2 non-ECE courses;
ECE 310, 342, 330, 350, count as 3 of 5 Advanced Core ECE electives;
ECE 311, 314, count as ECE software lab;
ECE 343, count as ECE hardware lab.

4.4.9 Curriculum Flow Map

The following flow map offers a quick summary of the main features of the Electrical Engineering curriculum.



**RHET 105 is substituted by Rhet 101/102*

Figure 2. The structure of the required and electrical engineering core courses

3.5 Mechanical Engineering

3.5.1 Overview

Mechanical engineering may be the most diverse of the engineering fields, embracing many sub-fields and affecting all aspects of our lives. Mechanical engineers work on new machines, products, and processes that hold the promise of better lives for all of us. They are concerned with both technological and economic aspects in the design, development, and use of their products. Today, one of the challenges is to design efficient, low-cost machines and processes that use the fewest possible natural resources to improve the lives of people throughout the world.

The technical portion of the Mechanical Engineering program curriculum is designed as a sequence of increasingly specialized experiences. The student's first year is spent mastering the basics of science: math, chemistry, and physics. Building on this base, in the second year, students begin to take fundamental engineering courses such as statics, dynamics, basic circuits and electronics, thermodynamics, and strength of materials. By the third year, students are taking specialized mechanical engineering courses in the sub-fields of fluid mechanics, heat transfer, dynamic systems and controls, materials, mechanical design, and manufacturing. Finally, during the senior year, students have the opportunity to both broaden and deepen their knowledge of the field through technical elective courses. At the end of the curriculum, students take the capstone senior design course in which the knowledge and skills they have learned are applied to projects submitted to the department by industrial firms or by faculty members. Engineering design, communication, teamwork, and laboratory experiences are integrated throughout the curriculum from the first year to the last year.

During their junior and senior years students are encouraged to take courses and involve themselves in research projects in cross-disciplinary areas with Civil and Environmental Engineering, Electrical Engineering, Computer Engineering, and others.

3.5.2 Graduation Requirement

1) Grade Point Average Requirement

A student must have a grade point average of at least 2.0 (A=4.0) in order to remain in good standing and to graduate.

2) Junior Eligibility Requirement

To qualify for registration for the upper-level (generally 300/400-level) ME or TAM courses, a student must have completed, with a combined 2.25 grade point average, the mathematics, chemistry, physics, computer science, and mechanical engineering courses shown in the first two years.

3) Curriculum Requirement

The curriculum leading to the degree of Bachelor of Science in Mechanical Engineering from UIUC requires 128 hours and is organized into required courses; electives; liberal education; and other electives.

vi. Required courses (88 hours), see section 4.5.3 for detail.
   a) Orientation and Professional Development (1 hour)
   b) Foundational Mathematics and Science (29 hours)
   c) Mechanical Engineering Technical Core (52 hours)
   d) Composition (6 hours)

vii. Electives (19 hours), see section 4.5.4 for detail.

viii. Liberal Education (18 hours), see section 4.5.5 for detail.

ix. Free Electives (3 hours), see section 4.5.6 for detail.

In addition to the 128 hours requirement set out above, the curriculum leading to the degree of Bachelor of Engineering from ZJU requires students to complete extra ZJU required liberal education courses (varying from 28 to 32.5 hours depending on enrollment year) for domestic students and five courses (20 hours) in Chinese language and society study for international students. Please see section 4.5.7 for detail.

3.5.3 Required Courses (Credit: 88 hours)

Orientation and Professional Development (Credit: 1 hour)

These courses introduce the opportunities and resources our institute and curriculum can offer you as you work to achieve your career goals. They also provide the skills to work effectively and successfully in the engineering profession.

ENG 100	Engineering Orientation	1
ME 290	Seminar	0

Foundational Mathematics and Science (Credits: 29 hours)

These courses stress the basic mathematical and scientific principles upon which the engineering discipline is based.

CHEM 102	General Chemistry I	3
CHEM 103	General Chemistry Lab I	1

MATH 221	Calculus I	4
MATH 231	Calculus II	3
MATH 241	Calculus III	4
MATH 285*	Intro Differential Equations	3
MATH 415	Applied Linear Algebra	3
PHYS 211	University Physics: Mechanics	4
PHYS 212	University Physics: Elec & Mag	4

**Math 285 can be substituted by Math 286 (Introduction to Differential Equation Plus, 4 hours).*

Mechanical Engineering Technical Core (Credits: 52 hours)

These courses stress fundamental concepts and basic laboratory techniques that comprise the common intellectual understanding of mechanical engineering.

CS 101	Intro Computing: Engineering & Science	3
ECE 205*	Electrical and Electronic Circuits	3
ECE 206	Electrical and Electronic Circuits Lab	1
TAM 210	Introduction to Statics	2
TAM 212	Introductory Dynamics	3
TAM 251	Introductory Solid Mechanics	3
ME 170	Computer-Aided Design	3
ME 270	Design for Manufacturability	3
ME 200	Thermodynamics	3
ME 310	Fundamentals of Fluid Dynamics	4
ME 320	Heat Transfer	4
ME 330	Engineering Materials	4
ME 340	Dynamics of Mechanical Systems	3.5
ME 360	Signal Processing	3.5
ME 370	Mechanical Design I	3
ME 371	Mechanical Design II	3
ME 470	Senior Design Project	3

**ECE 205 can be substituted by ECE 210 (Analog Signal Processing, 4 hours)*.

Composition (Credit: 6 hours)

These courses teach the fundamentals of expository writing.

RHET 101	Principles of Writing	3
RHET 102	Principles of Research	3

3.5.4 Electives (Credits: 19 hours)

The science electives augment the foundational science courses in an area of interest to the student and provide preparation for later courses. The science, statistics, and MechSE electives, and additional technical courses, stress the rigorous analysis, design, and statistics principles practiced in mechanical engineering.

Science Electives (4 hours)

Chosen from Chem 104 and Chem 105, or Phys 213 and Phys 214.

CHEM 104	General Chemistry II	3
CHEM 105	and General Chemistry Lab II	1
PHYS 213	Univ Physics: Thermal Physics	2
PHYS 214	and Univ Physics: Quantum Physics	2

Statistic Electives (3 hours))

One course chosen from:

IE 300	Analysis of Data	3
STAT 400	Statistics and Probability I	3
ECE 313	Probability with Engineering Application	3

MechSE Electives (6 hours)
MechSE electives chosen from the list below:

MSE 304	Electronic Properties of Matls	3
MSE 307	Materials Laboratory I	3
MSE 308	Materials Laboratory II	3
MSE 401	Thermodynamics of Materials	3
MSE 402	Kinetic Processes in Materials	3
MSE 403	Synthesis of Materials	3
MSE 405	Microstructure Determination	3
MSE 406	Thermal-Mech Behavior of Matls	3
MSE 420	Ceramic Materials & Properties	3

MSE 421	Ceramic Processing	3 or 4
MSE 422	Electrical Ceramics	3
MSE 423	Ceramic Processing Laboratory	3
MSE 440	Mechanical Behavior of Metals	3
MSE 441	Metals Processing	3
MSE 442	Metals Laboratory	3
MSE 443	Design of Engineering Alloys	3
MSE 445	Corrosion of Metals	3 or 4
MSE 450	Polymer Science & Engineering	3 or 4
MSE 452	Polymer Laboratory	3
MSE 453	Plastics Engineering	3
MSE 454	Mechanics of Polymers	3
MSE 455	Macromolecular Solids	3
MSE 456	Mechanics of Composites	3
MSE 457	Polymer Chemistry	3 or 4
MSE 458	Polymer Physics	3 or 4
MSE 460	Electronic Materials I	3
MSE 461	Electronic Materials II	3
MSE 462	Electronic Materials Lab	3
MSE 466	Materials in Electrochem Syst	3
MSE 470	Design and Use of Biomaterials	3
MSE 472	Biomaterials Laboratory	3
MSE 473	Biomolecular Materials Science	3
MSE 474	Biomaterials and Nanomedicine	3
MSE 480	Surfaces and Colloids	3 or 4
MSE 481	Electron Microscopy	3 or 4
MSE 484	Composite Materials	3 or 4
MSE 485	Atomic Scale Simulations	3 or 4
MSE 487	Materials for Nanotechnology	3 or 4
MSE 488	Optical Materials	3 or 4
MSE 489	Matl Select for Sustainability	3 or 4
MSE 497	Independent Study	1 to 4
MSE 498	Special Topics	1 to 4
TAM 413	Fund of Engrg Acoustics	3 or 4
TAM 424	Mechanics of Structural Metals	3 or 4
TAM 428	Mechanics of Composites	3
TAM 435	Intermediate Fluid Mechanics	4
TAM 451	Intermediate Solid Mechanics	4

TAM 461	Cellular Biomechanics	4
TAM 470	Computational Mechanics	3 or 4

Technical Electives (6 hours)

Students can choose technical electives from the list *"MechSE Electives"* above, and are also encouraged to build up their cross-disciplinary study by taking non-MechSE technical courses shown below from Civil Engineering, Electrical and Computer Engineering, Computer Science, and others at ZJUI or during exchange at UIUC.

CEE 310	Transportation Engineering	3
CEE 330	Environmental Engineering	3
CEE 340	Energy and Global Environment	3
CEE 350	Water Resources Engineering	3
CEE 360	Structural Engineering	3
CEE 380	Geotechnical Engineering	3
CEE 398	Special Topics (No more than 3 hours of individual study courses may be used to satisfy the MechSE electives requirement. Additional hours may be used as Free Electives.)	0 to 4
CEE 401	Concrete Materials	4
CEE 405	Asphalt Materials I	3 or 4
CEE 406	Pavement Design I	3 or 4
CEE 407	Airport Design	3 or 4
CEE 408	Railroad Transportation Engrg	3 or 4
CEE 409	Railroad Track Engineering	3 or 4
CEE 410	Railway Signaling & Control	3 or 4
CEE 411	RR Project Design & Constr	3 or 4
CEE 412	High-Speed Rail Engineering	3 or 4
CEE 415	Geometric Design of Roads	4
CEE 416	Traffic Capacity Analysis	3 or 4
CEE 417	Urban Transportation Planning	4
CEE 418	Public Transportation Systems	3 or 4
CEE 420	Construction Productivity	3 or 4
CEE 421	Construction Planning	3 or 4
CEE 422	Construction Cost Analysis	3 or 4
CEE 424	Sustainable Const Methods	4
CEE 430	Ecological Quality Engineering	2
CEE 434	Environmental Systems I	3

CEE 437	Water Quality Engineering	3
CEE 438	Science & Environmental Policy	3
CEE 440	Fate Cleanup Environ Pollutant	4
CEE 442	Environmental Engineering Principles, Physical	4
CEE 443	Env Eng Principles, Chemical	4
CEE 444	Env Eng Principles, Biological	4
CEE 445	Air Quality Modeling	4
CEE 446	Air Quality Engineering	4
CEE 447	Atmospheric Chemistry	4
CEE 449	Environmental Engineering Lab	3
CEE 450	Surface Hydrology	3
CEE 451	Environmental Fluid Mechanics	3
CEE 452	Hydraulic Analysis and Design	3
CEE 453	Urban Hydrology and Hydraulics	4
CEE 457	Groundwater	3
CEE 458	Water Resources Field Methods	4
CEE 460	Steel Structures I	3
CEE 461	Reinforced Concrete I	3
CEE 462	Steel Structures II	3 or 4
CEE 463	Reinforced Concrete II	3 or 4
CEE 465	Design of Structural Systems	3
CEE 467	Masonry Structures	3 or 4
CEE 468	Prestressed Concrete	3 or 4
CEE 469	Wood Structures	3 or 4
CEE 470	Structural Analysis	4
CEE 471	Structural Mechanics	3 or 4
CEE 472	Structural Dynamics I	3 or 4
CEE 480	Foundation Engineering	3
CEE 483	Soil Mechanics and Behavior	4
CEE 484	Applied Soil Mechanics	4
CEE 491	Decision and Risk Analysis	3 or 4
CEE 497	Independent Study	1 to 16
CEE 498	Special Topics	1 to 4
CS 225	Data Structures	4
CS 233	Computer Architecture	4
CS 241	System Programming	4
CS 242	Programming Studio	3
CS 357	Numerical Methods I	3

CS 374	Introduction to Algorithms & Models of Computation	4
CS 410	Text Information Systems	3 or 4
CS 411	Database Systems	3 or 4
CS 412	Introduction to Data Mining	3 or 4
CS 413	Intro to Combinatorics	3 or 4
CS 414	Multimedia Systems	3 or 4
CS 418	Interactive Computer Graphics	3 or 4
CS 419	Production Computer Graphics	3 or 4
CS 420	Parallel Progrmg: Sci & Engrg	3 or 4
CS 421	Programming Languages & Compilers	3 or 4
CS 422	Programming Language Design	3 or 4
CS 423	Operating Systems Design	3 or 4
CS 424	Real-Time Systems	3 or 4
CS 425	Distributed Systems	3 or 4
CS 426	Compiler Construction	3 or 4
CS 427	Software Engineering I	3 or 4
CS 428	Software Engineering II	3 or 4
CS 429	Software Engineering II, ACP	3
CS 431	Embedded Systems	3 or 4
CS 433	Computer System Organization	3 or 4
CS 436	Computer Networking Laboratory	3 or 4
CS 438	Communication Networks	3 or 4
CS 439	Wireless Networks	3 or 4
CS 440	Artificial Intelligence	3 or 4
CS 445	Computational Photography	3 or 4
CS 446	Machine Learning	3 or 4
CS 447	Natural Language Processing	3 or 4
CS 450	Numerical Analysis	3 or 4
CS 457	Numerical Methods II	3
CS 460	Security Laboratory	3 or 4
CS 461	Computer Security I	4
CS 463	Computer Security II	3 or 4
CS 465	User Interface Design	3 or 4
CS 466	Introduction to Bioinformatics	3 or 4
CS 467	Social Visualization	3 or 4
CS 468	Tech and Advertising Campaigns	3
CS 473	Algorithms	4
CS 475	Formal Models of Computation	3 or 4

CS 476	Program Verification	3 or 4
CS 477	Formal Software Devel Methods	3 or 4
CS 481	Advanced Topics in Stochastic Processes & Applications	3 or 4
CS 483	Applied Parallel Programming	4
CS 484	Parallel Programming	3 or 4
CS 498	Special Topics	1 to 4
ECE 329	Fields and Waves I	3
ECE 330	Power Ckts & Electromechanics	3
ECE 333	Green Electric Energy	3
ECE 340	Semiconductor Electronics	3
ECE 342	Electronic Circuits	3
ECE 343	Electronic Circuits Laboratory	1
ECE 380	Biomedical Imaging	3
ECE 385	Digital Systems Laboratory	3
ECE 395	Advanced Digital Projects Lab	2 or 3
ECE 401	Signal and Image Analysis	4
ECE 402	Electronic Music Synthesis	3
ECE 403	Audio Engineering	3
ECE 408	Applied Parallel Programming	4
ECE 411	Computer Organization & Design	4
ECE 412	Microcomputer Laboratory	3
ECE 414	Biomedical Instrumentation	3
ECE 415	Biomedical Instrumentation Lab	2
ECE 416	Biosensors	3
ECE 417	Multimedia Signal Processing	4
ECE 418	Image & Video Processing	4
ECE 419	Security Laboratory	3 or 4
ECE 420	Embedded DSP Laboratory	2
ECE 422	Computer Security I	4
ECE 424	Computer Security II	3 or 4
ECE 425	Intro to VLSI System Design	3
ECE 428	Distributed Systems	3 or 4
ECE 431	Electric Machinery	4
ECE 432	Advanced Electric Machinery	3
ECE 435	Computer Networking Laboratory	3 or 4
ECE 437	Sensors and Instrumentation	3
ECE 438	Communication Networks	3 or 4

ECE 439	Wireless Networks	3 or 4
ECE 441	Physcs & Modeling Semicond Dev	3
ECE 444	IC Device Theory & Fabrication	4
ECE 447	Active Microwave Ckt Design	3
ECE 448	Artificial Intelligence	3 or 4
ECE 451	Adv Microwave Measurements	3
ECE 452	Electromagnetic Fields	3
ECE 453	Wireless Communication Systems	4
ECE 454	Antennas	3
ECE 455	Optical Electronics	3 or 4
ECE 456	Global Nav Satellite Systems	4
ECE 457	Microwave Devices & Circuits	3
ECE 458	Applic of Radio Wave Propag	3
ECE 459	Communications Systems	3
ECE 460	Optical Imaging	4
ECE 462	Logic Synthesis	3
ECE 463	Digital Communications Lab	2
ECE 464	Power Electronics	3
ECE 465	Optical Communications Systems	3
ECE 466	Optical Communications Lab	1
ECE 468	Optical Remote Sensing	3
ECE 469	Power Electronics Laboratory	2
ECE 470	Introduction to Robotics	4
ECE 472	Biomedical Ultrasound Imaging	3
ECE 473	Fund of Engrg Acoustics	3 or 4
ECE 476	Power System Analysis	3
ECE 478	Formal Software Devel Methods	3 or 4
ECE 480	Magnetic Resonance Imaging	3 or 4
ECE 481	Nanotechnology	4
ECE 482	Digital IC Design	3
ECE 483	Analog IC Design	3
ECE 485	MEMS Devices & Systems	3
ECE 486	Control Systems	4
ECE 487	Intro Quantum Electr for EEs	3
ECE 488	Compound Semicond & Devices	3
ECE 489	Robot Dynamics and Control	4
ECE 490	Introduction to Optimization	3 or 4
ECE 491	Numerical Analysis	3 or 4

ECE 492	Parallel Progrmg: Sci & Engrg	3 or 4
ECE 493	Advanced Engineering Math	3 or 4
ECE 495	Photonic Device Laboratory	3
ECE 498	Special Topics in ECE	0 to 4

3.5.5 Liberal Education (Credit: 18 hours)

The liberal education courses develop students' understanding of human culture and society, build skills of inquiry and critical thinking, and lay a foundation for civic engagement and lifelong learning. These include the General Education (GenEd) requirements in the humanities, social sciences, and cultural studies. To satisfy the General Education requirements, students must take all courses for grade and complete a minimum of six courses.

4) **Humanities & Arts** (Six hours, two courses).
5) **Social & Behavioral Sciences** (Six hours, two courses). ECON 102 (Microeconomic Principles) or ECON 103 (Macroeconomic Principles) must be one of the social & behavioral sciences courses.
6) **Culture Studies**

Students entering September 2017 or earlier must complete:

One course in **Western/Comparative Culture(s)**.

One course in **Non-Western or U.S. Minority Culture(s)**.

Students entering September 2018 or later must complete:

One course in **Western/Comparative Culture(s)**.

One course in **Non-Western Culture(s)**.

One course in **U.S. Minority Culture(s)**.

3.4.6 Free Electives (Credit: 3 hours)

These unrestricted electives give the student the opportunity to explore any intellectual area of unique interest. This freedom plays a critical role in helping students to define research specialties or to complete minors. Students are encouraged to take cross-discipline courses as free electives.

3.5.7 ZJU Required Liberal Education (Credit: 28-32.5 hours)

These courses introduce Chinese modern history, social development, government policies, etc., help students to improve their English and maintain a healthy lifestyle.

Domestic students must complete all courses below, which can be taught in Chinese, to fulfill the graduate requirement along with the above 128 credit hour courses towards the Bachelor of Engineering Degree at ZJU.

Course Code	Course Name	2016-17	2018	2019
LAW 1001	Character Cultivation and Basic Laws	2.5	3.0	3.0
HIST 2001	Modern Chinese History	2.5	3.0	3.0
PHIL 2001	Intro. To Fundamental Principles of Marxism	2.5	3.0	3.0
PS 2011	Thoughts and Ideology of Socialism with Chinese Characteristics	4	5.0	5.0
PS 1001	Chinese Social Development Situation and Policies Ⅰ	1	1	1
PS 2001	Chinese Social Development Situation and Policies Ⅱ	1	1	1
ENGL 1001	Integrated English Ⅰ	4	4	3
ENGL 1002	Integrated English Ⅱ	2	2	3
PE 1001	Physical Education Ⅰ	1	1	1
PE 1002	Physical Education Ⅱ	1	1	1
PE 2001	Physical Education Ⅲ	1	1	1
PE 2002	Physical Education Ⅳ	1	1	1
PE 3001	Physical Education Ⅴ			1
PE 3002	Physical Education Ⅵ			1
PE 3011	Physical-fitness Test Ⅰ	0.5	0.5	
PE 4011	Physical-fitness Test Ⅱ	0.5	0.5	
PE 4021	Physical Education Ⅶ--Fitness test and exercise			0.5

MITR 1001	Military Training	2	2	2
MITR 2001	Military Theory	1.5	1.5	2
Total Credit Hours for 2016/17, 2018 and 2019 are:		**28**	**30.5**	**32.5**

International students are required to complete five courses (20 credit hours) in Chinese language study and Chinese society to fulfill the graduate requirement along with the above 128 credit hour courses towards the Bachelor of Engineering Degree at ZJU.

CHIN 1001	Chinese Ⅰ	4.0
CHIN 1002	Chinese Ⅱ	5.0
CHIN 1003	Chinese Ⅲ	4.0
CHIN 1004	Chinese Ⅳ	4.0
CULT 2001	China Survey	3.0
Total Credit Hours		20.0

3.5.8 Sample Schedule by Semester

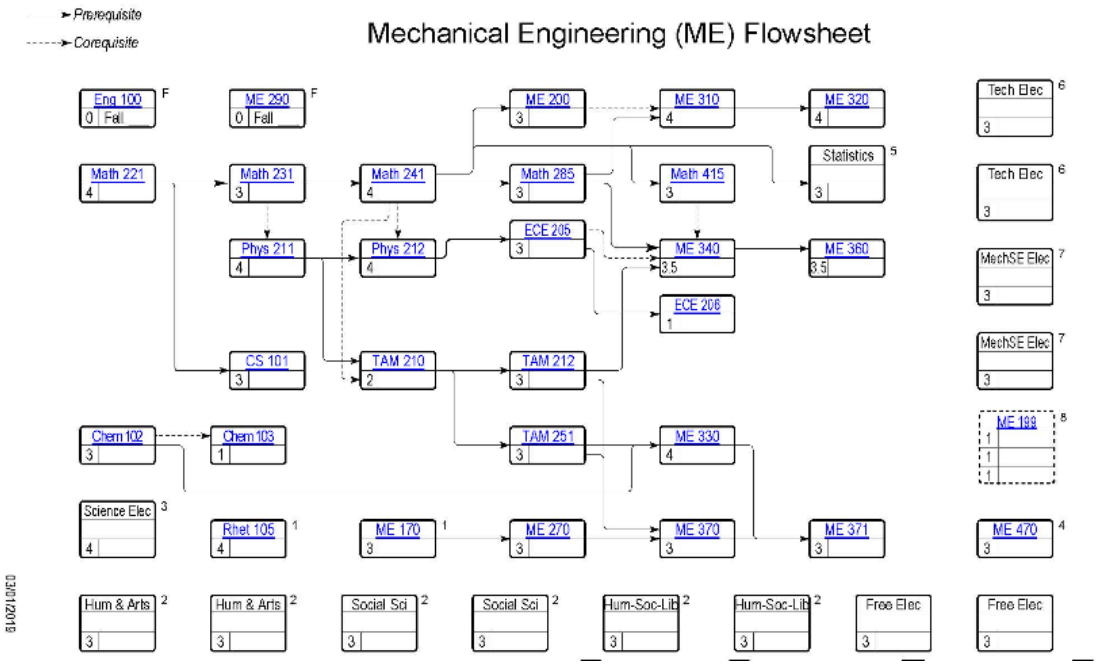
Semester	No	Course Code	Course Title	Credit Hours
0	1	*MITR 1001*	*Military Training*	*2*
1	1	Rhet 101	Principles of Writing	3
1	2	Chem 102	General Chemistry I	3
1	3	Chem 103	General Chemistry Lab I	1
1	4	Math 221	Calculus I	4
1	5	ECE 110	Intro to Electronics	3
1	6	CS 101	Introduction to Computing: Engineering & Science	3
1	7	Eng 100	Engineering Orientation	1
1	8	*ENGL 1001*	*Integrated English I*	*4 or 3*
1	9	*PE 1001*	*Physical Education I*	*1*
1	10	*PS 1001*	*Chinese Social Development Situation and Policies I*	
2	1	Rhet 102	Principles of Research	3
2	2	Math 231	Calculus II	3
2	3	Phys 211	University Physics: Mechanics	4
2	4	ME 170	Computer-Aided Design	3
2	5	SCI ELEC	CHEM 104/105	4
3	6	ME 290	Seminar	
2	7	*ENGL 1002*	*Integrated English II*	*2 or 3*
2	8	*PE 1002*	*Physical Education II*	*1*

Semester	No	Course Code	Course Title	Credit Hours
2	9	*PS 1001*	*Chinese Social Development Situation and Policies I*	*1*
3	10	*LAW 1001*	*Character Cultivation and Basic Laws*	*2.5 or 3*
3	1	Math 241	Calculus III	4
3	2	Phys 212	University Physics: Elec& Mag	4
3	3	TAM 211	Statics	3
3	4	ME 270	Design for Manufacturability	3
3	5	GenEd 1	ECON 101 or 102 or 103	3
3	6	*PE 2001*	Physical Education III	1
3	7	*PS 2011*	*Thoughts and Ideology of Socialism with Chinese Characteristics*	*4 or 5*
3	8	*MITR 2001*	*Military Theory*	*1.5 or 2*
4	1	Math 286	Intro to Differential Eq Plus	4
4	2	TAM 212	Introductory Dynamics	3
4	3	TAM 251	Introductory Solid Mechanics	3
4	4	ME 200	Thermodynamics	3
4	5	GenEd 2	GenEd Elective 2	3
4	6	*PE 2002*	*Physical Education IV*	*1*
4	7	*HIST 2001*	*Modern Chinese History*	*2.5 or 3*
4	8	*PHIL 2001*	*Intro. To Fundamental Principles of Marxism*	*2.5 or 3*
5	1	MATH 415	Applied Linear Algebra	3
5	2	ME 340	Dynamics of Mechanical Systems	3.5
5	3	ME 370	Mechanical Design I	3
5	4	ECE 210/211	Analog Signal Processing	4 or 2
5	5	GenEd 3	GenEd Elective 3	3
6	1	ME 310	Fundamentals of Fluid Dynamics	4
6	2	ME 330	Engineering Materials	4
6	3	ME 360	Signal Processing	3.5
6	4	ECE 206	Elec & Electronic Circuits Lab	1
6	5	GenEd 4	US minority GenEd	3
6	6	*PE 3001*	*Physical-fitness Test I*	*0.5*
7	1	ME 320	Heat Transfer	4
7	2	ME 371	Mechanical Design II	3
7	3	ME STAT ELEC	ECE 313	3
7	4	ME TECH 1	MechSE Elective 1	3
7	5	GenEd 5	GenEd Elective 5	3
7	6	*PS 2001*	*Chinese Social Development Situation and Policies II*	
8	1	ME 470	Senior Design Project	3
8	2	TECH ELEC 1	Technical Elective 1	3
8	3	ME TECH 2	MechSE Elective 2	3

Semester	No	Course Code	Course Title	Credit Hours
	4	TECH ELEC 2	Technical Elective 2	3
8	5	GenEd 6	GenEd Elective 6	3
8	6	*PE 4001*	*Physical-fitness Test Ⅱ*	*1*
8	7	*PS 2001*	*Chinese Social Development Situation and Policies Ⅱ*	*0.5*

3.5.9 Curriculum Flow Map

The flowsheets below are a semester-by-semester visual outline of the courses required within the Mechanical Engineering curriculum. The flowsheets are provided to enable students and advisors to visualize pre-, co-, and post requisites associated with specific courses within the curriculum. This is a tool to enable you to understand how courses are connected throughout our curriculum and to provide guidance regarding course registration and scheduling.



**RHET 105 is substituted by Rhet 101/102*

Figure 3. The structure of the required and mechanical engineering core courses

3.6 Computer Engineering

3.6.1 Overview

Computer engineering focuses on the development of vital computing technologies, ranging from chips to computers to networks to programming tools to key algorithms

for building exciting applications. Fundamentally, computer engineering addresses the problem of building scalable, trustworthy computing systems, and the faculty's interests span a broad spectrum of issues pertinent to this theme. Computer engineering has taken the lead in revolutionizing many science and engineering disciplines with parallel computing, from chips to clouds to planet-scale critical infrastructures, and has defined new standards of security, privacy, and dependability for systems ranging from small circuits to the electric power grids of many nations. Students need a broad and sound set of mathematical and computing skills, and are well-served by a flexible curriculum that enables them to pursue topics of interest among the many sub-disciplines in computing.

The Computer Engineering program core curriculum focuses on fundamental computer engineering knowledge: circuits, systems, electromagnetics, computer systems, electronics for information processing and communication, and computer science. The rich set of ECE elective courses permits students to concentrate on any sub-discipline of computer engineering, including: hardware systems; cyber physical systems; foundations and theory; software and languages; algorithms and mathematical tools; trust, reliability, security; networking, mobile and distributed computing; big data analytics and systems; artificial intelligence, robotics, cybernetics.

During their junior and senior years students are encouraged to take courses and involve themselves in research projects in cross-disciplinary areas with Civil and Environmental Engineering, Mechanical Engineering, Electrical Engineering, and others.

3.6.2 Graduation Requirement

1) Grade Point Average Requirement

A student must have a grade point average of at least 2.0 (A=4.0) in order to remain in good standing and to graduate.

2) Junior Eligibility Requirement

To qualify for registration for the ECE courses shown in the third year of the curriculum, a student must have completed, with a combined 2.25 grade point average, the mathematics, physics, computer science, and electrical and computer engineering courses shown in the first two years.

4) Curriculum Requirement

The curriculum leading to the degree of Bachelor of Science in Computer Engineering from UIUC requires 128 hours and is organized into required courses; technical electives; liberal education; and other electives.

i. Required courses (74 hours), see section 4.6.3 for detail.
   a) Orientation and Professional Development (1 hour)
   b) Foundational Mathematics and Science (31 hours)
   c) Computer Engineering Technical Core (36 hours)

d) Composition (6 hours)

ii. Technical Electives (27 hours), see section 4.6.4 for detail.

iii. Liberal Education (18 hours), see section 4.6.5 for detail.

iv. Free Electives (9 hours), see section 4.6.6 for detail.

In addition to the 128 hours requirement set out above, the curriculum leading to the degree of Bachelor of Engineering from ZJU requires students to complete extra ZJU required liberal education courses (varying from 28 to 32.5 hours depending on the year of enrollment) for domestic students and five courses (20 hours) in Chinese language and society study for international students. Please see section 4.6.7 for detail.

3.6.3 Required Courses (Credit: 74 hours)

Orientation and Professional Development (Credit: 1 hour)

These courses introduce the opportunities and resources our institute and curriculum can offer you as you work to achieve your career goals. They also provide the skills to work effectively and successfully in the engineering profession.

ENG 100	Engineering Orientation	**1**

Foundational Mathematics and Science (Credit: 31 hours)

These courses stress the basic mathematical and scientific principles upon which the engineering discipline is based.

MATH 221	Calculus Ⅰ	4
MATH 231	Calculus Ⅱ	3
MATH 241	Calculus Ⅲ	4
MATH 286	Intro to Differential Eq Plus	4
CHEM 102	General Chemistry Ⅰ	3
CHEM 103	General Chemistry Lab Ⅰ	1
PHYS 211	University Physics: Mechanics	4
PHYS 212	University Physics: Elec & Mag	4
PHYS 213	Univ Physics: Thermal Physics	2
PHYS 214	Univ Physics: Quantum Physics	2

Computer Engineering Technical Core (Credit: 36 hours)

These courses stress fundamental concepts and basic laboratory techniques that comprise the common intellectual understanding of computer engineering.

ECE 110	Introduction to Electronics	3
ECE 120	Introduction to Computing	4
ECE 210	Analog Signal Processing	4
ECE 220	Computer Systems & Programming	4
CS 173*	Discrete Structures	3
CS 225	Data Structures	4
ECE 313	Probability with Engineering Application	3
ECE 374	Introduction to Algorithms & Models of Computation	4
ECE 385	Digital Systems Laboratory	3
ECE 391	Computer Systems Engineering	4

**CS 173 can be substituted by Math 213 (Basic Discrete Mathematics, 3 hours).*

Composition (Credit: 6 hours)

These courses teach the fundamentals of expository writing.

RHET 101	Principles of Writing	3
RHET 102	Principles of Research	3

3.6.4 Technical Electives (Credit: 27 hours)

These courses stress cross-disciplinary study, the rigorous analysis and design principles practiced in the major sub-disciplines of computer engineering, for example cyber physical systems; foundations and theory; software and languages; algorithms and mathematical tools; trust, reliability, security; networking, mobile and distributed computing; big data analytics and systems; artificial intelligence, robotics, cybernetics, etc.

Students must complete a minimum of 27 hours technical electives, which include at least

1) 1 course chosen from the list of EE Foundations Courses (see section *"EE Foundation Courses"* for detail)
2) 3 courses chosen from the list of Advanced Computing Electives (see section *"Advanced Computing Electives"* for detail)
3) one of
   - ECE 411 - Comp Organization & Design
   - ECE 445 - Senior Design Project Lab
   - ECE 496 - Senior Research Project AND ECE 499 - Senior Thesis
4) Others (see section *"Other Electives"* for detail)

EE Foundation Courses

6 EE Foundation Courses: 310, 329, 330, 340, 461, 486

ECE 310	Digital Signal Processing	3

ECE 330	Power Ckts & Electromechanics	3
ECE 329	Fields and Waves I	3
ECE 340	Semiconductor Electronics	3
ECE 461	Digital Communications	3
ECE 486	Control Systems	4

Advanced Computing Electives

CS 357	Numerical Methods I	3
CS 411	Database Systems	3 or 4
CS 412	Introduction to Data Mining	3 or 4
CS 414	Multimedia Systems	3 or 4
CS 418	Interactive Computer Graphics	3 or 4
CS 419	Production Computer Graphics	3 or 4
CS 420	Parallel Progrmg: Sci & Engrg	3 or 4
CS 421	Programming Languages & Compilers	3 or 4
CS 423	Operating Systems Design	3 or 4
CS 424	Real-Time Systems	3 or 4
CS 425	Distributed Systems	3 or 4
CS 426	Compiler Construction	3 or 4
CS 431	Embedded Systems	3 or 4
CS 436	Computer Networking Laboratory	3 or 4
CS 438	Communication Networks	3 or 4
CS 440	Artificial Intelligence	3 or 4
CS 446	Machine Learning	3 or 4
CS 450	Numerical Analysis	3 or 4
CS 461	Computer Security I	4
CS 475	Formal Models of Computation	3 or 4
CS 476	Program Verification	3 or 4
CS 477	Formal Software Devel Methods	3 or 4
CS 483	Applied Parallel Programming	4
CS 498	Special Topics (MP: Logic for Computer Science)	1 to 4
CS 498	Special Topics (VR: Virtual Reality)	1 to 4
CS 498	Special Topics (AML: Applied Machine Learning)	1 to 4
ECE 408	Applied Parallel Programming	4
ECE 411	Computer Organization & Design	4
ECE 412	Microcomputer Laboratory	3
ECE 419	Security Laboratory	3 or 4

ECE 422	Computer Security I	4
ECE 424	Computer Security II	3 or 4
ECE 425	Intro to VLSI System Design	3
ECE 428	Distributed Systems	3 or 4
ECE 435	Computer Networking Laboratory	3 or 4
ECE 438	Communication Networks	3 or 4
ECE 439	Wireless Networks	3 or 4
ECE 448	Artificial Intelligence	3 or 4
ECE 462	Logic Synthesis	3
ECE 470	Introduction to Robotics	4
ECE 478	Formal Software Devel Methods	3 or 4
ECE 491	Numerical Analysis	3 or 4
ECE 492	Parallel Progrmg: Sci & Engrg	3 or 4
ECE 498	Special Topics in ECE (RC: Smart Phone Computing and Applications)	0 to 4

Other Electives

Students are encouraged to build up their cross-discipline study by taking non-ECE technical courses from Civil Engineering, Mechanical Engineering, Computer Science, and others at ZJUI or during exchange at UIUC.

Civil & Env. Eng. (CEE): 310, 330, 408, 410, 416, 430, 447, 491

CEE 310	Transportation Engineering	3
CEE 330	Environmental Engineering	3
CEE 408	Railroad Transportation Engineering	3 or 4
CEE 410	Railway Signaling & Control	3 or 4
CEE 416	Traffic Capacity Analysis	3 or 4
CEE 430	Ecological Quality Engineering	2
CEE 447	Atmospheric Chemistry	4
CEE 491	Decision and Risk Analysis	3 or 4

Mechanical Eng. (ME): 200, 310, 320, 330, 340, 370, 371, 400, 401, 402, 403, 404, 410, 411, 412, 420, 430, 431, 440, 445, 450, 451, 452, 460, 461, 471, 472, 485, and 487

ME 200	Thermodynamics	3
ME 310	Fundamentals of Fluid Dynamics	4
ME 320	Heat Transfer	4
ME 330	Engineering Materials	4
ME 340	Dynamics of Mechanical Systems	3.5

ME 370	Mechanical Design I	3
ME 371	Mechanical Design II	3
ME 400	Energy Conversion Systems	3 or 4
ME 401	Refrigeration and Cryogenics	3 or 4
ME 402	Design of Thermal Systems	3 or 4
ME 403	Internal Combustion Engines	3 or 4
ME 404	Intermediate Thermodynamics	4
ME 410	Intermediate Gas Dynamics	3 or 4
ME 411	Viscous Flow & Heat Transfer	4
ME 412	Numerical Thermo-Fluid Mechs	2 to 4
ME 420	Intermediate Heat Transfer	4
ME 430	Failure of Engrg Materials	3 or 4
ME 431	Mechanical Component Failure	3 or 4
ME 440	Kinem & Dynamics of Mech Syst	3 or 4
ME 445	Introduction to Robotics	4
ME 450	Modeling Materials Processing	3
ME 451	Computer-Aided Mfg Systems	3 or 4
ME 452	Num Control of Mfg Processes	3 or 4
ME 460	Industrial Control Systems	4
ME 461	Computer Cntrl of Mech Systems	3 or 4
ME 471	Finite Element Analysis	3 or 4
ME 472	Introduction to Tribology	3 or 4
ME 485	MEMS Devices & Systems	3
ME 487	MEMS-NEMS Theory & Fabrication	4

Theoretical & Applied Mechanics (TAM): 211, 212, 251, 324, 335, 412, 435, 445, 451

TAM 211	Statics	3
TAM 212	Introductory Dynamics	3
TAM 251	Introductory Solid Mechanics	3
TAM 324	Behavior of Materials	4
TAM 335	Introductory Fluid Mechanics	4
TAM 412	Intermediate Dynamics	4
TAM 435	Intermediate Fluid Mechanics	4
TAM 445	Continuum Mechanics	4
TAM 451	Intermediate Solid Mechanics	4

Computer Science (CS): (101, by approval), 173**, 225**, 242, 357, 410, 411, 412, 413, 414, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 431, 433, 436, 438, 439 ,440, 445,

446, 447, 450, 460, 461, 463, 465, 466, 467, 473, 475, 476; 477, 481, 484; CS 398 & 498 Special Topics, as approved.

*** Elective for EEs, required for CompEs*

**** Elective for CompEs*

CS 173	Discrete Structures	3
CS 225	Data Structures	4
CS 242	Programming Studio	3
CS 357	Numerical Methods I	3
CS 410	Text Information Systems	3 or 4
CS 411	Database Systems	3 or 4
CS 412	Introduction to Data Mining	3 or 4
CS 413	Intro to Combinatorics	3 or 4
CS 414	Multimedia Systems	3 or 4
CS 418	Interactive Computer Graphics	3 or 4
CS 419	Production Computer Graphics	3 or 4
CS 420	Parallel Progrmg: Sci & Engrg	3 or 4
CS 421	Programming Languages & Compilers	3 or 4
CS 422	Programming Language Design	3 or 4
CS 423	Operating Systems Design	3 or 4
CS 424	Real-Time Systems	3 or 4
CS 425	Distributed Systems	3 or 4
CS 426	Compiler Construction	3 or 4
CS 427	Software Engineering I	3 or 4
CS 428	Software Engineering II	3 or 4
CS 429	Software Engineering II, ACP	3
CS 431	Embedded Systems	3 or 4
CS 433	Computer System Organization	3 or 4
CS 436	Computer Networking Laboratory	3 or 4
CS 438	Communication Networks	3 or 4
CS 439	Wireless Networks	3 or 4
CS 440	Artificial Intelligence	3 or 4
CS 445	Computational Photography	3 or 4
CS 446	Machine Learning	3 or 4
CS 447	Natural Language Processing	3 or 4
CS 450	Numerical Analysis	3 or 4
CS 460	Security Laboratory	3 or 4
CS 461	Computer Security I	4
CS 463	Computer Security II	3 or 4

CS 465	User Interface Design	3 or 4
CS 466	Introduction to Bioinformatics	3 or 4
CS 467	Social Visualization	3 or 4
CS 473	Algorithms	4
CS 475	Formal Models of Computation	3 or 4
CS 476	Program Verification	3 or 4
CS 477	Formal Software Devel Methods	3 or 4
CS 481	Advanced Topics in Stochastic Processes & Applications	3 or 4
CS 484	Parallel Programming	3 or 4
CS 398	Special Topics (As Approved)	1 to 4
CS 498	Special Topics (As Approved)	1 to 4

4.6.5 Liberal Education（Credit: 18 hours）

The liberal education courses develop students' understanding of human culture and society, build skills of inquiry and critical thinking, and lay a foundation for civic engagement and lifelong learning. These include the General Education (GenEd) requirements in the humanities, social sciences, and cultural studies. To satisfy the General Education requirements, students must take all courses for grade and complete a minimum of six courses.

1) Humanities & Arts (Six hours, two courses).
2) Social & Behavioral Sciences (Six hours, two courses).
3) Culture Studies
   Students entering September 2017 or earlier must complete:
   One course in Western/Comparative Culture(s).
   One course in Non-Western or U.S. Minority Culture(s).
   Students entering September 2018 or later must complete:
   One course in Western/Comparative Culture(s).
   One course in Non-Western Culture(s).
   One course in U.S. Minority Culture(s).

3.6.6 Free Electives (Credit: 9 hours)

These unrestricted electives give the student the opportunity to explore any intellectual area of unique interest. This freedom plays a critical role in helping students to define research specialties. At least 7 hours must be taken for a grade. Students are encouraged to take cross-discipline courses as free electives.

3.6.7 ZJU Required Liberal Education (Credit: 28-32.5 hours)

These courses introduce Chinese modern history, social development, government policies, etc., help students to improve their English and maintain a healthy lifestyle.

Domestic students must complete all courses below, which can be taught in Chinese, to fulfill the graduate requirement along with the above 128 credit hour courses towards the Bachelor of Engineering Degree at ZJU.

Course Code	Course Name	2016-17	2018	2019
LAW 1001	Character Cultivation and Basic Laws	2.5	3.0	3.0
HIST 2001	Modern Chinese History	2.5	3.0	3.0
PHIL 2001	Intro. To Fundamental Principles of Marxism	2.5	3.0	3.0
PS 2011	Thoughts and Ideology of Socialism with Chinese Characteristics	4	5.0	5.0
PS 1001	Chinese Social Development Situation and Policies Ⅰ	1	1	1
PS 2001	Chinese Social Development Situation and Policies Ⅱ	1	1	1
ENGL 1001	Integrated English Ⅰ	4	4	3
ENGL 1002	Integrated English Ⅱ	2	2	3
PE 1001	Physical Education Ⅰ	1	1	1
PE 1002	Physical Education Ⅱ	1	1	1
PE 2001	Physical Education Ⅲ	1	1	1
PE 2002	Physical Education Ⅳ	1	1	1
PE 3001	Physical Education Ⅴ			1
PE 3002	Physical Education Ⅵ			1
PE 3011	Physical-fitness Test Ⅰ	0.5	0.5	
PE 4011	Physical-fitness Test Ⅱ	0.5	0.5	
PE 4021	Physical Education Ⅶ--Fitness test and exercise			0.5
MITR 1001	Military Training	2	2	2
MITR 2001	Military Theory	1.5	1.5	2
Total Credit Hours for 2016/17, 2018 and 2019 are:		**28**	**30.5**	**32.5**

International students are required to complete five courses (20 credit hours) in Chinese language study and Chinese society to fulfill the graduate requirement along with the above 128 credit hour courses towards the Bachelor of Engineering Degree at ZJU.

CHIN 1001	Chinese Ⅰ	4.0
CHIN 1002	Chinese Ⅱ	5.0
CHIN 1003	Chinese Ⅲ	4.0

CHIN 1004	Chinese IV	4.0
CULT 2001	China Survey	3.0
Total Credit Hours		20.0

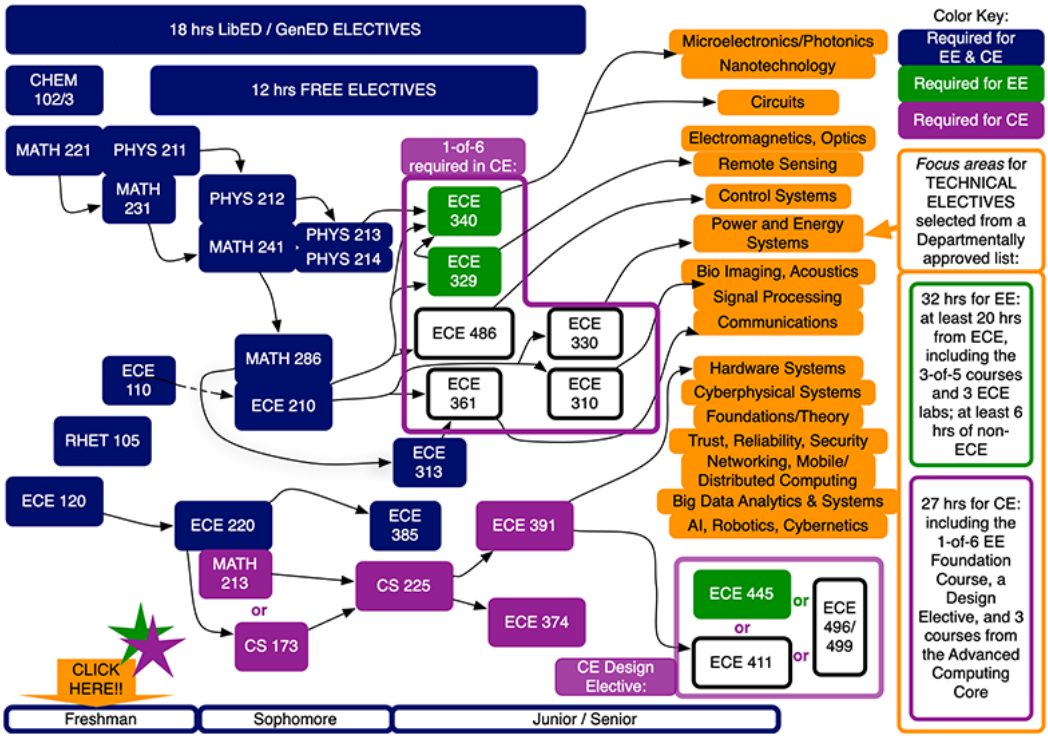
3.6.8 Sample Schedule by Semester

Semester	No	Course Code	Course Title	Credit Hours
0	1	*MITR 1001*	*Military Training*	*2*
1	1	Rhet 101	Principles of Writing	3
1	2	Chem 102	General Chemistry I	3
1	3	Chem 103	General Chemistry Lab I	1
1	4	Math 221	Calculus I	4
1	5	ECE 110	Intro to Electronics	3
1	6	CS 101	Introduction to Computing: Engineering & Science	3
1	7	Eng 100	Engineering Orientation	1
1	8	*ENGL 1001*	*Integrated English I*	*4 or 3*
1	9	*PE 1001*	*Physical Education I*	*1*
1	10	*PS 1001*	*Chinese Social Development Situation and Policies I*	
2	1	Rhet 102	Principles of Research	3
2	2	Math 231	Calculus II	3
2	3	Phys 211	University Physics: Mechanics	4
2	4	ECE 120	Intro to Computing	4
2	5	*GenEd 1*	GenEd Elective 1	3
2	6	*ENGL 1002*	*Integrated English II*	*2 or 3*
2	7	*PE 1002*	*Physical Education II*	*1*
2	8	*PS 1001*	*Chinese Social Development Situation and Policies I*	*1*
2	9	*LAW 1001*	*Character Cultivation and Basic Laws*	*2.5 or 3.0*
3	1	Math 241	Calculus III	4
3	2	Phys 212	University Physics: Elec& Mag	4
3	3	ECE 220	Computer Systems & Programming	4
3	4	CS 173	Discrete Structures	3
3	5	GenEd 2	GenEd Elective 2	3
3	7	*PE 2001*	*Physical Education Ⅲ*	*1*
3	*8*	*PS 2011*	*Thoughts and Ideology of Socialism with Chinese Characteristics*	*4 or 5*
3	8	*MITR 2001*	*Military Theory*	*1.5 or 2.0*
4	1	Math 286	Intro to Differential Eq Plus	4
4	2	Phys 213	Univ Physics: Thermal Physics	2
4	3	Phys 214	Univ Physics: Quantum Physics	2
4	4	ECE 210	Analog Signal Processing	4
4	5	CS 225	Data Structure	4
4	6	*PE 2002*	*Physical Education Ⅳ*	*1*

Semester	No	Course Code	Course Title	Credit Hours
4	*7*	*HIST 2001*	*Modern Chinese History*	*2.5 or 3.0*
4	*8*	*PHIL 2001*	*Intro. To Fundamental Principles of Marxism*	*2.5 or 3.0*
5	1	*ECE 310*	Digital Signal Processing	3
5	2	*ECE 311*	Digital Signal Processing Lab	1
5	3	ECE 374	Introduction to Algorithms & Models of Computation	4
5	4	ECE 313	Probability with Engrg Applic	3
5	5	*ECE 314*	Probability with Engrg Applic Lab	1
5	6	ECE 385	Digital Systems Laboratory	3
5	7	GenEd 3	GenEd Elective 3	3
6	1	ECE 391	Computer Systems Engineering	3
6	2	Tech Elec	Tech Elective	3
6	3	COMPE ACE 1	CompE Advanced Computing Electives 1	3
6	4	COMPE ACE 2	CompE Advanced Computing Electives 2	3
6	5	GenEd 4	GenEd Elective 4	3
6	6	*PE 3001*	*Physical-fitness Test Ⅰ*	*0.5*
7	1	ECE 411	Computer Organization & Design	4
7	2	ECE 345	Innovation and Engineering Design	3
7	3	Free Elec	Free Elective	3
	4	COMPE ACE 3	CompE Advanced Computing Electives 3	
7	5	GenEd 5	GenEd Elective 5	3
7	6	PS 2001	Chinese Social Development Situation and Policies Ⅱ	
8	1	ECE 445	Senior Design Project Lab	4
8	2	Tech Elec	Tech Elective	
8	3	Free Elec	Free Elective	3
8	4	Free Elec	Free Elective	3
8	5	GenEd 6	GenEd Elective 6	3
8	6	*PE 4001*	*Physical-fitness Test Ⅱ*	*1*
8	7	*PS 2001*	*Chinese Social Development Situation and Policies Ⅱ*	*0.5*

4.6.9 Curriculum Flow Map

The following flow map offers a quick summary of the main features of the Computer Engineering curriculum.



**RHET 105 is substituted by Rhet 101/102*

Figure 4. The structure of the required and computer engineering core courses

3.7 Student Research Opportunities

Undergraduate students at ZJUI have opportunities to work with faculty members on their research projects. Students can engage in scientific research early in their undergraduate study and prepare for their future academic career in engineering fields.

4. Student Exchange Semester

3rd year students will spend at least one semester studying abroad at the University of Illinois at Urbana- Champaign. During this semester, students will live on campus, and take all their courses at UIUC. This provides the students with a chance to gain an international perspective.

Students must be in good standing (including not being on probation or on ZJU drop warning) to be eligible for an international exchange term, and should plan to remain in good standing to maintain eligibility for the UIUC degree.

5. Academic Rules

5.1 General Standards of Conduct

(Adopted from the University of Illinois at Urbana - Champaign and Zhejiang University student codes)

Students are expected to abide by the Zhejiang University and University of Illinois at Urbana-Champaign Student Codes and Honor Codes.

Responsible professional conduct and academic integrity are essential for maintaining the high quality of education and research in the institute. Faculty and graduate students must conduct themselves in a professional and collegial manner in all dealings with each other. Graduate students holding teaching assistant (T.A.) or research assistant (R.A.) appointments should work together with their supervisors to develop a plan, based on reasonable expectations of student productivity, to involve an amount of effort commensurate with the percentage time of the appointment.

The ZJUI faculty expects all students to maintain academic integrity at all times in the classroom and the research laboratory, and to conduct their work in accordance with the highest ethical standards of the engineering profession.

6.Grades and Grading System

6.1 Academic Records

The official student transcript is the cumulative record of courses taken and grades earned while enrolled at ZJUI. All courses students have taken at ZJUI will be recorded in their academic record; but only those listed in the study plan or pre-approved by the Program Advisors will count towards the required graduation credits. All courses students have taken at ZJU will be used for ZJUI GPA calculations for specific ZJUI requirements like academic standing, declaring major, enroll for graduation thesis, receiving ZJUI awards, etc.

6.2 Academic Work Report Requirements

1. Faculty members have the responsibility to provide ZJUI with an individual evaluation of the work of each student in their classes. Final course grades are entered into the student's permanent ZJUI record at the close of each semester, term, or session.
2. A dean may require semester reports from each instructor or faculty member concerning any students whose assigned grade is below C-. This does not imply any restriction on assigning such grades.

6.3 Grading System

1. Excellent (A+, A, A-)
2. Good (B+, B, B-)
3. Fair (C+, C, C-)
4. Poor (D+, D, D-) (lowest passing grade)
5. Failure (F) (not acceptable for degree credit), including courses dropped for

academic irregularities. Absent from the final examination without an acceptable excuse is recorded as ABS (counts as a failure, not acceptable for degree credit). If a student is absent from a final examination, and it is clear that taking that examination could not have resulted in a passing grade for the course, a grade of F may be given instead of ABS.

6.4 Computation of Scholastic Averages

1. Numerical Values

Grade	Grade Points	Grade	Grade Points
A+	4.00	C+	2.33
A	4.00	C	2.00
A-	3.67	C-	1.67
B+	3.33	D+	1.33
B	3.00	D	1.00
B-	2.67	D-	0.67

F Failure (including courses dropped for academic irregularities) = 0.00
ABS Absent from final; counts as failure.

Grade-point averages are calculated on the basis of all courses attempted for which grades and credits are assigned and that carry credit in accordance with the courses catalog. Each grade is weighed in accordance with the number of credits awarded. This method of calculation is used to determine honors, probationary, drop status, and scholastic awards. For the purpose of computing a grade-point average for graduation, only the grades received in those courses counting toward the degree, including grades in repeated courses, are included in the average.

6.5 Other Grade Symbols in Use

Other symbols in use, which are not included in computation of averages, are:

AU Audit; indicates attendance as a visitor only.
NR Not reported.
NV Not valid.
W Approved withdrawal without credit.
I or IC Incomplete. Approved extension of time to complete the final examination or other requirements of the course. Only the dean may authorize such extension of time in individual cases.
DFR or IP Deferred (or In Progress). Used for project courses or other activities that extend beyond one term. When all course requirements are complete, DFR or IP grades are replaced with conventional letter grades.

6.6 Grade Corrections

When a student's grade has been incorrectly reported, the instructor may correct the grade with the approval of the dean. A supplemental grade report form is used to report the corrected grade; all copies of the form must be submitted to ZJUI.

6.7 Grade Grievance Procedure

If students have questions about their grade after the exams (excluding the finals), they could check it with the instructor during his/her office hours in the first week after scores are released. In order to do this, special requests should be sent to the ZJUI Dean's Office. The instructor or a TA should be present while the student looks over his/her original test paper and answer sheet. Score corrections may be made by the instructor only. All corrections should be made in red-ink pen, with the instructor's signature and date beside it. An electronic or hard copy of the correction must be sent to the ZJUI Dean's Office to be kept on file. If there is justification to question the accuracy of an assigned grade, the student should first pursue the matter with the instructor. The responsibility for the assignment of grades is primarily that of the instructor and should be settled between the student and instructor whenever possible. Further pursuit of a grade grievance should be addressed with the Deans' Office.

6.8 Academic Progress

1. The progress of the student toward a degree is the concern of the dean of ZJUI.
2. A student whose progress is unsatisfactory is subject to action by the dean of ZJUI.

6.9 Probation and Drop Rules

1. Probation Rules

The following regulations shall be used to determine a student's probationary status, provided drop rules do not apply:

1) Beginning Freshmen

A beginning freshman who does not earn at least a 2.0 (C) average in his or her first semester is placed on a 2.0 probation for the next semester in which the student is registered.

2) Students other than beginning freshmen

A. A student whose cumulative average is 2.0 or better and who does not earn at least a 2.0 average in any semester or during summer session is placed on a 2.0 probation for the next semester or summer session in which he or she is registered. This means that the student is required to earn at least a 2.0 average during the next semester.

B. A student whose cumulative average is 1.75 to 1.99 inclusive is placed on a 2.25 probation. This means that the student is required to earn at least a 2.25 average during the next semester.

C. A student whose cumulative average is less than 1.75 is placed on a 2.33 probation. This means that the student is required to earn at least a 2.33 average during the next semester.

D. A student may be placed on a "probationary status" at any time when, in the judgment of ZJUI, his or her scholastic record warrants such action. Likewise, the probation rules may be waived when, in the judgment of ZJUI, a student's scholastic record indicates that the warning provided by the probationary status is unwarranted.

(3) Removal from probation. Students on academic probation for failure to maintain the minimum grade-point average are returned to non-probationary standing upon obtaining a cumulative grade-point average of 2.0 (C = 2.0) or better.

2. Drop Rules

   The following regulations shall be used to determine if a student is to be dropped.

   1) A student is dropped if he or she fails to earn at least a 1.0 (D) average in any academic semester (not including summer session).
   2) A student on probation who fails to meet his or her established probation level is dropped unless the student has achieved at least a 2.0 average or better for that semester and his or her cumulative average is at least 2.0.
   3) A student who fails to make satisfactory progress toward a degree is dropped. Examples would be the repeated failure of a required course or failure to meet other conditions for continuation in the curriculum.
   4) The drop rules may be waived for a term when, in the judgment of ZJUI, the student's scholastic record warrants such action.

7. Examinations

7.1 Final Examinations

1. Requirement for final examinations: Final examinations will be given during the scheduled final examination period for each course, except in a course that has a character that renders a final examination unnecessary or impracticable.
2. Instructors must give final examinations at the time specified in the Schedule of Final Examinations unless a change is approved in advance by ZJUI.
3. Students must obtain the approval of the instructor and the dean to defer a final examination. Students who must miss a scheduled examination should report this fact to the dean as soon as possible and before the examination period.
4. For satisfactory reasons, students may be "excused" by the dean and examined later by their instructor. Absence from a final examination for any other cause is reported as a final grade of "absent" (ABS) in the course and counts as a failure.

7.2 Evening, Midterm, and Hourly Examinations

The following regulations will be adhered to regarding examinations given at times other than during regular class periods. These policies do not apply to final examinations.

1. The scheduling of an evening examination requires the approval of ZJUI unless the course meets regularly on the hour and day the examination is scheduled.
2. Any examination, except a final, given at other than the regular class hour, and when ZJUI is in session, will be scheduled between 7:00 and 10:00 p.m., on Monday, Tuesday, Wednesday, or Thursday. An examination may also be given on Friday evening or on Saturday morning when, in the opinion of the dean, exceptional circumstances appear to warrant it.
3. Students are to be excused from one or more regular class periods for an amount of time equivalent to that required for an evening examination.
4. Conflict or makeup examinations must be arranged for those students who cannot take a scheduled evening examination.

7.2.1 Special Examinations

1. ZJUI is authorized to issue a special examination permit to a current student or to a former student not currently registered who has no more than ten credit hours remaining to complete the degree.
2. Special examinations may be given only in courses taken at ZJUI in which a failing grade (F, ABS) has been received.

8. Registration, Course Changes, and Withdrawal

8.1 Number of Hours Required

1. Twelve credit hours and above in a semester constitute a full program of study for tuition and fee assessment; in the summer term, the number of hours is six and above.
2. Study Abroad students shall be considered full-time for academic purposes at ZJUI when they are enrolled for at least the minimum full-time academic load as defined by the international institution.

8.2 Classification of Undergraduate Students

1. Classification of undergraduate students is made based upon the number of credit hours earned. Classification for registration, enrollment verification, and assessment purposes (except as indicated in subsection (b) below) is based on the following scale:

Freshman standing	0–38.9 hours
Sophomore standing	39–77.9 hours
Junior standing	78–116.9 hours
Senior standing	117 or more hours

2. Students entering ZJUI directly from high school as degree candidates with academic credit earned by advanced placement or similar programs for superior students are considered freshmen for the purpose of admission and registration, but not tuition assessment, regardless of the number of college-level credit hours they have earned at other institutions or by examination. A freshman applicant is a degree-seeking student who applies for admission while attending high school, regardless of the amount of college credit earned; or is a student enrolled in the fall term who attended college for the first time in the prior summer term; or who, since graduating from high school, has not attended another postsecondary institution as a degree-seeking undergraduate student.

8.3 Registration

Students who agree to enroll in ZJUI or register for courses by computer are obligated to pay tuition and fees to ZJUIntl according to ZJUIntl payment policies.

8.4 Cancellation of Registration

1. A student who has placed courses on her/his record and later decides not to attend ZJUI may cancel registration before the first day of instruction provided the student has neither attended any classes nor received any related student

services.

2. Before the first day of instruction for a term, a student may cancel registration and be relieved of all tuition and fee charges.

3. Once a student has attended a class or used campus services, the student may not cancel his/her registration. If the student leaves ZJUI, the student must officially withdraw from ZJUI.

8.5 Repeated Undergraduate Courses and Campus Grade Replacement

1. General
   1) A student who repeats a subject for which the student has previously received credit (either by class work at ZJUI, or by advanced standing previously allowed for work done elsewhere) does not forfeit the original credit in the event the student should fail the course on the second attempt. Where a course has been repeated, both the original and subsequent grades are included in the average if the course is acceptable toward graduation, but the credit is counted only once. The Grade Replacement process described below is an exception to the averaging computation.
   2) If the course is repeated yet again, all grades received, passed or failed, are counted in the graduation average, but the credit is only counted once.

2. Grade Replacement
   1) Undergraduate students may officially apply to repeat courses for Grade Replacement according to the following set criteria. If these conditions are not met, the general policy above governing repeated courses applies.
      A. Students may repeat for grade replacement a total of up to 4 distinct courses, not to exceed a maximum of 10 semester hours, taken at ZJUI.
      B. A course in which an academic integrity violation has been officially reported may not be repeated for Grade Replacement.
      C. A course may be repeated for Grade Replacement only once.
      D. Courses may be repeated for Grade Replacement only in those cases in which students received grades of C- or below on the first attempt.
      E. Variable credit courses must be taken for the same number of credit hours when repeated for Grade Replacement. Special topics courses must be taken for the same topic when repeated for Grade Replacement.
      F. A student who has been awarded a degree may not subsequently repeat a course from that degree program for Grade Replacement.
   2) When a student repeats a course for Grade Replacement, the transcript is affected as follows:
      A. Both course enrollments and corresponding grades appear on the official transcript.
      B. The first course enrollment on the student's transcript will be permanently identified as a course that has been repeated for Grade Replacement.
      C. Where a course has been repeated for Grade Replacement, the

course credit earned will be counted only once toward degree and program requirements. In the event that the student should fail the course on the second attempt, the student does not forfeit the original credit.

D. When a course has been repeated for Grade Replacement, only the grade received in the second enrollment for the course will count in the student's grade point average. In the event that the student should fail the course on the second attempt, while having earned a passing grade in the first attempt, the general policy governing course repeats applies: all grades received, passed, or failed will be counted in the graduation average.

3) Students must register their intent to use the course repeat for Grade Replacement option by filing an application form for this purpose at the ZJUI office during the first half of the term (e.g., the first eight weeks of the semester, the first four weeks of the summer session, or the first four weeks of an eight-week course) in which the course is taken.

8.6 Adding and Dropping Courses

1. Except for courses described under subsection 2, a student may add a course during the first ten instructional days and may drop a course during the first eight weeks of instruction in a semester. The exact dates will be listed on the campus Academic Calendars.

2. However, some instructors may limit adds for specific courses before the deadline, where missing early class sessions would severely impair the student's chances for successfully completing the course. The instructor should announce this restriction in class or include it in the course syllabus. Where this restriction is known in advance, it should be included in the course description.

3. When students are allowed to add a class within the designated Add period, the instructor must reasonably accommodate them in making up work they have missed. For admission to a class after the designated Add period, a student must secure the consent of the instructor and the ZJUI dean's office. The instructor may require the student to pass an examination on work already covered in the class or to present other satisfactory evidence of ability to proceed with the class.

4. The following rules apply only to the undergraduate programs.
   1) New courses may be added only during the first ten instructional days of a semester or the first five instructional days of a course conducted during an eight-week part of term.
   2) Courses, except required courses, may be dropped without academic penalty, provided that the minimum academic load required by ZJUI is maintained, during the first eight weeks of a semester or the first four weeks of a course conducted during an eight-week part of term.
   3) The times for adding and dropping courses are determined in accordance with the above principles based on parts of term; the exact dates are to be listed on official Academic Calendars.

4) A grade of W or F will be assigned to a course dropped after these deadline dates, based on the evaluation of the circumstances by ZJUI dean's office.
5) In case of extenuating circumstances (such as illness, injury, or unusual financial pressure), a student may be permitted to drop a course without academic penalty and regardless of time if, in the judgment of the dean, such action is warranted.

5. Change of section within a course is permitted at the discretion of ZJUI dean's office.

8.7 Dropping Courses for Academic Deficiency

1. A student requesting to drop a course, after the drop deadline, in which he or she has become seriously deficient may be required by ZJUI dean's office to accept the grade of F for the course.

2. The ZJUI dean's office may drop a student for academic deficiency using the student registration system. In such cases, a grade of F for the course will be recorded.

8.8 Withdrawal or Suspension of Studies.

1. A student who leaves ZJUI during any term must officially withdraw from ZJUI whether or not the student intends to return for a later term. A student who is registered in only one course and later requests to drop that course must withdraw from ZJUI. Failing grades will be assigned to any student who leaves ZJUI without completing withdrawal.
2. Withdrawal procedures:
   1) Obtain a withdrawal form from the ZJUI website. The date the student notifies the ZJUI office of his/her intent to withdraw should be recorded as the official withdrawal date.
   2) Obtain the signatures of Academic Affairs officers as indicated on the withdrawal form.
   3) Deposit the withdrawal form at the ZJUI Dean's office.
3. Cancellation or withdrawal from ZJUI does not abrogate the authority of ZJUI to pursue disciplinary action.
4. The student ID card remains valid for any term in which fees for services have been paid.
5. The dean may issue a withdrawal form with a notation that failing grades are to be recorded in specified courses in which the student is seriously deficient.

A student may be dropped or placed on probation for poor scholarship as of the date of the withdrawal at the discretion of the dean.

9. Student Records - Guidelines and Regulations Governing Access and Release

9.1 Access to Student's Personally Identifiable Education Records

1. By Students: A student's education record shall be made accessible to the student

requesting access to his or her record within a reasonable time, but in no case more than forty-five (45) days after the request for access has been made.

2. By Parents (including legal guardians): Access to a student's education record will generally be granted to a parent only with the student's prior written consent, except in the following circumstances:
    1) Incidents involving alcohol or a controlled substance. ZJUI may disclose information from a student's education record to parents regarding the violation of any applicable law, or any rule or policy of ZJU or ZJUI, governing the use of alcohol or a controlled substance if: (A) The student is under legal age, and (B) The student is found to have committed a violation of the law relating to alcohol or controlled substances, and (C) ZJUI determines it to be in the best interest of the student and ZJUI.
    2) Health and Safety Emergency. ZJUI may disclose information from a student's education record to parents in connection with an emergency if knowledge of the information is necessary to protect the health and safety of the student or other individuals.
    3) If applicable laws and regulations do not prohibit parent access.

3. By Others:
    1) Information from a student's education record may be disclosed to others with the prior written consent of the student, specifying the records to be disclosed, the purpose of the disclosure, and to whom the disclosure is made, with a copy of the information disclosed provided to the student if requested;
    2) Otherwise, personally identifiable education records of students may be disclosed without the student's written consent only to the following persons, subject to certain conditions:
        A. to officials of ZJUI, ZJU, and UIUC, including faculty who have legitimate educational interests;
        B. to officials of other schools or school systems in which the student seeks or intends to enroll or where the student has already enrolled so long as the disclosure is for the purposes related to the student's enrollment or transfer, upon condition that the student is notified of the disclosure, receives a copy of the record if desired, and has an opportunity for a hearing to challenge the content of the record;
        C. to duly authorized representatives of the government;
        D. in connection with the student's application for, or receipt of, financial aid;
        E. to organizations conducting studies for, or on behalf of ZJUI, ZJU, or UIUC under a written agreement for the purpose of developing, validating, or administering predictive tests, administering student aid programs, and improving instruction, if such studies are conducted in such a manner as will not permit the personal identification of students and their parents by persons other than representatives of such organizations and such information will be destroyed when no longer required for the purpose for which it is conducted;
        F. to accrediting organizations in order to carry out their accrediting

functions;

G. to the victim of an alleged perpetrator of a crime or sex offense, the final results of a disciplinary proceeding;

H. to the apparent record originator in order to verify authenticity of a record.

3) Records may be disclosed, with or without the student's consent, to a third party only on the condition that the recipient will not permit others to have access to the personal information without the written consent of the student. With the exception of ZJUI, ZJU, and UIUC officials, persons desiring access to a student's record must sign a written form, available for inspection by the student and the official responsible for the record maintenance, indicating specifically the legitimate educational or other interest for which the information is sought.

4) Custodians of records and other record-maintenance personnel shall have access to student records while performing their assigned record-keeping functions, without the necessity of executing access forms.

5) In the interests of public safety, the name, code violations, and sanction of a student found to be in violation of those provisions applying to criminal offenses and sex offenses may be released to the public.

9.2 Regulations for Record Custodians

1. Directory Information Suppression and Default display:
   1) Prior to the sixth day of instruction for a specific term, students have the right to request that directory information be kept confidential. Requests will be in force until the student notifies the ZJUI dean's office in writing that the information is no longer to be restricted. On the sixth day of instruction, all directory information that has not been restricted by the student may be released without the student's prior consent.
   2) The default public online display for unsuppressed directory information will be the student's surname and given name and email address. Students may choose to include additional information for general public online display.

2. Request to Review Record. A student's request to see his or her education record must be granted within a reasonable period of time, but in no case more than forty-five days after the request for access has been made. Records that are not accessible to students for review are:
   1) Financial records of parents,
   2) Sole possession records (personal memory aids that are not accessible or revealed to others except to a temporary substitute for the maker of the record),
   3) Law enforcement records,
   4) Medical, psychiatric or similar records made, maintained or used by a physician, psychiatrist, psychologist, or other recognized professional or paraprofessional acting in such capacity and in connection with the treatment of the student,
   5) Alumni records created or received after an individual is no longer a student in attendance that are not directly related to the individual's attendance or

academic progress as a student,
6) Grades on peer graded assignments until they are collected and recorded by an instructor, and
7) Any other records exempted from review under the law.

3. Reproductions. Students have the right to reproductions of their education records if failure to provide copies would effectively prevent students from exercising the right to inspect and review their education records. A reasonable charge per page may be made for this service.
4. Corrections. Every reasonable effort should be made to verify or correct any information in the student education record that is misleading, inaccurate, or otherwise in violation of the student's privacy or other rights. The process for students to challenge content is given below.
5. Recordkeeping. A written record of access requests that have been processed must be maintained for as long as the education record requested is maintained.

9.3 Procedures for Student Access and Challenge

1. Gaining access to the record:
   1) Go to the Academic Affairs Office for help in locating record(s);
   2) Make written request to the custodian(s) of the record(s);
   3) Examine record(s).

2. Challenging the contents:
   1) If a student's challenge cannot be satisfied by the record custodian, the student may appeal to the following, or his or her designee: {tutor, dean, director of the Academic Affairs office.}
   2) If no resolution can be effected, the matter will be referred to a ZJUI hearing panel.

9.4 ZJUI Hearing Panel

1. General principles:
   1) Request for a hearing related to a record must be specific to that record, be submitted in writing, and include an explanation or justification of the request for a hearing.
   2) Once a hearing has been held by a duly constituted board or committee, no additional hearing on the content of a record will be allowed. The existing hearing processes (capricious grading, student discipline) already provide for an opportunity to add to, correct, or otherwise modify sources for a record.
   3) After consultation with appropriate student and faculty groups, ZJUI will appoint a hearing panel.

2. Hearing panels shall operate in accordance with the following guidelines:
   1) Hearings will not be open to the public.
   2) Neither party, nor representatives thereof, shall serve on the panel.
   3) Decisions of the hearing panel will be by majority vote.
   4) Results of the hearing will be communicated in writing to the student and the

custodian of the record in question.

9.5 Disposal of Inactive Records

With the exception of placement office files, the permanent ledger file, graduation and degree award lists, and computer-based records useful for research purposes, all student records shall be reviewed within five years of the last academic term in which they were considered active files. At the time of this review, files should be cleared of all correspondence, interview notations, and other items of short-term significance. All records other than placement files and the permanent ledger file shall be destroyed on or before the tenth anniversary of their withdrawal from active status. Records are destroyed subject to approval and procedures of the applicable archivist. In any case, records other than confirmations of graduation, degree awards and transcripts will be inaccessible for normal use.

9.6 Release of Student Information and Academic Records

1. To Agencies or Persons outside ZJU or UIUC.

The following policies and procedures govern the release of student information to persons outside ZJU or UIUC.

1) ZJUI may release information concerning current or former students that appears in directories and publications available to the public without the student's consent except when requested by the student to hold such information confidential. For currently enrolled students, this information includes the student's name; addresses; telephone numbers; curriculum, and major field of study; class level; date of birth; dates of attendance and full- or part-time status; eligibility for membership in registered honoraries; degrees, honors, and certificates received or anticipated; for students appointed as fellows, assistants, graduate, or undergraduate hourly employees, the title, appointing unit, appointment dates, duties, and percent time of appointment; weight and height if the student is an athletic team member; participation in officially recognized sports; and institutions previously attended. For former students, this information may include the student's name; date of birth; last known addresses and telephone numbers; curriculum, and major field of study; dates of attendance and full- or part-time status; class level; honors, certificates, or degrees earned at the University and the date(s) conferred; weight and height if the student was an athletic team member; participation in officially recognized activities and sports; and institutions previously attended.
2) Transcripts are released only by written request to whomever a student or former student designates.
3) Upon written authorization of the student concerned, individuals may view a student's records or may have the information sent to them. A document, signed by the student, listing ZJUI as a reference, is considered written authorization.
4) The custodian of the records may release student academic information to organizations conducting studies for, or on behalf of, educational agencies or institutions for the purpose of developing, validating, or administering predictive tests, administering student aid programs, and improving

instruction. Such studies must be conducted in such a manner as will not permit the personal identification of students and their parents by persons other than those conducting the study, and such information must be destroyed when no longer needed for the stated purpose.

5) The custodian of records may release student academic information in the support of financial assistance without the student's written consent, provided that relevant provisions of Section 1 are met.

2. To Agencies or Persons within the ZJU or UIUC.
   All requests from individuals, units, and/or groups of units for data based on confidential records of students, must first be cleared through the ZJUI deans' office.

3. Grade Reports
   Respective reports of final grades for each semester and summer session are furnished to each student.

4. Credentials Presented from Other Sources
   All academic credentials presented to ZJUI become the property of ZJUI and are not subsequently released to the student or to another individual or institution.

10. Transcripts

10.1 Availability

1. Students who have paid their tuition fees and charges are entitled to receive, upon written request, a transcript of their academic records. Upon graduation, students with outstanding loans or financial obligations will not be issued a transcript until they have completed an exit interview with the Office of Student Affairs. Transcripts that are provided directly to students are marked "Issued to Student in Sealed Envelope" to distinguish them from transcripts that are sent by the Office of Academic Affairs to other recipients. Each transcript routinely includes a student's entire academic record to date and current academic status. Incomplete transcripts are not issued. Upon request, separate transcripts shall be issued that include only the academic record for undergraduate programs. Any separate transcript shall be appropriately labeled "partial transcript."

2. Transcripts are normally produced and distributed within two working days of the receipt of a written request. A student requesting a transcript near the end of a term must specify that the transcript not be released prior to the posting of final grades for that term. Final grade posting normally occurs approximately thirty days after the end of the final examination period.

10.2 Information Appearing on All Transcripts

1. Student's name

2. University identification number

3. Level (undergraduate, graduate, etc.)

4. Birth date (month and day only)

5. Degree(s) and the date(s) graduated from ZJUI

6. Honors recognition

7. Institutional courses, grades, hours of credit, and grade-point average, listed by semester

8. When a student changes his or her major and/or curriculum of enrollment, the new major and/or curriculum is recorded on the student's record in the semester in which the change is effective.

9. When a student withdraws during a term, the withdrawal date is recorded on his or her record at the end of the term.

10.3 Other Symbols Appearing on Transcripts

The grading system itself was described above. The following symbols provide additional information

* Immediately following the letter grade indicates grade does not count toward the student's GPA or earned hours.

H Immediately following the letter grade indicates that the student has received honors credit for the course because: the course/section was certified as an honors course/section. Appropriate grades using the H designation include A+H, AH, A-H, B+H, BH and B-H. Honors are not awarded for lower grades.

R Signifies a repeated course that is included in the GPA calculation. Course is excluded from the term, overall, and earned hours.

X Repeated course that is excluded from the GPA but included in attempted hours only.

10.4 Description and Definition of Information Appearing on Transcripts

1. Student Status

Student status is determined on the basis of a student's academic performance and conduct. Unless otherwise indicated by the notation of "drop" status, the student is eligible to enroll either without condition or on a probationary basis.

2. Credit

Undergraduate credit is recorded in semester hours. Each semester hour represents one fifty-minute period of class-room work each week for the duration of one semester of sixteen weeks (two periods of classroom work per week during an eight-week part of term), or single weekly sessions in laboratory, field work, or approved independent study.

3. Transfer Credit
    1) Undergraduate credit earned at another accredited university or college and accepted by ZJUI is recorded in semester hours. Grades earned are not indicated or included in grade-point computations.
    2) A limited amount of credit earned outside of ZJUI, ZJU, or UIUC, such as credit earned during study abroad exchange programs, can be submitted to the ZJUI dean's office for the purpose of fulfilling degree requirements. These requests will be evaluated and, if accepted, recorded on the student's permanent record. The official transcript must be sent directly from the institution attended and accompanied by a letter from the student requesting that the credit be added to his or her record for degree purposes. The dean's office evaluates requests based on whether or not course materials and results are consistent with a student's curriculum and academic level, also avoiding duplication.

4. Course Numbering System
    1) Courses numbered 000-099 do not carry academic credit but do count for tuition and load. In general, 0xx-level courses are for preparatory work that does not count toward a degree.
    2) Courses numbered 100-199 are intended primarily for freshmen and correspond to entry-level work. They may be taken by sophomores, juniors, and seniors, although enrollment restrictions may be established for students other than freshmen. In certain instances, they may be taken by graduate students to make up undergraduate deficiencies, but they may not be taken for graduate credit.
    3) Courses numbered 200-299 are intended for lower division students who satisfy the published prerequisite(s), if any. In certain instances, they may be taken by graduate students to make up undergraduate deficiencies, but they may not be taken for graduate credit.
    4) Courses numbered 300-399 are intended primarily for juniors and seniors who satisfy published prerequisite(s), if any. In certain instances, they may be taken by graduate students to make up undergraduate deficiencies, but they may not be taken for graduate credit.
    5) Courses numbered 400-499 are available for credit for upper division undergraduate students and typically for graduate students unless otherwise indicated.
    6) Courses numbered 500-599 are intended for graduate students. Certain seniors, with approval, may enroll for credit.

11. Graduation

11.1 Credit Requirements for Degrees

1. UIUC Bachelor's Degree
    1) In addition to specific course and scholastic average requirements, each candidate must earn at least 60 semester hours of UIUC approved credit, of

which at least 21 hours must be 300 or 400 level courses.

2) Only those courses that are applicable toward the degree sought may be counted in satisfying the above minimum requirements.

2. ZJU Bachelor's Degree
   1) Each candidate must earn at least 156 semester hours from ZJU approved curricula.
   2) This includes the 128 semester hours for UIUC approved curricula and another 28 semester hours for ZJU general education curricula.

11.2 Minimum Scholarship Requirements for the Bachelor's Degree

1. All candidates for a degree must have at least a 2.0 (C) average on all ZJUI credits counted for graduation requirements and at least a 2.0 average on the combined transfer and ZJUI credits counted for graduation requirements. (Grades in courses taken at the other campuses of either ZJU or UI are counted as transferred.)

2. Except as noted in Section 3.5, where a course has been repeated, both the original and subsequent grades are included in the average if the course is acceptable toward graduation, but the credit is counted only once. An original failing grade is not removed from the student's record for a course subsequently passed by special examination.

11.3 English Requirement for Graduation

To earn their UIUC degrees, ZJUI students must demonstrate proficiency in English. To document this, students must take either the TOEFL (Test of English as a Foreign Language) and achieve an overall score of at least 100, or the IELTS (International English Testing System) with an overall score of at least 7.5 and module scores of at least 7.0. Details may be found at http://admissions.illinois.edu/policies.

11.4 Credit for Undergraduate Open Seminar Courses

1. Credit in each 199 course shall not be more than five credit hours per semester and may vary from student to student.

2. A student may accumulate an unlimited number of credit hours in 199 courses, but no more than twelve such hours listed on the student's transcript may be counted toward fulfilling graduation requirements.

11.5 Undergraduate Research Assistant

Participating as an undergraduate research assistant with a professor or graduate student can be a very rewarding educational experience. It allows students to explore topics in which they are interested to greater depth than is possible in a classroom setting and can lead to an interest in graduate school. UG Research Assistants typically dedicate 5-15 hours per week on their research activities.

Types of researcher positions: Volunteer, Course credit or Paid

Note that students cannot receive course credit and get paid during the same semester for the same work.

Course credit option: 1-3 credit hours per semester with Suggested number of hours:
1 credit hour = ~ 5 hours per week on project

11.6 Diploma and Certificate

After successfully completing all the requirements for their undergraduate study at ZJUI, students will receive a Graduation Diploma for the Ministry of Education of China, a Bachelor's degree from the University of Illinois Urbana-Champaign, and a Bachelor's degree from Zhejiang University.

12. Student Awards and Recognitions

Students need to have at least 12 credits for each semester upon which their performance is being evaluated for any awards.

12.1 Dean's List

Students who complete a minimum of 12 credits hour with grades and earn a 3.7 GPA term average or better, can be considered for the distinction of Dean's list for that term.

12.2 Distinguished Leadership Award

The Distinguished Leadership Award is presented to those students who have demonstrated outstanding leadership through their contributions to the institute, university, and/or the community. It is awarded annually to the students in ZJUI. Candidates are nominated by classes, student organizations, and special programs; self-recommendation is acceptable too.

12.3 Outstanding Student Organization

The Outstanding Student Organization Award recognizes organizations that consistently provide leadership and service by making meaningful contributions to students, the university, and the surrounding communities.

12.4 Community Outreach and Engagement

This award is conferred on students who are actively involved in addressing serious social issues through community service and social action. The goal is to heighten campus awareness of social issues, increase student involvement in the community, address community problems, and raise social consciousness. Students should apply for that individually, and it can also be nominated by classes, students' organizations, and special programs.

13. College Life

13.1 Student Services

13.1.1 Student ID and Campus Card

A unique student ID will be assigned to every student once he/she is admitted. It is the official form of identification required for all students and should be in the individual students' possession at all times. The campus card is used as a form of identification as well as an electronic purchase card in all the campuses of ZJU. Students can use their campus cards to get registered, go to libraries to read and borrow books, receive treatment in the campus hospital, and pay for dining and

purchases. Regarding how to use the campus card, please read “Instructions for Using Campus Card” below:

Instructions for Using Campus Card

Applying for a card: The Campus Operations Center issues campus cards. Newly-enrolled students must bring a form of identification (such as PRC citizen ID card, passport, Military ID card, Taiwan ID card, etc.) and their enrollment document when applying for a campus card.

Recharging and checking balances: The campus card cannot be overdrawn. Students can recharge their campus cards with cash at the CSC service desk (1F, Student Service Center), with automatic transfer, or with a self-service device. Students can also recharge their cards using Alipay on the Alipay app.

Making purchases: When purchases are made in campus shops, the seller inputs the cost amount into the point-of-sale (POS) machine. The card user then places the card on the POS electronic reader to validate the purchase and have the cost deducted electronically from the card. The default password is the last six number of identification card/passport number (if the last number is letter, please do not enter it). If the number is less than 6 units, the default password is 888888.

Reporting loss of a card: If a card is lost, immediately login in http://ecard.zju.edu.cn/ , and enter the ID card number and password to report it as lost or stolen. The loss can also be reported by calling the CSC service desk (tele: 87572255), through the self-service terminal (if the balance is more than 20 yuan) in Campus Service Center, or in person at the CSC service desk. Loss of a campus card can also be reported by contacting the Campus Operations Center. Students will need to remember the card ID and password.

Reactivating a card: If the user finds a card after reporting its loss, but has not yet applied for a replacement, the card can be reactivated at the Campus Operations Center. If the user has applied for a new card, the old card will not be reactivated.

Replacing a card: If a campus card is damaged or lost, the user should apply for a replacement card at the Campus Operations Center. Bring along an official form of ID, and be prepared to pay 20RMB for the replacement card. Any funds stored on the old card can be transferred to the new card.

Cancelling a card: The user should cancel the campus card upon graduation. The student can go through the required procedure and have any remaining funds returned at any recharge site, by showing proof of graduation or aschool-leaving document.

NOTE： A campus card cannot be assigned or loaned to others. If you find a lost card, please return it to the Campus Operations Center. The university has the right to discipline any persons who use others’ cards or cause economic loss to others.

Every card contains an electronic chip, so users should avoid oil and heat, and should not bend or puncture the card. Malicious damage to cards or counterfeiting of cards is strictly forbidden. Violations of these card regulations may be reported to police or

other appropriate legal authorities. **To contact the Campus Operations Center** Tel: 0571（0573）-87572255 E-mail: COC_Intl@zju.edu.cn

13.2 Accommodation on Campus

13.2.1 All students enrolled in a unit on the International Campus of Zhejiang University, who are willing to comply with all campus rules and regulations, accept their assigned housing, and pay housing fees in accordance with the dates specified, can apply for the accommodation that the Residential College assigns to them and occupy during the specified dates.

13.2.2 The Residential College will take individual preferences into consideration, resources permitting, and will apply the Residential College's assignment principles to make housing assignments.

13.2.3 All students applying for on-campus accommodation must accept the assignment made by the Residential College.

13.2.4 Students shall not use their assigned room in any manner other than as a personal residence. Students may not sell, sublease, or assign their housing contract to anyone. Students cannot move out or change rooms without permission.

13.2.5 All students must pay accommodation fees, extra electricity fees and other fees in a timely fashion.

13.2.6 Room changes take place during the sixth week of the first semester. At the end of the academic year, the Residential College may rearrange accommodations in accordance with requirements for student affairs or management. During summer vacation or winter vacation, the Residential College may re-arrange accommodation in certain assigned areas. Students must accept assignments made by the Residential College.

13.2.7 If a student ceases to be a registered student as a result of graduation, withdrawal, dismissal, transfer, or other departure from campus, that student must follow specified move-out procedures within the time required.

13.2.8 All domestic students should live on campus. For personal reasons, undergraduate students can apply for off-campus accommodation beginning with the second academic year. Off-campus accommodation applications for a future academic year takes place during the last two weeks of the current academic year. Students may live off-campus after approval. International students with scholarships that include accommodation will be provided with accommodation on campus. Self-supported international students may apply for off-campus accommodation at the beginning of the academic year.

13.2.9 The student must move out of the Residential College within three days after move-out procedures are completed.

13.2.10 Staff members of the Residential College may enter student rooms during operational working hours for inspection and maintenance, including safety, facilities, and furnishings, etc. The Residential College reserves the right to supervise and inspect student rooms. Advance notice of entry will be given when feasible.

13.3 Medical Care and Physical Examination

The international campus has many health, wellness, and medical resources available to students. Wellness involves the whole person: mind, body, and spirit. Actively developing skills for cultivating and maintaining wellness is an endeavor with lifelong benefits.

13.3.1 Medical Resources

The clinic on campus provides general and preventative health care for all students. It cooperates with the Zhejiang University Medical Center, with the Affiliated Hospital of the Zhejiang University Medical College, with Hangzhou Seventh People's Hospital, and with Haining Hospital to provide a variety of services to students.

13.3.2 Mental Health & Counseling

The Student Counseling Office provides mental health care to students on the International Campus of Zhejiang University. We have one consultant psychologist who can provide care for students, including needs assessment, psychotherapy, and psychiatric consultation. Office: Student Affairs (158, Residential College) Email: student_affairs@zju.edu.cn

13.3.3 Insurance for International Students

International students who stay on campus for six months or more each year are entitled to comprehensive insurance offered by the university. This includes medical insurance for accidents, hospitalization expenses, accident deformity, death insurance, etc. Self-supporting students, including those with a tuition discount, and university exchange students must plan to pay for their insurance.

In order to protect your insurance interests, please retain all documents, receipts, papers, etc. involved, for any incident or medical care. When making a medical insurance claim, students need to provide complete documents, including a photocopy of ID, a certificate of a doctor's diagnosis or a certificate of accident, relevant medical records and examination reports, receipts for any medicine expenses, lists of medical examination items, lists of medicines, receipts for any hospitalization expenses, hospital discharge certificates, etc. Forms can be found at http://residential.intl.zju.edu.cn/en/content/1384.

Appendix A. Course Descriptions

Civil and Environ Engineering (CEE)

CEE 195 About Civil Engineering credit: 1 Hour (University of Illinois Urbana-Champaign course)

Civil engineering orientation including historical developments, education requirements, relation to science, professional practice, and specialties within the profession.

CEE 199 Undergraduate Open Seminar credit: 1 to 5 Hours

May be repeated.

CEE 201 Systems Engrg & Economics credit: 3 Hours(University of Illinois Urbana-Champaign course)
Introduction to the formulation and solution of civil engineering problems. Major topics: engineering economy, mathematical modeling, and optimization. Application of techniques, including classical optimization, linear and nonlinear programming, network theory, critical path methods, simulation, decision theory, and dynamic programming to a variety of civil engineering problems. Credit is not given for both CEE 201 and IE 310.
Prerequisite: MATH 231; credit or concurrent registration in MATH 225.

CEE 202 Engineering Risk & Uncertainty credit: 3 Hours(University of Illinois Urbana-Champaign course)
Identification and modeling of non-deterministic problems in civil engineering design and decision making. Development of stochastic concepts and simulation models, and their relevance to real design and decision problems in various areas of civil engineering. Credit is not given for both CEE 202 and IE 300. Prerequisite: Recommended: Credit or concurrent registration in MATH 241.

CEE 300 Behavior of Materials credit: 4 Hours(University of Illinois Urbana-Champaign course)
Macroscopic mechanical behavior in terms of phenomena at the nanometer and micrometer levels for the three types of engineering materials (metals, ceramics, and polymers) with emphasis on specific materials used in civil engineering -- steel, rocks, clay, portland cement concrete, asphaltic concrete, and wood. Same as TAM 324. Credit is not given for both CEE 300 and either ME 330 or MSE 280. Prerequisite: Completion of Composition I general education requirement; CHEM 104; TAM 251.

CEE 310 Transportation Engineering credit: 3 Hours(University of Illinois Urbana-Champaign course)
Design, planning, operation, management, and maintenance of transportation systems; integrated multi-modal transportation systems (highways, air, rail, etc.); layout of highways, airports, and railroads with traffic flow models, capacity analysis, and safety. Design of facilities and systems with life cycle costing procedures and criteria for optimization.
Prerequisite: TAM 251; credit or concurrent registration in CEE 202.

CEE 320 Construction Engineering credit: 3 Hours(University of Illinois Urbana-Champaign course)
Construction engineering processes: contracting and bonding, planning and scheduling, estimating and project control, productivity models, and construction econometrics.
Prerequisite: CEE 201; credit or concurrent registration in CS 101 and CEE 202.

CEE 330 Environmental Engineering credit: 3 Hours(University of Illinois Urbana-Champaign course)
Sources, characteristics, transport, and effects of air and water contaminants; biological, chemical, and physical processes in water; atmospheric structure and composition; unit operations for air and water quality control; solid waste management; environmental quality standards. Prerequisite: CHEM 104.

CEE 340 Energy and Global Environment credit: 3 Hours(University of Illinois Urbana-Champaign course)
Introduction to evaluating multiple impacts of engineering decisions. Topics include mass and chemical balances; effects of engineered systems on local and global environment, health, and risk; economic, consumer, and social considerations; provision of conventional and renewable energy; and future projections. Design projects emphasize making appropriate decisions by quantifying total impact and evaluating social environment. Approved for both letter and S/U grading. Prerequisite: PHYS 211; PHSY 213; CEE 201 or IE 310; CEE 202, IE 300, or STAT 200; or permission of instructor. CEE students only.

CEE 350 Water Resources Engineering credit: 3 Hours(University of Illinois Urbana-Champaign course)
Quantitative aspects of water in the earth's environment and its engineering implications, including design and analysis of systems directly concerned with use and control of water; quantitative introduction to hydrology, hydraulic engineering, and water resources planning. Prerequisite: CEE 202; credit or concurrent registration in CEE 201.

CEE 360 Structural Engineering credit: 3 Hours(University of Illinois Urbana-Champaign course)
Analysis, behavior, and design of trusses and framed structures under static loads; member forces in trusses, shear and moment diagrams, deflections, simple applications of the force method and slope-deflection; computer applications. Prerequisite: TAM 251.

CEE 380 Geotechnical Engineering credit: 3 Hours(University of Illinois Urbana-Champaign course)
Classification of soils, compaction in the laboratory and in the field, soil exploration, boring and sampling, permeability of soils, one-dimensional settlement analyses, strength of soil, and foundations. Prerequisite: TAM 251.

CEE 495 Professional Practice credit: 0 Hours (University of Illinois Urbana-Champaign course)
Series of lectures by outstanding authorities on the practice of civil engineering and its relations to economics, sociology, and other fields of human endeavor. 0 undergraduate hours. 0 graduate hours. Approved for S/U grading only.

Electrical and Computer Engr (ECE)
ECE 110 Introduction to Electronics credit: 1 to 3 Hours(University of Illinois Urbana-Champaign course)
Introduction to selected fundamental concepts and principles in electrical engineering. Emphasis on measurement, modeling, and analysis of circuits and electronics while introducing numerous applications. Includes sub-discipline topics of electrical and computer engineering, for example, electromagnetics, control, signal processing, microelectronics, communications, and scientific computing basics. Lab work incorporates sensors and motors into an autonomous moving vehicle, designed and constructed to perform tasks jointly determined by the instructors and students.
ECE 120 Introduction to Computing credit: 4 Hours(University of Illinois Urbana-Champaign course)

Introduction to digital logic, computer systems, and computer languages. Topics include representation of information, combinational and sequential logic analysis and design, finite state machines, the von Neumann model, basic computer organization, and machine language programming. Laboratory assignments provide hands-on experience with design, simulation, implementation, and programming of digital systems. Prerequisite: Restricted to Computer Engineering or Electrical Engineering majors or others students with ZJUI consent.

ECE 199 Undergraduate Open Seminar credit: 1 to 5 Hours

Approved for both letter and S/U grading. May be repeated.

ECE 200 Seminar credit: 0 Hours

Discussions of educational programs, career opportunities, and other topics in electrical and computer engineering. Approved for Letter and S/U grading. May be repeated. For Computer Engineering and Electrical Engineering majors only.

ECE 210 Analog Signal Processing credit: 4 Hours(University of Illinois Urbana-Champaign course)

Analog signal processing, with an emphasis on underlying concepts from circuit and system analysis: linear systems; review of elementary circuit analysis; differential equation models of linear circuits and systems; Laplace transform; convolution; stability; phasors; frequency response; Fourier series; Fourier transform; active filters; AM radio. Credit is not given for both ECE 210 and ECE 211. Prerequisite: ECE 110 and PHYS 212; credit or concurrent registration in MATH 285 or MATH 286.

ECE 220 Computer Systems & Programming credit: 4 Hours(University of Illinois Urbana-Champaign course)

Advanced use of LC-3 assembly language for I/O and function calling convention. C programming, covering basic programming concepts, functions, arrays, pointers, I/O, recursion, simple data structures, linked lists, dynamic memory management, and basic algorithms. Information hiding and object-oriented design as commonly implemented in modern software and computer systems programming. Prerequisite: ECE 120. Restricted to Computer Engineering or Electrical Engineering majors or other students with ZJUI consent.

ECE 310 Digital Signal Processing credit: 3 Hours(University of Illinois Urbana-Champaign course)

Introduction to discrete-time systems and discrete-time signal processing with an emphasis on causal systems; discrete-time linear systems, difference equations, z-transforms, discrete convolution, stability, discrete-time Fourier transforms, analog-to-digital and digital-to-analog conversion, digital filter design, discrete Fourier transforms, fast Fourier transforms, spectral analysis, and applications of digital signal processing. Prerequisite: ECE 210.

ECE 311 Digital Signal Processing Lab credit: 1 Hour(University of Illinois Urbana-Champaign course)

Companion laboratory for ECE 310. Prerequisite: Credit or concurrent registration in ECE 310.

ECE 313 Probability with Engrg Applic credit: 3 Hours(University of Illinois Urbana-Champaign course)

Probability theory with applications to engineering problems such as the reliability of circuits and systems to statistical methods for hypothesis testing, decision making under uncertainty, and parameter estimation. Same as MATH 362. Credit is not given for both ECE 313 and MATH 461. Prerequisite: MATH 286 or MATH 415.

ECE 314 Probability in Engineering Lab credit: 1 Hour(University of Illinois Urbana-Champaign course)
Designed to be taken concurrently with ECE 313, Probability in Engineering Systems, to strengthen the students' understanding of the concepts in ECE 313 and their applications, through computer simulation and computation using the Python programming language. Topics include sequential hypothesis testing, parameter estimation, confidence intervals, Bloom filters, min hashing, load balancing, inference for Markov chains, PageRank algorithm, vector Gaussian distribution, contagion in networks, principle component method and linear regression for data analysis, investment portfolio analysis. Prerequisite: Concurrent enrollment in ECE 313 or one of: ECE 313, IE 300, STAT 410.

ECE 329 Fields and Waves I credit: 3 Hours(University of Illinois Urbana-Champaign course)
Electromagnetic fields and waves fundamentals and their engineering applications: static electric and magnetic fields; energy storage; Maxwell's equations for time-varying fields; wave solutions in free space, dielectrics and conducting media, transmission line systems; time- and frequency-domain analysis of transmission line circuits and Smith chart applications. Prerequisite: ECE 210.

ECE 330 Power Circuits& Electromechanics credit: 3 Hours (University of Illinois Urbana-Champaign course)
Network equivalents; power and energy fundamentals, resonance, mutual inductance; three-phase power concepts, forces and torques of electric origin in electromagnetic and electrostatic systems; energy conversion cycles; principles of electric machines; transducers; relays; laboratory demonstration. Prerequisite: ECE 210.

ECE 340 Semiconductor Electronics credit: 3 Hours (University of Illinois Urbana-Champaign course)
Modern device electronics: semiconductor fundamentals including crystals and energy bands, charge carriers (electrons and holes), doping, and transport, (drift and diffusion); unipolar devices with the MOS field effect transistor as a logic device and circuit considerations; basic concepts of generation-recombination and the P-N junction as capacitors and current rectifier with applications in photonics; bipolar transistors as amplifiers and switching three-terminal devices. Prerequisite: ECE 210; PHYS 214; credit or concurrent registration in ECE 329.

ECE 342 Electronic Circuits credit: 3 Hours (University of Illinois Urbana-Champaign course)
Analysis and design of analog and digital electronic circuits using MOS field effect transistors and bipolar junction transistors, with emphasis on amplifiers in integrated circuits. Credit is not given for both ECE 342and PHYS 404. Prerequisite: ECE 210.

ECE 343 Electronic Circuits Laboratory credit: 1 Hour (University of Illinois Urbana-Champaign course)
Companion laboratory for ECE 342. Credit is not given for both ECE 343 and PHYS 404. Prerequisite: Credit or concurrent registration in ECE 342.

ECE 350 Fields and Waves II credit: 3 Hours (University of Illinois Urbana-Champaign course)
Continuation of ECE 329: radiation theory; antennas, radiation fields, radiation resistance and gain; transmitting arrays; plane-wave approximation of radiation fields; plane-wave propagation, reflection, and transmission; Doppler effect, evanescent waves and tunneling, dispersion, phase and group velocities; waveguides and resonant cavities; antenna reception and link budgets. Prerequisite: ECE 329.

ECE 374 Introduction to Algorithms & Models of Computation credit: 4 Hours (University of Illinois Urbana-Champaign course)
Analysis of algorithms, major paradigms of algorithm design including recursive algorithms, divide-and-conquer algorithms, dynamic programming, greedy algorithms, and graph algorithms. Formal models of computation including finite automata and Turing machines. Limitations of computation arising from fundamental notions of algorithm and from complexity-theoretic constraints. Reductions, undecidability and NP-completeness. Same as CS 374. Prerequisite: CS 225; MATH 225 or MATH 415.

ECE 385 Digital Systems Laboratory credit: 3 Hours(University of Illinois Urbana-Champaign course)
Design, build, and test digital systems using transistor-transistor logic (TTL), SystemVerilog, and field-programmable gate arrays (FPGAs). Topics include combinational and sequential logic, storage elements, input/output and display, timing analysis, design tradeoffs, synchronous and asynchronous design methods, datapath and controller, microprocessor design, software/hardware co-design, and system-on-a-chip.
Prerequisite: ECE 110 and ECE 220.

ECE 391 Computer Systems Engineering credit: 4 Hours (University of Illinois Urbana-Champaign course)
Concepts and abstractions central to the development of modern computing systems, with an emphasis on the systems software that controls interaction between devices and other hardware and application programs. Input-output semantics; synchronization; interrupts; multitasking; virtualization of abstractions. Term-based projects. Credit is not given for both ECE 391 and CS 241. Prerequisite: ECE 220 or CS 233.

ECE 408 Applied Parallel Programming credit: 4 Hours (University of Illinois Urbana-Champaign course)
Parallel programming with emphasis on developing applications for processors with many computation cores. Computational thinking, forms of parallelism, programming models, mapping computations to parallel hardware, efficient data structures, paradigms for efficient parallel algorithms, and application case studies. Same as CS 483 and CSE 408. 4 undergraduate hours. 4 graduate hours. Prerequisite: ECE 220.

ECE 411 Computer Organization & Design credit: 4 Hours (University of Illinois Urbana-Champaign course)
Basic computer organization and design: integer and floating-point computer arithmetic; control unit design; pipelining; system interconnect; memory organization; I/O design; reliability and performance evaluation. Laboratory for computer design implementation, simulation, and layout. 4 undergraduate hours. 4 graduate hours.
Prerequisite: ECE 391 or CS 241.

ECE 420 Embedded DSP Laboratory credit: 2 Hours (University of Illinois Urbana-Champaign course)
Development of real-time digital signal processing (DSP) systems using a DSP microprocessor; several structured laboratory exercises, such as sampling and digital filtering; followed by an extensive DSP project of the student's choice. 2 undergraduate hours. 2 graduate hours. Prerequisite: ECE 310.

ECE 445 Senior Design Project Lab credit: 4 Hours (University of Illinois Urbana-Champaign course)
Individual design projects in various areas of electrical and computer engineering; projects are chosen by students with approval of instructor. A professionally kept lab notebook, a written report, prepared to journal publication standards, and an oral presentation required. 4 undergraduate hours. No graduate credit.
This course satisfies the General Education Criteria for: Advanced Composition

ECE 448 Artificial Intelligence credit: 3 or 4 Hours (University of Illinois Urbana-Champaign course)
Major topics in and directions of research in artificial intelligence: AI languages (LISP and PROLOG), basic problem-solving techniques, knowledge representation and computer inference, machine learning, natural language understanding, computer vision, robotics, and societal impacts. 3 undergraduate hours. 3 or 4 graduate hours.
Prerequisite: CS 225 or ECE 391.

ECE 470 Introduction to Robotics credit: 4 Hours (University of Illinois Urbana-Champaign course)
Fundamentals of robotics including rigid motions; homogeneous transformations; forward and inverse kinematics; velocity kinematics; motion planning; trajectory generation; sensing, vision; control. Same as AE 482 and ME 445. 4 undergraduate hours. 4 graduate hours.
Prerequisite: One of MATH 225, MATH 286, MATH 415, MATH 418.

ECE 486 Control Systems credit: 4 Hours (University of Illinois Urbana-Champaign course)
Analysis and design of control systems with emphasis on modeling, state variable representation, computer solutions, modern design principles, and laboratory techniques. 4 undergraduate hours. 4 graduate hours. Prerequisite: ECE 210.

Mechanical Engineering (ME)
ME 170 Computer-Aided Design credit: 3 Hours (University of Illinois Urbana-Champaign course)
Geometry and topology of engineered components: creation of engineering models and their presentation in standard 2D blueprint form and as 3D wire-frame and shaded solids; meshed topologies for engineering analysis and tool-path generation for component manufacture; ISO and ANSI standards for coordinate dimensioning and tolerancing; geometric dimensioning and tolerancing. Use of solid-modeling software for creating associative models at the component and assembly levels with automatic blueprint creation, interference checking, and linked bill of materials. Credit is not given for both ME 170 and SE 101.

ME 270 Design for Manufacturability credit: 3 Hours (University of Illinois Urbana-Champaign course)
Introduction to DFM methodologies and tools; material selection (new and traditional materials); designing for primary manufacturing processes (cutting fundamentals, casting, forming, and shaping); designing with plastics (snap-fits, integral hinges, etc.); design for assembly (DFA); geometric dimensioning and tolerancing (GD&T). Prerequisite: ME 170.

ME 300 Thermodynamics credit: 3 Hours (University of Illinois Urbana-Champaign course)
Classical thermodynamics through the second law; system and control-volume analyses of thermodynamic processes; irreversibility and availability; relations for ideal gas mixtures. Prerequisite: MATH 241.

ME 310 Fundamentals of Fluid Dynamics credit: 4 Hours(University of Illinois Urbana-Champaign course)
Fundamentals of fluid mechanics with coverage of theory and applications of incompressible viscous and inviscid flows, and compressible high-speed flows. Credit is not given for both ME 310 and TAM 335. Prerequisite: MATH 285; credit or concurrent registration in ME 300.

ME 320 Heat Transfer credit: 4 Hours (University of Illinois Urbana-Champaign course)
Principles and application of heat transfer by conduction, convection, and thermal radiation. Prerequisite: ME 310 or TAM 335.

ME 330 Engineering Materials credit: 4 Hours(University of Illinois Urbana-Champaign course)
Structures of polymers, metals, and ceramics as the basis for their mechanical behavior. Manipulation of structure through such processes as heat treatment and solidification. Mechanisms of material failure in service (yielding, fracture, fatigue, creep, corrosion, and wear) and simple design techniques to avoid these failures. Strategies for materials selection in design. Credit is not given for both ME 330 and either CEE 300or MSE 280.
Prerequisite: CHEM 102 and TAM 251.

ME 340 Dynamics of Mechanical Systems credit: 3.5 Hours (University of Illinois Urbana-Champaign course)
Dynamic modeling of mechanical components and systems; time-domain and frequency-domain analyses of linear time-invariant systems; multi-degree-of-freedom systems; linearization of nonlinear systems. Credit is not given for both ME 340 and either GE 320 or AE 353. Prerequisite: MATH 285 and TAM 212; credit or concurrent registration in ECE 205, ECE 206, and MATH 415.

ME 360 Signal Processing credit: 3.5 Hours (University of Illinois Urbana-Champaign course)
Basic electromechanical techniques used in modern instrumentation and control systems. Use of transducers and actuators. Signal conditioning, grounding, and shielding. Analog and digital signal processing and feedback control methods with emphasis on frequency domain techniques. Frequency response of continuous and discrete systems. Credit is not given for both ME 360 and ABE 425. Prerequisite: ME 340.

ME 370 Mechanical Design I credit: 3 Hours (University of Illinois Urbana-Champaign course)
Kinematics and dynamics of machinery, including analytical kinematics, force analysis, cam design and balancing. Application of elementary mechanics of solids to analyze and size machine components for stress and deflection. Finite-element analysis with emphasis on beam and plate models. Prerequisite: ME 170, TAM 212, and TAM 251.

ME 371 Mechanical Design II credit: 3 Hours (University of Illinois Urbana-Champaign course)
Design and analysis of machinery for load-bearing and power transmission. Consideration of material failure modes, including yielding, fracture, fatigue, and creep. Design and selection of machine elements: bolts, springs, rolling-element bearings, fluid-film lubrication, and power transmissions, including gears and friction drives. Prerequisite: ME 330 and ME 370.

ME 390 Seminar credit: 0 Hours (University of Illinois Urbana-Champaign course)
Lectures by faculty and invited authorities, concerning the ethics and practices of mechanical engineering/engineering mechanics, as well as its relationship to other fields of engineering, to economics, and to society. Offered fall term only. Approved for S/U grading only.

ME 470 Senior Design Project credit: 3 Hours (University of Illinois Urbana-Champaign course)
Solution of a real-world design problem: development, evaluation, and recommendation of alternative solutions subject to realistic constraints that include most of the following considerations: economics, environment, sustainability, manufacturability, ethics, health and safety, society, and politics. 3 undergraduate hours. No graduate credit. Prerequisite: Concurrent enrollment in no more than two required ME courses; completion of all required courses.
This course satisfies the General Education Criteria for: Advanced Composition

Computer Science (CS)
CS 101 Intro Computing: Engrg & Sci credit: 3 Hours (University of Illinois Urbana-Champaign course)

Fundamental principles, concepts, and methods of computing, with emphasis on applications in the physical sciences and engineering. Basic problem solving and programming techniques; fundamental algorithms and data structures; use of computers in solving engineering and scientific problems. Intended for engineering and science majors. Prerequisite: MATH 220 or MATH 221.
This course satisfies the General Education Criteria for: Quantitative Reasoning II

CS 173 Discrete Structures credit: 3 Hours (University of Illinois Urbana-Champaign course)
Discrete mathematical structures frequently encountered in the study of Computer Science. Sets, propositions, Boolean algebra, induction, recursion, relations, functions, and graphs. Credit is not given for both CS 173 and MATH 213. Prerequisite: One of CS 125, ECE 220; one of MATH 220, MATH 221.

CS 199 Undergraduate Open Seminar in Computer Science credit: 0 to 5 Hours
Topics vary. Approved for Letter and S/U grading. May be repeated.

CS 225 Data Structures credit: 4 Hours (University of Illinois Urbana-Champaign course)
Data abstractions: elementary data structures (lists, stacks, queues, and trees) and their implementation using an object-oriented programming language. Solutions to a variety of computational problems such as search on graphs and trees. Elementary analysis of algorithms. Prerequisite: CS 125 or ECE 220; CS 173 or MATH 213.
This course satisfies the General Education Criteria for: Quantitative Reasoning II

RHET 101 Principles of Writing credit: 3 Hours (University of Illinois Urbana-Champaign course)
Instruction in structuring academic, argumentative essays, including how to develop thesis statements and use evidence across different types of writing. This course is the first semester of a two-semester sequence (RHET 101 - RHET 102) that fulfills the campus Composition I general education requirement. Credit is not given for both RHET 101 and RHET 105. Prerequisite: Concurrent registration in RHET 100; placement in RHET 101.
This course satisfies the General Education Criteria for: Composition I

RHET 102 Principles of Research credit: 3 Hours (University of Illinois Urbana-Champaign course)
Continued instruction in structuring academic, argumentative essays; concentrating on the use of primary and secondary sources as evidence in research-based arguments. Second semester of a two-semester sequence (RHET 101/100 - RHET 102/100) that fulfills the campus Composition I general education requirement. Credit is not given for both RHET 102 and RHET 105. Prerequisite: RHET 101.RHET 100
This course satisfies the General Education Criteria for: Composition I

BTW 261 Principles Tech Comm credit: 3 Hours (University of Illinois Urbana-Champaign course)
Teaches students to apply the principles of successful professional writing to a range of realistic cases in technical communication. Emphasizes flexible problem-solving skills and a clear style for communicating technical information to a range of readers. Assignments will include correspondence, instructions, proposals, and a technical report or similar project. Credit is not given for both BTW 261 and BTW 250 or BTW 263. Prerequisite: Junior standing and completion of campus Composition I requirement.
This course satisfies the General Education Criteria for: Advanced Composition

ENG 100 Introduction to Engineering credit: 0 Hours
Orientation required of new freshmen in ZJUI, and an initial team project. Approved for S/U grading only.

ENG 199 Undergraduate Open Seminar credit: 0 to 5 Hours (University of Illinois Urbana-Champaign course
Approved for both letter and S/U grading. May be repeated.

ECON 102 Microeconomic Principles credit: 3 Hours (University of Illinois Urbana-Champaign course)
Introduction to the functions of individual decision-makers, both consumers and producers, within the larger economic system. Primary emphasis on the nature and functions of product markets, the theory of the firm under varying conditions of competition and monopoly, and the role of government in prompting efficiency in the economy. Credit is not given for ECON 102 and ACE 100.
This course satisfies the General Education Criteria for: Social Beh Sci - Soc Sci

MATH 213 Basic Discrete Mathematics credit: 3 Hours (University of Illinois Urbana-Champaign course)
Beginning course on discrete mathematics, including sets and relations, functions, basic counting techniques, recurrence relations, graphs and trees, and matrix algebra; emphasis throughout is on algorithms and their efficacy. Credit is not given for both MATH 213 and CS 173. Prerequisite: MATH 220 or MATH 221, or equivalent.
This course satisfies the General Education Criteria for: Quantitative Reasoning II

MATH 221 Calculus I credit: 4 Hours (University of Illinois Urbana-Champaign course)
First course in calculus and analytic geometry for students with some calculus background; basic techniques of differentiation and integration with applications including curve sketching; antidifferentation, the Riemann integral, fundamental theorem, exponential and trigonometric functions. Credit is not given for both MATH 221 and either MATH 220 or MATH 234. This course satisfies the General Education Criteria for: Quantitative Reasoning I

MATH 231 Calculus II credit: 3 Hours (University of Illinois Urbana-Champaign course)
Second course in calculus and analytic geometry: techniques of integration, conic sections, polar coordinates, and infinite series. Prerequisite: MATH 220 or MATH 221.
This course satisfies the General Education Criteria for: Quantitative Reasoning I

MATH 241 Calculus III credit: 4 Hours (University of Illinois Urbana-Champaign course)
Third course in calculus and analytic geometry including vector analysis: Euclidean space, partial differentiation, multiple integrals, line integrals and surface integrals, the integral theorems of vector calculus. Credit is not given for both MATH 241 and MATH 292. Prerequisite: MATH 231.
This course satisfies the General Education Criteria for: Quantitative Reasoning II

MATH 285 Intro Differential Equations credit: 3 Hours (University of Illinois Urbana-Champaign course)
Techniques and applications of ordinary differential equations, including Fourier series and boundary value problems, and an introduction to partial differential equations. Intended for engineering majors and others who require a working knowledge of differential equations. Credit is not given for both MATH 285 and any of MATH 284, MATH 286, MATH 441. Prerequisite: MATH 241.
This course satisfies the General Education Criteria for: Quantitative Reasoning II

MATH 286 Intro to Differential Eq Plus credit: 4 Hours (University of Illinois Urbana-Champaign course)

Techniques and applications of ordinary differential equations, including Fourier series and boundary value problems, linear systems of differential equations, and an introduction to partial differential equations. Covers all the MATH 285 plus linear systems. Intended for engineering majors and other who require a working knowledge of differential equations. Credit is not given for both MATH 286 and any of MATH 284, MATH 285, MATH 441. Prerequisite: MATH 241.
This course satisfies the General Education Criteria for: Quantitative Reasoning II

MATH 415 Applied Linear Algebra credit: 3 or 4 Hours (University of Illinois Urbana-Champaign course)
Introductory course emphasizing techniques of linear algebra with applications to engineering; topics include matrix operations, determinants, linear equations, vector spaces, linear transformations, eigenvalues, and eigenvectors, inner products and norms, orthogonality, equilibrium, and linear dynamical systems. 3 or 4 undergraduate hours. 3 or 4 graduate hours. Credit is not given for both MATH 415 and any of MATH 125, MATH 225, MATH 410, or MATH 416. 4 hours of credit requires approval of the instructor and ZJUI with completion of additional work of substance.
Prerequisite: MATH 241 or consent of instructor.

PHYS 211 University Physics: Mechanics credit: 4 Hours (University of Illinois Urbana-Champaign course)
Newton's Laws, work and energy, static properties and fluids, oscillations, transverse waves, systems of particles, and rotations. A calculus-based approach for majors in engineering, mathematics, physics and chemistry. Credit is not given for both PHYS 211 and PHYS 101.
Prerequisite: Credit or concurrent registration in MATH 231.
This course satisfies the General Education Criteria for: Nat Sci Tech - Phys Sciences Quantitative Reasoning II

PHYS 212 University Physics: Elec & Mag credit: 4 Hours (University of Illinois Urbana-Champaign course)
Coulomb's Law, electric fields, Gauss' Law, electric potential, capacitance, circuits, magnetic forces and fields, Ampere's law, induction, electromagnetic waves, polarization, and geometrical optics. A calculus-based approach for majors in engineering, mathematics, physics, and chemistry. Credit is not given for both PHYS 212 and PHYS 102.
Prerequisite: PHYS 211; credit or concurrent registration in MATH 241.
This course satisfies the General Education Criteria for: Nat Sci Tech - Phys Sciences Quantitative Reasoning II

PHYS 213 Univ Physics: Thermal Physics credit: 2 Hours (University of Illinois Urbana-Champaign course)
First and second laws of thermodynamics including kinetic theory of gases, heat capacity, heat engines, introduction to entropy and statistical mechanics, and introduction to application of free energy and Boltzmann factor. A calculus-based approach for majors in engineering, mathematics, physics and chemistry. Credit is not given for both PHYS 213 and PHYS 101. Prerequisite: PHYS 211; credit or concurrent registration in MATH 241.
This course satisfies the General Education Criteria for: Nat Sci Tech - Phys Sciences Quantitative Reasoning II

PHYS 214 Univ Physics: Quantum Physics credit: 2 Hours (University of Illinois Urbana-Champaign course)
Interference and diffraction, photons and matter waves, the Bohr atom, uncertainty principle, and wave mechanics. A calculus-based course for majors in engineering, mathematics, physics, and chemistry. Credit is not given for both PHYS 214 and PHYS 102. Prerequisite: PHYS 212.
This course satisfies the General Education Criteria for: Nat Sci Tech - Phys Sciences Quantitative Reasoning II

CHEM 102 General Chemistry I credit: 3 Hours (University of Illinois Urbana-Champaign course)
For students who have some prior knowledge of chemistry. Principles governing atomic structure, bonding, states of matter, stoichiometry, and chemical equilibrium. Credit is not given for both CHEM 102 and CHEM 202. CHEM 102 and CHEM 103 are approved for General Education credit only as a sequence. Both courses must be completed to receive Natural Science and Technology credit. Prerequisite: Credit in or exemption from MATH 012; one year of high school chemistry or equivalent. All students enrolled in CHEM 102 should also enroll in CHEM 103.
This course satisfies the General Education Criteria for: Nat Sci Tech - Phys Sciences

CHEM 103 General Chemistry Lab I credit: 1 Hour (University of Illinois Urbana-Champaign course)
Laboratory studies to accompany CHEM 102. Additional fees may apply. See Class Schedule. Credit is not given for both CHEM 103 and CHEM 203. CHEM 102 and CHEM 103 are approved for General Education credit only as a sequence. Both courses must be completed to receive Natural Science and Technology credit. Prerequisite: Credit or concurrent registration in CHEM 102 is required.
This course satisfies the General Education Criteria for: Nat Sci Tech - Phys Sciences

CHEM 104 General Chemistry II credit: 3 Hours (University of Illinois Urbana-Champaign course)
Lecture and discussions. Chemistry of materials, including organic and biological substances, chemical energetics and equilibrium, chemical kinetics, and electrochemistry. Credit is not given for both CHEM 104and CHEM 204. Prerequisite: CHEM 102 or CHEM 202 or advanced placement credit for one semester of college-level chemistry.
This course satisfies the General Education Criteria for:
Nat Sci Tech - Phys Sciences

CHEM 105 General Chemistry Lab II credit: 1 Hour (University of Illinois Urbana-Champaign course)
Laboratory studies to accompany CHEM 104. Additional fees may apply. See Class Schedule. Credit is not given for both CHEM 105 and CHEM 205.
Prerequisite: CHEM 102 and CHEM 103; credit or concurrent registration in CHEM 104 is required.
This course satisfies the General Education Criteria for:
Nat Sci Tech - Phys Sciences

TAM 210 Introduction to Statics credit: 2 Hours (University of Illinois Urbana-Champaign course)

Forces, moments, couples; resultants of force systems; equilibrium analysis and free-body diagrams; analysis of forces acting on members of trusses, frames, etc.; shear-force and bending-moment distributions; Coulomb friction; centroids and center of mass; applications of statics in design. Credit is not given for both TAM 210 and TAM 211.
Prerequisite: PHYS 211; credit or concurrent registration in MATH 241.

TAM 211 Statics credit: 3 Hours (University of Illinois Urbana-Champaign course)
Forces, moments, and couples; resultants of force systems; equilibrium analysis and free-body diagrams; analysis of forces acting on members of trusses, frames, etc.; shear-force and bending-moment distributions; Coulomb friction; centroids, center of mass, moment of inertia, polar moment of inertia, and product of inertia; virtual work; hydrostatic pressure; applications of statics in design. Credit is not given for both TAM 211 and TAM 210.
Prerequisite: PHYS 211; credit or concurrent registration in MATH 241.

TAM 212 Introductory Dynamics credit: 3 Hours (University of Illinois Urbana-Champaign course)
Kinematics and dynamics of the three-dimensional motion of particles; kinematics and dynamics of the plane motion of rigid bodies; methods of work energy and impulse momentum; moving reference frames. Prerequisite: TAM 210 or TAM 211.

TAM 335 Introductory Fluid Mechanics credit: 4 Hours (University of Illinois Urbana-Champaign course)
Fluid statics; continuity, momentum, and energy principles via control volumes; ideal and real fluid flow; introduction to the Navier-Stokes equation; similitude; laminar and turbulent boundary layers; closed-conduit flow, open-channel flow, and turbomachinery.
Prerequisite: TAM 212.

TAM 251 Introductory Solid Mechanics credit: 3 Hours (University of Illinois Urbana-Champaign course)
Relationship between internal stresses and deformations produced by external forces acting on deformable bodies, and design principles based on mechanics of solids: normal stresses, shear stresses, and deformations produced by tensile, compressive, torsional, and bending loading of members; beam deflections; elastic energy and impact; multi-dimensional stress states; buckling of columns. Prerequisite: TAM 210 or TAM 211.

SE 101 Engineering Graphics & Design credit: 3 Hours (University of Illinois Urbana-Champaign course)
Computer-aided design (CAD) software modeling of parts and assemblies. Parametric and non-parametric solid, surface, and wireframe models. Part editing and two-dimensional documentation of models. Planar projection theory, including sketching of perspective, isometric, multiview, auxiliary, and section views. Spatial visualization exercises. Dimensioning guidelines, tolerancing techniques. Team design project. Credit is not given for both SE 101 and ME 170.

MITR 101 Military Training
Coached by military experts, students have a two-week military training program. This program is intended to develop adaptability, determination, self-discipline and team spirits.

By taking the program, students learn to overcome difficulties, meet challenges, and tap their potential.

ZJU ENGL 101Integrated English I

Close reading and analysis of poetry and other literary texts. Introduction to argumentative strategies for writing about poetry. Addresses prosody, poetic language (diction, metaphor, image, tone), and major verse forms (the sonnet, elegy, ode, ballad, dramatic monologue, free verse). Students also study poems from a range of literary periods and movements to learn how formal qualities change and develop over time and are relevant to everyday life.

ZJU ENGL 102 Integrated English II

Close reading and analysis of poetry and other literary texts. Introduction to argumentative strategies for writing about poetry. Addresses prosody, poetic language (diction, metaphor, image, tone), and major verse forms (the sonnet, elegy, ode, ballad, dramatic monologue, free verse). Students also study poems from a range of literary periods and movements to learn how formal qualities change and develop over time and are relevant to everyday life.

ZJU PS 111Chinese Social Development Situation and Policies I

By taking this course, students will understand current global situation, international relations and tendency, and China's foreign policy.

ZJU PE 101Physical Education I

Through physical exercise and appropriate physical education, this course aims to enhance student fitness and promote their health.

ZJU PE 102 Physical Education II

Through physical exercise and appropriate physical education, this course aims to enhance student fitness and promote their health.

ZJU PE 103 Physical Education III

Through physical exercise and appropriate physical education, this course aims to enhance student fitness and promote their health.

ZJU PE 104 Physical Education IV

Through physical exercise and appropriate physical education, this course aims to enhance student fitness and promote their health.

ZJU PE 105 Physical Education V

Through physical exercise and appropriate physical education, this course aims to enhance student fitness and promote their health.

ZJU PE 106 Physical Education VI

Through physical exercise and appropriate physical education, this course aims to enhance student fitness and promote their health.

ZJU LAW 101Character Cultivation and Basic Laws

This course addresses student social adaptation, physical and mental growth, career development, and other concerns. It mainly deals with students' socialist outlook on life, values, ethics and legal concepts with the core objective of serving the people.