Materials Science and Engineering

(Grade 2024)

Course code: 080401

I. Cultivation Objectives

1. General cultivation objective

This program cultivates technical talents who have good overall development in moral, intellectual, physical, aesthetic and labour aspects, have spirit of "strong conviction, hard work and commitment", master the basic theory, professional knowledge and application skills of materials science and engineering, adapt to the rapid technological development of new energy industry, meet the needs of national and Yangtze River Delta economic construction, and are competent in the design, research and development, production, operation and management of new energy materials and devices in the emerging industries and new economy of efficient "energy production", "energy storage" and "energy conservation"..

2. Objective of value guidance

The program takes moral education as the core of education, practices the core values of socialism, highlights the promotion of the spirit of model workers and craftsmanship, cultivates students to develop a rigorous and meticulous, dedicated and responsible work attitude, and to have the quality of strong conviction, hard work and commitment" to promote the development of the national new energy materials and their comprehensive development and utilization industry. The programme is designed to promote the development of new energy materials and the comprehensive development and utilization of new energy materials industry.

3. Five years after graduation, students in this program should achieve the following objectives:

(1) Professional foundation and skills: Have solid knowledge of mathematics, physics, chemistry and other natural sciences; have basic knowledge of engineering theory such as electrical and electronics, engineering drawing, computers and certain knowledge of engineering management; have professional knowledge and technology in the field of Materials Science and Engineering, to analyse and research complex engineering problems in the fields of high-efficiency energy storage, high-efficiency energy transfer and high-efficiency energy conservation and to propose system solutions.

(2) Career orientation: Be able to follow the frontier technology of new energy Materials Science and Engineering and related fields, with the ability of engineering practice and innovative thinking. Be able to undertake the production, management, research and development, design and other work of new new energy materials and devices, and reach the level of engineer practice.

(3) Basic qualities: Be familiar with the important laws, regulations and policies of the professions and industries related to materials and new energy, have good moral and humanistic qualities, have a sense of law, environment and sustainability, and be able to abide by professional ethics and social responsibility.

(4) Social skills: Have good interpersonal skills, organizational management and implementation skills, be a team player, able to integrate, drive or coordinate the organization and implementation of projects and play an effective role.

(5) Self-development: Understand the laws of the development of new energy materials technology, continuously improve the application ability and level, have the habit and ability of self-development and lifelong learning, and be able to actively adapt to the changes and development of the professional environment.

II. Graduation requirements

1. Engineering knowledge: Have the ability to apply mathematical, natural science and engineering fundamentals and professional knowledge to complex engineering problems in the field of Materials Science and Engineering.

1-1 Master a basic knowledge of the natural sciences such as mathematics, physics and chemistry and knowledge of mechanical, electrical and electronic engineering techniques and engineering principles, and the ability to apply them to express engineering problems.

1-2 Be able to abstract complex engineering problems such as the design, preparation and processing of materials, especially those in the new energy field, into mathematical and physical problems for modeling and solving.

1-3 Be able to apply relevant knowledge and mathematical model methods to deduce and analyze engineering problems in the Materials Science and Engineering major, especially in the direction of new energy materials and devices.

1-4 Be able to apply knowledge from mathematics, natural science and engineering technology to solve complex engineering problems in the field of materials science and engineering, especially in the direction of new energy materials and devices..

2. Analysis of the Problem: Have the ability to apply the fundamental principles of mathematics, natural sciences and engineering sciences to identify, represent, and analyse complex engineering problems in Materials Science and Engineering through literature research in order to reach valid conclusions.

2-1 Be able to apply the fundamental principles of mathematics, natural science and engineering science to identify and judge the key factors and links that affect complex engineering problems in the field of materials science and engineering, especially in the direction of new energy materials and devices.

2-2 Be able to accurately express complex engineering problems in the design, preparation and application of new energy materials and their devices by applying the fundamental principles and mathematical model methods of relevant sciences.

2-3 Be able to make judgments and conducting research on various solutions for the design, preparation and application of new energy materials and devices through literature researc..

2-4 Be able to apply the fundamental principles of the relevant sciences and draw on literature research to analyse factors in designing, preparation and application of new energy materials and their devices and to obtain valid conclusions.

3. Design/develop of solutions: Be able to conceptualize and design solutions to complex engineering problems in the field of Materials Science and Engineering based on CDIO engineering concepts, and design systems, units (components) or processes that meet the specific needs of the new energy field, and be able to demonstrate a sense of innovation in the design process, taking into account social, health, safety, legal, cultural and environmental factors.

3-1 Understand the full process of materials product development and the basic methods of its process design, and understand the various factors that influence development process and process design of the new energy materials and devices.

3-2 Be able to address complex engineering problems in the specific application requirements of new energy materials and devices based on the fundamental laws of material composition, organization, structure and properties, through the rational design of processes, the correct selection of materials and the development of processing techniques to propose specific solutions.

3-3 Be able to take into account social, health, safety, legal, cultural and environmental considerations in the engineering design and development of new energy materials and devices.

4. Research: Have the ability to apply scientific principles and methods to complex engineering problems in the field of Materials Science and Engineering, including designing experiments, analyzing and interpreting data, and synthesizing information to reach reasonable and valid conclusions.

4-1 Be able to conduct research and analysis on solutions to complex engineering problems in material design and selection, preparation processes and parameters, component design and optimization based on scientific principles, fundamental principles of engineering technology and experimental analysis methods, through literature research or related methods.

4-2 Be able to apply the basic principles and scientific methods of Materials Science and Engineering to select research pathways and design experimental protocols based on practical new energy materials and devices engineering problems.

4-3 Be able to select or build appropriate experimental platforms based on established experimental plans, safely conducting experiments, and scientifically and accurately collecting experimental data.

4-4 Be able to analyse and interpret experimental research results, and draw reasonable and valid conclusions through information synthesis.

5. Use of modern tools: Have the ability to develop, select and use appropriate techniques, resources, modern engineering tools and information technology tools for complex engineering problems in Materials Science and Engineering, including the prediction and simulation of complex engineering problems in Materials Science and Engineering and new energy sources, and to understand their limitations.

5-1 Master the usage principles and methods of engineering graphics, analytical testing instruments and computer-aided design, and understand their characteristics and application scopes.

5-2 Be able to use engineering graphics, modern professional testing equipment, and computer-aided design and simulation to analyze, calculate and design complex engineering problems in the field of materials science and engineering.

5-3 Be able to develop and select modern professional testing equipment, information technology tools and analytical methods for complex engineering problems in the field of materials science and engineering, simulating and predicting complex engineering problems, and being able to analyze their limitations.

6. Engineering and Society: Have the ability to undertake sound analysis based on background knowledge of engineering and to evaluate the social, health, safety, legal and cultural impacts of engineering practices and solutions to complex engineering problems in the field of Materials Science and Engineering, and to understand the responsibilities involved.

6-1 Have internship and engineering practice experience in enterprises related to new energy materials and devices, understand the industrial technical standards, industrial policies, laws and regulations, and cultural aspects related to the materials science and engineering major, especially in the field of new energy materials and devices, and understand the influence of different social cultures on engineering activities.

6-2 Be able to analyz and evaluat the impact of project implementation in the field of materials science and engineering on society, health, safety, law and culture, as well as the influence of these constraints on the implementation of related projects, and understand the responsibilities that should be assumed.

7. Environment and Sustainable Development: Have the ability to understand and evaluate the impacts of professional engineering practice on environmental and social sustainability in relation to complex engineering problems in the field of Materials Science and Engineering.

7-1 Understand national strategies and related policies for energy, environment and social sustainability, and be able to develop a concept of environmental protection and sustainable development and an understanding of its impacts.

7-2 Be able to consider the sustainability of engineering practices in the field of materials science and engineering, especially in the direction of new energy materials and devices, from the perspective of environmental protection and sustainable development, and be able to analyze and evaluate the damage and hidden dangers caused by actual engineering practices to human beings and the environment.

8. Professional Codes: Have humanities and social sciences literacy, social responsibility and the ability to understand and comply with engineering ethics and codes of practice and responsibilities in the field of Materials Science and Engineering.

8-1 Have a correct outlook on life and values, possess a healthy body and good qualities, and understand one's position in society and the natural environment.

8-2 Be able to understand the professional ethics and norms of honesty, fairness, integrity and compliance in engineering practice, and be able to consciously abide by them in engineering practice.

8-3 Understand engineers' social responsibilities towards public safety, health and well-being, as well as environmental protection, and be able to voluntarily fulfill these responsibilities in engineering practice.

9. Individual and Team: Have the ability to assume the role of individual, team member and leader of a team in a multidisciplinary context.

9-1 Understand the universality of multidisciplinary backgrounds in team work and the importance of teamwork, and communicate effectively and work together with team members.

9-2 Be able to work independently or cooperatively in a team.

9-3 Be able to organize, coordinate and direct the team to carry out work and complete tasks on time.

10. Communication: Have the ability to communicate effectively with industry peers and the public on complex engineering issues in the field of Materials Science and Engineering, including writing reports, briefs design, making presentations, expressing views clearly and answering questions; have a good command of a foreign language, an international perspective and the ability to communicate and interact in a cross-cultural context.

10-1 Master the writing methods and skills of technical documents or scientific and technological papers, be able to clearly express professional viewpoints on complex engineering problems in the field of materials science and engineering related to new energy through oral, written, chart and other means, respond to doubts, and understand the differences in communication with industry peers and the public.

10-2 Understand the international development trends and research hotspots in the field of materials science and engineering, and comprehend and respect the differences and diversity of various cultures around the world.

10-3 Master a foreign language and have a certain international perspective, and be capable of conducting basic communication and exchanges on professional issues in the field of materials science and engineering in a

cross-cultural context.

11. Project Management: Understand and master the principles of engineering management and apply them in a multidisciplinary environment.

11-1 Be able to understand and master the relevant engineering management principles and economic decision-making methods in engineering projects.

11-2 Understand the engineering management and economic decision-making issues involved in the entire product cycle and process in the field of materials science and engineering, especially in the new energy materials and devices industry.

11-3 Be able to analyze and evaluate engineering design and technical development plans in the field of materials science and engineering in a multi-disciplinary environment by applying engineering principles and economic decision-making methods.

12. Spirit and ability of lifelong learning: Have a sense of independent and lifelong learning, with the ability to learn and adapt to development.

12-1 Be able to understand the continuous development trends of professional technologies and recognize the necessity of continuous exploration and learning in the context of social and technological development.

12-2 Have the ability of self-study, including the ability to understand technical issues, summarize and generalize, and raise questions, etc.

III. Schooling System

Four years.

IV. Length of Study

Flexible study period, generally four years, the minimum length of flexibility is not less than three years, the longest not more than six years.

V. Requirements for Graduation and Degree Conferring

In order to graduate, students must complete the minimum number of credits required by the Instructive Cultivation Plan for each course category and all the content required by the Extracurricular Class, with a total of 168 credits, and will be awarded a Bachelor of Engineering degree if they meet the requirements for the award of a Bachelor's degree.

VI. Discipline

Materials Science and Engineering

VII. Core Courses

Physical Chemistry, Fundamentals of Materials Science, Fundamentals of Materials Engineering, Introduction to Solid State Physics, Structure and Properties of Materials, Materials Chemistry, Nanomaterials Technology, Chemical Power Sources, New Energy Technologies and Applications, Thin Film Materials and Device Preparation Technologies.

VIII. Course Structure and Course Hours (excluding Extracurricular Class)

Category	Total Credit	%	Total Course Hours	Theory Learning	Practical Training
Public Fundamental Course	58.5	35	1072	984	88
General Education	10	6	160	160	0
Engineering Fundamental Course	10	6	160	128	32
Professional Fundamental Course	22	13	352	336	16
Professional Course	25	15	400	400	0
Professional Practice	41.5	25	1000	0	1000
Total	167	100	3144	2008	1136
Theory: **Practical** (%)	64:36				

IX. Teaching schedule (1)

Category	Type	Provided by	Course Code	Course Name	Assessment	Credit	Course Hours	Theory Learning	Practical Training	Recommended semester
Public Fundamental Course	required	School of Marxism	b1080001	Basic Principles of Marxism	test	3	48	42	6	Autumn 1
	required	School of Marxism	b1080009	Ethics and the Rule of Law	non-test	3	48	42	6	Autumn 1
	required	School of Marxism	b1080006	Outline of Modern Chinese History	non-test	3	48	42	6	Spring 1
	required	School of Marxism	b1080010	Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics	test	3	48	42	6	Spring 2
	required	School of Marxism	b1080011	Introduction to Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era	test	2	32	28	4	Autumn 2
	required	School of Marxism	-----	Situation and Policy (Modules 1 to 4)	non-test	2	32	28	4	Autumn 1 to
	required	School of Marxism	b1080008	Labour Education A	non-test	0.5	16	16		Spring 1
	required	School of Mathematics, Physics and Statistics	b1020080+	Advanced MathematicsA1	test	4	64	64		Autumn 1
	required	School of Mathematics, Physics and Statistics	b1020081+	Advanced MathematicsA2	test	4	64	64		Spring 1
	required	School of Mathematics, Physics and Statistics	b1020012	Linear Algebra	test	2	32	32		Spring 1
	required	School of Mathematics, Physics and Statistics	b1020013	Probability Theory and Mathematical Statistics	test	2	32	32		Autumn 2
	required	School of Foreign Language and Cultural Communication	b1020018	Academic Chinese	non-test	2	32	32		Spring 1
	required	School of Mathematics, Physics and Statistics	b1020064	Academic Physics A (Module 3)	test	3	48	48		Spring 1
	required	School of Mathematics, Physics and Statistics	b1020065	Academic Physics B	test	2	32	32		Autumn 2
	required	School of Mathematics, Physics and Statistics	b1020111	Academic Physics C	non-test	2	32		32	Spring 1
	required	College of Physical Education	-----	Physical Education I to VI	non-test	3	160	160		Autumn 1 to
	required	Others	b1110003	Military skills	non-test	0.5	2W			Autumn 1
	required	Others	b1110002	Military theory	non-test	0.5	32	32		Autumn 2
	required	School of Foreign Language and Cultural Communication	b1020003	General English III	test	3	48	48		Autumn 1
	required	School of Foreign Language and Cultural Communication	b1020004	General English IV	test	3	48	48		Spring 1
	required	School of Foreign Language and Cultural Communication	b1020005	General Academic English A	test	2	32	32		Autumn 2
	required	School of Foreign Language and Cultural Communication	---	English Knowledge Expansion	non-test	2	32	32		Spring 2
	required	Engineering Training	b1010005	University Computer Fundamentals	non-test	2	32	32		Spring 1
	required	Others	b1110004	Mental Health Education for University Students	non-test	2	32	16	16	Autumn 1
	required	School of Computer and Information Engineering	b1012001	Artificial Intelligence Application and Practice	non-test	1	16	8	8	Spring 1
	required	School of Resources and Environment	b1012002	Green, Low-carbon and Ecological Civilization	non-test	1	16	16		Autumn 1
Subtotal (Public Fundamental Course)						**58.5**	**1072**	**984**	**88**	

Category	Type	Provided by	Course Code	Course Name	Assessment	Credit	Course Hours	Theory Learning	Practical Training	Recommended semester
General Education	selective	Art Education Center	b0----	Aesthetic Education	non-test	2	32	32		Autumn, Spring
	selective	Each College	b0----	Social Sciences and Humanistic Qualities	non-test	4	64	64		Autumn, Spring
				Natural Sciences and Technology Innovation	non-test	4	64	64		Autumn, Spring
Subtotal (General Education)						**10**	**160**	**160**		

IX. Teaching schedule (2)

Category	Type	Provided by	Course Code	Course Name	Assessment	Credit	Course Hours	Theory Learning	Practical Training	Recommended semester
Engineering Fundamental Course	required	School of Energy and Materials	b2013147cl	Mechanics of Materials	test	2	32	32		Autumn 2
	required	School of Energy and Materials	b2013146cl	Mechanical drawing	test	4	64	48	16	Spring 2
	required	Engineering Training	b2090009	Electrical and Electronic Technology	test	4	64	48	16	Spring 2
Subtotal (Engineering Fundamental Course)						**10**	**160**	**128**	**32**	
Professional Fundamental Course	required	School of Energy and Materials	b2013098cl	Introduction to the Program of Materials Science and Engineering	non-test	1	16	16		Autumn 1
	required	School of Energy and Materials	b2013133cl	Fundamentals of Materials Science I	test	2	32	32		Autumn 2
	required	School of Energy and Materials	b2013148cl	Fundamentals of Materials Science II	test	2	32	32		Spring 2
	required	School of Energy and Materials	b2014022cl	Inorganic Chemistry	test	2	32	32		Autumn 1
	required	School of Energy and Materials	b2014023cl	Organic Chemistry	test	2	32	32		Spring 1
	required	School of Energy and Materials	b2013081cl	Physical Chemistry	test	4	64	48	16	Autumn 2
	required	School of Energy and Materials	b2013114cl	Introduction to Solid State Physics	test	2	32	32		Spring 2
	required	School of Energy and Materials	b2014005cl	Materials Chemistry	test	2	32	32		Autumn 3
	required	School of Energy and Materials	b2013013cl	Material structure and properties	test	3	48	48		Autumn 3
	required	School of Energy and Materials	b2013131cl	Materials Analysis and Testing	test	2	32	32		Autumn 3
Subtotal (Professional Fundamental Course)						**22**	**352**	**336**	**16**	
Professional Course	required	School of Energy and Materials	b2014008cl	Chemical power supplies	test	2	32	32		Spring 2
	required	School of Energy and Materials	b2014024cl	Low Carbon New Energy Technology and Applications	non-test	2	32	32		Autumn 3
	required	School of Energy and Materials	b2013009cl	Fundamentals of Materials Engineering	test	2	32	32		Autumn 3
	required	School of Energy and Materials	b2013034cl	Polymers	test	3	48	48		Autumn 3
	required	School of Energy and Materials	b2013072cl	Nanomaterials technology	test	2	32	32		Spring 3
	required	School of Energy and Materials	b2013005cl	Thin film materials and preparation technology	test	2	32	32		Spring 3
	required	School of Energy and Materials	b2013134cl	Energy Engineering Management	non-test	2	32	32		Spring 3
	required	School of Energy and Materials	b2014021	Scientific and Technical Paper Writing and Literature Search	non-test	1	16	16		Autumn 4
	required	School of Energy and Materials	b2014007cl	Ethics in Engineering	non-test	1	16	16		Summer 1
Subtotal(Required Professional Course)						**17**	**272**	**272**		
	Select different courses in different modules for 8 credits	Module A	b2013149cl	Energy electrochemistry	non-test	2	32	32		Autumn 3
			b2013020cl	Energy Storage Materials and Technologies	non-test	2	32	32		Spring 3 (Selective 6 credits)
			b2013135cl	Lithium-ion battery principles and key technologies	non-test	2	32	32		
			b2013136cl	Hydrogen and fuel cell technology	non-test	2	32	32		
			b2013019cl	Supercapacitor Materials and Technologies	non-test	2	32	32		

			b2013137cl	Power Battery Technology and Applications	non-test	2	32	32		
		Module B	b2013003cl	Semiconductor Physics and Devices	non-test	2	32	32		Autumn 3
			b2013138cl	Heat Transfer in Materials	non-test	2	32	32		Spring 3 (Selective 6 credits)
			b2014026cl	Low Carbon Energy efficient materials and technologies	non-test	2	32	32		
			b2013140cl	Thermal Energy Conversion and Utilization	non-test	2	32	32		
			b2013141cl	Semiconductor Light Emitting Materials and Devices	non-test	2	32	32		
			b2014027cl	Introduction to Smart Computational Materials Science	non-test	2	32	32		
		Module C	b2011064cl	Photovoltaic power generation technology	non-test	2	32	32		Autumn 3
			b2013142cl	Energy Conversion Materials and Devices	non-test	2	32	32		Spring 3 (Selective 6 credits)
			b2013143cl	Solar power systems and applications	non-test	2	32	32		
			b2013121cl	New solar cell materials	non-test	2	32	32		
			b2013144cl	Photothermal power generation technology and applications	non-test	2	32	32		
			b2013145cl	Solar cell process principle	non-test	2	32	32		
	Subtotal (Selective Professional Course)					**8**	**128**	**128**		
Subtotal (Professional Course)						**25**	**400**	**400**		

IX. Teaching schedule (3)

Category	Type	Provided by	Course Code	Course Name	Assessment	Credit	Course Hours	Theory Learning	Practical Training	Recommended semester
Professional Practice	required	Engineering Training	b4090003	Basic Engineering Training C	non-test	2	48		48	Summer 1
	required	School of Energy and Materials	b4014019cl	Inorganic Chemistry experiments	non-test	1	24		24	Summer 1
	required	School of Energy and Materials	b4013073cl	Orientation	non-test	1	24		24	Summer 1
	required	School of Energy and Materials	b4013050cl	Students participation in research practice	non-test	1	24		24	Summer 2
	required	School of Energy and Materials	b4013036cl	Academic Lectures	non-test	1	24		24	Summer 2
	required	School of Energy and Materials	b4013068cl	Tier 1 Project I (Introduction to New Energy Materials and Devices)	non-test	2	48		48	Summer 2
	required	School of Energy and Materials	b4000003cl	the Program of Materials Science and Engineering Innovation and Entrepreneurship	non-test	2	48		48	Spring 3
	required	School of Energy and Materials	b4013069cl	Materials analysis experiments	non-test	2	48		48	Spring 3
	required	School of Energy and Materials	b4013060cl	Practice for New Energy Materials Engineering	non-test	2	48		48	Spring 3
	required	School of Energy and Materials	b4013086cl	Training in the testing and analysis of thermophysical properties of materials	non-test	3	72		72	Autumn 4
	required	School of Energy and Materials	b4014009cl	Solar photothermal catalytic hydrogen precipitation	non-test	2	48		48	Autumn 4
	required	School of Energy and Materials	b4013067cl	Tier 1 Project II (Advanced New Energy Materials and Device Design)	non-test	2	48		48	Autumn 4
	required	School of Energy and Materials	b4013087	Labour Education B	non-test	0.5	16		16	Spring 3
	required	School of Energy and Materials	b4013003	Materials Science and Engineering Graduation Internship and Graduation Design (Thesis)	non-test	12	288		288	Spring 4
	Subtotal(Required Professional Practice)					**33.5**	**808**		**808**	
	Select different courses in different modules for 8 credits	Module A	b4014010cl	Level II project (chemical cell system)	non-test	4	96		96	Summer 3
			b4014011cl	Level 2 projects (supercapacitors)	non-test	4	96		96	Summer 3
			b4014012cl	Tier 2 project (electrochemical catalytic hydrogen precipitation)	non-test	4	96		96	Summer 3
		Module B	b4014013cl	Level 2 project (LED energy saving lamps)	non-test	4	96		96	Summer 3
			b4014014cl	Secondary projects (solar photovoltaic - cogeneration)	non-test	4	96		96	Summer 3
			b4014015cl	Secondary projects (waste heat conversion and utilization)	non-test	4	96		96	Summer 3
		Module C	b4014016cl	Secondary project (dye-sensitised solar cells)	non-test	4	96		96	Summer 3
			b4014017cl	Tier 2 Project (Calcium Titanium Ore Solar Cells)	non-test	4	96		96	Summer 3
			b4014018cl	Level II project (electrochromic devices)	non-test	4	96		96	Summer 3
	Subtotal(Selective Professional Practice)					**8**	**192**		**192**	
Subtotal(Professional Practice)						**41.5**	**1000**		**1000**	

Extracurricular Class	required	Others	b5110001	Extracurricular Class	non-test	**1**	-	-	-	Autumn, Spring, Summer
Total						**168**	**3144**	**2008**	**1136**	

1. Description of Selective Professional Course and Selective Practice:

The modular Professional Courses modules A, B and C correspond to the three directions of New Energy Efficient Storage Materials and Devices, New Energy Efficient Energy Saving Materials and Devices and New Energy Efficient Conversion Materials and Devices respectively.

When choosing the professional courses corresponding to the modules, students can only choose one of the modules A, B and C and complete the professional courses of that module in the Autumn 3 and Spring 3 semesters. The selective professional practice Module A, B and C in Summer 3 semester correspond to selective professional courses module A, B and C respectively, and students can only select selective professional practice courses in accordance with this correspondence.

2. Explanation of the relevance of professional certificates to the course:

Through the courses of photovoltaic power generation technology, new solar cell materials, building energy-saving technology and energy-saving materials, energy engineering management and new energy power generation technology, students can take the assessment of vocational qualifications related to this program or have the ability to take the relevant vocational qualifications in the future: photovoltaic engineer, energy-saving and emission reduction engineer, new energy engineer.

X. Credit of Extracurricular Class

Through taking extracurricular classes, students are encouraged to take part in academic lectures, social practice activities, campus cultural and sports activities, innovative and entrepreneurial activities, voluntary activities, etc. to improve their social adaptability and enhance the competitiveness in the job market. Details are specified in Students' Manual.