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Ideology, Ethics and Rule of Law

Module Name	Ideology, Ethics and Rule of Law		
Semester in which this module is taught	First Semester		
Module Lead	Li Yifan		
language	the Chinese language		
Relationship to the course	General Education Required Courses		
teaching method	Teacher-centered approach: lecture-based instruction, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Personalized approach: The YunBanke platform facilitates the completion of homework assignments and the study of video resources. Practical Approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 90 credit hours Total teaching hours: 3 hours per week, over 16 weeks (48 hours in total) Self-study hours: 2 hours and 37 minutes per week (totaling 16 weeks, or 42 hours); includes: homework, exam preparation time, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	not have		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

CLO1	Master the core tenets of a correct outlook on life and establish a sound outlook on life; understand the essence and importance of ideals and beliefs; correctly comprehend the relationship between ideals and reality, as well as between personal ideals and social ideals; grasp the principle of the unity between personal and social ideals; and understand the fundamental requirements for setting lofty ideals and realizing them; gain a deep understanding of the basic connotations of the Chinese spirit, the national spirit, and patriotism; recognize patriotism in the new era; and comprehend the scientific meaning and significance of the Socialist Core Values.	R 6
CLO2	Understand and articulate the essence and function of morality, as well as the core and principles of socialist morality; comprehend the fundamental connotations of traditional Chinese virtues and the moral values of the Chinese revolutionary era; cultivate a correct moral outlook, consciously inherit traditional Chinese virtues and the moral values of the Chinese revolutionary era, and continuously enhance ones moral character through the practice of upholding virtue and pursuing goodness; grasp the significance of morality, strive to uphold great virtue, observe public morality, and exercise strict self-discipline, thereby refining ones moral character.	R 7
CLO3	Understand and articulate the socialist legal system, the rule-of-law system, the path of socialist rule of law, rule-of-law thinking, as well as the basic content and connotations of legal rights and obligations; internalize respect for the rule of law in ones heart and manifest exemplary compliance with the law in ones actions; enhance legal literacy and become a key force in building a law-based China; improve legal literacy, cultivate rule-of-law thinking, respect and uphold the authority of the law, and exercise power and fulfill obligations in accordance with the law.	R 11

content	Through this course, students will acquire fundamental knowledge and theoretical understanding of life philosophy, values, ethics, and the rule of law; develop the essential ability to analyze and solve problems; continuously enhance their ideological and moral qualities as well as their legal literacy; and grow into a new generation of individuals who consciously shoulder the great responsibility of national rejuvenation. Course Introduction (Weight: 2/4; Level: Memorization) Chapter 1 Understand the true meaning of life and determine its direction (Weight: 5/48; Memory + Understanding + Application + Analysis) Chapter 2: Pursuing Grand Ideals and Strengthening Noble Beliefs (Weight: 6/48; Memory + Understanding + Application + Analysis) Chapter 3: Inheriting Fine Traditions and Promoting the Chinese Spirit (Weight: 11/48; Memory + Understanding + Application + Analysis + Evaluation) Chapter 4: Clarifying Value Pursuits and Implementing Value Principles (Weight: 5/48; Memory + Understanding + Application + Analysis) Chapter 5: Adhering to Ethical Standards and Cultivating Moral Character (Weight: 11/48; Memory + Understanding + Application + Analysis + Evaluation + Creation) Chapter 6: Studying the Rule of Law Philosophy to Enhance Rule of Law Literacy (Weight: 8/48; Memory + Understanding + Application + Analysis + Evaluation)
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily uses written examinations to evaluate the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Learning Examination Requirements	A 100-point grading scale; a score of 60 is the passing grade for this course.

Reading List	(1) Recommended textbook: *Ideology, Ethics and Rule of Law*, edited by the Compilation Group, Higher Education Press, February 2023. (2) References [1] *Political Science and Life*, written by Ruskin (USA) and translated by Lin Zhen; Peoples University Press, 2014 edition. [2] *The Spirit of Law*, by Montesquieu (France), translated by Zhang Yanshen, The Commercial Press, 2012 edition. [3] *Walden*, by Henry David Thoreau (USA), translated by Li Jihong; Tianjin Peoples Publishing House, 2018 edition. [4] *1984*, George Orwell (author), translated by Fu Xia, Times Literature and Art Publishing House, 2018 edition. [5] *Xi Jinpings Seven Years as an Educated Youth*, Central Party School Press, 2017 edition. [6] Selected Excerpts from Xi Jinpings Discourses on the Overall National Security Concept, Central Literature Press, 2018 edition. [7] *On Upholding Comprehensive Rule of Law*, Central Literature Press, 2020 edition. [8] *Xi Jinping: The Governance of China*, Volume III, China Foreign Languages Publishing House, 2020 edition. [9] *Compilation of Documents from the 20th National Congress of the Communist Party of China*, Party Building Publications Press, 2022 edition. [10] *100 Questions and Answers for Studying the 20th National Congress of the Communist Party of China*, Party Building Publications Press, 2022 edition. [11] "Special Compilation of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era," Party Building Publications Press, 2024 edition.
version number	V202 6: The major version became effective in September 202 6. V202 6 .1. Update: Calculation of credits and workload based on ECTS

Socialism with Chinese Characteristics for a New Era

Module Name	Socialism with Chinese Characteristics for a New Era		
Semester in which this module is taught	First Semester		
Module Lead	Li Yayuan		
language	the Chinese language		
Relationship to the course	General Education Required Courses		
teaching method	Teacher-centered approaches: lecture method, case study method; Interactive approaches: inquiry-based problem-solving learning, teaching workshops (including group discussions); Practical approach: Practical teaching		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 90 credit hours Total teaching hours: 3 hours per week, over 16 weeks (48 hours in total) Self-study hours: 1.5 hours per week, over a total of 16 weeks (42 hours); includes: homework, exam preparation time, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	not have		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

CLO1	Be able to articulate the latest theoretical achievements in the Sinicization and contemporary relevance of Marxism, and fully comprehend the historical context, formation and development process, scientific system, historical significance, and guiding role of this new leap in the Sinicization and contemporary relevance of Marxism. Be able to expound on the overarching task of upholding and developing socialism with Chinese characteristics, and be familiar with the strategic arrangements for building a modern socialist country in all respects, as well as the guidelines, principles, and policies for advancing socialist modernization in the new era. Study the content related to comprehensively advancing Chinese-style modernization to promote the great rejuvenation of the Chinese nation, and understand that Chinese-style modernization is the only correct path to building a strong country and achieving national rejuvenation. Understand that the leadership of the Communist Party of China is the most essential feature of socialism with Chinese characteristics, and recognize that upholding the Partys overall leadership is the indispensable way to uphold and develop socialism with Chinese characteristics. Appreciate the fundamental people-centered stance and cultivate the lofty ideal of serving the people and striving for the socialist cause.	R7
CLO2	Be able to elaborate on the core content of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, articulate the "Five-Sphere Integrated Plan" and the "Four-Pronged Comprehensive Strategy," master the strategic pillars for achieving socialist modernization, comprehend the countrys major policies and guidelines, and understand both the "what" and the "why" behind national development strategies; fully grasp the theoretical qualities and ideological ethos embodied in Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era—such as putting the people first, lofty beliefs, historical consciousness, problem-oriented approach, spirit of struggle, and global perspective — thereby strengthening political, theoretical, ideological, and emotional identification with this thought.	R7

CLO3	Be able to identify the important safeguards for realizing the great rejuvenation of the Chinese nation, deeply appreciate the profound significance of upholding the "One Country, Two Systems" principle and advancing the complete reunification of the motherland, and understand China's current diplomatic characteristics and international role; it is crucial to have a profound comprehension of the key to comprehensively exercising strict Party self-governance in building a modern socialist country in all respects and advancing the great rejuvenation of the Chinese nation in the new era. Be able to initially grasp the fundamental principles underlying the international situation and national policies, discern the policy orientation and developmental objectives, strive to integrate knowledge with practice and apply learning to real-world situations, vigorously promote the fine academic tradition of linking theory with practice, and consciously use this ideology to guide the resolution of practical problems.	R7
CLO 4	Conduct practical activities. Through on-site practical teaching both within and outside the campus, and by engaging with vivid historical materials, create specific historical or real-world scenarios to deepen students' understanding of the teaching content, foster a strong sense of history and contemporary relevance, and help establish correct political orientation as well as a sound outlook on life and values; explore real-world issues and address the dilemmas faced by contemporary university students; provoke intellectual resonance and reflection, assist in cultivating a sincere sentiment of patriotism and devotion to the people, as well as a sense of vigilance and awareness of potential challenges even in times of stability; and enhance students' sense of historical mission, national pride, and personal responsibility. Students should consciously integrate their patriotic feelings, aspirations to strengthen the nation, and commitment to serving the country into their academic and practical endeavors, uphold the fine academic tradition of linking theory with practice, more consciously apply Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era to guide the resolution of practical problems, and effectively transform theoretical learning into tangible actions as strivers in the new era.	R 7

content	The core content of this course involves a comprehensive, systematic, and in-depth exposition of the fundamental tenets, spiritual essence, rich connotations, and practical requirements of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era. By integrating this thought with its vivid application across China, the course aims to help students deeply grasp the Marxist stance, viewpoint, and methodology underlying this thought, further strengthen the "Four Consciousnesses," consolidate the "Four Confidences," and uphold the "Two Upholds," thereby cultivating socialist successors who love the socialist motherland, support the leadership of the Communist Party of China, and are firmly committed to the "Four Confidences." content of courses: Introduction (Weight: 1/48; Level: Memory + Understanding + Analysis) Chapter 1: Upholding and Developing Socialism with Chinese Characteristics in the New Era (Weight: 3/48; Level: Memorization + Understanding + Analysis) Chapter 2: Advancing the Great Rejuvenation of the Chinese Nation through Chinese-style Modernization (Weight: 4/48; Level: Memorization + Understanding + Analysis) Chapter 3: Upholding the Partys Overall Leadership (Weight: 2/48; Level: Memorization + Understanding + Analysis) Chapter 4: Adhering to a People-Centered Approach (Weight: 4/48; Level: Memory + Understanding + Analysis) Chapter 5: Comprehensive Deepening of Reform (Weight: 2/48; Level: Memorization + Understanding + Analysis) Chapter 6: Promoting High-Quality Development (Weight: 4/48; Level: Memorization + Understanding + Analysis) Chapter 7: Education, Science and Technology, and Talent Development Strategies for Socialist Modernization (Weight: 2/48; Difficulty Level: Memorization + Understanding + Analysis) Chapter 8: Developing Whole-Process Peoples Democracy (Weight: 6/48; Level: Memorization + Understanding + Analysis) Chapter 9: Comprehensive Rule of Law (Weight: 2/48; Level: Memorization + Understanding + Analysis) Chapter 10: Building a Strong Socialist Cultural Power (Weight: 2/48; Level: Memorization + Understanding + Analysis) Chapter 11: Strengthening Social Development with a Focus on Protecting and Improving Peoples Livelihoods (Weight: 4/48; Level: Memorization + Understanding + Analysis) Chapter 12: Building a Socialist Ecological Civilization (Weight: 2/48; Level: Memorization + Understanding + Analysis) Chapter 13: Maintaining and Shaping National Security (Weight: 2/48; Level: Memory + Understanding + Analysis) Chapter 14: Building a Strong National Defense and a Powerful Peoples Army (Weight: 2/48; Level: Memory + Understanding + Analysis) Chapter 15: Adhering to the "One Country, Two Systems" Policy and Promoting the Complete Reunification of the Motherland (Weight: 2/48;
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	Level: Memorization + Understanding + Analysis) Chapter 16: Major-Dimensional Diplomacy with Chinese Characteristics and Promoting the Building of a Community with a Shared Future for Mankind (Weight: 2/48; Level: Memory + Understanding + Analysis) Chapter 17: Comprehensive and Strict Governance of the Party (Weight: 2/48; Level: Memorization + Understanding + Analysis)
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: 40% (including classroom performance, self-directed learning, periodic assessments, practical teaching, etc.) 3. Process-Based Assessment Content and Requirements For classroom performance: Students will be scored based on their completion of the test covering the material from the Introduction through Chapter 17 in the Cloud Class Platform; for self-directed learning: Students will be scored based on their viewing of the relevant video materials for the Introduction through Chapter 17 published by the Cloud Class Platform; for periodic assessments: Students will be scored based on their performance in both the midterm and final exams; for practical project completion: Students will be scored based on the completion status of their practical projects.
Study and Examination Requirements	A 100-point grading scale; a score of 60 is the passing grade for this course.

Reading List	1. *Socialism with Chinese Characteristics for a New Era*, Higher Education Press and Peoples Publishing House, August 2023 edition 2. Supplementary Reader for the Report to the 20th National Congress of the Communist Party of China, Peoples Publishing House, October 2022 edition 3. *100 Questions and Answers on Studying the Report to the 20th National Congress of the Communist Party of China*, Learning Press and Party Building Publications Press, October 2022 edition 4. Outline for Studying Xi Jinpings Thought on Ecological Civilization; Publicity Department of the Communist Party of China Central Committee and Ministry of Ecology and Environment of the Peoples Republic of China; Learning Press and Peoples Publishing House; July 2022 edition 5. Outline for Studying Xi Jinping Thought on Economics; Publicity Department of the Central Committee of the Communist Party of China and the National Development and Reform Commission; Learning Press and Peoples Publishing House; June 2022 edition 6. Outline for Studying the Overall National Security Concept; Publicity Department of the Communist Party of China Central Committee and Office of the National Security Commission; Learning Press and Peoples Publishing House; April 2022 edition 7. Outline for Studying Xi Jinping Thought on the Rule of Law; Publicity Department of the Communist Party of China Central Committee; Office of the Central Commission for Comprehensive Promotion of the Rule of Law; Learning Press; Peoples Publishing House; November 2021 edition 8. Outline for Studying Xi Jinpings Diplomatic Thought; Publicity Department of the Central Committee of the Communist Party of China and Ministry of Foreign Affairs of the Peoples Republic of China; Learning Press and Peoples Publishing House; July 2021 edition 9. Supplementary Reader for the "Resolution of the Central Committee of the Communist Party of China on the Major Achievements and Historical Experience of the Partys Centenary Struggle," Peoples Publishing House, November 2021 edition 10. *100 Questions and Answers for Studying the Resolution of the Sixth Plenary Session of the 19th Central Committee of the Communist Party of China*; Learning Press and Party Building Publications Press; November 2021 edition. 11. Q&A on Studying Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era; Learning Press and Peoples Publishing House; February 2021 edition 12. Outline for Studying Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era; Publicity Department of the Central Committee of the Communist Party of China; Learning Press; Peoples Publishing House; June 2019 edition 13. "30 Lectures on Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era," Publicity Department of the Central Committee of the Communist Party of China and Learning Press, May 2018 edition.
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	14. *Xi Jinping: The Governance of China*, Volumes I and II; Foreign Languages Press, 2018 and 2017 editions 15. *Selected Important Speeches and Articles by General Secretary Xi Jinping*, Central Literature Press and Party Building Publications Press, 2016 edition 16. *Selected Excerpts from Xi Jinpings Discourses on Socialist Economic Development*, Central Literature Press, 2017 edition [7] [16]; *Selected Excerpts from Xi Jinpings Discourses on Socialist Political Construction*, Central Literature Press, 2017 edition 17. *Selected Excerpts from Xi Jinpings Discourses on Socialist Cultural Development*, Central Literature Press, 2017 edition [9] 18. *Selected Excerpts from Xi Jinpings Discourses on the Construction of a Socialist Society*, Central Literature Press, 2017 edition 19. *Selected Excerpts from Xi Jinpings Discourses on Building a Moderately Prosperous Society in All Respects*, Central Literature Press, 2016 edition 20. *Selected Excerpts from Xi Jinpings Discourses on Building a Moderately Prosperous Society in All Respects*, Central Literature Press, 2016 edition 21. *Selected Excerpts from Xi Jinpings Discourses on Comprehensively Deepening Reform*, Central Literature Press (2014 edition) and Literature Press (2015 edition).
version number	V202 6: The major version was released in September 202 6. V202 6 .1. Update: Calculation of credits and workload based on ECTS

Basic Principles of Marxism

Module Name	Basic Principles of Marxism		
Semester in which this module is taught	Second Semester		
Module Lead	Shen Shiqiang		
language	the Chinese language		
Relationship to the course	General Education Required Courses		
teaching method	Teacher-centered approach: lecture-based instruction, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 60 credit hours Total teaching hours: 3 hours per week, over 16 weeks (48 hours in total) Self-study hours: 2.6 hours per week, over a total of 16 weeks (42 hours); includes: homework, exam preparation time, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	Ideology, Ethics and Rule of Law; Socialism with Chinese Characteristics for a New Era		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	8.1 Establish and practice the Core Socialist Values; correctly understand Chinas fundamental national condition of being in—and for a long time to come—undergoing the primary stage of socialism; and possess a strong sense of mission and responsibility as builders and successors of the socialist cause;	R2 、R6、 R7

content	This course provides a systematic exposition of the basic theories of Marxism, organically integrating its three main components—Marxist philosophy, political economy, and scientific socialism—into a cohesive whole. It aims to help students correctly understand the fundamental laws governing the development of human society, gain a proper understanding of the historical trajectory of capitalist development, cultivate a correct worldview, outlook on life, and set of values, enhance their ability to apply Marxist theory in analyzing and solving practical problems, and strengthen their commitment to the great cause of socialism with Chinese characteristics. The specific learning objectives are as follows: Course Objective 1: To be able to explain the developmental patterns of nature, human thought, and human society; to apply the fundamental perspectives, positions, and methods of Marxism to understand and analyze the various situations and challenges confronting the preschool education discipline when dealing with preschool children; and to guide students using positive, scientific, and sound values, thereby helping preschool children develop a correct worldview, outlook on life, and set of values. Course Objective 2: To explain the fundamental Marxist approaches to understanding and transforming the world; to apply basic Marxist perspectives and methodologies in analyzing the various problems and contexts encountered by preschool children; and to develop practical educational plans tailored to the specific needs of individual preschool children, thereby enhancing the relevance and effectiveness of care and education practices. Course Objective 3: To elucidate the scientific worldview and methodology of Marxism, master critical thinking skills, and discern the trajectory and central thread of world development by examining the relationship between the existence of the existing world and human thought; to continuously enhance ones ability to understand the world; to develop the capacity to reflect on and analyze the diverse circumstances of preschool children; and to continually improve ones educational and teaching competencies in order to meet the demands of various preschool education contexts and situations. content of courses: Introduction (Weight: 2/4; Level: Memory) Chapter 1: The Material Nature of the World and Its Laws of Development (Weight: 10/4.8; Level: Memorization, Understanding, Evaluation) Chapter 2: Practice and Knowledge and Their Laws of Development (Weight: 8/4; Level: Memorization, Understanding, Evaluation) Chapter 3: Human Society and Its Developmental Laws (Weight: 8/4;
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	Levels: Memorization, Understanding, Evaluation) Chapter 4: The Essence and Laws of Capitalism (Weight: 8/4; Level: Memorization, Understanding) Chapter 5: The Development and Trends of Capitalism (Weight: 4/4; Difficulty Level: Memorization, Understanding) Chapter 6: The Development of Socialism and Its Laws (Weight: 6/4; 8 points; Level: Memorization, Understanding) Chapter 7: The Noble Ideal of Communism and Its Final Realization (Weight: 2/4; Level: Memorization, Understanding)
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily uses written examinations to evaluate the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Learning Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.

Reading List	1. Marx: *Economic and Philosophical Manuscripts of 1844*, *Theses on Feuerbach*, *Introduction to A Critique of Hegels Philosophy of Law*, *Das Kapital*, *Critique of the Gotha Program*, and *The German Ideology*. 2. Engels: "Speech at the Grave of Marx," "Ludwig Feuerbach and the End of Classical German Philosophy," "The Origin of the Family, Private Property and the State," "Anti-Dühring – Philosophical Chapters," and relevant sections of "Dialectics of Nature." 3 Marx and Engels: *The Communist Manifesto*, *Nine Letters on Historical Materialism* 4. Lenin: *Karl Marx*, *Friedrich Engels*, *On Several Characteristics of the Historical Development of Marxism*, *The Three Sources and Three Components of Marxism*, *On Dialectics*, *Elements of Dialectics*. 5. Mao Zedong: "Caring for the Peoples Livelihood and Paying Attention to Work Methods," "On Practice," "On Contradiction," "Where Do Correct Human Thoughts Come From?," "Transforming Our Learning," and "Serve the People." 6 Stalin: "On the Foundations of Leninism" and "On Dialectical Materialism and Historical Materialism". 7 Deng Xiaoping: "Emancipating the Mind, Seeking Truth from Facts, and Uniting as One to Look Forward," "Building Socialism with Chinese Characteristics," "Only through ideals and discipline can we unite," and "Key Points from Talks Held in Wuchang, Shenzhen, Zhuhai, Shanghai and Other Places." 8. Jiang Zemin: "On the Three Represents," "Speech delivered at the Conference Celebrating the 80th Anniversary of the Founding of the Communist Party of China," and "Speech delivered by President Jiang Zemin at the Group Discussion Session of the United Nations Millennium Summit." 9 Hu Jintao: "Speech at the Theoretical Seminar on the Important Thought of the Three Represents," "Striving Unswervingly Along the Path of Socialism with Chinese Characteristics to Build a Moderately Prosperous Society in All Respects – Report to the 18th National Congress of the Communist Party of China," and "Speech at the Special Seminar for Key Provincial and Ministerial-Level Leading Cadres on Enhancing Their Capacity to Build a Socialist Harmonious Society." 10. Outline for Studying Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era; Publicity Department of the Central Committee of the Communist Party of China; Learning Press; Peoples Publishing House; June 2019 edition. "30 Lectures on Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era," Publicity Department of the Central
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	Committee of the Communist Party of China and Learning Press, May 2018 edition. 12. Outline for Studying Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era (2023 Edition), Learning Press and Peoples Publishing House, 2023. Selected Works of Xi Jinping, Volumes I and II, Peoples Publishing House, 2023 edition.
version number	V202 6: The major version was released in September 202 6. V202 6 .1. Update: Calculation of credits and workload based on ECTS

Outline of Modern and Contemporary History of China

Module Name	Outline of Modern and Contemporary History of China		
Semester in which this module is taught	Second Semester		
Module Lead	Xie Lilei		
language	the Chinese language		
Relationship to the course	General Education Required Courses		
teaching method	Teacher-centered approaches: lecture method, case study method; Interactive approaches: inquiry-based problem-solving learning, teaching workshops (including group discussions); Practical approach: Practical teaching		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 90 credit hours Total teaching hours: 3 hours per week over 16 weeks (48 hours in total) Self-study hours: 2.6 hours per week, over a total of 16 weeks (42 hours); includes: homework, exam preparation time, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	Ideology, Ethics and Rule of Law; Socialism with Chinese Characteristics for a New Era		
	Course Learning Outcomes	description	Supports graduation requirements

Module Objectives/Expected Learning Outcomes	CLO1	Explain why the Opium War marked the beginning of modern Chinese history, as well as the foreign military aggression, economic exploitation, political control, and cultural subjugation inflicted upon China following the Opium War; understand how the peasant class, the landlord-dominated ruling class, the bourgeois reformists, and the revolutionary forces explored ways forward for the nation, and identify the reasons for their failure and the lessons learned from it; comprehend the two historical tasks confronting modern China — striving for national independence and the liberation of the people, and achieving national prosperity and strength— namely, modernization; and apply the Marxist materialist conception of history to address Chinas practical problems.	R 6
	CLO2	Explain the historical inevitability and significance of the founding of the Communist Party of China, and understand the central theme and main thread of Chinese history since the establishment of the Communist Party of China. Recognize the great historical significance of the founding of the Peoples Republic of China. Master the Communist Party of Chinas efforts and achievements in exploring the path of socialist construction in China. Explain the inevitability and necessity of the Communist Party of Chinas implementation of reform and opening-up as well as its socialist modernization drive. Deeply comprehend how history and the people chose Marxism, the Communist Party of China, the socialist path, and the policy of reform and opening-up. Ultimately, this will help university students clarify misconceptions in their thinking and consciously resist the erroneous trend of historical nihilism.	R6

CLO3	Deeply grasp the overarching impact and significance of the changes in the principal social contradictions of the new era. Explain the theme and historical significance of the 20th National Congress of the Communist Party of China, as well as the work carried out over the past five years and the great transformations that have taken place over the past decade in the new era. Adhere to Marxism-Leninism, Mao Zedong Thought, Deng Xiaoping Theory, the Important Thought of the Three Represents, and the Scientific Outlook on Development; fully implement Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era; use the Marxist stance, viewpoint, and methodology to observe, comprehend, and lead the era; and continuously deepen our understanding of the laws governing the governance of the Communist Party, the laws of socialist construction, and the laws of human societal development.	R7
CLO 4	Through hands-on classroom instruction and the experiential engagement with vivid historical materials — by creating specific historical or contemporary scenarios—students understanding of the teaching content is deepened; their sense of history and awareness of the present era are cultivated; and they develop a sound political orientation as well as a correct outlook on life and values; real-world issues are explored to address the dilemmas faced by contemporary university students; their thoughts are stirred and resonated with these discussions, fostering in them a sincere sense of patriotism and devotion to the people, along with a mindset of remaining vigilant even in times of peace; and their sense of historical mission, national pride, and personal responsibility are enhanced.	R7

content	By studying this course, students will understand the profound suffering inflicted upon the Chinese nation and its people as a result of foreign capitalist-imperialist aggression against China and their collusion with Chinas feudal forces; they will gain insight into the two historical tasks confronting China since modern times — striving for national independence and the liberation of the people, as well as achieving national prosperity and the well-being of the people; they will also comprehend the arduous explorations and tenacious struggles undertaken by Chinas advanced intellectuals and the masses since modern times in their quest for national salvation and survival, along with the lessons learned from these endeavors; by examining the domestic and international circumstances following the founding of the Peoples Republic of China, they will understand the historical inevitability of the Chinese people embarking on the socialist path under the leadership of the Communist Party of China; they will deeply grasp how history and the people chose Marxism, the Communist Party of China, the socialist path, and the policy of reform and opening-up; through an analysis of relevant historical processes, events, and figures in close connection with Chinas modern and contemporary historical reality, they will enhance their ability to apply a scientific historical perspective and methodology to analyze historical issues and discern right from wrong in history; by drawing upon history, reflecting on, and exploring the historical and cultural foundations upon which the Chinese nation has embarked on its journey toward modernization, they will cultivate a new national cultural mindset—one that is neither arrogant nor self-deprecating, yet both confident and humble. content of courses: Introduction (Weight: 2/48; Level: Memory – Evaluation) Chapter 1: The Tribulations and Resistance of the Chinese Nation in the Modern Era (Weight: 3/48; Difficulty Level: Memory – Assessment) Chapter 2: Early Explorations by Various Social Forces into the Nations Path Forward (Weight: 3/48; Difficulty Level: Memory – Assessment) Chapter 3: The Xinhai Revolution and the End of the Monarchical Autocracy (Weight: 3/48; Level: Memorization – Assessment) Chapter 4: The Establishment of the Communist Party of China and the New Situation of the Chinese Revolution (Weight: 4/48; Level: Memorization – Evaluation) Chapter 5: The New Path of the Chinese Revolution (Weight: 6/48; Level: Memorization – Assessment) Chapter 6: The Chinese Peoples War of Resistance Against Japanese Aggression (Weight: 4/48; Level: Memorization – Assessment) Chapter VII: Striving to Found the Peoples Republic of China (Weight: 3/48; Level: Memory – Evaluation) Chapter 8: The Establishment of the Peoples Republic of China and the Exploration of the Socialist Construction Path in China (Weight: 6/48; Level: Memory – Assessment) Chapter 9: Reform and Opening-up and the Pioneering and Development of Socialism with Chinese Characteristics (Weight: 4/48;
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	Level: Memorization – Assessment) Chapter 10: Socialism with Chinese Characteristics Enters a New Era (Weight: 4/48; Level: Memory – Evaluation) Course Practice: 6/48
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment, scored on a 100-point scale, accounts for 40% of the total grade. This assessment primarily evaluates students self-directed learning, classroom participation, post-class consolidation, periodic tests, practical teaching activities, and component scores. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily evaluates the teaching content through a final examination and measures the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.

Reading List	1. *From the Opium War to the May Fourth Movement* (Vol. II), Peoples Publishing House, 2010 edition. 2. *Selected Works of Mao Zedong* (Volumes 1–4), Peoples Publishing House, 1991 edition. 3. *Selected Works of Deng Xiaoping* (Volume III), Peoples Publishing House, 1993 edition. 4. *Selected Documents of the Central Committee of the Communist Party of China*, Central Party School Press, 1994 edition. 5. *Selected Works of Jiang Zemin* (Volume I), Peoples Publishing House, 2006 edition. 6. *Study Guide to the Scientific Outlook on Development*, Learning Press, 2006 edition. 7. *Selected Important Documents Since the Founding of the Peoples Republic of China*, Central Literature Press, 2011 edition. 8. *Xi Jinping: The Governance of China*, Foreign Languages Press, 2014 edition. 9. *90 Years of the Communist Party of China*, Communist Party of China History Press & Party Building Reading Materials Press, 2016 edition. 10. *A Brief History of the Communist Party of China*, Communist Party of China History Press, 2021 edition. 11. *100 Questions and Answers for Studying the Resolution of the Sixth Plenary Session of the 19th Central Committee of the Communist Party of China*, Party Building Reading Materials Press and Learning Daily Press, 2021 edition. 12. *100 Questions and Answers for Studying the Report to the 20th National Congress of the Communist Party of China*, Party Building Literature Press and Study Daily Press, 2022 edition.
version number	V202 6: The major version went live in September 202 6. V202 6 .1. Update: Calculation of credits and workload based on ECTS

Theoretical System of Socialism with Chinese Characteristics

Module Name	Theoretical System of Socialism with Chinese Characteristics		
Semester in which this module is taught	Third Semester		
Module Lead	Li Di		
language	the Chinese language		
Relationship to the course	General Education Required Courses		
teaching method	Teacher-centered approaches: lecture method, case study method; Interactive approaches: inquiry-based problem-solving learning, teaching workshops (including group discussions); Practical approach: Practical teaching		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 90 credit hours Total teaching hours: 3 hours per week, over 16 weeks (48 hours in total) Self-study hours: 2.6 hours per week, over a total of 16 weeks (42 hours); includes: homework, exam preparation time, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	Ideological and Moral Education and Rule of Law; Introduction to Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era; Basic Principles of Marxism; Outline of Modern and Contemporary Chinese History		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Explain the connotation, theoretical achievements, and internal logical relationships of the Sinicization and modernization of Marxism; understand how the Communist Party of China consistently integrates the basic principles of Marxism with Chinas specific realities and with Chinas fine traditional culture, thereby continuously advancing the Sinicization and modernization of Marxism.	R6

CLO2	Explain the formation and development of Mao Zedong Thought, its main content, and its living essence; systematically grasp the Marxist stance, viewpoints, and methods embodied in Mao Zedong Thought; and learn to correctly assess the historical significance of Comrade Mao Zedong and Mao Zedong Thought.	R6
CLO3	Explain the background and formation process of the theoretical system of socialism with Chinese characteristics; elucidate the scientific connotations, main content, and theoretical essence of Deng Xiaoping Theory, the Important Thought of the Three Represents, and the Scientific Outlook on Development; and systematically grasp the Marxist stance, viewpoints, and methods inherent in the theoretical system of socialism with Chinese characteristics. Strengthen confidence in the path, theory, system, and culture of socialism with Chinese characteristics, and enhance political, ideological, and emotional identification.	R7
CLO 4	In social practice, better integrate acquired theories with real-world applications by closely linking them with the history of the Communist Party of China, the history of the Peoples Republic of China, the history of reform and opening-up, the history of socialist development, and the history of the development of the Chinese nation; integrate these theories seamlessly into the great practice of engaging in great struggles, advancing great projects, promoting great causes, and realizing great dreams; align them closely with the realities of building a modern socialist country in all respects; and connect them closely with ones own ideological reality, thereby organically unifying theory and practice, ideals and reality, subjectivity and objectivity, as well as knowledge and action.	R7

content	This course is a compulsory Marxist theory and ideological and political education course for Chinese university students. It primarily covers the two major theoretical achievements of the Sinicization and modernization of Marxism—born out of the Communist Party of China's integration of the basic tenets of Marxism with China's specific realities—helping students understand that Mao Zedong Thought, Deng Xiaoping Theory, the Important Thought of the Three Represents, the Scientific Outlook on Development, and Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era form a coherent and continuously evolving scientific system; and guiding students to gain a deep understanding of why the Communist Party of China can succeed, why Marxism works, and why socialism with Chinese characteristics is effective, thereby strengthening their "Four Confidences." By taking this course, students will, firstly, strive to master fundamental theories. They will gain an understanding of the historical process, transformations, and achievements of the Communist Party of China in leading the people through revolution, construction, and reform; develop a deeper comprehension of how the Communist Party of China has consistently integrated the basic principles of Marxism with China's specific realities and with China's fine traditional culture, thereby continuously advancing the Sinicization and modernization of Marxism; acquire a more accurate grasp of the theoretical achievements formed during the process of the Sinicization and modernization of Marxism; strengthen their confidence in the path, theory, system, and culture of socialism with Chinese characteristics; and enhance their political, ideological, and emotional identification. Secondly, the course aims to cultivate students' theoretical thinking. Through studying the ideas underlying theories, the strategies embedded within those ideas, and the wisdom contained within those strategies, students will be inspired by ideas, enlightened by strategies, and guided by wisdom. This will continuously elevate students' theoretical and ideological competence as well as their ability to analyze and solve problems. Thirdly, the course helps students integrate theory with practice. It closely links the course content with the history of the Communist Party of China, the history of the People's Republic of China, the history of reform and opening-up, the history of socialist development, and the history of the development of the Chinese nation; it is closely aligned with the great practices of engaging in great struggles, advancing great projects, promoting great causes, and realizing great dreams; and it is closely integrated with the comprehensive effort to build a modern socialist country. In practice, one should closely align one's thoughts with actual conditions, organically integrate theory with practice, ideals with reality, the subjective with the objective, and knowledge with action, consciously engage in the great practice of socialism with Chinese characteristics, and make due contributions to realizing the great rejuvenation of the Chinese nation. content of courses: Introduction (Weight: 2/48; Level: Memory) Chapter 1: Mao Zedong Thought and Its Historical Significance (Weight: 4/48; Level: Memorization, Understanding, Evaluation) Chapter 2: Theory of the New Democratic Revolution (Weight: 5/48;
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	Level: Memorization, Understanding, Evaluation) Chapter 3: The Theory of Socialist Transformation (Weight: 5/48; Level: Memorization, Understanding, Evaluation) Chapter 4: Theoretical Achievements of the Initial Exploration of the Socialist Construction Path (Weight: 5/48; Level: Memorization, Understanding) Chapter 5: The Formation and Development of the Theoretical System of Socialism with Chinese Characteristics (Weight: 6/48; Level: Memorization, Understanding) Chapter 6: Deng Xiaoping Theory (Weight: 9/48; Level: Memorization, Understanding) Chapter 7: The Important Thought of the "Three Represents" (Weight: 6/48; Level: Memorization, Understanding) Chapter 8: The Scientific Outlook on Development (Weight: 6/48; Level: Memorization, Understanding)
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment, scored on a 100-point scale, accounts for 40% of the total grade. It primarily evaluates students self-directed learning, classroom participation, homework completion, periodic assessments, practical teaching activities, and component scores. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily evaluates the teaching content through a final examination and measures the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.

Reading List	1. Edited by the Compilation Group of "Theoretical System of Socialism with Chinese Characteristics (2021 Edition)." "Theoretical System of Socialism with Chinese Characteristics." Beijing: Higher Education Press; 2023. 2. Compiled by Sun Jutao. An Introduction to Deng Xiaoping Theory and the Important Thought of the Three Represents. Wuhan: Wuhan University Press. 2003 3. Edited by Zhuang Fuling. An Introduction to Mao Zedong Thought. Beijing: Renmin University of China Press. 1991 4. Selected Works of Mao Zedong, Volumes I, II, III, and IV; Peoples Publishing House, 1991 edition 5. *Collected Works of Mao Zedong*, Volumes 1–8; Peoples Publishing House, 1999 edition; Renmin University of China Press 6. Selected Works of Deng Xiaoping, Volumes I, II, and III; Peoples Publishing House, 1994 edition 7. The Report to the 17th National Congress of the Communist Party of China: "Hold High the Great Banner of Socialism with Chinese Characteristics and Strive for New Victories in Building a Well-Off Society in All Respects" 8. The Report to the 18th National Congress of the Communist Party of China: "Unswervingly Advance Along the Path of Socialism with Chinese Characteristics and Strive to Build a Moderately Prosperous Society in All Respects" 9. The Report to the 19th National Congress of the Communist Party of China: "Securing a Decisive Victory in Building a Moderately Prosperous Society in All Respects and Achieving Great Success for Socialism with Chinese Characteristics in the New Era," Peoples Publishing House, 2017 edition. 10. "Thirty Lectures on Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era," Publicity Department of the Central Committee of the Communist Party of China, Learning Press, May 2018 edition. 11. "Study Outline on Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era," Publicity Department of the Central Committee of the Communist Party of China, Learning Press, June 2019 edition. 12. Selected Excerpts from Xi Jinpings Discourses on "Remaining True to Our Original Aspiration and Keeping Our Mission Firmly in Mind," Institute of Party History and Literature, Central Party School, Party Building Publications Press, August 2019 edition. 13. The Report to the 20th National Congress of the Communist Party of China: "Hold High the Great Banner of Socialism with Chinese Characteristics and Unite and Strive to Build a Modern Socialist Country in All Respects" 14. *Study Outline on Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era (2023 Edition)*, Publicity Department of the Central Committee of the Communist Party of China, Learning Press, Peoples Publishing House
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version number	V202 6: The major version was released in September 202 6. V202 6 .1. Update: Calculation of credits and workload based on ECTS
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An Introduction to the Chinese National Community

Module Name	An Introduction to the Chinese National Community		
Semester in which this module is taught	Semester 4		
Module Lead	Jing He		
language	the Chinese language		
Relationship to the course	General Education Required Courses		
teaching method	Teacher-centered approaches: lecture method, case study method; Interactive approaches: inquiry-based problem-solving learning, teaching workshops (including group discussions); Practical approach: Practical teaching		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 60 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 hours in total) Self-study hours: 1.75 hours per week, over a total of 16 weeks (28 hours); includes: homework, exam preparation time, etc.		
credit	2 credits		
Required and recommended prerequisites for installing this module	Ideological and Moral Education and Rule of Law; Introduction to Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era; Basic Principles of Marxism; Outline of Modern and Contemporary Chinese History; Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Through the study of these courses, young students are guided to gain a profound understanding of the pluralistic yet unified nature of the Chinese nation, as well as the history of the Chinese nation — where all ethnic groups have jointly expanded the vast territory, jointly written a long history, jointly created a splendid culture, and jointly nurtured a great spirit — thereby continuously strengthening their identification with the great motherland, the Chinese nation, Chinese culture, the Communist Party of China, and socialism with Chinese characteristics, and building a solid ideological fortress to safeguard national unity and ethnic solidarity.	R6

CLO2	Through course study, students will gain an understanding of how the Communist Party of China has explored the Sinicization of Marxist theories on ethnic affairs and sought solutions to ethnic issues with Chinese characteristics; the Party serves as the vanguard for the independent liberation of the Chinese nation. By reshaping a unified modern multi-ethnic state, the Communist Party of China has reconstructed the modern civilization of the Chinese national community. Furthermore, students will comprehend the significant importance of the path of socialism with Chinese characteristics for building the Chinese national community, explore the pathways, principles, and objectives of constructing this community, cultivate their national pride, cultural confidence, and sense of national identity, and be encouraged to study, understand, and implement General Secretary Xi Jinpings important thoughts on strengthening and improving ethnic affairs, unite around the Party, and effectively tell the Chinese story of ethnic unity.	R7
CLO3	Through course study, students will gain an understanding of the challenges, new directions, and new achievements faced in building the Chinese national community amid the unprecedented global transformations of the past century; they will grasp the intrinsic connection between the Chinese national community and the community with a shared future for mankind, and deeply recognize that China is not only an advocate but also a steadfast promoter and practitioner of building such a community. Students are encouraged to enhance their ability to apply the Sinicized and contemporary Marxist theories on ethnicity — through their stance, perspectives, and methods — to understand, analyze, and solve real-world problems, and to actively engage in the process of advancing Chinese-style modernization.	R8

CLO 4	Through hands-on teaching and the experiential engagement with vivid historical materials, by creating specific historical or real-world scenarios, students understanding of the teaching content is deepened, and their sense of history and mission is cultivated; students are guided to develop a correct view of Chinese national history, strengthen their sense of community as part of the Chinese nation, forge a "Chinese heart" and nurture the "Chinese spirit"; they are encouraged to actively contemplate how to promote ethnic unity and progress, and to strive to contribute their youthful energy to the building of the Chinese national community and the advancement of modern Chinese civilization.	R9
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content	*An Introduction to the Chinese National Community* takes the cultivation of a strong sense of the Chinese national community as its central theme. Drawing upon the theoretical achievements in ethnic affairs research for the new era and aligning its teaching approach with the cognitive characteristics and developmental needs of contemporary university students, this course moves beyond a singular ethnic-narrative perspective. It integrates historical analysis with theoretical frameworks and combines emotional resonance with rational reasoning to provide a systematic exposition of the foundational theories of the Chinese national community and the evolutionary trajectory of the "multi-ethnic unity" framework; it traces the historical realities of interaction, exchange, and integration among all ethnic groups from ancient times to the present; and it elucidates core concepts such as the "Five Commons" and the "Four Shared Aspects." Furthermore, by incorporating real-world issues—including the practice of promoting ethnic unity in the new era and the development of modern Chinese civilization—the course balances theoretical depth with contemporary relevance. It helps undergraduate students move beyond fragmented understandings and construct a comprehensive and accurate historical and ethnic perspective on the Chinese nation. As an essential compulsory course, it serves to fulfill the fundamental mission of fostering moral character and nurturing young peoples sense of patriotism and national identity. This course is designed to address the developmental and academic needs of undergraduate students by establishing a four-dimensional educational framework aimed at comprehensively enhancing students overall competencies. In terms of knowledge objectives, the course helps students gain a precise understanding of the core concepts, theoretical systems, historical context, and policy implications of the Chinese national community; clarify key historical events relevant to ethnic development; avoid common misconceptions in historical interpretation; and solidify their theoretical foundation. Regarding competency objectives, the course cultivates students ability to analyze ethnic issues and interpret social phenomena from a holistic perspective, while enhancing their overall capacity to identify misguided ideologies, rationally assess disparities in ethnic development, and articulate the concept of a "community" clearly. For cognitive objectives, the course guides students to develop an integrated, interconnected, and developmental mindset, encouraging them to discard narrow or partial ways of thinking and to gain a deep understanding of the dialectical relationship inherent in the "pluralistic unity" of the Chinese nation; it also helps them firmly embrace a community mindset characterized by shared joys and sorrows, shared honor and disgrace, shared destiny, and shared future. As for practical objectives, grounded in the campus life and social practice contexts of undergraduate students, the course encourages them to translate theoretical knowledge into conscious action—by actively participating in practical initiatives centered on ethnic unity and in campus cultural activities—thereby consciously promoting ethnic solidarity, inheriting the outstanding Chinese cultural heritage, and growing into practitioners, advocates, and guardians of ethnic unity in the new era.
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	content of courses: Lecture 1: Fundamental Theory of the Chinese National Community (Weight: 2/32; Level: Memorization) Lecture 2: Developing a Correct Historical Perspective on the Chinese Nation (Weight: 2/32; Level: Memorization, Understanding, Evaluation) Lecture 3: The Emergence of Civilization and the Origins of the Chinese Nation (Prehistoric Period) (Weight: 2/32; Level: Memorization, Understanding, Evaluation) Lecture 4: The Evolution of Global Order and the Chinese Community (the Xia, Shang, and Zhou Dynasties) (Weight: 2/32; Level: Memorization, Understanding, Evaluation) Lecture 5: Great Unification and the Early Formation of the Chinese Nation (Qin–Han Period) (Weight: 2/32; Difficulty Level: Memorization, Understanding) Lecture 6: The Entry of the Five Barbarians into China and the Great Integration of the Chinese Nation (During the Wei, Jin, and Northern and Southern Dynasties Period) (Weight: 2/32; Difficulty Level: Memorization, Understanding) Lecture 7: The Integration of Chinese and Foreign Cultures and the Unprecedented Prosperity of the Chinese Nation (the Sui, Tang, and Five Dynasties periods) (Weight: 2/32; Level: Memorization, Understanding) Lecture 8: The Shared Commitment to China and the Cohesive Development of the Chinese Nation (the Liao, Song, Xia, and Jin Dynasties) (Weight: 2/32; Level: Memorization, Understanding) Lecture 9: Unifying the North and South and the Great Unification of the Chinese Nation (During the Yuan Dynasty) (Weight: 2/32; Level: Memorization, Understanding) Lecture 10: The Integration of Chinese and Foreign Thought and the Continuous Consolidation of the Chinese Nation (During the Ming Dynasty) (Weight: 2/32; Level: Memorization, Understanding) Lecture 11: The Unity of China and the Establishment of the Chinese National Framework (Pre-and Mid-Qing Dynasty) (Weight: 2/32; Level: Memorization, Understanding) Lecture 12: National Crisis and the Awakening of Chinese National Consciousness (1840 – 1919) (Weight: 2/32; Level: Memorization, Understanding) Lecture 13: The Vanguard and the Independent Liberation of the Chinese Nation (1919 – 1949) (Weight: 2/32; Level: Memorization, Understanding) Lecture 14: New China and the New Era of the Chinese Nation (1949–2012) (Weight: 2/32; Level: Memorization, Understanding) Lecture 15: The New Era and the Construction of the Chinese National Community (2012 – present) (Weight: 2/32; Level: Memorization, Understanding) Lecture 16: The New Path of Civilization and a Community with a Shared Future for Mankind (Weight: 2/32; Level: Memorization, Understanding)
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Assessment Methodology		1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment, scored on a 100-point scale, accounts for 40% of the total grade. This assessment primarily evaluates students self-directed learning, classroom participation, homework completion, periodic tests, practical teaching activities, and component scores. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily evaluates the teaching content through a final examination and measures the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Learning Examination Requirements	and	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List		[1] *Compilation of Documents from the 20th National Congress of the Communist Party of China*, Party Building Publications Press, 2022 edition. [2] Study Guide to the Spirit of the Central Conference on Ethnic Affairs, Ethnic Publishing House, 2023 edition. [3] *Guidance Reader on the Spirit of the National Conference on Commending Ethnic Unity and Progress: For Strengthening the Sense of Community for the Chinese Nation*, Ethnic Groups Press, 2021 edition. [4] *Q&A on Ethnic Theory and Policy in the New Era*, Ethnic Press, 2019 edition. [5] *Study Program for Xi Jinpings Thought on Socialism with Chinese Characteristics for a New Era*, Study Press & Peoples Publishing House, 2023 edition. [6] *Selected Works on National Issues by Classical Marxist Writers*, Social Sciences Academic Press, 2016 edition. [7] *Research on the Historical Experience of the Communist Party of China in Ethnic Affairs (Volumes I and II)*, CPC Party History Press, 2009 edition. [8] *Xi Jinping: The Governance of China* – Volumes I, II, III, and IV; China Foreign Languages Publishing House, 2020 edition [9] "On Persistently Promoting the Building of a Community with a Shared Future for Mankind," Central Literature Press, 2018 edition. [10] *100 Questions and Answers for Studying the 20th National Congress of the Communist Party of China*, Party Building Reading Materials Press, 2022 edition. [11] Fei Xiaotong: *The Multifaceted Unity of the Chinese Nation*, Minzu University of China Press, 2018 edition. [12] *Study Guide for the Spirit of the Central Conference on Ethnic Affairs*, Ethnic Groups Press, 2015 edition.

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Situation and policy

Module Name	Situation and policy		
Semester in which this module is taught	Semesters 1–6		
Module Lead	Luo Dan		
language	the Chinese language		
Relationship to the course	General Education Required Courses		
teaching method	Teacher-centered approach: lecture-based instruction, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, teaching workshops (including group discussions); Personalized approach: Complete homework assignments and study video resources on the YunBanke platform;		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 60 credit hours Total teaching hours: 3 hours per week, over 16 weeks (48 hours in total) Self-study hours: 1 hour per week, over a total of 12 weeks (12 hours); includes: homework, exam preparation time, etc.		
credit	2 credits		
Required and recommended prerequisites for installing this module	not have		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

CLO1	It is clear that culture is fundamental to a nation's foundation and destiny. The Chinese civilization is the only great civilization in the world that has endured continuously and evolved into its current form as a nation; it is currently positioned at a new historical juncture in the journey toward building a strong nation and achieving national rejuvenation. The realization of the great leap forward for the Chinese nation—from standing up and becoming prosperous to growing strong—will inevitably be accompanied by the significant development and flourishing of Chinese culture, and will naturally call for the construction of a strong socialist cultural power.	R 6
CLO2	It is important to recognize that since the 18th National Congress of the Communist Party of China, China has achieved historic accomplishments in its green and low-carbon development—accelerating the green energy transition, continuously optimizing and upgrading its industrial structure, steadily improving resource utilization efficiency, and consistently enhancing environmental quality—thereby laying a solid foundation for further advancing the green transformation. In 2024, the Central Committee of the Communist Party of China and the State Council issued the "Opinions on Accelerating the Comprehensive Green Transformation of Economic and Social Development," which calls for integrating the requirements of green transformation into the overall framework of economic and social development and promoting the green transformation across all dimensions, fields, and regions. In teaching, students should be fully aware of the significance of comprehensively advancing the green transformation, deeply understand the difficulties and challenges currently faced in accelerating this comprehensive green transformation of the economy and society, and be encouraged to leverage their talents and actively contribute to building a Green China.	R 6

CLO3	Quality education serves as the foundation for building a strong nation and achieving national rejuvenation. Establishing China as an education powerhouse has been a long-cherished aspiration of the Chinese people since modern times; it represents a pioneering task, a solid foundation, and a strategic support for advancing the construction of a strong nation and the great cause of national rejuvenation through Chinese-style modernization. The Outline emphasizes that the education powerhouse we aim to build is a socialist education powerhouse with Chinese characteristics, characterized by strong ideological and political leadership, robust talent competitiveness, solid scientific and technological support, effective livelihood security, strong social coordination capabilities, and significant international influence. Currently, the central task of our Party is to unite and lead the people of all ethnic groups across the country in advancing the great rejuvenation of the Chinese nation through Chinese-style modernization. The nations strategic interests and strategic objectives determine the priority orientation of national development, which means that building a strong education system must be given top priority. In the new context and on the new journey of national development, we must have a clear understanding of the new positioning and new tasks involved in building a strong education system.	R 7
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	CLO 4 Through the lessons drawn from both historical and contemporary experiences, it becomes clear that it is impossible for the two major powers—China and the United States—to remain entirely isolated from one another; attempting to alter each others positions is unrealistic, and the consequences of conflict or confrontation would be unbearable for either side. The China-U.S. relationship is not a binary choice of whether to improve it or not, but rather a mandatory task of how to improve it. The key to successfully addressing this mandatory task lies in adhering to the overarching principles of mutual respect, peaceful coexistence, and win-win cooperation. These three principles not only summarize the historical experience of China-U.S. relations but also offer valuable insights drawn from past conflicts between major powers; moreover, they serve as vital guiding beacons to ensure that the two giant maritime vessels—China and the United States—do not deviate from their course, lose momentum, or collide.	R 7
content	The "Situation and Policy" course takes the Sinicization of Marxism as its central theme, providing a comprehensive exposition of the main content, spiritual essence, historical significance, and guiding role of the theoretical achievements arising from the Sinicization of Marxism; it fully reflects the historical process and fundamental experience through which the Communist Party of China has continuously advanced the integration of the basic tenets of Marxism with Chinas specific realities; focusing on the latest achievements in the Sinicization of Marxism, it enables a thorough understanding of the new era into which socialism with Chinese characteristics has entered, systematically elucidates the core content and historical significance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, and fully embodies the strategic blueprint for building a modern socialist country. content of courses: Topic 1: Accelerating the Building of a Strong Socialist Cultural Nation (Weight: 1/48; Level: Memorization + Understanding + Analysis) Topic 2: Cultivating a Green Foundation to Build a Beautiful China (Weight: 1/48; Level: Memory + Understanding + Analysis) Topic 3: Evolving from a Large Education-Driven Nation to a Leading Education Power (Weight: 1/48; Level: Memorization + Understanding + Analysis) Topic 4: Exploring the Right Approach to Sino-US Relations in the New Era (Weight: 1 2/48; Level: Memorization + Understanding + Analysis)	

Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade; includes classroom performance, independent learning, etc. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily involves an online open-book exam to evaluate the extent to which the courses knowledge, competency, and literacy objectives have been achieved.
Learning Examination Requirements	and A 100-point grading scale; a score of 60 is the passing grade for this course.
Reading List	1. *Current Affairs Report – University Edition*, published by the Publicity Department of the CPC Central Committee and the *Current Affairs Report* Magazine, March 2025 edition 2. Supplementary Study Guide to the Report of the 20th National Congress of the Communist Party of China, Peoples Publishing House, October 2022 edition 3. *100 Questions and Answers for Studying the Report to the 20th National Congress of the Communist Party of China*, Learning Press and Party Building Publications Press, October 2022 edition
version number	V202 6 – The major version went live in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Military Theory and Training

Module Name	Military Theory and Training		
Semester in which this module is taught	First Semester		
Module Lead	Li Ruqiang, Yang Xiaofang		
language	the Chinese language		
Relationship to the course	Public Mandatory Courses		
teaching method	Teacher-centered approach: lectures, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical approach: Military training		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 148 credit hours Total teaching hours: Military Theory; 2 hours per week, over 18 weeks (36 total teaching hours); Military training: 112 credit hours, over a total of 3 weeks;		
credit	5 credits		
Required and recommended prerequisites for installing this module	The foundational knowledge in history, geography, politics, and other subjects acquired during high school enables students to understand basic concepts such as international relations and national security.		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Guide students to develop a correct worldview, outlook on life, and set of values.	R6
	CLO2	Master basic military knowledge and fundamental military skills.	R7
	CLO3	Strengthen the concept of national defense, national security awareness, and a sense of vigilance and crisis; promote the spirit of patriotism; carry forward the revolutionary heritage; and enhance students overall national defense competence.	R7

content	military theory: Through this course, students will acquire a solid foundation in military knowledge, strengthen their awareness of national defense and national security, and enhance their sense of vigilance and crisis readiness; the course also aims to foster a spirit of patriotism, carry forward the revolutionary heritage, and improve students overall national defense competence. content of courses: Chapter 1: Chinas National Defense (Weight: 10/36; Level: Understanding, Application) Chapter 2: National Security (Weight: 8/36; Level: Understanding, Application) Chapter 3: Military Thought (Weight: 6/36; Level: Understanding, Analysis, Application) Chapter 4: Modern Warfare (Weight: 6/36; Level: Understanding, Analysis, Application) Chapter 5: Information Technology Equipment (Weight: 6/36; Level: Understanding, Application) Military Training: Through this course, students will acquire a solid foundation in military knowledge, strengthen their awareness of national defense, national security, and the need to remain vigilant in the face of potential crises, foster a spirit of patriotism, carry forward the revolutionary heritage, and enhance their overall national defense competence. content of courses: Chapter 1: Joint Regulations – Education and Training (Weight: 40/112; Level: Understanding) Chapter 2: Shooting and Tactical Training (Weight: 20/112; Level: Understanding & Application) Chapter 3: Defensive Skills and War-Time Protection Training (Weight: 30/112; Level: Understanding, Application) Chapter 4: Basic Combat Readiness and Applied Training (Weight: 22/112; Level: Understanding, Application)
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Assessment Methodology	military theory: 1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily uses written examinations to evaluate the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved. military training: 1. Course Assessment: Formative Assessment. 2. Performance Assessment: A comprehensive evaluation based on the students training duration, actual performance, and level of mastery. Grades are categorized into four levels: Excellent, Good, Pass, and Fail.
Learning Examination Requirements	and A 100-point grading scale; a score of 60 is the passing grade for this course.
Reading List	1. National Defense Education Office. *Overview of National Defense History* [M]. Beijing: National Defense University Press, 2012. 2. Hun Ji. *Newly Compiled Military Course Textbook for University Students* [M]. Beijing: National Defense University Press, 2015. 3. Xu Yan; Du Wenlong, *Military Theory*, National Defense University of the Peoples Liberation Army, 2025.
version number	V202 6 – The major version was released in September 202 6. V202 6 .1. Update: Calculation of credits and workload based on ECTS

College Sport (Club)

Module Name	College Sport (Club)		
Semester in which this module is taught	Semesters 1, 2, 3, and 4		
Module Lead	Wang You		
language	the Chinese language		
Relationship to the course	General Education Required Courses		
teaching method	Teacher-centered approaches: lecture method, demonstration method, questioning Interdisciplinary approaches: inquiry-based problem-solving, group discussions, and collaborative learning methods Personalized learning approaches: Feynman Learning Method, Physical Education Teaching Practical approaches: task-driven method, practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 144 credit hours First semester teaching hours: 3 hours per week, over 16 weeks (total: 48 hours); Second semester teaching hours: 2 hours per week, over 16 weeks (total: 32 hours); Third semester teaching hours: 2 hours per week, over 16 weeks (total: 32 hours); Fourth semester teaching hours: 2 hours per week, over 16 weeks (total: 32 hours);		
credit	5 credits		
Required and recommended prerequisites for installing this module	not have		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

CLO1	Foster students correct understanding of this course, enhance their awareness of physical activity participation, and encourage them to engage in physical exercise consciously, proactively, and regularly. Enable students to master the fundamental principles and methods of scientific physical exercise — such as applying appropriate and effective fitness techniques, preventing and managing sports-related injuries, and conducting self-evaluation of exercise outcomes — thereby using scientific theoretical knowledge to guide their practical practice.	R 11
CLO2	Through physical education courses, students can master two sports they particularly enjoy along with the corresponding exercise methods, develop a genuine interest or passion in a specific area, engage in scientific physical activity, enhance their athletic abilities, nurture their sporting talents, participate in challenging activities and sports competitions, and lay a solid foundation for a "lifelong commitment to physical activity."	R 11
CLO3	Set physical education curriculum objectives; consciously use physical activities to improve mental well-being, overcome psychological barriers, and develop a positive and optimistic attitude toward life; employ appropriate methods to regulate ones emotions; experience the joy of physical activity and the sense of achievement during exercise; demonstrate strong sportsmanship and a spirit of cooperation, and properly manage the balance between competition and collaboration.	R 11

content	The "University Physical Education (Club)" course is a compulsory general education course offered to all undergraduate majors across the university. It aims to enhance students physical fitness, promote their overall health, and develop their sports literacy through physical activities, well-structured physical education, and scientifically designed exercise programs. This course is not only an essential component of the universitys curriculum system but also serves as the central element of the universitys physical education initiatives, playing a vital role in implementing quality-oriented education and nurturing well-rounded individuals. Guided by the philosophy of "Health First, Comprehensive Development, Focusing on Key Areas, and Serving the Local Community," the course encourages students to learn and engage in physical activity in a joyful manner, enabling them to master at least two sports skills and lay a solid foundation for lifelong physical activity. The course content encompasses elements that foster psychological resilience—such as competition, confrontation, cooperation, challenge, victory, and failure—as well as the humanistic spirit of sports, including the principles of fairness, the spirit of perseverance, the spirit of self-sacrifice, and team spirit. Furthermore, the course supports and fulfills the three graduation requirement indicators outlined in the "Graduation Requirements" section of the "Undergraduate Talent Development Plan for All Majors": Value-Based Requirements, Competency Requirements, and General Competencies. As one of the compulsory foundational disciplines within the universitys curriculum, it is an indispensable component in cultivating socialist modern-era professionals who achieve well-rounded development in moral, intellectual, physical, and aesthetic terms; it also helps students develop a stable awareness of employment and sound professional ethics, thereby completing the educational journey. This approach serves as the primary means of establishing school educational objectives and plays a crucial role in achieving the overall educational goals. The first semester focuses primarily on basketball, volleyball, and track and field as the core subjects; the second semester involves selecting one activity—such as basketball, football, volleyball, badminton, table tennis, martial arts, darts, pickball, etc.—based on the students interests, hobbies, and strengths; the third and fourth semesters cover the same content as the second semester, serving as a consolidation and advancement of the material learned during that period. content of courses: Part I: Study of Physical Education Theoretical Knowledge (Weight: 24/144; Level: Memorization + Understanding + Application) Part II: Learning Basic Sports Techniques (Weight: 120/144; Level: Memory + Understanding + Application)
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Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment, scored on a 100-point scale, accounts for 40% of the total grade. It primarily evaluates students performance in three components: homework assignments, periodic tests, and the Health Run. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily evaluates the teaching content through a skills-based test and measures the extent to which the course objectives have been achieved.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. *University Physical Education and Health Course*, edited by Zhang Juan et al., Beijing Sport University Press, 1st edition, September 2019. 2. *University Physical Education and Health (Illustrated Demonstrations + Video Guidance)*, edited by Yuan Shoulong; Peoples Posts and Telecommunications Press, 1st edition, 20 22. 3. *University Physical Education and Health Education*, edited by Li Nianmao et al., Beijing Institute of Technology Press, 1st edition, April 20 22.
version number	V202 6 – The major version became effective in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

College Foreign Languages (1)

Module Name	College Foreign Languages (1)		
Semester in which this module is taught	First Semester		
Module Lead	Qi Wen		
language	Chinese, English		
Relationship to the course	General Education Required Courses		
teaching method	Teacher-centered approaches: lecture-based teaching, heuristic teaching method, and task-driven teaching method; Interactive teaching methods: Comparative Teaching Method, Collaborative Learning Teaching Method, and Discussion-Based Teaching Method; Topic-Based Teaching Methodology		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 100 credit hours Total teaching hours: 4 hours per week, over 16 weeks (64 hours in total) Self-study hours: 2.25 hours per week, over a total of 16 weeks (36 total hours); includes: homework, independent study, exam preparation time, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	High School English		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

	CLO 1	Systematically study English pronunciation, basic vocabulary, and grammatical structures; master everyday conversational and simple written expression skills; be able to understand slow-paced English dialogues and brief announcements, and engage in basic question-and-answer exchanges; read and comprehend short, general English texts (e.g., notices, emails); perform simple translation between Chinese and English for sentences; and develop an initial awareness of language application. Cultivate a broad international perspective and be able to communicate and interact effectively in cross-cultural contexts.	R 8
	CLO 2	This course aims to foster in students an awareness of lifelong learning, help them deeply understand the importance of English as a vital tool for continuous learning and personal development, and equip them with effective self-directed English learning strategies — enabling them to use English to continually acquire new knowledge and adapt to future developments and challenges.	R 9
content	This course focuses on English language knowledge and applied skills, learning strategies, and intercultural communication, guided by foreign language teaching theories, with the aim of developing students comprehensive English proficiency. Through this course, students will enhance their listening, speaking, reading, and writing skills, as well as their self-directed learning abilities. This enables them to engage in effective oral and written communication in English in their future academic, professional, and social contexts, while strengthening their capacity for self-directed learning and improving their overall cultural literacy. content of courses: Unit 1: A Break for Fun & A Fresh Start (Weight: 1/64; Level: Memory + Comprehension + Application) Unit 2: Life Moments & Loving Parents, Loving Children (Weight: 1/64; Level: Memory + Understanding + Application) Unit 3: Wit and Fit – Heroes of Our Time (Weight: 1/64; Level: Memory + Understanding + Application) Unit 4: Relax and Explore & Social Media Matters (Weight: 1/64; Level: Memory + Understanding + Application) Unit 5: Getting from A to B & Friendship Across Borders and Gender (Weight: 1 2/64; Level: Memory + Comprehension + Application) Comprehensive Skills Training (Weight: 4/64; Level: Understanding + Application)		

Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 30% + Summative Assessment × 70% (1) Process-based assessment: scored on a 100-point scale, accounting for 30% of the total grade. (2) Summative Assessment: Maximum score of 100 points; accounts for 70% of the overall grade. This score is derived from the conversion of the CET-4 (College English Test Band 4) result. Course final assessment score = CET-4 score × 0.2
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. Zheng Shutang (Ed.), *New Horizon College English Listening, Speaking and Reading Coursebook 1* (Ideological and Political Education Wisdom Edition), Beijing: Foreign Language Teaching and Research Press, March 2024. 2. Zheng Shutang (Ed.), *New Horizon College English Reading and Writing Coursebook 1* (Ideological and Political Education Edition), Beijing: Foreign Language Teaching and Research Press, March 2023. 3. Higher Education University Foreign Language Teaching Guidance Committee of the Ministry of Education, *University English Teaching Guidelines (2020 Edition)*.Beijing: Higher Education Press, December 2020. 4. Ministry of Education and National Language Work Committee, "Chinese English Proficiency Scale". June 2018. 5. Compiled and edited by the National College English Test (CET-4 and CET-6) Examination Committee.National College English Test (CET-4 and CET-6) Syllabus (2016 Revised Edition), Shanghai: Shanghai Foreign Language Education Press, September 2016. 6. Edited by Yan Wenqing.College English Curriculum Guidelines for Ideological and Political Education.Shanghai: East China Normal University Press, May 2021
version number	V202 6 – The major version became effective in September 202 6. V202 6 .1. Update: Calculation of credits and workload based on ECTS

College Foreign Languages (2)

Module Name	College Foreign Languages (2)		
Semester in which this module is taught	Second Semester		
Module Lead	Qi Wen		
language	Chinese, English		
Relationship to the course	General Education Required Courses		
teaching method	Teacher-centered approaches: lecture-based teaching, heuristic teaching methods, and task-driven teaching methods; Interactive teaching methods: Comparative Teaching Method, Collaborative Learning Teaching Method, and Discussion-Based Teaching Method; Topic-Based Teaching Method		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 100 credit hours Total teaching hours: 4 hours per week, over 16 weeks (64 hours in total) Self-study hours: 2.25 hours per week, over a total of 16 weeks (36 hours); includes: homework, self-directed learning, exam preparation time, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	College Foreign Languages (1)		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

	CLO1	Enhance overall language proficiency by skillfully employing complex sentence structures and textual organization; be able to comprehend academic lectures or professional audio materials delivered at a moderate speaking rate, participate in group discussions, and articulate ones views; read professionally written popular science articles of moderate length and extract the core information; translate basic academic passages related to a specific field, ensuring the translated text is logically coherent; and draft clear, well-structured outlines for experimental reports or preliminary versions of technical documents.	R 8
	CLO2	This course aims to foster in students an awareness of lifelong learning, help them deeply understand the importance of English as a vital tool for continuous learning and personal development, and equip them with effective self-directed English learning strategies — enabling them to use English to continually acquire new knowledge and adapt to future developments and challenges.	R 9
content	This course focuses on English language knowledge and applied skills, learning strategies, and intercultural communication, guided by foreign language teaching theories, with the aim of developing students comprehensive English application skills. Through this course, students will enhance their listening, speaking, reading, and writing abilities, as well as their capacity for self-directed learning. This enables them to engage in effective oral and written communication in English across various contexts—including future academic pursuits, professional settings, and social interactions—while strengthening their self-directed learning capabilities and elevating their overall cultural literacy. content of courses: Unit 1: Language in Mission & Learning Experience (Weight: 1/64; Level: Remembering + Understanding + Applying) Unit 2: Exploring college majors & travel experience (Weight: 1 2/64; Level: Memory + Understanding + Application) Unit 3 The Young Generation: Making a Difference & Leisure Activities (Weight: 1 2/64; Level: Memory + Comprehension + Application) Unit 4: Mission and Exploration in Our Time && City Life (Weight: 1/64; Level: Memory + Understanding + Application) Unit 5: Striving for Financial Health & Jobs and Work Experiences (Weight: 1 2/64; Level: Memory + Understanding + Application) Comprehensive Skills Training (Weight: 4/64; Level: Understanding + Application)		

Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 30% + Summative Assessment × 70% (1) Process-based assessment: scored on a 100-point scale, accounting for 30% of the total grade. (2) Summative Assessment: Maximum score of 100 points; accounts for 70% of the overall grade. This score is derived from the conversion of the CET-4 (College English Test Band 4) result. Course final assessment score = CET-4 score × 0.2
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. Zheng Shutang (Ed.). *New Horizon College English – Reading and Writing Coursebook*, 4th ed. Beijing: Foreign Language Teaching and Research Press, December 2025. 2. Zheng Shutang (Ed.). *New Horizon College English – Listening, Speaking and Reading Course*, 4th Edition. Beijing: Foreign Language Teaching and Research Press, November 2025. 3. Higher Education University Foreign Language Teaching Guidance Committee of the Ministry of Education, *Guidelines for University English Teaching (2020 Edition)*.Beijing: Higher Education Press, December 2020. 4. Ministry of Education and National Language Work Committee, "Chinese English Proficiency Scale" – June 2018. 5. Compiled and edited by the National College English Test (CET-4 and CET-6) Examination Committee.National College English Test (CET-4 and CET-6) Syllabus (2016 Revised Edition), Shanghai: Shanghai Foreign Language Education Press, September 2016. 6. Edited by Yan Wenqing.College English Curriculum Guidelines for Ideological and Political Education.Shanghai: East China Normal University Press, May 2021
version number	V202 6 – The major version was released in September 202 6. V202 6 .1. Update: Calculation of credits and workload based on ECTS

College Foreign Languages (3)

Module Name	College Foreign Languages (3)		
Semester in which this module is taught	Third Semester		
Module Lead	Qi Wen		
language	Chinese, English		
Relationship to the course	General Education Required Courses		
teaching method	Teacher-centered approaches: lecture-based teaching, heuristic teaching methods, and task-driven teaching methods; Interactive teaching methods: Comparative Teaching Method, Collaborative Learning Teaching Method, and Discussion-Based Teaching Method; Topic-Based Teaching Methodology		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 50 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 hours in total). Self-study hours: 1.125 hours per week (totaling 18 hours over 16 weeks); includes: homework, independent study, exam preparation time, etc.		
credit	2 credits		
Required and recommended prerequisites for installing this module	College Foreign Languages (1), College Foreign Languages (2)		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

	CLO1	Deepen professional English proficiency to be able to draft standardized English experimental reports, technical documents, and paper abstracts; comprehend professional course lectures and retell key points; fluently present technical solutions and research findings; read and analyze English literature in the field of electrical automation and extract underlying technical logic; utilize translation tools to translate formal professional materials; participate in international conference discussions and demonstrate cross-cultural communication competence.	R 8
	CLO2	This course aims to foster in students an awareness of lifelong learning, help them deeply understand the importance of English as a vital tool for continuous learning and personal development, and equip them with effective self-directed English learning strategies — enabling them to use English to continually acquire new knowledge and adapt to future developments and challenges.	R 9
content	This course focuses on English language knowledge and applied skills, learning strategies, and intercultural communication, guided by foreign language teaching theories, with the aim of developing students comprehensive English application skills. Through this course, students will enhance their listening, speaking, reading, and writing abilities, as well as their capacity for self-directed learning. This enables them to engage in effective oral and written communication in English across various contexts—including future academic pursuits, professional settings, and social interactions—while strengthening their self-directed learning capabilities and improving their overall cultural literacy. content of courses: Unit 1 Access to success &The digital age: Are we ready?(Weight: 10/3–2; Level: Memory + Understanding + Application) Unit 2: Emotions Speak Louder Than Words & Life Stories (Weight: 10/3; Level: Memory + Understanding + Application) Unit 3: Love your neighbor & Lets go (Weight: 10/3; Level: Memory + Comprehension + Application) Comprehensive Skills Training (Weight: 2/32; Level: Understanding + Application)		

Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 30% + Summative Assessment × 70% (1) Process-based assessment: scored on a 100-point scale, accounting for 30% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 70% of the overall grade. This score is derived from the conversion of the CET-4 (College English Test Band 4) result. Course final assessment score = CET-4 score × 0.2
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. Edited by Zheng Shutang. *New Horizon College English (4th Edition) – Reading and Writing Coursebook 3 (Ideological and Political Education Edition)*. Foreign Language Teaching and Research Press, March 2023. 2. Zheng Shutang (Ed.). *New Horizon College English (4th Edition) Listening, Speaking and Viewing Coursebook 3 (Ideological and Political Education Edition)*. Foreign Language Teaching and Research Press, 2024.03 3. Higher Education University Foreign Language Teaching Guidance Committee of the Ministry of Education, *Guidelines for University English Teaching (2020 Edition)*. Beijing: Higher Education Press, December 2020. 4. Ministry of Education and National Language Work Committee, "Chinese English Proficiency Scale". June 2018. 5. Compiled and edited by the National College English Test (CET-4 and CET-6) Examination Committee. National College English Test (CET-4 and CET-6) Syllabus (2016 Revised Edition), Shanghai: Shanghai Foreign Language Education Press, September 2016. 6. Edited by Yan Wenqing. College English Curriculum Guidelines for Ideological and Political Education. Shanghai: East China Normal University Press, May 2021
version number	V202 6 – The major version was released in September 202 6. V202 6 .1. Update: Calculation of credits and workload based on ECTS

College Foreign Languages (4)

Module Name	College Foreign Languages (4)		
Semester in which this module is taught	Semester 4		
Module Lead	Qi Wen		
language	Chinese, English		
Relationship to the course	General Education Required Courses		
teaching method	Teacher-centered approaches: lecture-based teaching, heuristic teaching methods, and task-driven teaching methods; Interaction-based teaching methods: Comparative Teaching Method, Collaborative Learning Teaching Method, and Discussion-Based Teaching Method; Topic-Based Teaching Methodology		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 50 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 hours in total). Self-study hours: 1.125 hours per week (over 16 weeks, totaling 18 hours); includes: homework, independent study, exam preparation time, etc.		
credit	2 credits		
Required and recommended prerequisites for installing this module	College Foreign Languages (1), College Foreign Languages (2), College Foreign Languages (3)		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Enhance English proficiency to draft standardized English experimental reports, technical documentation, and paper abstracts; comprehend professional course lectures and retell key points; deliver technical solutions and research findings fluently; read and analyze English literature in the field of electrical automation and extract underlying technical logic; utilize translation tools to translate formal professional materials; participate in international conference discussions and demonstrate cross-cultural communication competence.	R 8

	CLO2 This course aims to foster in students an awareness of lifelong learning, deepen their understanding of the importance of English as a vital tool for continuous learning and personal development, and equip them with effective self-directed English learning strategies — enabling them to use English to continually acquire new knowledge and adapt to future developments and challenges. R 9
content	This course focuses on English language knowledge and applied skills, learning strategies, and intercultural communication, guided by foreign language teaching theories, with the aim of developing students comprehensive English application skills. Through this course, students will enhance their listening, speaking, reading, and writing abilities, as well as their self-directed learning capabilities. This enables them to engage in effective oral and written information exchange in English in their future academic, professional, and social contexts, while strengthening their self-directed learning abilities and improving their overall cultural literacy. content of courses: Unit 4: Whats the big idea? & When work is a pleasure (Weight: 10/3–2; Level: Remember + Understand + Apply) Unit 5: More Than a Paycheck & Chinas Space Dream (Weight: 10/3 2; Level: Memory + Comprehension + Application) Unit 6: For every question, there is an answer – The Economy: The driving force behind everyday life (Weight: 10/3; Level: Recall + Comprehension + Application) Comprehensive Skills Training (Weight: 2/32; Level: Understanding + Application)
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 30% + Summative Assessment × 70% (1) Process-based assessment: scored on a 100-point scale, accounting for 30% of the total grade. (2) Summative assessment: Maximum score of 100 points, accounting for 70% of the overall grade; this score is derived from the conversion of the CET-4 (College English Test Band 4) result. Course final assessment score = CET-4 score × 0.2
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.

Reading List	1. Zheng Shutang (Ed.). *New Horizon College English (4th Edition) – Reading and Writing Coursebook 3 (Ideological and Political Education Edition)*. Foreign Language Teaching and Research Press, March 2023. 2. Zheng Shutang (Ed.). *New Horizon College English (4th Edition) Listening, Speaking and Viewing Coursebook 3 (Ideological and Political Education Smart Edition)*. Foreign Language Teaching and Research Press, March 2024. 3. Higher Education Foreign Language Teaching Guidance Committee of the Ministry of Education, *Guidelines for College English Teaching (2020 Edition)*.Beijing: Higher Education Press, December 2020. 4. Ministry of Education and National Language Work Committee, *Chinese English Proficiency Scale*. June 2018. 5. Compiled and edited by the National College English Test (CET-4 and CET-6) Examination Committee.National College English Test (CET-4 and CET-6) Syllabus (2016 Revised Edition), Shanghai: Shanghai Foreign Language Education Press, September 2016. 6. Edited by Yan Wenqing.College English Curriculum Guidelines for Ideological and Political Education.Shanghai: East China Normal University Press, May 2021
version number	V202 6 – The major version went live in September 202 6. V202 6 .1. Update: Calculation of credits and workload based on ECTS

Health education for College students

Module Name	Health education for College students		
Semester in which this module is taught	Semester 1–2		
Module Lead	Zhao Haitao, Sun Siyu		
language	the Chinese language		
Relationship to the course	General Education Required Courses		
teaching method	Teacher-centered approaches: lecture-based teaching, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical approach: Group Psychological Counseling		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 60 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 hours in total) Self-study hours: 2 hours per week, over a total of 14 weeks (28 hours); includes: homework, pre-class preparation, and extended learning activities.		
credit	2 credits		
Required and recommended prerequisites for installing this module	not have		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Master the relevant theories and fundamental concepts of health education; clearly understand the criteria and significance of physical and mental health; be familiar with basic knowledge pertaining to physical and mental well-being, common physical and mental disorders and their clinical manifestations, as well as fundamental methods for maintaining physical and mental health.	R 8

CLO2	Enhance awareness of self-care and psychological crisis prevention, foster a sense of autonomy for healthy personal development, proactively explore ones own psychological traits and personality characteristics, be able to objectively assess ones physical condition, mental state, and behavioral capabilities, have a correct understanding of and acceptance of oneself, and actively cultivate healthy lifestyle and hygiene habits, cherish life, and nurture a deep appreciation for life.	R 11
CLO3	Acquire essential knowledge regarding injury prevention, infection prevention, and first aid; develop self-exploration skills, psychological adjustment skills, and psychological development skills — such as artificial respiration, chest compressions, environmental adaptation skills, stress management skills, communication skills, problem-solving skills, self-management skills, interpersonal communication skills, and career planning skills. When facing psychological challenges, individuals should be able to engage in self-adjustment or seek help, and actively explore a lifestyle that is suitable for them and conducive to social integration.	R 11

content	The "Health education for College students " course aims to help students understand the standards and significance of health, acquire knowledge regarding physical and mental disorders, prevention and control of infectious diseases, emergencies and first aid, medication use, and the characteristics of psychological development; foster a correct and scientific understanding of mental health among university students; enable them to accurately perceive and accept themselves; continuously enhance their psychological qualities and resilience; and equip them with skills for psychological adjustment and psychological development—including self-exploration, coping with stress, setbacks, interpersonal relationships, and psychological crises — while strengthening their awareness of maintaining mental health and improving their ability to practice self-care and prevent illness. This approach encourages university students to consciously adopt healthy behaviors and lifestyles, thereby promoting the comprehensive enhancement of their physical and mental well-being. content of courses: Chapter 1: Introduction to the Health Education Curriculum (Weight: 2/32; Level: Understanding) Chapter 2: Freshman Adaptation (Weight: 2/32; Levels: Comprehension, Application, Analysis) Chapter 3: Sexual Health Education for University Students (Weight: 4/32; Level: Comprehension, Application, Analysis) Chapter 4: Interpersonal Communication (Weight: 2/32; Levels: Understanding, Application, Analysis) Chapter 6: Learning Psychology (Weight: 2/32; Levels: Comprehension, Application, Analysis) Chapter 6: AIDS Prevention Education (Weight: 2/32; Level: Understanding, Application) Chapter 7: Disease Prevention, Safety Emergency Response, and Risk Mitigation (Weight: 2/32; Levels: Understanding, Application, Analysis) Chapter 8: Common Psychological Issues and Interventions Among University Students (Weight: 4/32; Level: Understanding, Application, Analysis) Chapter 9: Romantic Psychology (Weight: 2/32; Levels: Understanding, Application, Analysis) Chapter 10: Family Relationships and Mental Health (Weight: 2/32; Level: Comprehension, Application, Analysis) Chapter 11: Shaping a Healthy Personality (Weight: 2/32; Levels: Comprehension, Application, Analysis) Chapter 12: Emotional Regulation and Stress Management (Weight: 2/32; Level: Understanding, Application, Analysis) Chapter 13: Drug Prevention (Weight: 2/32; Levels: Understanding, Application, Analysis) Chapter 14: Life Education (Weight: 2/32; Levels: Comprehension, Application, Analysis)
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Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. This assessment primarily evaluates students overall performance in process-based assessment — comprising classroom participation, assignments, periodic tests, and self-directed learning—and determines the corresponding score allocation. (2) Summative assessment – maximum score: 100 points; accounts for 60% of the overall grade. This assessment primarily evaluates the teaching content through a final written examination and determines whether the course objectives have been met.
Learning Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. *University Students Mental Health*, edited by Lu Wang and Zhang Jing; Science Press, published in August 2024.
version number	V2026: The major version becomes effective in September 2026. V2026.1 – Update: Credit and workload calculation based on ECTS

College Students National Security Education

Module Name	College Students National Security Education		
Semester in which this module is taught	Second Semester		
Module Lead	Zhou Zunxiong		
language	the Chinese language		
Relationship to the course	General Education Required Courses		
teaching method	Teacher-centered approach: lectures, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical approaches: case studies, thematic discussions, and scenario-based exercises		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 30 credit hours Total teaching hours: 2 hours per week, over 8 weeks (16 hours in total) Self-study hours: 2 hours per week, over a period of 7 weeks (total: 14 hours)		
credit	1 credit		
Required and recommended prerequisites for installing this module	The foundational knowledge acquired in high school subjects such as politics, history, and geography enables students to understand basic concepts including the overall national security concept and international relations.		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Guide students to develop a sound worldview, outlook on life, and set of values; strengthen their patriotic convictions; and consciously embrace and support the Overall National Security Concept.	R6
	CLO2	Master the fundamental knowledge of national security and the core principles of the overall national security concept; understand the current landscape, risks, and challenges facing national security in key sectors.	R6

		CLO3	Enhance national security awareness and a sense of vigilance and crisis; strengthen legal literacy regarding national security; and improve the ability to identify, prevent, and respond to security risks, as well as to consciously safeguard national security.	R7
content		By taking this course, students will master the overall national security concept and fundamental knowledge of national security, enhance their awareness of national security and their legal literacy, and strengthen their willingness, proactiveness, and capacity to safeguard national security. content of courses: Chapter 1: General Overview of the Overall National Security Concept (Weight: 3/16; Level: Understanding, Application) Chapter 2: Key Areas of National Security (Weight: 5/16; Level: Understanding, Analysis, Application) Chapter 3: The Rule of Law in National Security and Security Prevention (Weight: 3/16; Level: Understanding, Application) Chapter 4: The Mission and Responsibility of University Students in Safeguarding National Security in the New Era (Weight: 3/16; Level: Understanding, Analysis, Application) Chapter 5: National Security Education Practice and Case Study Analysis (Weight: 2/16; Level: Understanding, Analysis, Application)		
Assessment Methodology		1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment, scored on a 100-point scale, accounts for 40% of the total grade; it primarily includes classroom participation, case studies, and regular assignments. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily uses written examinations to evaluate the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.		
Learning Examination Requirements	and	A 100-point grading system; a score of 60 is the passing grade for this course.		

Reading List	1. National Security Education Reader for University Students Compilation Group. National Security Education Reader for University Students [M]. Beijing: Higher Education Press, 2024. 2. Publicity Department of the Communist Party of China Central Committee; Office of the National Security Commission of the Communist Party of China. *Learning Outline on the Overall National Security Concept* [M]. Beijing: Learning Press and Peoples Publishing House, 2022. 3. National security laws and regulations, including the National Security Law of the Peoples Republic of China (effective as of July 1, 2015), the Anti-Espionage Law of the Peoples Republic of China, and the Cybersecurity Law of the Peoples Republic of China.
version number	V2026: The major version becomes effective in September 2026. V202 6 .1. Update: Calculation of credits and workload based on ECTS

Career Planning and Career Guidance (1)

Module Name	Career Planning and Career Guidance (1)		
Semester in which this module is taught	First Semester		
Module Lead	Xi Liying		
language	the Chinese language		
Relationship to the course	General Education Required Courses		
teaching method	Teacher-centered approach: lectures, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 24 credit hours Total teaching hours: 4 hours per week, over 4 weeks (16 hours in total) Self-study hours: 2 hours per week, over a total of 4 weeks (8 hours); includes: homework, exam preparation time, etc.		
credit	0.8 Credits		
Required and recommended prerequisites for installing this module	not have		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Master the relevant theories and methods of environmental analysis and self-exploration, and be able to utilize career planning tools to develop career plans; master the methods and techniques for creating a career development plan, and be able to implement the plan and make timely adjustments or improvements to it;	R7
	CLO2	Master self-exploration skills and the ability to accurately define ones personal career objectives; be able to obtain relevant information about ones field of expertise;	R9

		CLO3 By guiding and training students to explore their personal characteristics, this approach awakens their self-awareness; through the study and drafting of career plans, students can clarify their development pathways and take proactive steps to implement them.	R10
content		By taking this course, students will gain a deep understanding of the rich 内涵 of career planning, recognize its positive significance, and develop an awareness of self-directed career planning; they will master the relevant theories and methods of environmental analysis and self-exploration, and be able to apply career planning tools to formulate their career plans; they will acquire relevant information about their own profession; through studying and drafting career plans, they will clarify their career pathways and take proactive steps to implement them; they will maintain an open and positive attitude toward both the external world and their own personal characteristics, strengthen their capacity for critical thinking and practical application, and plan their careers rationally while providing timely feedback on their implementation. content of courses: Project 1: Cognitive Career (Weight: 4/16; Level: Memory + Understanding) Project 2: Self-Cognition (Weight: 4/16; Level: Analysis + Evaluation) Project 3: Career Exploration (Weight: 4/16; Level: Application + Analysis) Project 4: Career Decision-Making (Weight: 4/16; Level: Application + Analysis + Evaluation + Innovation)	
Assessment Methodology		1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. (2) Summative Assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment is primarily conducted by requiring students to submit a personalized university student career planning document, which is used to evaluate the extent to which the courses knowledge, competency, and literacy objectives have been met.	
Learning Examination Requirements	and	A 100-point grading system; a score of 60 is the passing grade for this course.	

Reading List	1. Li Xingzhou (Ed.). *Career Planning* (3rd Edition). Beijing: Beijing Normal University Press. 2. Huang Shumin and Lü Min (Eds.). *College Students Career Planning and Career Guidance* (2nd Edition). Beijing: Aviation Industry Press. 3. Huang Junyi (Ed.). Career Planning: Exploration and Management (2nd Edition). Dalian: Dalian University of Technology Press. 4. Wei Chao, Lei Wuming. University Career Planning and Professional Development. Wuhan: Wuhan University of Technology; China University MOOC Platform. 5. Wang Lixia, Liu Hong. Career Development and Planning. Nanchang: East China Jiaotong University; China University MOOC Platform. 6. "Teaching Requirements for the Career Development and Employment Guidance Course for University Students" (Jiao Gao Ting [2007] No.7) 7. Gui Zhou. Edited by Zhang Shuqian. *Career Development and Employment Guidance for University Students* (2nd Edition) (13th Five-Year Plan Textbook Series for General Higher Education Institutions – Public Basic Courses). Beijing: Tsinghua University Press.
version number	V202 6 – The major version went live in September 202 6.

Career Planning and Career Guidance (2)

Module Name	Career Planning and Career Guidance (2)		
Semester in which this module is taught	Semester 4		
Module Lead	Xi Liying		
language	the Chinese language		
Relationship to the course	General Education Required Courses		
teaching method	Teacher-centered approach: lectures, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 18 credit hours Total teaching hours: 2.5 hours per week over 4 weeks (10 total hours) Self-study hours: 2 hours per week over a total of 4 weeks (8 hours in total); includes: homework, exam preparation time, etc.		
credit	0.8 credits		
Required and recommended prerequisites for installing this module	Career Planning and Career Guidance (1)		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Understand relevant labor market information, knowledge of occupational classification, and basic knowledge of employment and entrepreneurship;	R7
	CLO2	Master essential workplace skills and familiarize yourself with the fundamentals and key practices of professional etiquette; use methods such as simulated interviews and group peer reviews to draft a preliminary resume and assess your interview performance;	R9

		CLO3	Conducting simulated interview training through student group activities helps cultivate students strong teamwork spirit and communication skills, as well as enhance their overall collaborative abilities.	R10
content		By completing this course, students will gain a comprehensive understanding of labor market-related information, relevant occupational classification knowledge, and fundamental concepts of employment and entrepreneurship; they will develop career decision-making skills, learn how to craft personalized resumes, and master the art of carefully designing resumes tailored to specific job requirements and characteristics; they will be able to draft initial resumes through methods such as simulated interviews and group peer evaluations, while also honing their interview skills; they will establish professional ethical standards and enhance their professional competence, aligning their personal development goals with organizational growth and the future of their nation and society, and cultivate a strong sense of collective honor as well as a profound sense of social responsibility to serve their country. content of courses: Project 1 Professional Competence (Weight: 4/10; Level: Memory + Understanding + Analysis + Evaluation) Project 2 Vocational Skills (Weight: 6/10; Levels: Application + Analysis + Evaluation + Creation)		
Assessment Methodology		1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily evaluates the teaching content through the submission of a thesis, measuring the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.		
Learning Examination Requirements	and	A 100-point grading system; a score of 60 is the passing grade for this course.		

Reading List	1. Huang Shumin and Lü Min (Eds.). *College Students Career Planning and Career Guidance* (2nd Edition). Beijing: Aviation Press. 2. Huang Junyi (Ed.). Career Planning – Exploration and Management (2nd Edition). Dalian: Dalian University of Technology Press. 3. Wei Chao, Lei Wuming. University Career Planning and Professional Development. Wuhan: Wuhan University of Technology; China University MOOC Platform. 4. Wang Lixia, Liu Hong. Career Path and Development Planning. Nanchang: East China Jiaotong University; China University MOOC Platform. 5. "Teaching Requirements for the College Students Career Development and Employment Guidance Course" (Jiao Gao Ting [2007] No.7) 6. Gui Zhou. Edited by Zhang Shuqian. *Career Development and Employment Guidance for University Students* (2nd Edition) (13th Five-Year Plan Textbook Series for General Higher Education Institutions – Public Basic Courses). Beijing: Tsinghua University Press.
version number	V202 6 – The major version went live in September 202 6.

Career Planning and Career Guidance (3)

Module Name	Career Planning and Career Guidance (3)		
Semester for this module	Semester 6		
Module Lead	Xi Liying		
language	the Chinese language		
Relationship to the course	General Education Required Courses		
teaching method	Teacher-centered approach: lectures, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 18 credit hours Total teaching hours: 4 hours per week, over a period of 3 weeks (12 hours in total) Self-study hours: 2 hours per week, over a total of 3 weeks (6 hours in total); includes: homework, exam preparation time, etc.		
credit	0.6 credits		
Required and recommended prerequisites for installing this module	Career Planning and Career Guidance (1), Career Planning and Career Guidance (2)		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Master the theories and methods pertaining to cognitive and personal characteristics as well as occupational characteristics; integrate these with social environment analysis to gain an understanding of the employment landscape and relevant policies and regulations;	R7
	CLO2	You can refine your resume through online submission, simulated interviews, group peer reviews, and other methods, while also mastering and enhancing your interview skills;	R9

	CLO3	Maintain an open and positive attitude toward both the external world and ones own personality; strengthen the power of critical thinking and practical application; and plan strategically while implementing feedback in a timely manner.	R10
content	By completing this course, students will master the theories and methodologies for understanding both personal and professional characteristics, and, through the integration of social environment analysis, gain a comprehensive understanding of the employment landscape as well as relevant policies and regulations; they will be able to effectively gather employment and entrepreneurship-related information—including current trends, supportive policies, and job market data—through online platforms, professional exploration, and career mentor interviews; they will be able to accurately define their personal job-seeking objectives using methods such as self-assessment, career aptitude testing, and feedback from others; they will establish professional ethical standards and enhance their professional competence, aligning their personal development goals with organizational growth and the future of the nation and society, thereby fostering in them a strong sense of collective honor and a profound social responsibility to serve their country. content of courses: Project 1 Employment Environment and Policies (Weight: 4/12; Level: Memory + Understanding + Analysis) Project 2 Employment Preparation (Weight: 4/12; Level: Applied, Analytical) Project 3 Employment Skills Enhancement (Weight: 4/12; Level: Analysis, Evaluation, Creation)		
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily involves evaluating the teaching content through the submission of a personal resume, measuring the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.		
Learning and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.		

Reading List	1. Huang Shumin and Lü Min (Eds.). *College Students Career Planning and Career Guidance* (2nd Edition). Beijing: Aviation Industry Press. 2. Huang Junyi (Ed.). Career Planning: Exploration and Management (2nd Edition). Dalian: Dalian University of Technology Press. 3. Wei Chao, Lei Wuming. University Career Planning and Professional Development. Wuhan: Wuhan University of Technology; China University MOOC Platform. 4. Wang Lixia, Liu Hong. Career Development and Planning. Nanchang: East China Jiaotong University; China University MOOC Platform. 5. "Teaching Requirements for the Career Development and Employment Guidance Course for University Students" (Jiao Gao Ting [2007] No.7) 6. Gui Zhou. Edited by Zhang Shuqian. *Career Development and Employment Guidance for University Students* (2nd Edition) (13th Five-Year Plan Textbook Series for General Higher Education Institutions – Public Basic Courses). Beijing: Tsinghua University Press.
version number	V2026: The major version becomes effective in September 2026. V2026.1 – Update: Calculation of credits and workload based on ECTS

Entrepreneurship education(1)

Module Name	Entrepreneurship education(1)		
Semester in which this module is taught	Second Semester		
Module Lead	Jinling		
language	the Chinese language		
Relationship to the course	General Education Required Courses		
teaching method	Teacher-centered approach: lectures, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Personalized approach: Self-directed learning (utilizing Cloud Classroom online resources and completing after-class assignments).		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 8 credit hours Total teaching hours: 4 hours (4 hours for theory; 0 hours for laboratory/practical sessions); each class session is counted as 1 hour. Self-study hours: A total of 4 hours, including: self-directed learning using YunBanke online resources, post-class assignments, and preparation for the final entrepreneurial project presentation.		
credit	0.27 ECTS credits (1 credit is equivalent to 30 class hours; corresponds to 0.2 Chinese credits)		
Required and recommended prerequisites for installing this module	not have		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Support graduation requirements
	CLO1	Be able to explain the essence of innovation and entrepreneurship, the key elements and basic types of entrepreneurship, as well as the nature and role of the entrepreneurial spirit; understand the relationship between entrepreneurship and personal development; cultivate an innovative mindset; and be capable of adapting to ever-changing social environments while offering innovative insights.	R7 、 R8 、 R9

	CLO2	Possess a lifelong learning mindset and self-directed learning capabilities; be able to conduct a self-assessment in light of the current employment and entrepreneurship landscape, as well as the evolving trends within the Electrical Engineering field; develop personal development and entrepreneurial action plans; and achieve both in-depth expansion and horizontal transfer of knowledge and skills.	R 11
content	Entrepreneurship Education (1) serves as an introductory course within the entrepreneurship curriculum system. This course enables students to articulate the fundamental concepts and functions of innovation and entrepreneurship, the entrepreneurial process and its key elements, the essence of the entrepreneurial spirit, and the importance of developing risk prevention awareness when engaging in entrepreneurial activities; it aims to stimulate students' entrepreneurial mindset, transform their perspectives on entrepreneurship, help them understand the core of entrepreneurship, restate its basic elements and processes, explain the relationship between entrepreneurship and personal life development, gain insight into and stay informed about the current state and emerging trends in employment and entrepreneurship within their respective fields of study, and equip them with the resilience and capability to adapt to and overcome uncertainties in an uncertain future. content of courses: Chapter 1: The Connotation of Innovation and Entrepreneurship (Weight: 1/4; Level: Understanding) Chapter 2: Key Elements and Basic Types of Entrepreneurship (Weight: 1/4; Level: Understanding) Chapter 3: Entrepreneurial Spirit (Weight: 1/4; Level: Understanding) Chapter 4: Entrepreneurship and Personal Development (Weight: 1/4; Level: Analysis)		
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 60% + Summative Assessment × 40% (1) Process-based assessment: scored on a 100-point scale, accounting for 60% of the total grade. This assessment primarily evaluates students' self-directed learning, classroom participation, and completion of after-class assignments. (2) Summative assessment: Maximum score of 100 points; accounts for 40% of the overall grade. This assessment is primarily conducted through an entrepreneurial project presentation, evaluating the extent to which the courses' knowledge, competency, and literacy objectives have been met.		
Learning Examination Requirements	and	A 100-point grading system; a score of 60 is the passing grade for this course.	

Reading List	1. *Fundamentals of Entrepreneurship*, edited by Jiao Yanjun, Liu Wenfeng, and Jin Ling; University of Electronic Science and Technology of China Press, published in January 2023.
version number	V2026: The major version becomes effective in September 2026. V2026.1 – Update: Calculation of credits and workload based on ECTS

Entrepreneurship education(2)

Module Name	Entrepreneurship education(2)		
Semester in which this module is taught	Fourth Semester		
Module Lead	Jinling		
language	the Chinese language		
Relationship to the course	General Education Required Courses		
teaching method	Teacher-centered approach: lectures, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical approach: Project-based practice (team formation, product prototype design, simulated business operations, business plan development, and business pitch practice).		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 52 credit hours Total teaching hours: 2 hours per week over 16 weeks (32 total teaching hours – 12 hours for theoretical instruction and 20 hours for laboratory/practical sessions); each class session is counted as 1 hour. Self-study hours: A total of 20 hours, including: self-directed learning through the YunBanke and online course "Create the Future – Start Now," after-class assignments (e.g., drafting patent application forms), and writing and preparing a business plan.		
credit	1.73 ECTS credits (1 credit is equivalent to 30 class hours; corresponds to 1.8 Chinese credits)		
Required and recommended prerequisites for installing this module	Entrepreneurship education(1)		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

CLO1	Be able to understand the context and significance of innovation and entrepreneurship education within the framework of achieving the great rejuvenation of the Chinese nation; inspire a sense of patriotism and commitment to the nation and the world; strengthen the entrepreneurial spirit, innovative mindset, and capabilities; effectively respond to the ever-changing social environment; propose innovative insights; and engage in creative practice.	R 7
CLO2	Possess the ability to organize and participate in collaborative learning and team-based activities; be proficient in the methods and theories related to entrepreneurial team formation, entrepreneurial thinking, design thinking, and business model design; and engage in teamwork on tasks such as product prototype development and patent application processes.	R 8
CLO3	Possesses strong communication, expression, and self-directed learning skills; is capable of assuming various roles within an entrepreneurial project, engaging with team members and delivering presentations, maintaining effective communication with clients and colleagues, and clearly articulating or responding to instructions.	R 9
CLO4	Understand the concept of business presentation; be familiar with relevant industry policies, challenges, and development trends; identify entrepreneurial opportunities based on a solid understanding of the electrical engineering discipline; develop the ability to draft business plans and deliver effective business roadshows; and cultivate an innovative mindset as well as the capacity to design ones future self-worth.	R 11

content	By taking this course, students will apply fundamental entrepreneurial knowledge and theories to summarize the basic entrepreneurial processes and methodologies, gain an understanding of the relevant laws, regulations, and policies governing entrepreneurship, cultivate their entrepreneurial mindset, enhance their sense of social responsibility, innovative spirit, and entrepreneurial capabilities, and support their entrepreneurial endeavors, employment opportunities, and overall personal development. This course also enables students to gain a deeper understanding of themselves, innovation, entrepreneurship, and business management. content of courses: Project 1: Entrepreneurs and Entrepreneurial Teams (Weight: 4/32; Level: Understanding) Project 2: Design Thinking (1) (Weight: 6/32; Level: Understanding) Project 3: Design Thinking (2) (Weight: 2/32; Level: Applied) Project 4: Marketing (Weight: 4/32; Level: Applied) Project 5: Corporate Simulation Operation (Weight: 4/32; Level: Application) Project 6: Business Model Design (Weight: 4/32; Level: Analysis) Project 7: Business Presentation (Theoretical) (Weight: 2/32; Level: Understanding) Project 8: Commercial Presentation (Practical Exercise) I (Weight: 4/32; Level: Creative) Project 9: Commercial Presentation (Practical Application II) (Weight: 2/32; Level: Creative)
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 60% + Summative Assessment × 40% (1) Process-based assessment, scored on a 100-point scale, accounts for 60% of the total grade. It primarily evaluates students self-directed learning, classroom performance, periodic assessments, and homework completion, with these components contributing to the final score. (2) Summative assessment: Maximum score of 100 points; accounts for 40% of the overall grade. This assessment primarily evaluates the teaching content through the submission of a business plan, measuring the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Learning Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. *Fundamentals of Entrepreneurship*, edited by Jiao Yanjun, Liu Wenfeng, and Jin Ling; University of Electronic Science and Technology of China Press, published in January 2023. 2. Online Course: "Create the Future – Start Now" (Premium Online Course).

version number	V2026: The major version becomes effective in September 2026. V2026.1 – Update: Credit and workload calculation based on ECTS
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Beauty and Life-The Ladies' School

Module Name	Beauty and Life-The Ladies' School		
Semester in which this module is taught	Third Semester		
Module Lead	Qian Li		
language	the Chinese language		
Relationship to the course	General Education Required Courses		
teaching method	Online self-directed learning approach: Engage in online learning via the Zhishu Platform (including video courses, chapter quizzes, discussion forum participation, and four online live interactive sessions); Practical approach: Complete post-class hands-on exercises (practice independently using the online instructional videos and submit your work or outcomes), followed by a comprehensive course conclusion presentation.		
Workload (including teaching hours and self-study hours)	Total workload: 30 credit hours; Teaching hours: 16 credit hours – all delivered via the Zhishi Tree platform for online learning (including 6 credit hours of theoretical content and 10 credit hours of corresponding online courses and learning tasks); Self-study hours: 14 credit hours – covering after-class assignments, preview and review activities, chapter quizzes, and final exam preparation, among other activities.		
credit	1 credit		
Required and recommended prerequisites for installing this module	This course is a compulsory general education course with no prerequisite requirements; it is available to all undergraduate majors across the university and should be taken in the third semester in accordance with the respective program curriculum. Students must have a Zhinshu Platform account and stable internet connectivity for online learning.		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

	CLO1	Gain a comprehensive understanding of the cultural connotations and personal qualities expected of a "dutiful lady" in the new era; master essential knowledge including etiquette norms, emotional and emotional intelligence management, womens reproductive health, marriage and family law, and basic financial management;	R7
	CLO2	Be able to apply etiquette norms and communication skills in specific contexts—such as academic, personal, and professional settings—to demonstrate appropriate behavior, language use, and emotional management skills;	R8
	CLO3	Capable of independently executing practical tasks such as makeup application, clothing coordination, floral arrangements, tea ceremonies, and coffee or pastry preparation; possesses strong aesthetic sensibility and practical life management skills;	R11
	CLO 4	Cultivate a modern feminine mindset characterized by self-respect, self-confidence, self-reliance, and self-improvement; develop well-rounded behavioral habits and personal integrity that embody both inner grace and outward propriety.	R11
content	By taking this course, students will acquire essential knowledge—including etiquette, emotional intelligence, health, law, and financial management—critical for women in the modern era, as well as practical life skills such as makeup application, fashion styling, floral arrangement, tea ceremony, and coffee and pastry preparation. They will apply these skills through scenario-based simulations and hands-on practice, thereby becoming cultured, tasteful, and elegant modern women who know how to love both themselves and others. Teaching Content: Chapter 1 – Opening Remarks (Weight: 1/16; Level: Understanding); Chapter 2 – Internal Cultivation within the "Heart" (Weight: 9/16; Level: Understanding + Application); Chapter 3 – External Expression through "Form" (Weight: 6/16; Level: Application + Creativity)		

Assessment Methodology	This course assessment is conducted online via the Zhixushu platform, and the grades are automatically calculated by the platform. The assessment dimensions include: Regular academic performance (including Learning Progress Score, Learning Habits Score, Interaction Score, and Knowledge/Chapter Tests – automatically recorded by the platform); Platform-calculated grades (including non-test-based grades and In-person Course Grades – automatically calculated by the platform); Final exam grade (platform-based online final exam covering all chapters); Make-up exam grade (students who fail the overall grade will be granted one make-up exam opportunity in accordance with university regulations). Total Course Grade = Platform-verified Final Total Score (out of 100 points); a score of 60 or above is considered passing; credits shall be converted in accordance with the schools regulations.
Learning Examination Requirements	and The Zhishu Tree platform supports online learning and online examinations; the assessment is based on a 100-point scale, with a passing score of 60 points for this course.
Reading List	Yang Bojuns annotated translation of *The Analects*; published by Zhonghua Book Company. Ye Lang: *Principles of Aesthetics*, Peking University Press, 2009. Zhihuishu Platform – Online Course Resource Pack for "Beauty and Life: Ladys Academy" (videos, course materials, and chapter quizzes).
version number	V2026: The major version was released as V2026.1 in September 2026. Key updates: Calculation of credits and workload based on ECTS; clarification of online learning and online assessment methods on the Zhishiyu platform.

Beauty and Life-The School of the Gentlemen

Module Name	Beauty and Life-The School of the Gentlemen		
Semester in which this module is taught	Third Semester		
Module Lead	Qian Li		
language	the Chinese language		
Relationship to the course	General Education Required Courses		
teaching method	Online self-directed learning approach: Engage in online learning via the Zhishu Platform (including video courses, chapter quizzes, interactive discussion forums, and four online live introductory sessions); Practical approach: Complete post-class hands-on exercises (practice independently using the online instructional videos and submit your work or outcomes); Final course presentation.		
Workload (including teaching hours and self-study hours)	Total workload: 30 credit hours; Teaching hours: 16 credit hours – all delivered via the ZhishiTree platform for online learning (including 6 credit hours of theoretical content and 10 credit hours of corresponding online courses and learning tasks); Self-study hours: 14 credit hours – covering post-class assignments, preview and review activities, chapter quizzes, and final exam preparation, among others.		
credit	1 credit		
Required and recommended prerequisites for installing this module	This course is a compulsory general education course with no prerequisite requirements; it is available to all undergraduate majors across the university and should be taken in the third semester in accordance with each majors academic program. Students must have a Zhinshu Platform account and reliable internet connectivity for online learning.		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Gain a comprehensive understanding of the cultural significance and contemporary relevance of the concept of the "gentleman" and the "gentlemanly character," and acquire foundational knowledge regarding the "Four Cultivations," the "Five Virtues," ritual culture, and traditional crafts;	R7

	CLO2	The ability to apply traditional Chinese etiquette and communication skills in real-world contexts—such as business and social settings—to build a positive personal image and foster strong interpersonal relationships;	R8
	CLO3	Be able to complete both physical and vocal training sessions, master the practical techniques for at least one traditional Chinese art form — such as the tea ceremony, calligraphy, or ceramic art—and independently create a work;	R11
	CLO 4	Cultivate the noble character of a gentleman — characterized by reverence for virtue and goodness, the harmonious development of both inner and outer qualities, and a balance between cultural refinement and substance — while strengthening cultural confidence and a sense of social responsibility.	R11
content	By taking this course, students will gain an understanding of the cultural significance and contemporary relevance of the concept of the "gentleman" and the "gentlemanly character," master etiquette norms, communication and expression techniques, as well as physical and vocal training methods, and explore traditional Chinese arts such as tea ceremony, calligraphy, and pottery craftsmanship—thereby becoming modern gentlemen who cultivate both inner virtue and external grace, as well as both cultural refinement and moral integrity. Teaching Content: Introduction – Preface (Weight: 1/16; Level: Understanding); Chapter 1 – The Intent of the Noble Person (Weight: 1/16; Level: Understanding) Chapter 2: The Virtue of the Noble Person (Weight: 3/16; Level: Understanding + Evaluation) Chapter 3: The Rituals of the Noble Person (Weight: 2/16; Level: Application) Chapter 4: The Beauty of the Noble Person (Weight: 2/16; Level: Application) Chapter 5: The Noble Character (Weight: 3/16; Level: Application + Creation) Chapter 6: The Art of the Noble Person (Weight: 4/16; Level: Application + Creation)		

Assessment Methodology	This course assessment is conducted online via the Zhishu Platform, and the grades are automatically calculated by the platform. The assessment dimensions include: Regular academic performance (including Learning Progress Score, Learning Habits Score, Interaction Score, and Knowledge/Chapter Tests – automatically recorded by the platform); Platform-calculated scores (including non-test scores and In-person Course Scores – automatically calculated by the platform); Final exam score (platform-based online final exam covering all chapters); Make-up exam score (students who fail the overall score will be granted one make-up exam opportunity in accordance with the university's regulations). Total Course Grade = Platform-verified Final Total Score (out of 100 points); a score of 60 or above is considered a passing grade; credits shall be converted in accordance with the university's regulations.
Learning Examination Requirements	The Zhishu Tree platform supports online learning and online examinations; the assessment is based on a 100-point scale, with a passing score of 60 points for this course.
Reading List	Yang Bojuns translated and annotated edition of *The Analects*; published by Zhonghua Book Company. Feng Youlan: *A Brief History of Chinese Philosophy*, Peking University Press. Zhihuishu Platforms online course resource package for "Beauty and Life – Gentlemans Academy" (videos, course materials, and chapter quizzes).
version number	V2026: The major version was released as V2026.1 in September 2026. Key updates: Calculation of credits and workload based on ECTS; clarification of online learning and online assessment methods on the ZhishiTu platform.

Labour education

Module Name	Labour education		
Semester in which this module is taught	Second Semester, Third Semester		
Module Lead	Guan Qiong		
language	the Chinese language		
Relationship to the course	General Education Required Courses		
teaching method	Teacher-centered approach: lectures, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 60 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 hours in total) Self-study hours: 2 hours per week, over a total of 14 weeks (28 hours), including homework, exam preparation time, etc.		
credit	2 credits		
Required and recommended prerequisites for installing this module	not have		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

CLO1	Foster a correct attitude toward labor. Guide students to recognize that labor is the foundation for the existence and development of human society, as well as the source of creating a better life. Cultivate in students a value system that respects labor and the workers, and help them understand that every form of labor possesses its own unique value and significance. Encourage students to embrace the belief that "labor is the most honorable" and to reject the mindset of reaping benefits without effort or the aversion to hard work.	R 5
CLO2	Promoting holistic physical and mental well-being: Labor education helps enhance students physical health, strengthen their physical fitness and immune system. Through hands-on labor activities, students can relax, reduce stress, and foster healthy psychological development. Additionally, labor education cultivates students aesthetic sensibility and artistic appreciation, thereby improving their quality of life.	R 7
CLO3	Develop basic labor skills. Students should acquire the fundamental labor skills required for daily life—such as self-care abilities (cooking, cleaning) and simple household repairs — as well as participate in appropriate productive or service-based activities, such as gardening, handicrafts, or community service. Through practical activities, students can translate theoretical knowledge into practical skills, enhancing their problem-solving abilities and hands-on competencies.	R 5

CLO 4	Foster good work habits by nurturing students willingness to actively and diligently engage in labor, and by integrating work into their daily lives. Guide students to value the fruits of their labor and to develop a sense of gratitude and a desire to give back to society. Emphasize work discipline and proper work practices to help students cultivate a rigorous, meticulous, and responsible attitude toward their work.	R 5
CLO 5	Foster positive attitudes and emotions toward labor. Inspire students enthusiasm and interest in working, allowing them to experience the sense of achievement and satisfaction that comes with labor. Cultivate students sense of responsibility and collective pride, enabling them to collaborate effectively within teams when completing tasks. Encourage students to bravely confront difficulties and challenges in their work, nurturing a resilient and optimistic mindset.	R 1 1

content	This course aims to strengthen education on the Marxist perspective of labor and the cultivation of labor values in the new era by integrating the scientific development of labor with the practical demands of labor practice. Through the study and application of the essence, value, and spirit of labor, the course seeks to guide students to honor, respect, and cherish labor, help them develop healthy labor habits, a positive attitude toward labor, and a strong spirit of labor engagement, and to foster a correct outlook on labor, values, and personal development, thereby promoting the comprehensive growth of students. Teaching Content (Theoretical Component): Chapter 1: The Connotation and Value of Labor (Weight: 2/8; Level: Memorization + Understanding) Chapter 2: Labor Quality and Spirit (Weight: 2/8; Levels: Understanding + Application + Evaluation) Chapter 3: Occupational Safety and Regulations (Weight: 2/8; Level: Understanding + Application + Analysis) Chapter 4: Enhancing Professional Work Competence (Weight: 2/8; Level: Application + Assessment + Creation) Teaching Content (Practical Component): Chapter 1: Social Practice and Volunteer Service (Weight: 6/24; Level: Applied + Creative) Chapter 2: Dormitory Discipline and Responsibility-Based Classroom Hygiene (Weight: 6/24; Level: Applied + Creative) Chapter 3: Labor Education Practice Base – Practical Activities (Weight: 12/24; Level: Applied + Creative)
Assessment Methodology	1. Course assessment consists of both theoretical and practical components. 2. Grade Calculation: Overall Course Grade = Theoretical Assessment × 40% + Practical Assessment × 60% (1) Theoretical assessment: scored on a 100-point scale, accounting for 40% of the total grade. (2) Practical Assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily evaluates the teaching content through instructor scoring, peer evaluation among students, and group scoring, and measures the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.

Learning and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. *Transformation and Reflection: The Historical Logic and Contemporary Reconstruction of Labor Education*, by Li Ke, Social Sciences Academic Press, March 20 19 edition; 2. *Labor Education for University Students in the New Era*, edited by Shi Zhongfeng et al., Tsinghua University Press, January 20 22 edition; 3. *Labor Education Curriculum for Higher Education Institutions in the New Era*, edited by Jin Zhihao et al., China Petrochemical Press, February 20 22 edition. 4.*General Education in Labor Education for University Students*, edited by Liu Xiangbing; Higher Education Press, July 202 3 edition.
version number	V2026: The major version becomes effective in September 2026. V2026.1 – Update: Calculation of credits and workload based on ECTS

Advanced Mathematics (1)

Module Name	Advanced Mathematics (1)		
Semester in which this module is taught	First Semester		
Module Lead	Zhu Meiling		
language	the Chinese language		
Relationship to the course	General Education Required Courses		
teaching method	Teacher-centered approaches: heuristic teaching, case-based teaching, and lecture-based instruction; Interdisciplinary approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions), and task-driven teaching methods;		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 120 credit hours Total teaching hours: 4 hours per week, over 16 weeks (64 hours in total) Self-study hours: 3.5 hours per week, over a total of 16 weeks (56 hours); includes: homework, exam preparation time, etc.		
credit	4 credits		
Required and recommended prerequisites for installing this module	elementary mathematics		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Master the theoretical knowledge related to advanced mathematics required for the Electrical(Power) Engineering and Its Automation major;	R 1
	CLO2	Apply advanced mathematical knowledge and methods to solve complex engineering problems in the field of electrical engineering using mathematical models;	R 2

		CLO 3 Develop a proper and rigorous approach to learning, sound study habits, meticulous and conscientious computational skills, as well as the ability to learn independently and collaborate effectively; acquire the capacity to apply mathematical thinking to learning, work, and daily life;	R 2
content		By taking this course, students will systematically acquire the fundamental theoretical knowledge of calculus and ordinary differential equations, master the essential foundational theories and commonly used computational methods, and be able to apply the mathematical techniques learned to solve practical problems in the field of electrical engineering. Through engagement with all components of the curriculum, students will develop proficient computational skills, strong abstract thinking abilities, logical reasoning skills, spatial imagination, self-directed learning capabilities, as well as the ability to analyze and solve real-world problems. content of courses: Chapter 1: Functions and Limits (Weight: 16/64; Level: Memorization + Understanding + Application) Chapter 2: Derivatives and Differentiation (Weight: 12/64; Level: Memorization + Understanding + Application) Chapter 3: Mean Value Theorem and Applications of Derivatives (Weight: 8/64; Level: Memorization + Understanding + Application) Chapter 4: Indefinite Integrals (Weight: 10/64; Level: Memorization + Understanding + Application) Chapter 5: Definite Integral (Weight: 6/64; Level: Memorization + Understanding + Application) Chapter 6: Applications of Definite Integrals (Weight: 4/64; Level: Memorization + Understanding + Application) Chapter 7: Differential Equations (Weight: 8/64; Level: Memorization + Understanding + Application)	
Assessment Methodology		1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 50% + Summative Assessment × 50% (1) Process-based assessment: scored on a 100-point scale, accounting for 50% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 50% of the overall grade. This assessment primarily evaluates the teaching content through written examinations, measuring the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.	
Learning Examination Requirements	and	A 100-point grading system; a score of 60 is the passing grade for this course.	

Reading List	[1] *Advanced Mathematics (Volume I)*, edited by the School of Mathematical Sciences, Tongji University; Higher Education Press, published in July 2023. [2] *Advanced Mathematics (Volume I)*, compiled by the Advanced Mathematics Textbook Compilation Group of Northwestern Polytechnical University, Science Press, published in August 2024. [3] *Advanced Mathematics*, edited by Tao Jinrui; China Machine Press, published in January 2021. [4] Advanced Mathematics (Volume I), edited by Zhu Shixin and Tang Shuo; Higher Education Press, published in July 2020.
version number	V2026: The major version becomes effective in September 2026. V2026.1 – Update: Calculation of credits and workload based on ECTS

Advanced Mathematics (2)

Module Name	Advanced Mathematics (2)		
Semester in which this module is taught	Second Semester		
Module Lead	Zhu Meiling		
language	the Chinese language		
Relationship to the course	Core compulsory courses for disciplinary and professional programs		
teaching method	Teacher-centered approaches: heuristic teaching, case-based teaching, and lecture-based instruction; Interdisciplinary approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions), and task-driven teaching methods;		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 120 credit hours Total teaching hours: 4 hours per week, over 16 weeks (64 hours in total) Self-study hours: 3.5 hours per week, over a total of 16 weeks (56 hours); includes: homework, exam preparation time, etc.		
credit	4 credits		
Required and recommended prerequisites for installing this module	Advanced Mathematics (1)		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Master the theoretical knowledge related to advanced mathematics (multivariable calculus and infinite series) required for the Electrical(Power) Engineering and Its Automation major;	R 1
	CLO2	Apply the acquired knowledge and methods of multivariable calculus and infinite series to solve problems in the field of electrical engineering using mathematical models;	R 2

		CLO 3 Develop a proper and rigorous approach to learning, sound study habits, meticulous and conscientious computational practices, as well as self-directed learning and collaborative communication skills; acquire the ability to apply mathematical thinking to learning, work, and daily life;	R 1
content		By taking this course, students will systematically acquire the fundamental theoretical knowledge of multivariable calculus and infinite series, master the essential theoretical concepts and commonly used computational methods, and be able to apply the mathematical techniques learned to solve practical problems in the field of electrical engineering. Through the various instructional components of this course, students will develop strong computational skills, robust abstract thinking abilities, sound logical reasoning skills, excellent spatial imagination, independent learning capabilities, and the ability to analyze and solve real-world problems. content of courses: Chapter 8: Vectors and Spatial Analytic Geometry (Weight: 12/64; Level: Memorization + Understanding + Application) Chapter 9: Differential Calculus of Multivariate Functions and Its Applications (Weight: 16/64; Level: Memorization + Understanding + Application) Chapter 10: Multiple Integrals (Weight: 8/64; Level: Memorization + Understanding + Application) Chapter 11: Line and Surface Integrals (Weight: 14/64; Level: Memorization + Understanding + Application) Chapter 12: Infinite Series (Weight: 14/64; Level: Memory + Understanding + Application)	
Assessment Methodology		1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 50% + Summative Assessment × 50% (1) Process-based assessment: scored on a 100-point scale, accounting for 50% of the total grade. (2) Summative assessment – maximum score: 100 points; accounts for 0% of the overall grade. This assessment primarily uses written examinations to evaluate the teaching content and to measure the extent to which the courses knowledge, competency, and literacy objectives have been achieved.	
Learning Examination Requirements	and	A 100-point grading system; a score of 60 is the passing grade for this course.	

Reading List	[1] Advanced Mathematics (Volume II), edited by the School of Mathematical Sciences, Tongji University; Higher Education Press, 8th edition, June 2023. [2] *Advanced Mathematics (Volume II)*, compiled by the Advanced Mathematics Textbook Compilation Group of Northwest University, Science Press, 3rd edition, August 2021. [3] Advanced Mathematics (Volume II), edited by Bao Yong and Zhang Yanjun; Mechanical Industry Press, 1st edition, January 2020. [4] *Advanced Mathematics (Part II)*, edited by Fei Weiyin and Liang Yong; University of Science and Technology of China Press, 3rd edition, January 2021.
version number	V2026: The major version becomes effective in September 2026. V2026.1 – Update: Credit and workload calculation based on ECTS

Artificial Intelligence and Computational Thinking

Module Name	Artificial Intelligence and Computational Thinking		
Semester in which this module is taught	Second Semester		
Module Lead	Zhang Shujuan		
language	the Chinese language		
Relationship to the course	General Education Required Courses		
teaching method	Teacher-centered approaches: lecture method, demonstration method, case-based teaching, and questioning Interdisciplinary approaches: inquiry-based problem-solving, group discussions, and collaborative learning methods Personalized learning approaches: Feynman Learning Method, Computer-Based Instruction Practical approaches: task-driven method, practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 90 credit hours Total teaching hours: 3 hours per week, over 16 weeks (48 hours in total) Self-study hours: 2.63 hours per week (over 16 weeks, totaling 42 hours); includes: homework, exam preparation time, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	not have		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

CLO1	Understand the fundamental concepts and principles of computer systems and networks; be familiar with Python syntax and basic concepts, comprehend basic data structures, and master the use of Python's standard and third-party libraries; grasp the basic concepts, commonly used AI methods, principles, and implementations of artificial intelligence; understand the specific applications of AI in various professional domains as well as ethical considerations related to AI; and establish a solid knowledge foundation for interdisciplinary practice.	R 5
CLO2	能夠 diagnose simple network issues and leverage network search tools to obtain reliable information; capable of applying Python programming to solve real-world problems, and possessing the ability to utilize AI tools to assist in programming as well as apply computational thinking to address complex challenges; able to employ fundamental artificial intelligence methods and tools to analyze and solve problems, assess algorithmic limitations, identify data biases, and develop a scientifically rigorous technical application logic; fosters interdisciplinary thinking skills to meet the technological demands of future intelligent professional environments.	R 5
CLO3	Cultivate a rigorous and truth-seeking work ethic along with a scientific mindset; develop sound technical values, strengthen awareness of AI ethics and legal considerations, and build an understanding of technical risk prevention and control; foster interdisciplinary innovative competencies to adapt to human – machine collaborative work models.	R 8

content	This course focuses on the fundamentals and literacy of information computing, Python programming, and artificial intelligence technologies and applications. It aims to address the growing demand for the integration of AI technologies across science and engineering disciplines, help students build a systematic cognitive framework in the field of artificial intelligence, and enable them to master the underlying logic of intelligent systems through computational thinking training. The course seeks to cultivate students ability to understand and apply the principles and typical methods of AI technologies, as well as their capacity for innovation and interdisciplinary application, while guiding them to consider the ethical and social implications of technological advancements. content of courses: Chapter 1: Information and Computing (Weight: 2/48; Level: Memory + Understanding) Chapter 2: Computer Systems and Operating Principles (Weight: 2/48; Level: Memorization + Understanding) Chapter 3: Computer Networks and Information Security (Weight: 4/48; Level: Memorization + Understanding + Analysis) Chapter 4: Overview of Artificial Intelligence (Weight: 2/48; Level: Memory + Understanding) Chapter 5: Large Language Model Technologies and Applications (Weight: 8/48; Level: Memory + Understanding + Application) Chapter 6: Python Language Fundamentals (Weight: 10/48; Level: Memorization + Understanding + Application) Chapter 7: Fundamentals of Python Artificial Intelligence (Weight: 6/48; Level: Memorization + Understanding + Application) Chapter 8: Machine Learning (Weight: 6/48; Level: Memory + Understanding + Application) Chapter 9: Neural Networks and Deep Learning (Weight: 8/48; Level: Memory + Understanding + Application)
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Assessment Methodology		1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. This assessment primarily evaluates the completion of four components: classroom performance, homework assignments, periodic tests, and self-directed learning. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily evaluates the teaching content through a combination of a computer-based examination and a comprehensive design task, and measures the extent to which the course objectives have been achieved.
Learning Examination Requirements	and	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List		1. *General Education in Computing and Artificial Intelligence*, edited by Pu Yunwei; Peoples Posts and Telecommunications Press, published in August 2025. 2. *Introduction to Computing and Artificial Intelligence*, edited by Luo Juan; Peoples Posts and Telecommunications Press, published in February 2022. 3. *Fundamentals of Python Programming (3rd Edition)*, authored by Song Tian, Huang Tianyu, and Yang Yating; published by Higher Education Press in September 2024. 4. *Introduction to Artificial Intelligence*, edited by Wang Dong and Ma Shaoping, Tsinghua University Press, January 2025.
version number		V202 6 – The major version was released in September 202 6. V202 6 .1. Update: Calculation of credits and workload based on ECTS

College Physics (1)

Module Name	College Physics (1)		
Semester in which this module is taught	Second Semester		
Module Lead	Deng Zhenmin		
language	the Chinese language		
Relationship to the course	Professional Core Compulsory Courses		
teaching method	Teacher-centered approach: lectures and demonstrations; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical method: Experimental method		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 60 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 hours in total) Self-study hours: 2 hours per week, over a total of 14 weeks (28 hours); includes: pre-class preparation, post-class assignments, exam preparation time, etc.		
credit	2 credits		
Required and recommended prerequisites for installing this module	higher mathematics		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

CLO1	Demonstrate a thorough mastery of the fundamental concepts and core principles of classical mechanics and electrostatic fields; be able to integrate these principles with foundational knowledge from advanced mathematics to apply natural science concepts—such as the laws of mechanical motion and the mechanisms of electric field interaction—to the analysis and formal description of fundamental electrical engineering problems — including mechanical stress analysis in electrical equipment, high-voltage electrostatic insulation, and electric field charge transport—thereby providing a solid theoretical foundation for subsequent specialized studies.	R 1
CLO2	For fundamental complex problems in electrical engineering related to mechanics and electrostatic fields, students should be able to establish appropriate mathematical and physical models based on fundamental physical laws and mathematical methods; determine suitable boundary conditions according to specific engineering scenarios; perform model solving, result verification, and mechanism analysis; and develop preliminary capabilities in engineering modeling and quantitative problem-solving.	R 4
CLO3	The ability to conduct systematic research on typical physical phenomena related to mechanics and electrostatic fields, and to apply these insights to engineering scenarios—including the structural stress analysis of electrical equipment, high-voltage electrostatic field protection, and insulation characteristics — by independently designing and performing fundamental verification experiments; through observing experimental phenomena, summarizing experimental patterns, and analyzing underlying physical mechanisms, validating the engineering applicability of relevant theories; and possessing the capability to investigate, analyze, and experimentally verify fundamental physical phenomena associated with electrical systems.	R 4

	CLO 4 Be able to correctly select and operate various experimental apparatuses and measuring instruments according to the requirements of mechanical and electrostatic field experimental tasks and research objectives; strictly adhere to laboratory safety operating procedures and perform experimental procedures in a standardized manner; be capable of accurately collecting and systematically organizing experimental data, conducting scientific error analysis, and ensuring that the experimental process is conducted in compliance with standard protocols, the experimental data are authentic and reliable, and the experimental conclusions are trustworthy.	
content	"College Physics (1)" is a core foundational course recommended by the "National Standard for Teaching Quality of Undergraduate Programs in General Higher Education Institutions." It is a compulsory course that supports the graduation requirements for the Electrical(Power) Engineering and Its Automation major, and also supports and implements Items 1.1, 1.2, and 4 of the "Graduation Requirements" outlined in the "Undergraduate Talent Development Plan for the Electrical(Power) Engineering and Its Automation Major." There are four indicator points in total: 1 and 4.3. The subsequent courses in this curriculum include "Engineering Electromagnetic Fields" and "Electrotechnics"; "College Physics (1)" serves as an essential foundation for students pursuing these subsequent courses. content of courses: Prerequisite: Vector (Weight: 2/32; Level: Memory + Understanding) Chapter 1: Kinematics of a Particle (Weight: 4/32; Understanding + Application) Chapter 2: Newtons Laws of Motion (Weight) 8/32 (Understanding + Application + Analysis) Chapter 3: Law of Conservation of Momentum and Law of Conservation of Energy (Weight: 4/32; Understanding + Application + Analysis) Chapter 4: Rigid Body Rotation and Fluid Motion (Weight: 6/32; Understanding + Application + Analysis) Chapter 5: Static Electric Fields (Weight: 8/32; Memory + Understanding + Application + Analysis)	

Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment, scored on a 100-point scale, accounts for 40% of the total grade. It primarily evaluates students homework, laboratory projects, midterm examinations, and classroom participation. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily evaluates the teaching content through a closed-book final examination, measuring the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Learning Examination Requirements	and A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. Physics, 7th Edition – Volume I, edited by Ma Wenwei; Higher Education Press, August 2024 (7th edition); 2. *University Physics* (Volumes I & II), edited by Zhang Sanhui; Tsinghua University Press, 3rd edition, January 2021; 3. *University Physics* (Volumes I and II), edited by Feng Wangjun; Science Press, 2nd edition, August 2021.
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

College Physics (2)

Module Name	College Physics (2)		
Semester in which this module is taught	Third Semester		
Module Lead	Deng Zhenmin		
language	the Chinese language		
Relationship to the course	General Education Required Courses		
teaching method	Teacher-centered approach: lectures and demonstrations; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical method: Experimental method		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 60 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 hours in total) Self-study hours: 2 hours per week, over a total of 14 weeks (28 hours); includes: pre-class preparation, post-class assignments, exam preparation time, etc.		
credit	2 credits		
Required and recommended prerequisites for installing this module	Advanced Mathematics, College Physics (1)		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

CLO1	Master the fundamental theories and core principles of steady magnetic fields, electromagnetic induction, and alternating electromagnetic fields; be able to leverage tools such as vector calculus and advanced mathematics — combined with an electrical engineering background—to perform mechanistic analysis and formal modeling of complex electrical engineering problems — including motor excitation, electromagnetic field distribution in power transmission lines, electromagnetic coupling, and electromagnetic compatibility — thereby establishing a solid foundation for the engineering application of electromagnetic theory.	R 1
CLO2	For complex engineering problems in the field of electrical engineering — such as electromagnetic field distribution, electromagnetic induction effects, electromagnetic energy conversion, and electromagnetic field coupling in multi-medium systems—this capability enables the construction of mathematical and physical models based on the fundamental equations of electromagnetic fields, the establishment of appropriate boundary conditions tailored to the actual operating conditions of electrical equipment, the execution of model calculations, the derivation of field distributions, and the analysis of results; thereby providing the ability to model and solve electromagnetic field-related engineering problems.	R 4
CLO3	The ability to systematically investigate typical electromagnetic physical phenomena related to electrical engineering — such as electromagnetic induction, self-induction and mutual induction, electromagnetic field propagation, and electromagnetic shielding — and to design and validate experimental setups tailored to engineering scenarios — including power equipment, electromagnetic protection, and electrical power transmission — enables the verification of the engineering applicability of electromagnetic field theory through experimental observation, pattern identification, and mechanism analysis, thereby equipping practitioners with the capability to conduct research on and experimentally validate electromagnetic physical phenomena.	R 4

	CLO 4 Based on the requirements for electromagnetic field parameter measurement and electromagnetic property investigation, students should appropriately select specialized experimental equipment—such as magnetic field measurement systems and electromagnetic induction testing apparatus — and conduct experiments in strict compliance with electrical laboratory safety regulations; they should also accurately collect experimental data — including magnetic flux density, induced electromotive force, and field distribution — and systematically perform data organization, error analysis, and result summarization to ensure that the experimental procedure is conducted safely and in accordance with established protocols, and that the experimental data are accurate and reliable.	
content	"College Physics (2)" is a core foundational course recommended by the "National Standard for Teaching Quality of Undergraduate Programs in General Higher Education Institutions." It is an obligatory course that supports the graduation requirements for the Electrical(Power) Engineering and Its Automation major, and also supports and implements Items 1.1, 1.2, and 4 of the "Graduation Requirements" as outlined in the "Undergraduate Talent Development Plan for the Electrical(Power) Engineering and Its Automation Major." There are four indicator points in total: 1 and 4.3. The subsequent courses in this curriculum include "Engineering Electromagnetic Fields," "Electrotechnics," and others; "College Physics (2)" serves as an essential foundation for students pursuing these subsequent courses. content of courses: Chapter 6: Conductors and Dielectrics in Electrostatic Fields (Weight: 10/32; Level: Understanding + Application + Analysis) Chapter 7: Constant Magnetic Fields (Weight: 10/32; Focus: Memorization + Understanding + Application + Analysis) Chapter 8: Electromagnetic Induction; Electromagnetic Fields (Weight: 12/32; Understanding + Application + Analysis + Evaluation)	

Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. This assessment primarily evaluates students homework, laboratory projects, midterm examinations, and classroom participation. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily evaluates the teaching content through a closed-book final examination, measuring the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Learning Examination Requirements	and A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. Physics, 7th Edition – Volume I; edited by Ma Wenwei; Higher Education Press; 7th edition, August 2024; 2. *University Physics* (Volumes I and II), edited by Zhang Sanhui; Tsinghua University Press, 3rd edition, January 2021; 3. *University Physics* (Volumes I and II), edited by Feng Wangjun; Science Press, 2nd edition, August 2021.
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Linear algebra

Module Name	Linear algebra		
Semester in which this module is taught	Third Semester		
Module Lead	Zhang Dan		
language	the Chinese language		
Relationship to the course	Professional Core Compulsory Courses		
teaching method	Teacher-centered approaches: heuristic teaching, case-based teaching, and lecture-based instruction; Interdisciplinary approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions), and task-driven teaching methods;		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 90 credit hours Total teaching hours: 3 hours per week, over 16 weeks (48 hours in total) Self-study hours: 2.63 hours per week (over 16 weeks, totaling 42 hours); includes: homework, exam preparation time, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	Advanced Mathematics (1)		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Master the theoretical knowledge related to linear algebra required for the Electrical(Power) Engineering and Its Automation major;	R 1
	CLO2	Apply the knowledge and methods of linear algebra to solve relevant problems in the field of electrical engineering using mathematical models;	R 1
	CLO 3	Develop a proper and rigorous approach to learning, sound study habits, meticulous and conscientious computational skills, as well as the ability to learn independently and collaborate effectively; acquire the capacity to apply mathematical thinking to learning, work, and daily life;	R 1

content	By completing this course, students will systematically acquire the fundamental concepts, theories, and methods related to determinants, matrices, and systems of linear equations in linear algebra; they will be able to compute determinants using the properties of determinants or the theorem for expanding a determinant along a given row or column; they will become proficient in performing matrix addition, subtraction, scalar multiplication, and matrix multiplication; they will be able to find the inverse of a matrix using elementary row operations; they will be able to determine the nature of the solutions to a system of linear equations; and they will master the use of determinants, matrices, and vectors as tools to solve various problems involving systems of linear equations. Through this course, students will develop their computational skills, data processing abilities, abstract reasoning skills, and logical thinking abilities, while also establishing a solid mathematical foundation necessary for pursuing advanced courses and applying these concepts in related fields. content of courses: Chapter 1: Determinants (Weight: 8/48; Level: Memory + Understanding + Application) Chapter 2: Matrices (Weight: 10/48; Level: Memory + Understanding + Application) Chapter 3: Linear Systems of Equations (Weight: 10/48; Level: Memory + Understanding + Application) Chapter 4: n-Dimensional Vector Spaces (Weight: 6/48; Level: Memory + Understanding + Application) Matrix eigenvalues and eigenvectors (Weight: 8/48; Level: Memory + Understanding + Application) Chapter 6: Quadratic Forms (Weight: 6/48; Level: Memory + Understanding + Application)
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 50% + Summative Assessment × 50% (1) Process-based assessment: scored on a 100-point scale, accounting for 50% of the total grade. (2) Summative assessment – maximum score: 100 points; accounts for 50% of the overall grade. This assessment primarily evaluates the teaching content through written examinations, measuring the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Learning Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.

Reading List	[1] *Linear Algebra*, edited by Xiao Macheng; Higher Education Press, 3rd edition, September 20 21. [2] *Linear Algebra* by Wu Ganchang, China Renmin University Press, 5th edition, June 2021. [3] *Linear Algebra*, edited by Zhong Yuquan and Zhou Jian; published by Science Press, 2nd edition, January 2020.
version number	V2026: The major version becomes effective in September 2026. V2026.1 – Update: Credit and workload calculation based on ECTS

Probability Theory and Mathematical Statistics

Module Name	Probability Theory and Mathematical Statistics		
Semester in which this module is taught	Third Semester		
Module Lead	Zhang Dan		
language	the Chinese language		
Relationship to the course	Professional Core Compulsory Courses		
teaching method	Teacher-centered approaches: heuristic teaching, case-based teaching, and lecture-based instruction; Interdisciplinary approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions), and task-driven teaching methods;		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 90 credit hours Total teaching hours: 3 hours per week, over 16 weeks (48 hours in total) Self-study hours: 2.63 hours per week (over 16 weeks, totaling 42 hours); includes: homework, exam preparation time, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	Advanced Mathematics (1), Advanced Mathematics (2), Linear Algebra		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Master the theoretical knowledge related to probability theory and mathematical statistics required for the Electrical(Power) Engineering and Its Automation major;	R 1
	CLO2	Apply the knowledge and methods of probability theory and mathematical statistics to solve complex problems in the field of electrical engineering using mathematical models;	R 1

		CLO 3 Develop a proper and rigorous approach to learning, sound study habits, meticulous and conscientious computational practices, as well as self-directed learning and collaborative communication skills; acquire the ability to apply mathematical thinking to learning, work, and daily life;	R 1
content		By completing this course, students will become proficient in the fundamental theoretical concepts of probability theory and mathematical statistics, as well as the computational methods applicable to various mathematical problems; they will develop the ability to understand, analyze, and logically reason about relevant mathematical concepts, theorems, and conclusions, and will be capable of applying their knowledge of probability and statistics to solve practical problems in the field of electrical engineering. content of courses: Chapter 1: Random Events and Probability (Weight: 6/48; Level: Memorization + Understanding + Application) Chapter 2: Random Variables and Their Distributions (Weight: 8/48; Level: Memorization + Understanding + Application) Chapter 3: Multidimensional Random Variables and Their Distributions (Weight: 10/48; Level: Memorization + Understanding + Application) Chapter 4: Numerical Characteristics of Random Variables (Weight: 8/48; Level: Memorization + Understanding + Application) Chapter 6: Sample and Sampling Distributions (Weight: 8/48; Level: Memory + Understanding + Application) Chapter 9: Analysis of Variance and Regression Analysis (Weight: 8/48; Level: Memorization + Understanding + Application)	
Assessment Methodology		1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 50% + Summative Assessment × 50% (1) Process-based assessment: scored on a 100-point scale, accounting for 50% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 0% of the overall grade. This assessment primarily evaluates the teaching content through written examinations, measuring the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.	
Learning Examination Requirements	and	A 100-point grading system; a score of 60 is the passing grade for this course.	

Reading List	[1] *Probability Theory and Mathematical Statistics*, edited by Sheng Qiu, Xie Shiqian, and Pan Chengyi; Higher Education Press, 6th edition, July 2025. [2] *Probability Theory and Mathematical Statistics Tutorial*, edited by Shen Hengfan; Higher Education Press, 5th edition, June 2019. [3] *Textbook of Probability Theory and Mathematical Statistics*, edited by Long Yonghong; Higher Education Press, published in December 2020.
version number	V2026: The major version becomes effective in September 2026. V2026.1 – Update: Calculation of credits and workload based on ECTS

Complex Functions and Integral Transforms

Module Name	Complex Functions and Integral Transforms
Semester in which this module is taught	Semester 4
Module Lead	Yang Dewei
language	the Chinese language
Relationship to the course	Professional Core Compulsory Courses
teaching method	Teacher-centered approaches: lecture method, demonstration-decomposition method, and demonstrative calculation; Interactive approaches: flipped classroom model, teaching workshops (including group discussions); Personalized approaches: Independent reading and self-directed learning methods; Individual tutoring methods Practical methods: Computational exercise method, Engineering modeling practice
Workload (including teaching hours and self-study hours)	Total workload (estimated): 90 credit hours Total teaching hours: 3 hours per week over 16 weeks (48 total hours) Self-study hours: 3 hours per week, over a total of 14 weeks (42 hours), including homework, exam preparation time, etc.
credit	3 credits
Required and recommended prerequisites for installing this module	Advanced Mathematics, Linear Algebra

Module Objectives/Expected Learning Outcomes	Through the study of the course "Complex Functions and Integral Transforms," students have systematically acquired core knowledge — including complex number operations, analytic functions, complex integrals, residues, the Fourier transform, and the Laplace transform—as well as a deep understanding of the fundamental principles underlying complex-domain analysis and transform-domain problem-solving. They are now capable of determining the analyticity of complex functions, computing contour integrals, performing series expansions, applying integral transform techniques, and using the Laplace transform to solve differential equations. This course not only enhances students skills in complex mathematical derivation and computation but also highlights the practical value of this subject in engineering fields such as circuit design and automation.	Supports graduation requirements
Course Learning Outcomes		
CLO1	Correctly understand the concepts of complex numbers, the complex plane, complex-valued functions, the complex sphere, and the infinite point; proficiently master the operations, properties, and applications of complex numbers and complex-valued functions; comprehend the equivalent characterization theorem for analytic functions — particularly the Cauchy – Riemann conditions; understand the analyticity of elementary functions, as well as the infinitely differentiability of analytic functions, the isolation of zeros of analytic functions, the uniqueness theorem for analytic functions, and the maximum modulus principle;	R 1
CLO2	Understand the definition of the integral of a complex-valued function; proficiently master the Cauchy integral theorem and its generalized forms, the Cauchy integral formula, the mean value theorem for analytic functions, and their various applications; master the Taylor series and Laurent series expansions of analytic functions, and be able to apply them to solve practical problems; correctly understand the definition and the residue theorem;	R 1

	CLO3	Continuous learning capacity – characterized by a lifelong learning mindset, self-directed learning skills, and potential for personal development – enables individuals to achieve deep expansion and horizontal transfer of knowledge and skills through ongoing learning, thereby adapting to both societal and personal sustainable development.	R 1
content		By completing this course, students will become proficient in the fundamental theories and methods of complex functions and integral transforms; they will gain a deeper understanding of analytic functions, the Cauchy integral theorem, the Cauchy integral formula, the Taylor and Laurent expansions of analytic functions, and the residue theorem, and will be able to apply these concepts to solve simple practical problems. Chapter 1: Complex Numbers and Complex Functions (Weight: 4/48; Level: Memorization & Understanding)- Chapter 2: Analytic Functions (Weight: 4/48; Level: Understanding and Application)- Chapter 3: Integral Weighting for Complex Functions (Page 6/48; Level: Understanding and Application – Analysis)- - Chapter 4: Series Representation of Complex Functions – Weight: 6/48; Level: Understanding and Application (Analysis)- - Chapter 5: Residues and Their Applications – Weight: 6/48; Level: Understanding and Application Analysis)- - Chapter 6: Conformal Mapping Weighting – Page 6/48; Level: Memory – Understanding – Application) Chapter 7: Fourier Transform Weighting (Page 8/48; Level: Understanding – Applied Analysis)- - Chapter 8: Laplace Transform Weighting – Page 8/48; Level: Understanding – Applied Analysis)- -	
Assessment Methodology		1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily uses written examinations to evaluate the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.	
Learning Examination Requirements	and	A 100-point grading system; a score of 60 is the passing grade for this course.	

Reading List	1. *Complex Functions and Integral Transforms*, edited by Li Hong and Xie Songfa; Higher Education Press, published in May 2025. 2.*Complex Functions* (5th Edition), edited by Yu Jiarong; Higher Education Press, published in May 2014.
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Circuit Theory (1)

Module Name	Circuit Theory (1)		
Semester in which this module is taught	First Semester		
Module Lead	Lu Xiaolei		
language	the Chinese language		
Relationship to the course	Professional Core Compulsory Courses		
teaching method	Teacher-centered approach: lecture-based instruction, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical method: Experimental method		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 90 credit hours Total teaching hours: 3 hours per week, over 16 weeks (total: 48 hours) Self-study hours: 3 hours per week, over a total of 14 weeks (42 hours); includes: pre-class preparation, post-class assignments, exam preparation time, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	《higher mathematics》		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

CLO1	Be able to articulate the fundamental concepts of circuit models, identify the voltage–current constraint relationships (VCR) and port characteristics of components such as resistors, independent sources, controlled sources, and ideal operational amplifiers, and construct idealized mathematical models for real-world electrical components. Be able to explain the topological constraint implications of Kirchhoffs laws (KCL and KVL) and apply the equivalent circuit transformation method to simplify first-order resistive circuits and perform parameter calculations. Be able to recall the standard equation formulation for the node voltage method and the mesh current method, clarify the applicable conditions and mathematical expressions of the superposition theorem, Thevenins theorem, Nortons theorem, and the maximum power transfer theorem, and perform analytical calculations on circuits containing ideal operational amplifiers.	R1
CLO2	Be able to compare the applicability and computational complexity of different analytical methods to select the optimal solution approach; capable of decomposing complex circuits into subproblems and comprehensively applying equivalent transformations and circuit theorems for analysis and verification; able to perform practical measurements using common electronic instruments, compare theoretical and experimental values, analyze the sources of error, and prepare a well-documented experimental report.	R 2
CLO3	Develop standardized habits for circuit drawing and computational notation; cultivate an understanding of data accuracy and engineering approximation; grasp the concept of "external equivalence" in port-network analysis, identify the trade-off between power transmission and efficiency, and develop an initial engineering mindset focused on safety and energy efficiency; recognize the foundational role of this course in subsequent specialized studies and acquire preliminary skills in consulting technical literature; adhere to safety protocols during laboratory sessions, demonstrating rigorous experimental professionalism.	R 2

content	Circuit Theory (1) is a compulsory course for students majoring in electrical and electronic engineering-related fields, and it serves as an introductory course to the theory of circuit analysis and design. The primary objective of this course is to investigate the fundamental theorems, laws, basic analytical methods, and applications of circuits. The aim is to enable students to understand the basic concepts of circuits, master the fundamental knowledge of modern circuit theory, become proficient in its analytical methods, theorems, and laws, and be able to apply these concepts flexibly in circuit analysis. This approach helps cultivate and enhance students ability to analyze and solve engineering problems, thereby laying a solid theoretical foundation for their advanced study and practical application in subsequent courses. content of courses: Chapter 1: Circuit Models and Circuit Laws (Weight: 10/48; Level: Memorization + Understanding + Application) Chapter 2: Equivalent Transformations of Resistive Circuits (Weight: 10/48; Level: Memorization + Understanding + Application) Chapter 3: General Analysis of Resistive Circuits (Weight: 8/48; Difficulty Level: Memorization + Understanding + Analysis) Chapter 4: Circuit Theorems (Weight: 12/48; Level: Memorization + Understanding + Application + Analysis) Chapter 5: Resistive Circuits Containing Operational Amplifiers (Weight: 8/48; Difficulty Level: Memory + Understanding + Application + Analysis)
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment, scored on a 100-point scale, accounts for 40% of the total grade. It primarily evaluates students completion of assignments, independent learning, performance on periodic quizzes, and midterm examinations. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily employs a closed-book written examination format to evaluate the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Learning Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.

Reading List	1. Luo Xianjue, ed., *Circuits* (6th Edition). Higher Education Press, 2022. 2.Wang Jian, Editor-in-Chief. *Principles of Circuits* (Volume I). Tsinghua University Press, 2016. 3.Wang Jian, ed. Circuit Principles (Volume II). Tsinghua University Press, 2016. 4.Li Yuanqing and He Jia (Eds.). *Fundamentals of Circuits and Practical Applications*. China Electric Power Press, 2017.
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Circuit Theory (2)

Module Name	Circuit Theory (2)		
Semester in which this module is taught	Second Semester		
Module Lead	Lu Xiaolei		
language	the Chinese language		
Relationship to the course	Professional Foundation Compulsory Courses		
teaching method	Teacher-centered approach: lecture-based instruction, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical method: Experimental method		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 120 credit hours Total teaching hours: 4 hours per week, over 16 weeks (64 hours in total) Self-study hours: 4 hours per week, over 14 weeks (totaling 56 hours); includes: pre-class preparation, post-class assignments, exam preparation time, etc.		
credit	4 credits		
Required and recommended prerequisites for installing this module	Advanced Mathematics; Circuit Theory (1)		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

CLO1	Be able to describe the VCR and energy storage characteristics of energy storage components (capacitors, inductors), the basic concepts of time-domain analysis for first-order and second-order circuits, and the mathematical principles of the phasor method; be able to apply the three-element method to analyze first-order circuits, use the phasor method to construct phasor models for sinusoidal steady-state circuits and perform power calculations, carry out decoupling equivalence transformations and ideal transformer transformation relationships for circuits containing coupled inductors, and recall the basic concepts and characteristic parameters of frequency response (resonance, Bode plots, filters); be able to clarify the applicable conditions for maximum power transfer in sinusoidal steady-state systems, and decompose three-phase circuits into single-phase circuits for calculation purposes.	R1
CLO2	Be able to compare the different applicable scenarios of time-domain analysis (the three-element method) and frequency-domain analysis (the phasor method) to select the optimal solution approach; be able to decompose complex sinusoidal steady-state circuits into sub-problems and employ methods such as phasor analysis, impedance equivalence, and power calculation to solve them step by step, while also assessing the reasonableness of the results; be able to use instruments such as oscilloscopes, signal generators, and AC millivoltmeters for practical measurements of dynamic circuits and sinusoidal AC circuits, compare theoretical and experimental values, analyze the resulting errors, and prepare a well-formatted experimental report.	R2

	CLO3 Develop standardized computational and writing habits; cultivate an understanding of data accuracy and engineering approximation; grasp the engineering mathematical concept of converting between time-domain and frequency-domain representations; identify the trade-off between power transmission and efficiency; recognize the foundational role of this course in fields such as power systems and signal processing; and acquire preliminary skills in consulting technical literature. During laboratory sessions, adhere to safety regulations for high-voltage alternating current systems, record data accurately, resist any attempt to tamper with or fabricate data, and demonstrate rigorous experimental professionalism.	R2
content	"Circuit Theory (2)" is an essential core professional course required for electrical and information engineering majors, playing a pivotal role in bridging previous and subsequent stages of the entire talent development program. As a follow-up course to "Circuit Theory (1)", it builds upon the knowledge acquired in the analysis of DC resistive circuits to further explore the analytical methods for dynamic circuits and sinusoidal steady-state circuits. Through this course, students will systematically acquire a comprehensive understanding of core theoretical concepts—including dynamic circuits and time-domain analysis, sinusoidal steady-state circuits (using the phasor method), circuits containing coupled inductors, frequency response, and three-phase circuits—and develop the fundamental ability to analyze and calculate AC and dynamic circuits, thereby laying a solid theoretical foundation for their subsequent studies in related specialized courses. content of courses: Chapter 6: Energy Storage Components (Weight: 2/64; Level: Memory + Understanding) Chapter 7: Time-domain analysis of first-order and second-order circuits (Weight: 10/64; Level: Memorization + Understanding + Application + Analysis) Chapter 8: Vector Method (Weight: 12/64; Level: Memory + Understanding + Application + Analysis) Chapter 9: Analysis of Sinusoidal Steady-State Circuits (Weight: 16/64; Level: Memory + Understanding + Application + Analysis) Chapter 10: Circuits Containing Coupled Inductors (Weight: 6/64; Level: Memory + Understanding + Analysis) Chapter 11: Circuit Frequency Response (Weight: 4/64; Level: Memory + Understanding + Analysis) Chapter 12: Three-Phase Circuits (Weight: 14/64; Level: Memory + Understanding + Application + Analysis)	

Assessment Methodology		1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment, scored on a 100-point scale, accounts for 40% of the total grade. It primarily evaluates students completion of assignments, independent learning, performance on periodic quizzes, and midterm examinations. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily involves a closed-book written examination to evaluate the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Learning Examination Requirements	and	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List		1. Luo Xianjue, ed., *Circuits* (6th Edition). Higher Education Press, 2022. 2.Wang Jian, Editor-in-Chief. Circuit Principles (Volume I). Tsinghua University Press, 2016. 3.Wang Jian, Ed. Circuit Principles (Volume II). Tsinghua University Press, 2016. 4.Li Yuanqing and He Jia (Eds.). *Fundamentals of Circuits and Practical Applications*. China Electric Power Press, 2017.
version number		V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Analog Electronics

Module Name	Analog Electronics		
Semester in which this module is taught	Third Semester		
Module Lead	Dong Yujie		
language	the Chinese language		
Relationship to the course	Professional Core Compulsory Courses		
teaching method	Teacher-centered approach: Lecture-based instruction; Interactive approaches: blended learning, teaching workshops (including group discussions); Practical methods: Practice Method, Experimental Method		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 120 credit hours Total teaching hours: 4 hours per week, over 16 weeks (64 hours in total) Self-study hours: 3–5 hours per week, over 16 weeks (totaling 56 hours); includes: pre-class preparation, post-class assignments, exam preparation time, etc.		
credit	4 credits		
Required and recommended prerequisites for installing this module	Advanced Mathematics; Circuit Theory (1); Circuit Theory (2)		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

CLO1	Master the fundamental characteristics, parameters, and operating principles of semiconductor devices; demonstrate proficiency in the structure, operating principles, and analytical calculation methods of various basic amplification circuits; gain an in-depth understanding of the core principles of integrated operational amplifiers, and become adept at analyzing the working mechanisms and application scenarios of fundamental operational amplifier circuits (e.g., inverting, non-inverting, differential, and summation circuits) as well as voltage comparators; acquire general methodologies for reading and analyzing analog circuit schematics, and develop the ability to apply fundamental theories and mathematical models to analyze basic engineering problems involving analog circuits.	R 1
CLO2	Master the internal architecture of integrated operational amplifiers and the functions of their individual modules; demonstrate proficiency in the analysis and design methodologies for analog arithmetic circuits and signal processing circuits; gain a deep understanding of how to determine the configuration and operating principles of negative feedback circuits, as well as their impact on the performance of amplification circuits; be capable of accurately identifying and selecting electronic components; skillfully utilize Multisim simulation software to complete circuit design, simulation debugging, and performance optimization; independently assemble physical circuits, troubleshoot faults, and conduct performance testing; possess the ability to record, analyze, interpret experimental data, and prepare standardized laboratory reports; and be able to design feasible analytical and research approaches to address complex analog circuit engineering problems.	R 3

CLO3	Demonstrate proficiency in the structure and analysis methods of sine wave waveform generation circuits, and be well-versed in the complete composition, operating principles, and design approach of DC regulated power supplies. Be capable of utilizing simulation tools for the simulation analysis and design of analog circuits in electrical engineering, thereby fostering a scientific experimental mindset and an innovative design mindset. Develop a rigorous engineering mindset, a strong sense of teamwork, and a thorough understanding of laboratory safety protocols; possess the comprehensive ability to independently apply analog electronics knowledge to solve practical engineering problems in the field of electrical engineering.	R 4
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content	The Analog Electronics Technology course is a core foundational course for the Electrical(Power) Engineering and Its Automation major; it features a rigorous theoretical framework and a strong emphasis on engineering practice. This course is designed with the core objectives of fostering moral character and nurturing students, developing their autonomous learning abilities, engineering practical skills, and innovative thinking; it integrates two major components: theoretical instruction and experimental training. The theoretical teaching module focuses on the core fundamentals of analog electronics, covering key topics such as semiconductor devices, amplification circuits, integrated operational amplifiers, feedback circuits, signal processing, waveform generation, and DC power supplies; it aims to impart the basic concepts of analog circuits, core circuit architectures, and standard analysis methods. The experimental and practical training module utilizes the Multisim simulation platform alongside hands-on hardware experimentation to conduct design-oriented experiments centered on the fundamentals and applications of operational amplifiers, thereby fostering students comprehensive practical skills in circuit design, simulation analysis, physical circuit assembly, fault diagnosis, data processing, and report writing. Through this course, students will gain a proficient mastery of the core theories and engineering application methods in analog electronics, and develop the ability to apply their professional knowledge and modern tools to solve practical problems in electrical engineering, thereby laying a solid foundation for their subsequent study of core specialized courses, engineering practice, and scientific research innovation. content of courses: Chapter 1: Common Semiconductor Devices (6/6; Level: Memory + Understanding) Chapter 2: Basic Amplification Circuits (10/64; Level: Memory + Understanding + Application) Chapter 3: Integrated Operational Amplifier Circuits (10/64; Level: Understanding + Analysis + Evaluation) Chapter 4: Frequency Response of Amplifier Circuits (4/64; Level: Memory + Understanding) Chapter 5: Feedback in Amplification Circuits (10/64; Level: Understanding + Analysis + Application) Chapter 6: Signal Operations and Processing (8/64; Level: Application + Analysis + Creation) Chapter 7: Waveform Generation and Signal Conversion (6/6; Level: Understanding + Analysis) Chapter 8: Power Amplification Circuits (4/64; Level: Memory + Understanding) Chapter 9: DC Power Supply (6/6 4; Level: Understanding + Analysis + Evaluation)
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Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment, scored on a 100-point scale, accounts for 40% of the total grade. It primarily evaluates students completion of assignments, independent learning, performance on midterm examinations, and submission of laboratory reports. (2) Summative assessment – maximum score of 100 points, accounting for 60% of the overall grade. This assessment primarily involves a closed-book written examination to evaluate the extent to which the courses knowledge, competency, and literacy objectives have been achieved.
Learning Examination Requirements	and A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. Tong Shibai, Hua Chengying. *Fundamentals of Analog Electronic Technology* (6th Edition). Higher Education Press, 2026 (Reprint). 2. Yang Suxing. *Brief Tutorial on Analog Electronic Technology Fundamentals* (2nd ed.). Beijing: Higher Education Press, 2019. 3. Kang Huaguang. *Fundamentals of Electronic Technology (Analog Section)* (Edition). Beijing: Higher Education Press, 2021.
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Digital Electronics Technology

Module Name	Digital Electronics Technology		
Semester in which this module is taught	Semester 4		
Module Lead	Dong Yujie		
language	the Chinese language		
Relationship to the course	Professional Core Compulsory Courses		
teaching method	Teacher-centered approach: Lecture; Interactive approaches: blended learning, teaching workshops (including group discussions); Practical methods: Practice method, Experimental method		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 120 credit hours Total teaching hours: 4 hours per week, over 16 weeks (64 hours in total) Self-study hours: 3.5 hours per week over 16 weeks (totaling 56 hours); includes: pre-class preparation, post-class assignments, exam preparation time, etc.		
credit	4 credits		
Required and recommended prerequisites for installing this module	Advanced Mathematics, University Physics, Circuit Theory (1), Circuit Theory (2), Fundamentals of Analog Electronics		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

CLO1	Understand various number systems and encoding principles; master various methods for describing and analyzing the logical functions of digital circuits; and be capable of designing simple digital logic circuits based on practical requirements; be proficient in consulting digital integrated circuit (IC) datasheets and understand the functions and usage of commonly used ICs. Gain a systematic grasp of core theoretical concepts—including Boolean algebra, logic gates, combinational logic circuits, and sequential logic circuits—and comprehend the design principles underlying various digital circuits; be able to independently complete typical digital circuit design tasks; and be proficient in using the Multisim software for circuit simulation and testing.	R 1
CLO2	Possesses fundamental skills in the fault analysis and troubleshooting of digital logic circuits, enabling the independent completion of the entire design process—including the creation of circuit schematics, compilation of component lists, and drafting of circuit test documentation; is capable of accurately identifying the core parameters and critical aspects of electronic engineering problems, and demonstrates proficiency in operating commonly used laboratory instruments such as oscilloscopes and logic analyzers; possesses the ability to independently carry out the full lifecycle of digital circuit design, implementation, debugging, and testing; has developed a mindset for identifying, analyzing, and resolving engineering problems through hands-on experience; exhibits strong self-directed learning capabilities, logical reasoning skills, and teamwork abilities; and is proactive in adapting to evolving industry technologies to drive personal professional growth.	R 3

	CLO3 Cultivate a rigorous and pragmatic scientific attitude alongside a meticulous craftsmanship spirit, and foster an academic philosophy that emphasizes independent thinking and the application of knowledge in practice. Dare to question, embrace innovation, pursue scientific truth, and develop strong innovative thinking and research literacy. Adhere to professional ethics and standards, demonstrate a strong sense of dedication, social responsibility, and teamwork, and embrace the professional commitment of serving the nation through science and technology.	R 4
content	Digital Electronics is an essential component of electronic technology; it serves as a core professional foundational course for undergraduate students majoring in Electrical(Power) Engineering and Its Automation, and represents the mainstream development direction of modern electronic technology. This course integrates two major modules — theoretical instruction and experimental training. The theoretical component is closely aligned with the core knowledge system of Digital Electronics, focusing on developing students ability to analyze and design digital electronic circuits, solidifying their professional foundation, and providing a solid basis for subsequent specialized coursework. The experimental training component utilizes the Multisim simulation software to conduct the design and simulation of combinational and sequential logic circuits, thereby deepening students understanding of theoretical concepts and comprehensively enhancing their practical skills in designing, debugging, and troubleshooting digital circuits, as well as their engineering practice competence. content of courses: Chapter 1: Numbering Systems and Code Systems (4/6; Level: Memory + Understanding) Chapter 2: Fundamentals of Boolean Algebra (8/64; Level: Memorization + Understanding + Application) Chapter 3: Gate Circuits (10/64; Level: Memory + Understanding + Application) Chapter 4: Combinational Logic Circuits (16/64; Level: Understanding + Analysis + Application + Creation) Chapter 5: Semiconductor Memory Circuits (4/64; Level: Memory + Understanding) Chapter 6: Sequential Logic Circuits (12/64; Level: Understanding + Analysis + Application + Evaluation) Chapter 7: Pulse Waveform Generation and Shaping Circuits (6/6 4; Level: Understanding + Analysis) Chapter 8: Digital-Analog and Analog-Digital Conversion (4/64; Level: Understanding + Assessment)	

Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment, scored on a 100-point scale, accounts for 40% of the total grade. It primarily evaluates students completion of assignments, independent learning, performance on midterm examinations, and submission of laboratory reports. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily employs a closed-book written examination format to evaluate the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Learning Examination Requirements	and A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1.Yan Shi. *Fundamentals of Digital Electronics* (6th Edition). Higher Education Press, 2026 (Reprint). 2.Yu Mengchang. *Brief Tutorial on Fundamentals of Digital Electronics Technology* (4th Edition). Higher Education Press, 2021. 3.Kang Huaguang. *Brief Tutorial on Fundamentals of Digital Electronics Technology* (6th Edition). Beijing: Higher Education Press, 2021.
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Introduction to Electrical Engineering

Module Name	Introduction to Electrical Engineering		
Semester in which this module is taught	First Semester		
Module Lead	Qiao Lin		
language	the Chinese language		
Relationship to the course	Professional Core Compulsory Courses		
teaching method	Teacher-centered approaches: lecture-based teaching, case-based teaching, and animated demonstrations; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions);		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 30 credit hours Total teaching hours: 2 hours per week over 8 weeks (16 hours in total) Self-study hours: 2 hours per week, over a total of 7 weeks (14 hours); includes: homework, exam preparation time, etc.		
credit	1 credit		
Required and recommended prerequisites for installing this module	/		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Understand the historical development, disciplinary framework, and research scope of the electrical engineering discipline; master the fundamental concepts and core terminology within the field of electrical engineering; and comprehend the strategic significance and vital role of electrical engineering in national economic and social development.	R 2

CLO2	Gain a preliminary understanding of the fundamental principles, application scenarios, and development trends across the major technical fields of electrical engineering—namely, electric machines and electrical apparatus and their control technology, power systems and automation technology, power electronics and electric drives, high-voltage and insulation technology, and new electrical engineering technologies—thereby establishing an integrated knowledge framework and a systematic approach to electrical engineering.	R6、 R7
CLO3	Understand the professional competency requirements, ethical codes of conduct, and industry standards for electrical engineers; foster in students a sense of commitment and responsibility toward the field of electrical engineering; instill in them a strong awareness of safety and a commitment to sustainable development; and inspire in students a sense of mission and a deep sense of belonging to their country and profession within the field of electrical engineering.	R 9

content	Introduction to Electrical Engineering is an introductory compulsory course for the Electrical(Power) Engineering and Its Automation major, serving as a bridging course that connects the foundational knowledge acquired in high school with university-level specialized study. This course aims to help new students develop a comprehensive understanding of the field of electrical engineering, enabling them to grasp its fundamental concepts, historical development, research scope, and future trends. The course content covers the disciplinary framework of electrical engineering, the basic architecture of power systems, the major technical domains within electrical engineering, as well as the professional competencies and social responsibilities of electrical engineers. Through this course, students will be guided to recognize the significant role of electrical engineering in national economic and social development, stimulate their interest and enthusiasm for the discipline, and lay a solid intellectual and knowledge foundation for their subsequent specialized coursework. content of courses: Chapter 1: Introduction (Weight: 1/8; Level: Memory + Understanding) Chapter 2: Electrical Machines and Equipment and Their Control Technology (Weight: 2/8; Level: Understanding + Application) Chapter 3: Power Systems and Automation Technology (Weight: 2/8; Level: Understanding + Application + Analysis) Chapter 4: Power Electronics Technology and Electric Drive Systems (Weight: 1/8; Level: Understanding + Application) Chapter 5: High Voltage and Insulation Technology (Weight: 1/8; Level: Memorization + Understanding) Chapter 6: New Electrical Engineering Technologies (Weight: 1/8; Memory + Understanding)
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Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment, scored on a 100-point scale, accounts for 40% of the total grade. It primarily evaluates students completion of assignments, their independent learning, and their performance in periodic quizzes. (2) Summative assessment – maximum score of 100 points, accounting for 60% of the overall grade. This assessment is primarily conducted through course papers to evaluate the extent to which the courses knowledge, competency, and literacy objectives have been achieved.
Learning Examination Requirements	and A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. Wang Zhaoan and Liu Jinjun (Eds.). Introduction to Electrical Engineering (3rd Edition). Xian Jiaotong University Press, 2022. 2. Ge Baojun and Liu Ji (Eds.). Introduction to Electrical Engineering (2nd Edition). China Machine Press, 2024.
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Engineering electromagnetic field

Module Name	Engineering electromagnetic field		
Semester in which this module is taught	Third Semester		
Module Lead	Cao Zhe		
language	the Chinese language		
Relationship to the course	Professional Core Compulsory Courses		
teaching method	Teacher-centered approaches: lecture-based teaching, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions);		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 60 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 hours in total) Self-study hours: 2 hours per week, over a total of 14 weeks (28 hours); includes: homework, exam preparation time, etc.		
credit	2 credits		
Required and recommended prerequisites for installing this module	《college physics》		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

CLO1	Understand the physical significance of key quantities — such as electric field strength, magnetic flux density, and magnetic field strength—and gain a deep understanding of the important properties and laws governing electromagnetic fields; be able to apply Gauss's theorem and Ampère's circuital law to calculate simple fields and qualitatively describe their approximate distribution; comprehend the distribution and transmission of electromagnetic field energy, and be able to use the virtual displacement method to simply calculate the electric and magnetic field forces; understand the calculation of capacitance, the capacitance of two-wire transmission lines, the electric field energy and its distribution in systems of charged conductors, and be able to calculate ground resistance.	R 1
CLO2	This course aims to develop students preliminary ability to qualitatively analyze and assess electromagnetic phenomena and processes in electrical engineering, as well as their fundamental skills in quantitative analysis, thereby laying a solid foundation for further study and application of various sophisticated electromagnetic field calculation methods.	R 3
CLO3	Through logical reasoning based on electromagnetic field theory, students will develop proper thinking methods and a rigorous scientific attitude.	R 4

content	Engineering Electromagnetic Fields is one of the core foundational courses in the Electrical(Power) Engineering and Its Automation program. The purpose of this course is to enable students to gain a comprehensive understanding of the fundamental laws, principles, and analytical methods governing macroscopic electromagnetic fields; to familiarize them with the formulation of boundary value problems in electromagnetic fields and the associated numerical computation techniques; and to introduce them to the application of electromagnetic field theory and methods in electrical engineering – thereby laying a solid foundation for their subsequent coursework and for solving practical engineering electromagnetic field problems. content of courses: Chapter 1: Vector Analysis and Fundamentals of Field Theory (Weight: 6/32; Level: Memorization + Understanding) Chapter 2: Basic Principles of Electrostatic Fields (Weight: 8/32; Level: Memorization + Understanding + Application) Chapter 3: Basic Principles of Constant Electric Fields (Weight: 2/32; Level: Understanding + Analysis) Chapter 4: Basic Principles of Steady Magnetic Fields (Weight: 6/32; Level: Memorization + Understanding + Application) Chapter 5: Fundamental Principles of Time-Varying Electromagnetic Fields (Weight: 6/32; Level: Understanding + Analysis + Evaluation) Chapter 6: Electromagnetic Field Problems in Electrical Engineering (Weight: 6/32; Level: Applied + Analytical + Creative)
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment, scored on a 100-point scale, accounts for 40% of the total grade. It primarily evaluates students completion of assignments, performance on periodic quizzes, independent learning, and midterm exam results. (2) Summative assessment – maximum score of 100 points, accounting for 60% of the overall grade. This assessment primarily involves a closed-book written examination to evaluate the extent to which the courses knowledge, competency, and literacy objectives have been achieved.
Learning Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. Yang Xianzhang (Ed.). Engineering Electromagnetic Fields (2nd Edition). China Electric Power Press, 202 3. 2.Zhang Huijuan, Lü Dianli et al., *Engineering Electromagnetic Fields*, China Machine Press, 2022. 3.Ni Guangzheng, ed., Principles of Engineering Electromagnetic Fields. Higher Education Press, 2016.

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Automatic control theory

Module Name	Automatic control theory		
Semester in which this module is taught	Semester 5		
Module Lead	Heng Zhang		
language	the Chinese language		
Relationship to the course	Professional Core Compulsory Courses		
teaching method	Teacher-centered approach: lecture-based instruction, case-based teaching, and demonstration method; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical methods: Experimental method, Practice method		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 120 credit hours Total teaching hours: 4 hours per week, over 16 weeks (64 hours in total) Self-study hours: 3.5 hours per week, over a total of 16 weeks (56 hours); includes: pre-class preparation, post-class assignments, exam preparation time, etc.		
credit	4 credits		
Required and recommended prerequisites for installing this module	Advanced Mathematics, Linear Algebra, Complex Analysis, Circuit Theory		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

CLO1	Understand the basic concepts of automatic control, the composition of control systems, and the fundamental requirements imposed on control systems; master the methods for establishing mathematical models of systems using block diagrams, signal flow graphs, differential equations, transfer functions, and frequency response characteristics; comprehend the performance requirements for automatic control systems and the techniques for analyzing system performance; acquire proficiency in control system analysis methods from classical control theory — such as time-domain analysis, frequency-domain analysis, and root-locus methods — and master the procedures for applying these system analysis techniques to the compensation and design of control systems.	R 1
CLO2	By applying the fundamental principles of classical control theory and analytical compensation methods, this course aims to develop students ability to analyze and compensate systems; it enables students to select appropriate analytical techniques based on the actual system parameters and perform system analysis and compensation through methods such as determining time-domain responses, sketching approximate root locus plots, and plotting Bode plots; furthermore, it helps students genuinely understand and master the methodology for thinking, analyzing, and solving problems within the framework of classical control theory, while further cultivating their capacity for dialectical logical reasoning.	R 2
CLO3	Through the study and experimentation with MATLAB/Simulink, students will gain an understanding of and develop a preliminary mastery of how modern tools can be applied to and assist in the three major analytical methods used in control systems. This experience will help students foster a harmonious relationship between the use of technical tools and human expertise, as well as cultivate a sound worldview, outlook on life, and set of values.	R 5

content	The Automatic Control Theory course is an important foundational professional course within the discipline of Electrical(Power) Engineering and Its Automation. The core teaching content of this course covers classical control theory; its primary objective is to enable students to understand the composition, characteristics, and specialized terminology of automatic control systems, to learn and master analytical and compensation methods from classical control theory—including time-domain analysis, root locus analysis, and frequency-domain analysis—and to develop the ability to apply the acquired knowledge to analyze and compensate control systems. This course lays a solid theoretical foundation for subsequent theoretical and specialized coursework. content of courses: Chapter 1: General Concepts of Automatic Control (6/6; Level: Memory + Understanding) Chapter 2: Mathematical Model of Control Systems (12/64; Level: Memory + Understanding + Application) Chapter 3: Time-Domain Analysis Methods for Linear Systems (12/64; Level: Understanding + Analysis + Application + Evaluation) Chapter 4: Root-Locus Method for Linear Systems (10/64; Level: Memory + Understanding + Application + Analysis) Chapter 5: Frequency Domain Analysis Methods for Linear Systems (14/64; Level: Understanding + Analysis + Application + Evaluation) Chapter 6: Linear System Compensation Methods (10/64; Level: Analysis + Application + Evaluation + Innovation)
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment, scored on a 100-point scale, accounts for 40% of the total grade. It primarily evaluates students completion of assignments, classroom participation, independent learning, and submission of laboratory reports. (2) Summative assessment – maximum score of 100 points, accounting for 60% of the overall grade. This assessment primarily involves a closed-book written examination to evaluate the extent to which the courses knowledge, competency, and literacy objectives have been achieved.
Learning Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. Mei Xiaorong, Ed. Principles of Automatic Control (5th Edition). Science Press, 2024. 2. Hu Shousong, ed., Principles of Automatic Control (7th Edition). Science Press, 2018. 3. Gene F. Franklin (Ed.). Principles and Design of Automatic Control (8th Edition). Electronic Industry Press, 2021.

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Electrical Engineering Drawing and CAD

Module Name	Electrical Engineering Drawing and CAD		
Semester in which this module is taught	Semester 5		
Module Lead	Luo Haoyuan		
language	the Chinese language		
Relationship to the course	Professional Core Compulsory Courses		
teaching method	Teacher-centered approach: lectures, case-based teaching, and practical activities; Interactive learning approach: case-based learning and hands-on practice of fundamental operating techniques (basic AutoCAD operations); Practical approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 90 credit hours Total teaching hours: 3 hours per week, over 16 weeks (48 hours in total) Self-study hours: 2.6 hours per week, over a total of 16 weeks (42 hours); includes: homework, exam preparation time, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	Circuit Theory, Analog Electronics, Digital Electronics		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Understand the fundamental concepts of electrical drawings, basic skills for interpreting electrical drawings, national standards, and project symbols; be familiar with the basic process and drafting standards for electrical circuit diagrams; and be able to use AutoCAD software to design electrical graphics in accordance with corporate or industry-specific requirements.	R 1

		<table border="1"> <tr> <td>CLO2</td><td>Proficient in using AutoCAD software; capable of reading and drawing various electrical engineering drawings; familiar with the creation, editing, and dimensioning of 2D graphics, as well as the creation and use of blocks; able to interpret three-view drawings; well-versed in common electrical symbols within AutoCAD; possesses the ability to skillfully use AutoCAD software to design and draw typical electrical engineering drawings.</td><td>R 3</td></tr> <tr> <td>CLO3</td><td>Develop students ability to independently analyze and solve problems; foster in them a meticulous and rigorous work ethic.</td><td>R 5</td></tr> </table>	CLO2	Proficient in using AutoCAD software; capable of reading and drawing various electrical engineering drawings; familiar with the creation, editing, and dimensioning of 2D graphics, as well as the creation and use of blocks; able to interpret three-view drawings; well-versed in common electrical symbols within AutoCAD; possesses the ability to skillfully use AutoCAD software to design and draw typical electrical engineering drawings.	R 3	CLO3	Develop students ability to independently analyze and solve problems; foster in them a meticulous and rigorous work ethic.	R 5
CLO2	Proficient in using AutoCAD software; capable of reading and drawing various electrical engineering drawings; familiar with the creation, editing, and dimensioning of 2D graphics, as well as the creation and use of blocks; able to interpret three-view drawings; well-versed in common electrical symbols within AutoCAD; possesses the ability to skillfully use AutoCAD software to design and draw typical electrical engineering drawings.	R 3						
CLO3	Develop students ability to independently analyze and solve problems; foster in them a meticulous and rigorous work ethic.	R 5						
content		Master the fundamental concepts of electrical drawings, national standards, and symbols; become familiar with drawing specifications; demonstrate proficiency in using AutoCAD for electrical engineering drawing design — including two-dimensional drafting, editing, annotating, creating blocks, and interpreting three-view drawings; memorize electrical symbols; and develop the ability to independently analyze and solve problems, along with a rigorous and meticulous work ethic. content of courses: Chapter 1: Fundamentals of Electrical CAD (Weight: 8/48; Level: Memorization + Understanding) Chapter 2: 2D Drawing Commands (Weight: 8/48; Level: Memory + Understanding + Application) Chapter 3: Two-Dimensional Editing Commands (Weight: 8/48; Level: Memory + Understanding + Application) Chapter 4: Basic Electrical Drawings (Weight: 24/48; Level: Memorization – Assessment)						
Assessment Methodology		1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily evaluates the teaching content through a final project, measuring the extent to which the courses knowledge, competency, and literacy objectives have been achieved.						
Learning Examination Requirements	and	A 100-point grading system; a score of 60 is the passing grade for this course.						

Reading List	1. *Electrical Engineering Drawing and CAD*, edited by Wang Jianhua, China Electric Power Press, published in August 2020. 2. *Fundamentals and Practical Examples of AutoCAD Electrical Design*, edited by Li Wei; China Machine Press, published in May 2021. 3. "Graphic Symbols for Electrical Simplified Drawings – Part 1: General Requirements" (GB/T 4728.1-2018), China Standards Press, published in 2018.
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Electrical machinery

Module Name	Electrical machinery		
Semester in which this module is taught	Semester 4		
Module Lead	He Jin		
language	the Chinese language		
Relationship to the course	Core Professional Courses		
teaching method	Teacher-centered approach: lectures, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical method: Experimental method		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 180 credit hours Total teaching hours: 4 hours per week, over 16 weeks (64 hours in total) Self-study hours: 7.25 hours per week, over a total of 16 weeks (116 hours); includes: pre-class preparation, post-class assignments, exam preparation time, etc.		
credit	6 credits		
Required and recommended prerequisites for installing this module	Engineering Electromagnetic Fields; Circuit Theory		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

CLO1	Master the fundamental laws of magnetic circuits and understand commonly used electromagnetic materials and their properties; acquire a basic understanding of the fundamental structure of transformers and the three main types of electric machines (DC machines, induction machines, and synchronous machines); master the connection principles for DC single-layer and single-wave windings, as well as AC three-phase single-layer and double-layer integer-slot windings; gain an in-depth understanding of the magnetic flux linkage and air-gap magnetic field characteristics, as well as their temporal and spatial relationships, in the stator and rotor of the three main types of electric machines; master the operating principles of transformers and various electric machines, the magnetic field distribution during normal, stable operation, the analytical methods and applicable theories, and the performance characteristics under steady-state operation; be able to correctly derive voltage and torque equations, and clarify the conversion power, electromagnetic power, and their relationship to the electromagnetic torque within electric machines; possess a clear physical understanding of the motor parameters during steady-state operation; have a fundamental grasp of the energy relationships within electric machines, the electromechanical energy conversion process, and the conditions required for energy conversion and the attainment of a constant electromagnetic torque.	R1、 R2
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CLO2	Through diligent study and the solution of practice problems, students will gradually integrate and master the knowledge they have acquired, developing an initial ability to analyze and solve real-world problems; they will also master fundamental electric motor power drive methods and their operating principles—such as forward/reverse rotation of three-phase induction motors, star- Δ starting, starting, forward/reverse rotation, speed regulation, and braking of DC motors; furthermore, they will cultivate a capacity for continuous learning—encompassing a lifelong learning mindset, self-directed learning skills, and potential for personal development — enabling them to achieve deepening and horizontal transfer of knowledge and skills through ongoing learning, thereby adapting to both societal and individual sustainable development.	R 3
CLO3	Comply with laws and regulations; possess strong integrity, professional dedication, a sense of responsibility, as well as sound social and professional ethics; demonstrate high cultural literacy, robust aesthetic sensibility, and noble moral character; and embody a rigorous, scientific way of thinking coupled with a spirit of seeking truth.	R 4

content	The Motor Theory course is an important core professional course within the Electrical(Power) Engineering and Its Automation major, and it is offered prior to other specialized courses in the curriculum. The teaching objective of this course is to enable students, upon completion of the course, to gain a comprehensive understanding of the basic structure and operating principles of transformers, synchronous machines, asynchronous machines, and DC machines; to master the fundamental electromagnetic theories and analytical methods pertaining to the "Four Major Types of Electrical Machines"; and to be able to effectively apply tools such as system of equations, equivalent circuits, and phasor diagrams to analyze and solve practical problems related to motor theory; as well as to acquire fundamental knowledge of motor control, thereby facilitating their study of subsequent specialized courses. content of courses: Chapter 1: Introduction (Weight: 2/64; Level: Memory + Understanding) Chapter 2: Transformers (Weight: 14/64; Level: Memory + Understanding + Application) Chapter 3: AC Winding (Weight: 8/64; Level: Memory + Understanding + Application) Chapter 4: Synchronous Motors (Weight: 16/64; Level: Understanding + Application + Analysis) Chapter 5: Asynchronous Motors (Weight: 12/64; Level: Understanding + Application + Analysis) Chapter 6: DC Motors (Weight: 12/64; Level: Understanding + Application + Analysis)
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Assessment Methodology		1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment, scored on a 100-point scale, accounts for 40% of the total grade. It primarily evaluates students self-directed learning, completion of assignments, and performance on periodic quizzes. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily employs a closed-book written examination format to evaluate the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Learning Examination Requirements	and	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List		1. Li Yonggang, ed., Electrical Machines. China Electric Power Press, 2023. 2. Edited by Gu Chenglin, Chen Qiaofu, Xiong Yongqian, et al. Motor Theory. Huazhong University of Science and Technology Press, 2018. 3. Liu Huijuan, Wang Yaxin et al., eds. *Electrical Machinery*. Machine Tool & Industry Press, 2021. 4. Tang Yunqiu, ed. Electrical Machinery. Ji Gong Education Press, 2014.
version number		V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Sensors and Detection Technology

Module Name	Sensors and Detection Technology		
Semester in which this module is taught	Semester 4		
Module Lead	Cheng Shuangjiao		
language	the Chinese language		
Relationship to the course	Core Professional Courses		
teaching method	Teacher-centered approach: lectures, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 90 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 hours in total) Self-study hours: 3.6 hours per week over 16 weeks (totaling 58 hours); includes: homework, exam preparation time, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	University Physics; Circuit Theory (1); Circuit Theory (2); Digital Electronics; Analog Electronics		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Be able to explain the basic concepts, operating principles, and technical characteristics of commonly used sensors; identify the detection mechanisms, port characteristics, and applicable scenarios of various types of sensors; and master the structure and working principles of sensor measurement conversion circuits.	R1

CLO 2	Be able to appropriately select sensors based on engineering surveying requirements and technical specifications; perform principle-based analysis and parameter calculations for simple measurement circuits; understand the fundamental causes of measurement errors; and possess the ability to conduct preliminary analysis and assessment of measurement errors. Able to compare the accuracy, advantages, and applicable scenarios of different sensor-based detection approaches, and select the optimal detection method and solution pathway according to engineering requirements; capable of decomposing complex detection systems into multiple sub-problems and comprehensively apply professional knowledge to analyze and validate both circuit designs and detection systems. Able to compare theoretical predictions with actual measurement results using real-world engineering cases, analyze the causes of errors and issues, and independently diagnose engineering detection problems while conducting standardized technical analysis and reporting.	R2 、 R3 、 R4、 R5
CLO 3	Develop disciplined habits in circuit diagram interpretation, parameter calculation, and technical analysis; cultivate an understanding of measurement accuracy and engineering approximation principles; comprehend the balancing relationship between signal transmission and energy conversion; clarify the trade-off between detection reliability and power consumption; and foster an engineering mindset characterized by precision, energy efficiency, and safety. Recognize the foundational role of this course, stay informed about the latest trends in sensor technology, and acquire basic literature research skills. During practical training, strictly adhere to safety protocols and develop a rigorous, pragmatic engineering mindset.	R4、 R5

content	By completing this course, students will gain a thorough understanding of the operating principles of various sensors and measurement conversion circuits; they will be able to select appropriate sensors based on specific measurement requirements; they will be capable of analyzing and performing calculations on simple sensor measurement circuits, as well as conducting basic analyses of measurement errors. By exploring the applications and emerging trends in sensor technology, this course aims to spark students interest in the field of sensor technology; furthermore, through case-based teaching approaches, it will further develop students rigorous and pragmatic ability to analyze and solve problems. content of courses: Chapter 1: Overview (Weight: 1/32; Level: Understanding) Chapter 2: Basic Characteristics of Sensors (Weight: 2/32; Level: Memory + Understanding + Application + Analysis) Chapter 3: Resistive Sensors (Weight: 4/32; Level: Memory + Understanding + Application + Analysis + Evaluation) Chapter 4: Inductive Sensors (Weight: 2/32; Level: Memory + Understanding + Application + Analysis + Evaluation) Chapter 5: Capacitive Sensors (Weight: 4/32; Level: Memory + Understanding + Application + Analysis + Evaluation) Chapter 6: Piezoelectric Sensors (Weight: 4/32; Level: Memory + Understanding + Application + Analysis + Evaluation) Chapter 7: Magnetic Sensing Sensors (Weight: 1/32; Level: Memory + Understanding + Application + Analysis + Evaluation) Chapter 8: Thermoelectric Sensors (Weight: 2/32; Level: Memory + Understanding + Application + Analysis + Evaluation) Chapter 9: Photoelectric Sensors (Weight: 4/32; Level: Memory + Understanding + Application + Analysis + Evaluation) Chapter 10: Radiation and Wave Sensors (Weight: 1/32; Level: Memory + Understanding + Application + Analysis + Evaluation) Chapter 11: Chemical Biosensors (Weight: 1/32; Level: Memory + Understanding + Application + Analysis + Evaluation) Chapter 12: Novel Sensors (Weight: 2/32; Level: Memory + Understanding + Application + Analysis + Evaluation) Chapter 13: Intelligent Sensor Signal Processing Technology (Weight: 2/32; Level: Memory + Understanding + Application + Analysis + Evaluation) Chapter 14: Wireless Sensor Networks (Weight: 2/32; Level: Memory + Understanding + Application + Analysis + Evaluation)
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Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily uses written examinations to evaluate the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Learning Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. *Sensors and Detection Technology (4th Edition)*, edited by Hu Xiangdong, Mechanical Industry Press, published in May 2026. 2.*Intelligent Sensor Technology*, edited by Pan Mengchun, China Machine Press, published in August 2026.
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Power electronic technology

Module Name	Power electronic technology		
Semester in which this module is taught	Semester 5		
Module Lead	Zhou Shiyi		
language	the Chinese language		
Relationship to the course	Professional Core Courses		
teaching method	Teacher-centered approach: Lecture method Interactive teaching methods: discussion-based approach, inquiry-based approach, and group collaboration Practical methods: Experimental Method, Design-Based Practice Method		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 180 credit hours Total teaching hours: 4 hours per week, over 16 weeks (64 hours in total) Self-study hours: 7.25 hours per week, over a total of 16 weeks (116 hours), including homework, exam preparation time, etc.		
credit	6 credits		
Required and recommended prerequisites for installing this module	Advanced Mathematics, Circuit Theory		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Enable students to become familiar with the characteristics and operating methods of various power electronic devices; master the principles and fundamental quantitative relationships of rectifier circuits, chopper circuits, inverter circuits, and PWM control technology; and understand the application scope as well as the technical and economic performance indicators of various power electronic devices;	R1

	CLO2	This course equips students with the ability to apply fundamental knowledge and scientific methods in power electronics to analyze the behavioral patterns of key parameters within electrical systems and to propose solutions to complex engineering problems; it enables them to design power electronics circuits and perform calculations on their parameters and performance indicators. Furthermore, the course fosters in students the ability to integrate theory with practice, select experimental equipment appropriately, conduct experiments safely, and analyze experimental data effectively and accurately.	R2、 R3
	CLO3	Enable students to develop the skills needed for effective interpersonal communication and collaboration, as well as to properly manage their relationships both individually and within teams. Additionally, foster in students a strong commitment to professional ethics and standards, including honesty, fairness, and adherence to established codes of conduct.	R4

content	"Power Electronics Technology" is a core specialized course for the Electrical(Power) Engineering and Its Automation major; it is a highly practical course that integrates theoretical knowledge with real-world applications. The course covers topics such as power electronic devices, AC–DC controllable rectifier circuits, DC–DC chopper circuits, DC–AC inverter circuits, AC – AC conversion circuits, and PWM control technology. Through practical exercises, students will gain a solid understanding of the operating principles, circuit architectures, electrical characteristics, waveform analysis methods, and parameter calculation techniques for basic power electronic circuits. This enables students to acquire the ability to conduct experiments and debug power electronic circuits, thereby serving the objectives of supporting instructional activities, enhancing intuitive understanding, and improving students problem-analysis and problem-solving skills. This course focuses on developing students ability to analyze and solve problems, laying a solid foundation for subsequent courses such as "Automatic Devices for Power Systems," as well as for engaging in technical work and scientific research related to electrical engineering. content of courses: Chapter 1: Power Electronics Devices (Weight: 8/64; Level: Memory, Understanding, Application) Chapter 2: Rectifier Circuits (Weight: 14/64; Level: Understanding + Application + Analysis) Chapter 3: DC Chopping Circuits (Weight: 12/64; Level: Understanding + Application + Analysis) Chapter 4: Inverter Circuits (Weight: 16/64; Level: Understanding + Application + Analysis) Chapter 5: PWM Control Technology (Weight: 14/64; Level: Understanding + Application + Analysis)
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment, scored on a 100-point scale, accounts for 40% of the total grade. It primarily evaluates students completion of assignments, independent learning, classroom participation, and experimental procedure performance. (2) Summative assessment – maximum score of 100 points, accounting for 60% of the overall grade. This assessment primarily involves a closed-book written examination to evaluate the extent to which the courses knowledge, competency, and literacy objectives have been achieved.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.

Reading List	1. Wang Zhaoan and Liu Jinjun (Eds.). Power Electronics Technology. China Machine Press, 2022. 2..Li Zicheng, Xu Li, and Ding Weihong (Eds.). Power Electronics Technology and Applications. Northwestern Polytechnical University Press, 2020. 3..Kang Jinsong and Tao Shenggui (Eds.). Power Electronics Technology. China Railway Press, 2019.
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Power system analysis

Module Name	Power system analysis		
Semester in which this module is taught	Semester 5		
Module Lead	Meng Yuanyuan		
language	the Chinese language		
Relationship to the course	Core Professional Courses		
teaching method	Teacher-centered approach: lectures, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 180 credit hours Total teaching hours: 4 hours per week, over 16 weeks (64 hours in total) Self-study hours: 7.25 hours per week, over a total of 16 weeks (116 hours); includes: pre-class preparation, post-class assignments, exam preparation time, etc.		
credit	6 credits		
Required and recommended prerequisites for installing this module	Advanced Mathematics; Linear Algebra; Circuit Theory; Electrical Machines		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

CLO1	Be able to articulate the fundamental concepts of power system modeling, identify the electrical constraint relationships among components such as synchronous generators, transformers, transmission lines, and loads, as well as their steady-state and transient port characteristics; and develop mathematical models and equivalent circuits for actual power equipment. Able to describe the underlying principles of basic power network constraints and topological properties, and apply the network equivalent transformation method to simplify power system networks and perform parameter calculations. Capable of performing calculations using the node voltage method and the impedance matrix method; elucidate the applicable conditions and mathematical formulations of theories such as power flow calculation, fault analysis, static stability analysis, and transient stability analysis; and conduct analytical calculations for both normal operating conditions and fault conditions in power systems.	R 1
CLO2	This tool enables the comparison of the applicability and computational complexity of various methods—such as power system power flow calculation, fault analysis, and stability analysis—and helps select the optimal solution approach based on the grid structure and operating conditions. It allows the power network to be decomposed into multiple subproblems, facilitating comprehensive analysis and result verification by employing network equivalent transformations, matrix operations, and power system theorems. Furthermore, it guides students in conducting simulation tests—covering grid operation, short-circuit faults, and system stability—using simulation software, comparing theoretical calculations with simulation results, analyzing the sources of data discrepancies and variations in operating conditions, and summarizing the systems operational characteristics and fault patterns, thereby equipping them with the ability to assess system operating conditions, solve engineering problems, and prepare technical reports.	R 3

CLO3	Develop standardized habits for drawing diagrams, performing parameter calculations, and writing formulas; establish a fundamental understanding of engineering calculations; comprehend the port analysis approach for the equivalent network model; identify the trade-off relationship between power transmission, losses, and operational efficiency in power grids; and cultivate an initial engineering mindset focused on safety, cost-effectiveness, and system stability. Recognize the supporting role of this course within the broader professional knowledge framework and acquire preliminary skills in consulting technical literature and organizing engineering data according to industry standards. During simulation and engineering analysis tasks, adhere to power system safety regulations and foster a professional attitude characterized by rigor, practicality, and a commitment to excellence.	R 2
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content	Power System Analysis is a compulsory course for electrical engineering majors and serves as an advanced course that bridges the engineering applications of circuit theory, electric machines, and power systems. The primary objective of this course is to investigate the fundamental structure of power systems, component models, steady-state and transient operational characteristics, fault analysis mechanisms, as well as the analytical methods and engineering applications involved in power system operation and control. The aim of this course is to enable students to understand the basic concepts and core principles of normal operation, faulted operation, and dynamic stability through their study of this subject; to master fundamental theories, modeling techniques, computational principles, and control technologies; and to apply these theories and methods flexibly in solving problems such as power flow calculation, fault analysis, stability assessment, and operational optimization. This course is designed to cultivate and enhance students abilities in engineering analysis, problem identification, and practical engineering application, thereby laying a solid foundation for their subsequent studies in areas such as relay protection, power system automation, and power grid planning, as well as for their future careers in system design, operation, maintenance, and scientific research. content of courses: Chapter 1: Introduction (Weight: 4/64; Level: Memory + Understanding) Chapter 2: Parameters and Equivalent Circuits of Power System Components (Weight: 6/64; Level: Understanding + Application) Chapter 3: Power System Power Flow Calculation (Weight: 8/64; Level: Understanding + Application + Analysis) Chapter 4: Active Power Balance and Frequency Regulation in Power Systems (Weight: 6/64; Level: Understanding + Analysis) Chapter 5: Reactive Power Balance and Voltage Regulation in Power Systems (Weight: 6/64; Level: Understanding + Analysis) Chapter 6: Basic Concepts of Short Circuits in Power Systems and Practical Calculation Methods for Three-Phase Short Circuits (Weight: 6/64; Level: Understanding + Application + Analysis) Chapter 7: Symmetrical Components Method and Sequence Parameters and Equivalent Circuits for Power System Components (Weight: 4/64; Level: Understanding + Application) Chapter 8: Analysis and Calculation of Asymmetric Power System Faults (Weight: 6/64; Level: Application + Analysis) Chapter 9: Basic Concepts of Power System Operational Stability (Weight: 2/64; Level: Memorization + Understanding) Chapter 10: Static Stability of Power Systems (Weight: 6/64; Level: Understanding + Analysis + Evaluation) Chapter 11: Transient Stability of Power Systems (Weight: 6/64; Level: Analysis + Assessment) Experiment 1: Steady-State Operation Mode Experiment for a Single-Machine-Infinite System (Weight: 2/64; Level: Understanding + Application) Experiment 2: Power System Transient Stability Experiment (Weight:
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	2/64; Level: Analysis + Evaluation)
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. This assessment primarily evaluates students completion of assignments, performance in laboratory projects, independent learning, and midterm exam results. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily employs a closed-book written examination format to evaluate the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. Wu Junyong, ed., Power System Analysis (2nd ed.). Tsinghua University Press, 2023. 2. Chen Heng, Ed. Steady-State Analysis of Power Systems. China Electric Power Press, 2020. 3. Fang Wanliang, Li Jianhua, Wang Jianxue (Eds.). Transient Analysis of Power Systems. China Electric Power Press, 2020. 4. Sun Qiuye, Ed. Power System Analysis. China Machine Press, 2022. 5. Mu Gang, Ed. Power System Analysis. China Machine Press, 2022.
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Electrical Control and PLC Technology

Module Name	Electrical Control and PLC Technology		
Semester in which this module is taught	Semester 5		
Module Lead	Yang Lin		
language	the Chinese language		
Relationship to the course	Core Professional Courses		
teaching method	Teacher-centered approaches: project-based learning, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 180 credit hours Total teaching hours: 4 hours per week, over 16 weeks (64 hours in total) Self-study hours: 7.25 hours per week, over a total of 16 weeks (116 hours), including homework, exam preparation time, etc.		
credit	6 credits		
Required and recommended prerequisites for installing this module	Circuit Theory, Analog Electronics, Digital Electronics		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	Description (This is the CLO description)	Supports graduation requirements
	CLO1	By completing this course, students will become familiar with the structural principles, applications, model specifications, and selection methods of commonly used control electrical devices; they will understand and master the analysis and design methodologies for basic electrical control systems; and they will learn the fundamental principles of Programmable Logic Controllers (PLCs), the PLC instruction set, and PLC programming techniques.	R1

	CLO2	Possess the ability to independently analyze general electrical control circuits; master the fundamental principles of Programmable Logic Controllers (PLCs); be proficient in using the Siemens S7-200 SMART series PLCs and be able to apply this knowledge to solve electrical engineering control problems of moderate to high complexity.	R2、 R3
	CLO3	Possesses high cultural literacy, strong aesthetic sensibility, and noble moral character, as well as a rigorous, scientific way of thinking and a spirit of seeking truth.	R 5
content	This course is a specialized elective for the Bachelors Degree Program in Electrical(Power) Engineering and Its Automation. It is a highly practical, technology-oriented course that integrates traditional relay control technology with modern PLC control and industrial networking technologies. This course not only lays a solid foundation for graduation practicums and graduation projects but also plays an important role in enhancing students adaptability and innovative capabilities in the design, installation, and commissioning of electrical control systems. content of courses: Chapter 1: Common Low-Voltage Electrical Appliances (Weight: 2/64; Level: Memorization, Understanding, Application) Chapter 2: Basic Electrical Control Circuits (Weight: 6/64; Level: Understanding, Application) Chapter 3: Overview of Programmable Logic Controllers (Weight: 6/64; Level: Remember, Understand, Apply) Chapter 4: S7-200 SMART Interface and Configuration (Weight: 6/64; Level: Understanding, Application) Chapter 5: Using the STEP 7-Micro/WIN SMART Programming Software (Weight: 6/64; Level: Understanding, Application) Chapter 6: Basic Instructions and Applications of S7-200 SMART PLC (Weight: 12/64; Level: Memorization, Understanding, Application) Chapter 7: PLC Programming for Typical Control Loops (Weight: 12/64; Levels: Understanding, Application, Analysis, Creation) Chapter 8: PLC Functional Instructions and Network Communication (Weight: 2/64; Level: Understanding, Application) Chapter 9: Using SMART LINE (Weight: 6/64; Level: Understanding, Application) Chapter 10: PLC Control System Design and Application Examples (Weight: 6/64; Levels: Understanding, Application, Creation)		

Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily evaluates the teaching content through the submission of student works, measuring the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. Huang Yonghong (Ed.), *Electrical Control and PLC Application Technology – Siemens S7-200 SMART PLC* (4th Edition), China Machine Press, published in December 2023. 2. *Illustrated Quick Start and Advanced Guide to Siemens S7-200 SMART PLC*, edited by Cai Xingshan, China Industry and Information Technology Press Group, published in June 2024.
version number	V2026: The major version becomes effective in September 2026. V2026.1 – Update: Credit and workload calculation based on ECTS

Power plant/substation electrical part

Module Name	Power plant/substation electrical part		
Semester in which this module is taught	Semester 6		
Module Lead	Qian Yucheng		
language	the Chinese language		
Relationship to the course	Professional Core Courses		
teaching method	Teacher-centered approach: lecture-based instruction, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical methods: Experimental method, Practice method		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 135 credit hours Total teaching hours: 3 hours per week, over 16 weeks (48 hours in total) Self-study hours: 5.4 hours per week over 16 weeks (total: 87 hours); includes pre-class preparation, post-class assignments, exam preparation time, etc.		
credit	5 credits		
Required and recommended prerequisites for installing this module	Circuit Theory, Power Electronics Technology, Electric Machines		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Master the basic types of main switching schemes for power plants and substations, the characteristics of power plant switching schemes, main switching scheme design methods, plant power supply switching schemes, the selection of distribution equipment, and the selection methods for major electrical equipment; acquire a preliminary understanding of the design and calculation methods for the main electrical systems of power plants and substations.	R 3

	CLO2	Master the key skills required for the electrical systems at power plants and substations; equip students with preliminary capabilities in the application and maintenance of electrical systems at power plants and substations; and develop students fundamental competencies in electrical design, maintenance, installation, operation, and maintenance.	R 6
	CLO3	Foster a conscientious and responsible approach to learning, as well as a rigorous and meticulous work ethic; cultivate a scientific way of thinking and a spirit of seeking truth.	R 10
content	This course is one of the compulsory professional courses for the Electrical(Power) Engineering and Its Automation major. It primarily covers the knowledge related to the primary electrical systems of power plants and substations, enabling students to master the basic configurations of main electrical connections in power plants and substations, understand the characteristics of main electrical connections across various types of power plants, learn the design methodologies for main electrical connections, explore methods for designing plant power supply connections, select distribution equipment, and understand the main electrical equipment and their selection methods. This course equips students with a preliminary understanding of the design and calculation methods for the primary electrical systems of power plants and substations, laying a solid foundation for their future careers in electrical design, maintenance, installation, operation, upkeep, and management. content of courses: Chapter 1: Introduction (Weight: 2/48; Level: Memory + Understanding) Chapter 2: High-Voltage Switchgear (Weight: 12/48; Level: Memorization + Understanding + Application + Analysis + Evaluation) Chapter 3: Current and Voltage Transformers (Weight: 4/48; Level: Memory + Understanding + Application) Chapter 4: Main Electrical Connection Layouts (Weight: 8/48; Level: Understanding + Application + Analysis + Creation) Chapter 5: Self-consumption at Power Plant Substations (Weight: 8/48; Level: Memorization + Understanding + Application + Analysis) Chapter 6: Distribution Equipment (Weight: 4/48; Memory + Understanding + Application) Chapter 7: Neutral Point Grounding Methods in Power Systems (Weight: 2/48; Level: Memorization + Understanding + Analysis) Chapter 8: Heating, Electrodynamics Forces, and Selection of Current-Carrying Conductors (Weight: 4/48; Level: Memory + Application + Analysis) Chapter 9: Selection of Electrical Equipment (Weight: 4/48; Level: Memorization + Application + Evaluation)		

Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment, scored on a 100-point scale, accounts for 40% of the total grade. It primarily evaluates students completion of assignments, independent learning, midterm exam performance, and participation in discussion activities. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily employs a closed-book written examination format to evaluate the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1.Liu Baogui, Ed. Electrical Engineering for Power Plants and Substations (3rd Edition). China Electric Power Press, 20 21. 2.Ma Yongxiang, Ed. Electrical Systems for Power Plants and Substations (3rd Edition). Peking University Press, 20 24. 3.Liu Shengfen and He Yutao (Eds.). Electrical Systems for Power Plants. Chongqing University Press, July 2025 (Latest printing).
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Principle of relay protection in power system

Module Name	Principle of relay protection in power system		
Semester in which this module is taught	Semester 6		
Module Lead	Li Ping		
language	the Chinese language		
Relationship to the course	Core Professional Courses		
teaching method	Teacher-centered approach: lecturing, questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 180 credit hours Total teaching hours: 4 hours per week, over 16 weeks (64 hours in total) Self-study hours: 7.25 hours per week, over a total of 16 weeks (116 hours); includes: pre-class preparation, post-class assignments, exam preparation time, etc.		
credit	6 credits		
Required and recommended prerequisites for installing this module	Circuit Theory (1), Circuit Theory (2), Power System Analysis		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

CLO1	Master the variation patterns of electrical quantities (voltage, current, impedance) during power system faults, as well as fundamental analytical methods such as the Symmetrical Components Method. Gain an in-depth understanding of the fault characteristics and the primary/backup protection configuration principles for transmission line current protection, distance protection, and components including generators, transformers, and busbars. Comprehend the setting calculation principles, sensitivity verification methods, and the coordination relationships among various protection schemes, thereby establishing a comprehensive knowledge framework for relay protection.	R 1
CLO2	Possesses the ability to accurately analyze common power system faults and identify fault types; is capable of performing setting calculations and coordination design for the protection systems of transmission lines and main equipment in accordance with relevant technical regulations; and demonstrates practical engineering competence in evaluating and diagnosing relay protection operation behaviors, as well as in proposing improvement measures.	R2、 R 3
CLO3	Foster a rigorous and pragmatic approach to engineering safety along with a strong sense of responsibility; cultivate systematic thinking, logical judgment skills, and a spirit of teamwork when dealing with complex power grid faults; and strictly adhere to the professional codes of conduct within the power industry.	R 11

content	"Principles of Power System Relay Protection" is a compulsory course for the Electrical(Power) Engineering and Its Automation major, combining theoretical knowledge with practical engineering applications. The course provides a systematic exposition of the operating principles and configuration guidelines for current and distance protection schemes in transmission lines, as well as for the protection of components such as generators, transformers, and busbars. Its objective is to equip students with the ability to develop sound protection logic, master the methods for setting calculations and device commissioning, and ultimately be capable of proposing reliable, sensitive, and fast-acting protection schemes for complex fault scenarios, thereby ensuring the safe and stable operation of the power system. content of courses: Chapter 1: Power Grid Current Protection (Weight: 22/64; Level: Memorization + Understanding + Application + Analysis) Chapter 2: Power Grid Distance Protection (Weight: 14/64; Level: Memory + Understanding + Application + Analysis) Chapter 3: Automatic Reclosing (Weight: 4/64; Level: Memory + Understanding) Chapter 4: Power Transformer Protection (Weight: 12/64; Level: Memorization + Understanding + Application + Analysis) Chapter 5: Generator Protection (Weight: 8/64; Level: Memory + Understanding + Analysis) Chapter 6: Busbar Protection (Weight: 4/64; Level: Memory + Understanding)
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. This assessment primarily evaluates students completion of assignments, independent learning performance, results of periodic quizzes, and laboratory reports. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily employs a closed-book written examination format to evaluate the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.

Reading List	1.Zhang Baohui and Yin Xianggen (Eds.). Power System Relay Protection. China Electric Power Press, 202 4. 2.Electrical Engineering Teaching and Research Section, Yunnan University of Economics and Management – Experimental Guidebook for Power System Relay Protection, 202 5. 3.State Grid Jiangsu Electric Power Co., Ltd. (Chief Editor). Relay Protection. China Electric Power Press, 20 23. 4.Zhang Jing, Ed. Principles and Applications of Power System Relay Protection. Chemical Industry Press, 2023.
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Engineering Training

Module Name	Engineering Training		
Semester in which this module is taught	First Semester		
Module Lead	Chen Guiyong		
language	the Chinese language		
Relationship to the course	Professional Intensive Practical Course		
teaching method	Teacher-centered approach: project-based learning, practical application; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 60 credit hours Total teaching hours: 24 hours per week, over 1 week (24 hours in total). Self-study hours: 36 hours per week, over a total of 1 week; includes: homework, exam preparation time, etc.		
credit	2 credits		
Required and recommended prerequisites for installing this module	not have		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Through the practical teaching component of this course, students will gain an understanding of the general manufacturing process, knowledge of mechanical manufacturing technologies, and the application of emerging processes and technologies in mechanical manufacturing; they will also be able to, based on scientific principles and through literature review or relevant scientific methods, investigate and analyze solutions to intelligent manufacturing engineering problems.	R8

	CLO2	Through practical application, one can perform experimental data collection and organization, analyze and interpret the experimental data to draw reasonable and valid conclusions, and propose unique insights as well as innovative processing methods for manufacturing processes and techniques.	R8
	CLO3	Through the practical learning component of this course, students will become familiar with the common machining methods used for mechanical components, the working principles and typical structures of the primary equipment employed, the proper use of tools, fixtures, and measuring instruments, as well as safe operating techniques; they will adhere to safety operating procedures and develop essential innovative skills, industrial safety awareness, and teamwork competence.	R8
content	Through the experimental components of this course, students will gain an understanding of the general manufacturing process, mechanical manufacturing technology knowledge, and the application of emerging manufacturing processes and technologies in mechanical manufacturing; they will become familiar with common machining methods for mechanical components, the working principles and typical structures of the primary equipment used in these processes, the proper use of tools, fixtures, and measuring instruments, as well as safe operating techniques; they will acquire fundamental operational skills in turning, fitting, milling, welding, and CNC machining, gain practical experience with these techniques as well as with machining centers and special-purpose manufacturing processes; they will be familiar with and adhere to safety operating procedures, and develop essential innovative capabilities and industrial safety awareness. content of courses: Experiment/Training Project 1: Fundamentals of Mechanical Machining Practical Training (Weight: 8/24; Level: Knowledge–Application) Experiment/Training Project 2: Welding Practical Training (Weight: 4/24; Level: Knowledge – Application) Experiment/Training Project 3: CNC Machining Practical Training (Weight: 4/24; Level: Knowledge–Application) Experiment/Training Project 4: Specialized Technology Application Practical Training (Weight: 4/24; Level: Knowledge–Application) Experiment/Training Project 5: Advanced Technology Machining Practical Training (Weight: 4/24; Level: Knowledge–Application)		

Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. This assessment primarily evaluates self-directed learning, classroom performance, homework assignments, and results from periodic mid-term tests. (2) Terminal assessment: Based on the specific requirements of each program, determine the weighting of each practical training component as follows: Basic Machining Training – 30%; Welding Training – 15%; CNC Machining Training – 35%; Specialized Technology Application Training – 10%; Advanced Technology Machining Training – 10%; The overall grade is determined based on the practical performance scores obtained across these five training components.
Study and Examination Requirements	The grading scale is out of 100 points; a score of 60 is the passing grade for this course.
Reading List	1.*Engineering Training*, edited by Cai Anjiang, Electronic Industry Press, March 20 20. 2.*Metalworking Practice Textbook*, edited by Xiao Zexin; South China University of Technology Press, January 2004. 3.*CNC Machining Practical Training Tutorial*, edited by Wang Cheng, Jiangxi Higher Education Press, August 2005.
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Cognitive Internship

Module Name	Cognitive Internship		
Semester in which this module is taught	Second Semester		
Module Lead	Qiao Lin		
language	the Chinese language		
Relationship to the course	Professional Intensive Practical Course		
teaching method	Teacher-centered approach: lectures, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 30 credit hours Total teaching hours: 8 hours per week, over 1 week (8 hours in total). Self-study hours: 22 hours per week, over 1 week; includes literature review. Data organization, internship logbook preparation, etc.		
credit	1 credit		
Required and recommended prerequisites for installing this module	Circuit Theory; Introduction to Electrical Engineering		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Through field visits to power-related enterprises (such as power plants, substations, and power equipment manufacturing plants), participants will gain an understanding of the basic structure of the power system (including the generation, transmission, transformation, distribution, and consumption stages), as well as the primary electrical equipment and their functions, thereby developing an initial, intuitive understanding of the production and operational practices within the electrical engineering industry.	R 2

	CLO2	This program provides students with hands-on exposure to real-world engineering practices, enabling them to understand the organizational structure, management models, job roles, and professional competency requirements of power utilities; it helps clarify their academic specialization and career development pathways, while fostering a strong professional identity within the electrical engineering industry.	R 6
	CLO3	Understand and comply with the companys safety and production regulations; foster a "Safety First" mindset in power generation operations; cultivate a rigorous work ethic, a spirit of teamwork, and a strong sense of engineering ethics; and strengthen the sense of social responsibility in serving the national power sector and energy strategy.	R 10
content	The "Cognitive Internship" is an essential component of the intensive practical teaching component for the Electrical(Power) Engineering and Its Automation major; it represents students first systematic practical experience as they transition from the classroom to real-world engineering practice. This course aims to help students establish an intuitive connection between the introductory professional knowledge they have acquired and actual engineering applications by organizing field visits, on-site observations, and corporate exchanges at power-related enterprises, power plants, substations, and power equipment manufacturing facilities. Through this experience, students will gain an initial understanding of the operation processes, equipment configurations, production workflows, and enterprise management models within power systems. The Cognitive Internship enables students to develop a more tangible understanding of the electrical engineering industry, clarify their professional learning objectives, cultivate an awareness of engineering safety, and lay a solid foundation for their subsequent specialized coursework and the development of practical engineering skills. content of courses: Project 1: Power Plant Safety Education Workshop (Weight: 2/8; Level: Memory + Understanding + Application + Analysis + Evaluation + Creation) Project 2: Visit the entire plants primary wiring system (Weight: 2/8; Level: Memory + Understanding + Analysis + Evaluation) Project 3: Visit the main plant building, switchgear station, distribution room, and RTU room (Weight: 4/8; Level: Memory + Understanding + Application + Analysis + Evaluation)		

Assessment Methodology	1. Course assessment consists of a summative assessment. 2. Grade Calculation: Overall Course Grade = Summative Assessment Score × 100% The summative assessment is out of 100 points and accounts for 100% of the overall grade. It primarily assesses the teaching content through internship reports, evaluating the extent to which the courses knowledge, competency, and literacy objectives have been met.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	Wen Fengzhe. Introduction to Modern Power Plants. Beijing: China Electric Power Press, 2024.
version number	V202.6 – The major version was released in September 2026. V202.6.1 – Update: Credit and workload calculation based on ECTS

Electronic craft production

Module Name	Electronic craft production		
Semester in which this module is taught	Third Semester		
Module Lead	Li Xingyuan, Zhao Xiong, Yin Ping, Wei Yi		
language	the Chinese language		
Relationship to the course	Professional Intensive Practical Course		
teaching method	Practical Approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 3 0 credit hours Total teaching hours: 1 hour per week, over 12 weeks (12 hours in total) Self-study hours: 1.5 hours per week, over a total of 1 2 weeks (18 hours); includes: homework, exam preparation time, etc.		
credit	1 credit		
Required and recommended prerequisites for installing this module	Circuits, Digital Circuits, Analog Circuits, EDA Technology		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Support s graduation requirements
	CLO1	Students should master the correct operation of commonly used welding tools and electrical measuring instruments; understand the principles and proper use of common electronic components; and be familiar with the working principle of a standard multimeter.	R 5
	CLO2	Students should acquire the essential electrical safety knowledge and skills required for practical workplace operations. They should be encouraged to develop a scientific and fact-based approach to learning; cultivate a serious and meticulous work ethic; foster an innovative spirit; and strengthen their awareness of quality and professional ethics.	R 8

	CLO3 Students will collaborate to install and debug circuit components; they will master the skills required to inspect and repair circuit boards used in small and medium-sized electrical devices; and they will develop the ability to analyze and troubleshoot various types of faults in collaboration with their team.	R 4
content	Upon completing this course, students shall master the following skills: electrical circuit diagram interpretation, reading and drawing of electrical diagrams, component installation and debugging operations, fault analysis, repair, and circuit maintenance techniques, as well as the proper use of common welding tools and instruments, along with knowledge of safety and workplace discipline. content of courses: Project 1: Component Identification and Measurement, Circuit Diagram Recognition (Weight: 4/12; Level: Memory + Understanding + Application) Project 2: Installation and Welding (Weight: 4/24; Level: Memory + Understanding + Application) Project 3: Debugging, Fault Troubleshooting, and Verification (Weight: 4/24; Level: Memory + Understanding + Application)	
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily evaluates the teaching content through laboratory reports and measures the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.	
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.	
Reading List	[1] Xu Changying. *Fundamentals and Practice of Electronic Manufacturing Technology*. Electronic Industry Press, January 2024.	
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS	

Electrical training

Module Name	Electrical training		
Semester in which this module is taught	Semester 4		
Module Lead	Yu Jing, Zhou Shiyi		
language	the Chinese language		
Relationship to the course	Professional Intensive Practical Course		
teaching method	Practical Approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 30 credit hours Total teaching hours: 6 hours per week (over 2 weeks), totaling 12 hours Self-study hours: 9 hours per week over a period of 2 weeks (totaling 18 hours); includes: homework, exam preparation time, etc.		
credit	1 credit		
Required and recommended prerequisites for installing this module	Motor Theory, Electrical Control and PLC Technology		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Students shall master the correct operation of commonly used electrical tools and instruments; understand the principles and application of typical electric motors and electrical devices; and be familiar with the working principles of standard machine tool control circuits.	R 5
	CLO2	Students should acquire the essential electrical safety knowledge and skills required for practical workplace operations. They should be encouraged to develop a scientific and fact-based approach to learning. Students should be cultivated to adopt a serious, meticulous, and thorough work attitude. Their innovative spirit should be fostered. Furthermore, their awareness of quality and professional ethics should be strengthened.	R 8

	CLO3	Students will work together to install and debug the motor control circuit; they will master more complex operational skills involved in machine tool control circuits; and they will develop the ability to analyze and troubleshoot various types of faults in collaboration with their team.	R 4
content	Upon completing this course, students are expected to master the skills of electrical drawing interpretation, reading and drafting, electrical installation and commissioning, as well as fault analysis, repair, and equipment maintenance and overhaul; they shall also acquire knowledge regarding the use of common electrical tools and instruments, and the principles of safe and orderly work practices. content of courses: Project 1: Forward and Reverse Rotation Control Circuit for Three-Phase Asynchronous Motors (Weight: 4/12; Difficulty Level: Memory + Understanding + Application) Project 2: Star – Delta Starting Control Circuit for Three-Phase Asynchronous Motors (Weight: 4/12; Level: Memory + Understanding + Application) Project 3: Forward Start/Reverse Stop Control Circuit for Three-Phase Asynchronous Motors (Weight: 4/12; Difficulty Level: Memory + Understanding + Application)		
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily evaluates the teaching content through laboratory reports and measures the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.		
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.		
Reading List	[1] Bao Jieqiu, Electrical training Tutorial (2nd Edition). China Electric Power Press, January 2022.		
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS		

Electrical Control and PLC Technology Course Design

Module Name	Electrical Control and PLC Technology Course Design		
Semester in which this module is taught	Semester 5		
Module Lead	Yang Lin		
language	the Chinese language		
Relationship to the course	Professional Intensive Practical Course		
teaching method	Teacher-centered approaches: project-based learning, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical Approach: Project-Based Practice (Here, the teaching methods are categorized according to the syllabus into: teacher-centered methods, interactive methods, personalized methods, and practical methods.)		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 30 credit hours Total teaching hours: 2 hours per week over 6 weeks (12 hours in total) Self-study hours: 3 hours per week over 6 weeks (totaling 18 hours); includes: homework, exam preparation time, etc.		
credit	1 credit		
Required and recommended prerequisites for installing this module	Circuit Theory, Analog Electronics, Digital Electronics, Electrical Control and PLC Technology		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Support s graduation requirements
	CLO1	Capable of performing electrical control system scheme analysis in accordance with process control requirements, completing the selection of low-voltage electrical equipment, assigning PLC hardware I/O addresses, and drawing electrical schematic diagrams; proficient in using STEP 7 Micro/WIN SMART for PLC program development, possessing expertise in program debugging and fault troubleshooting techniques, and understanding the engineering design workflow for PLC control systems.-	R 3

CLO2	Possesses comprehensive design capabilities for small-to-medium industrial PLC control systems, enabling the execution of typical engineering tasks such as sequential motor group control, start/stop operations, and interlock protection; is capable of configuring SMART LINE touchscreen interfaces and performing joint debugging of the PLC and the human-machine interface; demonstrates practical engineering skills in consulting technical manuals and analyzing and resolving design-related issues.	R3
CLO3	Foster an awareness of engineering standards and safety, as well as a rigorous and pragmatic engineering mindset; develop teamwork and documentation skills; and cultivate a sense of responsibility, innovation, and craftsmanship in engineering practice.	R 10

content	The "Electrical Control and PLC Technology Course Design" is a practical elective course for students majoring in Electrical(Power) Engineering and Its Automation. It complements the theoretical course "Electrical Control and PLC Technology" and employs the Siemens S7-200 SMART PLC as the core controller, integrating the entire comprehensive engineering design workflow — including low-voltage electrical equipment selection, electrical schematic drawing, PLC program development and debugging, touchscreen configuration, and overall system integration testing. This course equips students with comprehensive engineering practical skills to complete the entire design process for small-to-medium-sized electrical control systems—covering system schematic design, hardware selection, I/O allocation, ladder logic program development, HMI configuration, simulation debugging, and the preparation of design reports. It also fosters an awareness of engineering standards and the ability to troubleshoot and debug systems, laying a solid practical foundation for subsequent graduation internships, graduation projects, and professional engineering roles.- content of courses: Module 1: Assignment of Course Design Tasks, Overall Project Explanation, Design Specification Outline (Weight: 2/12; Level: Memorization, Understanding, Application) Module 2: Control Requirements Analysis, Hardware Selection, I/O Address Assignment, and Electrical Schematic Design (Weight: 2/12; Level: Understanding, Application) Module 3: Overall Design of PLC Control Programs, Basic Instructions, Functional Instruction Programming and Simulation Debugging (Weight: 3/12; Level: Memorization, Understanding, Application) Module 4: SMART LINE Touchscreen Configuration Design and PLC Touchscreen Joint Debugging (Weight: 2/12; Level: Understanding, Application)- Module 5: Overall System Integration Testing, Fault Troubleshooting, and Design Report Writing Guidance (Weight: 2/12; Level: Understanding, Application) Module 6: Performance Presentation, Defense, and Course Summary (Weight: 1/12; Level: Memorization, Understanding, Application)
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily evaluates the teaching content through course design reports and measures the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.

Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. Huang Yonghong (Ed.), *Electrical Control and PLC Application Technology – Siemens S7-200 SMART PLC* (4th Edition), China Machine Press, published in December 2023. 2. SMART LINE Touchscreen Configuration Technical Manual. 3.STEP 7 – Micro/WIN SMART Software Operation Manual-
version number	V2026: The major version becomes effective in September 2026. V2026.1 – Update: Credit and workload calculation based on ECTS

Power System Analysis Course Design

Module Name	Power System Analysis Course Design		
Semester in which this module is taught	Semester 5		
Module Lead	Meng Yuanyuan		
language	the Chinese language		
Relationship to the course	Professional Intensive Practical Course		
teaching method	Teacher-centered approach: lectures, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical Approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 30 credit hours Total teaching hours: 2 hours per week, over 6 weeks (12 hours in total) Self-study hours: 3 hours per week, over a total of 6 weeks (18 hours); includes pre-class preparation, exam preparation time, etc.		
credit	1 credit		
Required and recommended prerequisites for installing this module	《power system analysis》		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Master the equivalent circuit modeling techniques for power system component parameters, as well as the model development methods for power flow and short-circuit fault analysis; be proficient in both manual calculation methods for steady-state and transient analyses, as well as simulation-based computational approaches using specialized software; be capable of performing power system scheme design and verification calculations, conducting grid power flow and fault analysis computations, enhancing practical engineering calculation skills, developing an engineering-oriented analytical mindset, and possessing the ability to solve simple, real-world power grid engineering problems.	R 3

	CLO2	Deepen the understanding of the theoretical foundations of power system analysis; master key processes such as literature review, data organization, scheme comparison and selection, engineering design calculations, result verification, and analytical summarization. Develop students practical ability to perform grid analysis in a standardized manner, further enhance their capacity to analyze and solve real-world power engineering problems, foster an engineering design mindset, and cultivate rigorous design practices.	R 10
	CLO3	Through course design and implementation practices, this course aims to foster students spirit of teamwork and collaboration, encourage them to adopt a pragmatic approach and respect computational results, and stimulate their innovative mindset in engineering. It helps students gain a deeper understanding of the theories underlying power system analysis, consolidate and deepen their knowledge, and broaden their perspective on engineering design. Furthermore, it guides students to apply their professional expertise comprehensively when addressing power grid design challenges, hone their rigorous engineering discipline, and enhance their integrated practical skills in literature review, computational reasoning, and solution evaluation.	R 10
content	The "Power System Analysis Course Design" is an important component of the Power System Analysis course and is designed as a comprehensive practical course. The objective of this course is to enable students to apply the theoretical knowledge of power system analysis acquired in class through course design exercises, to develop their engineering innovation mindset, to deepen their understanding of topics such as power flow analysis and fault calculation, to gain hands-on experience in engineering design, and to further consolidate their professional theoretical knowledge in power systems. Through this course design project, students will learn the computational workflows for power systems, the methodology for parameter selection and equivalent modeling, master the fundamental approaches to power engineering design, develop essential engineering design skills, and enhance their ability to comprehensively analyze and solve real-world power grid engineering problems. This experience lays a solid foundation for students to pursue subsequent specialized courses, complete their graduation projects, and engage in future careers within the power engineering field. content of courses: Regional Power Grid Design (Weight: 12/12; Level: Understanding + Application + Analysis + Evaluation)		

Assessment Methodology	1. Course assessment consists of a summative assessment. 2. Grade Calculation: Overall Course Grade = Summative Assessment Score $\times$ 100% The summative assessment is out of 100 points and accounts for 100% of the overall grade. It primarily evaluates the extent to which the courses knowledge, competency, and literacy objectives have been achieved through the design report.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1.Chen Heng, Ed. Steady-State Analysis of Power Systems. China Electric Power Press, 2020. 2.Fang Wanliang, Li Jianhua, Wang Jianxue (Eds.). Transient Analysis of Power Systems. China Electric Power Press, 20 20. 3.Sun Qiuye, ed., Power System Analysis. China Machine Press, 20 22. 4.Mu Gang, Ed. Power System Analysis. China Machine Press, 20 22.
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Power System Relay Protection Course Design

Module Name	Power System Relay Protection Course Design		
Semester in which this module is taught	Semester 6		
Module Lead	Li Ping		
language	the Chinese language		
Relationship to the course	Professional Intensive Practical Course		
teaching method	Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical Approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 30 credit hours Total teaching hours: 2 hours per week, over 6 weeks (12 hours in total) Self-study hours: 3 hours per week, over 6 weeks (total: 18 hours)		
credit	1 credit		
Required and recommended prerequisites for installing this module	Principles of Power System Relay Protection		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Master the "Four Key Requirements" for relay protection; be familiar with the protection configuration principles for typical power components, the short-circuit current calculation methods, and the setting and verification specifications.	R 3
	CLO2	Capable of independently designing protection schemes, setting protection parameters, and performing sensitivity verification for given systems; can also utilize tools to conduct simple protection simulation verification.	R 3
	CLO3	Foster a strong sense of electrical safety responsibility, cultivate rigorous and meticulous engineering practices, and strengthen teamwork and the spirit of craftsmanship.	R 3

content	The "Power System Relay Protection Course Design" is a core practical component of the Electrical Engineering program. It focuses on the protection configuration, setting calculation, and verification of transmission lines and main equipment, leveraging real-world engineering scenarios to reinforce the fundamental principles of relay protection and cultivate students ability to solve practical protection engineering problems. content of courses: Topic 1: Relay Protection Scheme Design for a 35 kV Step-Up Substation (Weight: 12/12; Level: Understanding + Application + Analysis + Evaluation + Innovation) Topic 2: Design of a 110 kV Power Grid Relay Protection Scheme (Weight: 12/12; Level: Understanding + Application + Analysis + Evaluation + Innovation)
Assessment Methodology	1. Course assessment consists of a summative assessment. 2. Grade Calculation: Overall Course Grade = Summative Assessment Score × 100% The summative assessment is out of 100 points and accounts for 100% of the overall grade. It primarily evaluates the extent to which the courses knowledge, competency, and literacy objectives have been achieved through the design report.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. Edited by the Electrical Engineering Teaching and Research Section, Yunnan University of Economics and Management. Course Design Guide for Power System Relay Protection. 202 5. 2. He Jiali, ed. Principles of Power System Relay Protection. China Electric Power Press, 20 22.
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Electrical Engineering Comprehensive Practical Training

Module Name	Electrical Engineering Comprehensive Practical Training		
Semester in which this module is taught	Semester 6		
Module Lead	Jiang Runhuai		
language	the Chinese language		
Relationship to the course	Professional Intensive Practical Course		
teaching method	Practical Approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 30 credit hours Total teaching hours: 12 hours per week, over 1 week (12 hours in total) Self-study hours: 18 hours per week, over a total of 1 week; includes tasks such as writing a practical training report, etc.		
credit	1 credit		
Required and recommended prerequisites for installing this module	Principle of relay protection in power system, electrical control and PLC technology, electrical systems for power plants and substations, power generation systems for power plants, Electrical Machines		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Be able to apply the principles of power system relay protection, electrical control and PLC technology, fundamental knowledge of electrical engineering, and scientific methods; capable of recognizing that there are multiple approaches available to solve engineering problems, as well as identifying, analyzing, evaluating, and communicating phenomena and issues within the professional field;	R 2

CLO2	Capable of designing electrical modules or subsystems tailored to specific requirements, optimizing such modules or subsystems, and proposing innovative approaches throughout this process; able to identify problems and develop innovative solutions in real-world scenarios; possesses comprehensive capabilities in project design, operation, and optimization; The model can be used to perform calculations for process design, system parameters, and equipment specifications; The design outcomes may be presented in the form of drawings, reports, calculation documents, or physical prototypes.	R 3
CLO3	Be able to systematically organize, coordinate, and direct team members in carrying out their tasks; possesses strong teamwork and leadership skills to drive the achievement of objectives. Possesses project management expertise, enabling the identification of key drivers for project advancement within complex, interdisciplinary environments, and applies professional application skills to resolve complex project challenges, demonstrating the characteristics of multidisciplinary integration;	R10

content	This specialized course is centered on "High-Voltage Power Operation" and leverages on-campus training facilities, such as simulated substation workstations, to cover four key areas: primary power system equipment, secondary power system equipment, operation and maintenance inspection, and emergency response. The curriculum begins with the standardized operation of primary equipment and outage-based maintenance, then progressively delves into secondary control circuit wiring techniques, relay protection device logic testing and fault diagnosis, and further incorporates role-based training — including simulated inspection exercises, monitoring and alarm handling, completion of work permits and work orders, and drills for transitioning lines from operational to maintenance status—before concluding with emergency response drills, first aid exercises, and a joint school-enterprise final assessment. content of courses: Section 1: Standard operating procedures and error prevention logic for primary equipment; Wiring techniques and standards for secondary control circuits; Inspection and labeling of secondary circuits within panels and cabinets; Power-off maintenance procedures for primary equipment (e.g., transformers, circuit breakers); Maintenance tools and safety measure deployment; Mechanical characteristic testing and maintenance (Weight: 4/12; Level: Application + Analysis + Evaluation + Innovation) Section 2: Secondary Protection Fault Troubleshooting; Relay Protection Device Logic Testing; Common Secondary Circuit Fault Diagnosis Methods; Simulation Exercise for Diagnosing Overcurrent, Fast-Acting Overcurrent, and Other Faults (Weight: 2/12; Level: Understanding + Application + Analysis) Section 3: Inspection and Virtual Operations (I): Main Transformer and Protection Cabinet Inspection Skills; Operational Monitoring and Alarm Identification/Handling (Weight: 2/12; Level: Application + Analysis + Evaluation + Creation) Section 4: Inspection and Virtual Operations (II): Guidelines for Completing Operation Tickets and Work Tickets; Simulated Drill for Transitioning Lines from Operation to Maintenance (Weight: 2/12; Level: Application + Analysis + Creation) Section 5: Emergency Response and First Aid – Emergency procedures (e.g., DC grounding) and first aid drills; Final Assessment (Safety Regulations + High-Voltage Electrical Theory Exam; one operational task/secondary fault troubleshooting session/random inspection of two-work permits documentation). Form Completion Instructions: (Weight: 2/12; Level: Understanding + Application + Analysis)
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Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily evaluates the teaching content through practical training reports and measures the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. *Operation and Maintenance of Smart Substations*, compiled by the Training Center of State Grid Ningxia Electric Power Company, China Electric Power Press, published in December 2019. 2. "Filling Out and Application of Substation Work Tickets and Switching Operation Tickets" edited by Guo Gang, Li Fuqiang et al., China Water Resources and Hydropower Press, published in June 2011. 3. "Power Supply Safety Skills Certification Training Textbook (Level D)", compiled by State Grid Hebei Electric Power Company Limited and published by China Electric Power Press. 4. "State Grid Corporation of China Electric Power Safety Work Regulations (Substation Section)" – issued by State Grid Corporation of China; published by China Electric Power Press, July 2009.
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Graduation internship

Module Name	Graduation internship		
Semester in which this module is taught	Semester 7		
Module Lead	Zheng Yuli		
language	the Chinese language		
Relationship to the course	Professional Intensive Practical Course		
teaching method	Practical Approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 360 credit hours Total teaching hours: 13.3 hours per week over 12 weeks (160 hours) Self-study hours: 20 hours per week, over 10 weeks (total: 200 hours)		
credit	12 credits		
Required and recommended prerequisites for installing this module	Power Plant/Substation Electrical Systems; Electrical measuring technology; Electrical Control and PLC Technology		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Integrating previously acquired professional foundational knowledge with real-world production practice helps consolidate and deepen the understanding of specialized knowledge, thereby laying a solid practical foundation for the graduation project and for engaging in professional work after graduation.	R 6
	CLO2	Gain an understanding of production processes, technical standards, and legal and regulatory frameworks within the field of electrical engineering, and develop the ability to analyze and solve practical engineering problems.	R 9

	CLO3 Stay informed about the latest developments and employment trends in the electrical engineering sector, and understand the role and significance of this discipline within national economic development. Cultivate in students a conscientious, rigorous, and excellence-driven work ethic, facilitating their transition from students to professional practitioners.	R 10
content	The graduation internship is an important practical component of the talent development program for the Electrical(Power) Engineering and Its Automation major; it serves as a necessary means for students to integrate theory with practice and enhance their hands-on understanding, as well as an essential approach to cultivating applied engineering and technical professionals. content of courses: Part I: On-site induction, safety training, and overall facility awareness (Weight: 14/160; Level: Memory + Understanding) Part II: On-site Inspection and Switching Operations for Primary Electrical Equipment (Weight: 28/160; Level: Understanding + Application) Part III: Secondary System Diagram Interpretation and Relay Protection Configuration Specialization (Weight: 40/160; Level: Understanding + Application + Analysis + Evaluation) Part IV: Automated Systems and Excitation/Speed Regulation Systems (Weight: 40/160; Level: Understanding + Application + Analysis + Evaluation) Part V: Overvoltage Protection, Grounding Systems, and Emergency Scenario Analysis (Weight: 28/160; Level: Understanding + Application + Analysis + Evaluation) Part VI: Data Compilation, Drawing Preparation, and Practical Training Report (Weight: 10/160; Level: Analysis + Evaluation)	
Assessment Methodology	1. Grade Calculation: Overall Course Grade = Internship Performance Score × 40% + Internship Report Score × 60% 2. Internship grades are assessed on a five-point scale: 90–100 points – Excellent; 80–89 points – Good; 70–79 points – Average; 60–69 points – Pass; below 60 points – Fail.	
Study and Examination Requirements	Five-level evaluation system	

Reading List	/
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Graduation thesis (design)

Module Name	Graduation thesis (design)		
Semester in which this module is taught	Semester 8		
Module Lead	Zheng Yuli		
language	the Chinese language		
Relationship to the course	Professional Intensive Practical Course		
teaching method	Teacher-centered approach: lectures, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical Approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 240 credit hours Total teaching hours: 10 hours per week, over 14 weeks (140 hours) Self-study hours: 10 hours per week, over a total of 10 weeks (100 hours)		
credit	8 credits		
Required and recommended prerequisites for installing this module	Power Plant/Substation Electrical Systems; Electrical measuring technology; Electrical Control and PLC Technology		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	The ability to comprehensively apply professional knowledge—including engineering mathematics, physics, circuit theory, electric machinery, power electronics technology, and power system analysis—to identify, model, and conduct in-depth analysis of complex electrical engineering problems involved in a Graduation thesis (design), thereby clarifying the essence of the problem and determining an appropriate solution approach.	R 2

	CLO2	The ability to propose innovative solutions to complex electrical engineering problems, design systems, units, or process flows that meet specific requirements, and comprehensively consider social, health, safety, legal, cultural, and environmental constraints during the design process.	R 3
	CLO3	The ability to design experimental protocols or simulation workflows based on scientific principles and using scientific methods, validate design proposals, correctly collect, analyze, and interpret data, and draw reasonable and valid conclusions through information synthesis.	R 4
	CLO 4	Be able to effectively communicate and engage with industry professionals as well as the general public regarding engineering problems addressed in a Graduation thesis (design); this includes drafting a graduation thesis with a rigorous structure and standardized presentation, as well as delivering clear oral presentations and participating in thesis defenses.	R 9
content	Through the various stages of the graduation project training, students moral character is enhanced, and they develop a strong work ethic and professional approach; particular emphasis is placed on training students to comprehensively apply the fundamental theories, knowledge, and skills they have acquired, as well as to analyze and solve real-world problems; this enables students to further deepen their theoretical understanding, improve their engineering practical skills, and strengthen their ability to work independently as part of the basic training designed for industrial engineers. content of courses: Graduation Thesis (Design) (Weight: 2/45; Level: Understanding + Application + Analysis + Evaluation + Creation)		
Assessment Methodology	1. Grade Calculation: Overall Course Grade = Instructors Score × 40% + Reviewers Score × 20% + Defense Score × 40% 2. The grade for the Graduation thesis (design) is assessed using a five-point scale: 90–100 points – Excellent; 80–89 points – Good; 70–79 points – Average; 60–69 points – Pass; below 60 points – Fail.		
Study and Examination Requirements	Five-level evaluation system		
Reading List	1. *Guidelines for Graduation Projects in Electrical(Power) Engineering and Its Automation*, edited by Wang Yueming; Chemical Industry Press, published in September 2021. 2.*Guidance and Case Studies for Graduation Projects (Theses) in Control and Electrical Engineering*, edited by Guo Rongxiang, Metallurgical Industry Press, published in February 2024.		

version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS
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EDA technology

Module Name	EDA technology		
Semester in which this module is taught	First Semester		
Module Lead	Li Xingyuan		
language	the Chinese language		
Relationship to the course	Professional Elective Courses		
teaching method	Teacher-centered approach: lectures, case-based teaching, and questioning; Interaction-based approach: Task-driven and step-by-step practical methodology Practical approach: comparison between physical dissection and schematic diagrams, and live demonstration on the front projection screen.		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 90 credit hours Total teaching hours: 2 hours per week, over 18 weeks (36 total hours) Self-study hours: 3 hours per week, over a total of 18 weeks (54 hours), including homework, exam preparation time, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	not have		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Implement relevant national standards and be familiar with their fundamental concepts; master the use of the Lichuang EDA software platform, including the full workflow for project creation, circuit schematic design, electronic circuit simulation, and PCB design.	R 5

	CLO2 Cultivate a conscientious and responsible work ethic as well as a rigorous and meticulous work style. Be able to assess the feasibility of design proposals through technical and economic evaluation, taking into account constraints arising from social, health, safety, legal, cultural, and environmental factors.	R 5
content	This course is a specialized elective for the Electrical(Power) Engineering and Its Automation major, focusing primarily on the theory and practice of Electronic Design Automation (EDA). Through this course, students will master the design theories and processes of EDA, become proficient in operating the Lichuang EDA software platform, and gain a solid understanding of electronic system design methodologies. It lays a solid foundation for students future work in PCB design and plays an important role in fostering their innovative thinking, comprehensive experimental skills, system development capabilities, teamwork abilities, and scientific reasoning skills; it also helps cultivate an engineering mindset that integrates theory with practice and enhances students ability to analyze and solve problems. content of courses: Preface: Course Introduction (Weight: 4/36; Level: Memorization + Understanding) Chapter 1: Introduction to Jia Lichuang(Weight: 4/36; Level: Memory + Understanding) Chapter 2: Introduction to the GD32E230 Core Board (Weight: 2/36; Level: Memory + Understanding) Chapter 3: GD32E230 Core Board Schematic Design (Weight: 6/36; Level: Understanding + Application + Analysis + Creation) Chapter 4: GD32E230 Core Board PCB Design (Weight: 8/36; Level: Understanding + Application + Analysis + Creation) Chapter 5: Circuit Board Fabrication (Weight: 6/36; Level: Understanding + Application + Analysis + Creation) Chapter 6: Welding and Commissioning (Weight: 6/36; Level: Understanding + Application + Analysis + Creation)	

Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily uses written examinations to evaluate the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. Zhong Shida and Zhang Peichang (eds.). *Jiali Creative EDA (Professional Edition): A Quick Start Guide to Circuit Design and Implementation*. Electronic Industry Press, September 2025; 2. Li Jianbing. *Fundamentals of EDA Technology: A Tutorial*. Beijing: National Defense Industry Press, May 2009; 3. Self-developed teaching materials: *Lichuang EDA Design Handbook*. November 2021.
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Python Programming and Data Analysis

Module Name	Python Programming and Data Analysis		
Semester in which this module is taught	Semester 6		
Module Lead	Zhao Xiong		
language	the Chinese language		
Relationship to the course	Professional Elective Courses		
teaching method	Teacher-centered approach: classroom lectures, case studies, and interactive questioning; Interactive approaches: classroom discussions, problem-based learning; Practical approach: Hands-on computer lab sessions and project-based practice		
Workload (including teaching hours and self-study hours)	Total workload: 90 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 total hours) Self-study hours: 3.6 hours per week, over a total of 16 weeks (58 total hours; including homework, computer-based practice, exam preparation time, etc.)		
credit	3 credits		
Required and recommended prerequisites for installing this module	basis of computer engineering		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Master the basic syntax, program control structures, and composite data types of Python; develop the fundamental ability to read and write Python programs.	R 2
	CLO2	能夠 use Python and its third-party libraries for data collection, processing, analysis, and visualization.	R4、 R 5
	CLO3	Cultivate computational thinking and logical analysis skills, enabling you to translate real-world problems into programming challenges and solve them.	R5 、 R11

content	This module covers the basic syntax of the Python language, program structure, functions, and data analysis libraries; it also enhances programming skills through accompanying hands-on laboratory exercises. content of courses: Chapter 1: Python Overview and Development Environment (Weight: 3/32; Level: Understanding) Chapter 2: Basic Python Syntax (Weight: 4/32; Level: Understanding + Application) Chapter 3: Program Control Structures (Weight: 5/32; Level: Understanding + Application + Analysis) Chapter 4: Functions and Code Reuse (Weight: 4/32; Level: Understanding + Application + Analysis) Chapter 5: Composite Data Types (Weight: 4/32; Level: Understanding + Application + Analysis) Chapter 6: File Operations and Data Formatting (Weight: 3/32; Level: Understanding + Application) Chapter 7: Scientific Computing Library NumPy (Weight: 3/32; Level: Understanding + Application + Analysis) Chapter 8: Data Visualization with Matplotlib (Weight: 3/32; Level: Understanding + Application + Analysis) Chapter 9: Chinese Word Segmentation and Text Processing (Weight: 3/32; Level: Understanding + Application + Creation)
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment, scored on a 100-point scale, accounts for 40% of the total grade. It comprises homework assignments (40%), computer-based practical work (40%), and classroom participation (20%). (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment may be conducted via an end-of-term computer-based exam (comprising multiple-choice questions, true/false questions, program analysis questions, and programming tasks) or through a course project, and is designed to evaluate the extent to which the courses knowledge, competency, and literacy objectives have been achieved.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.

Reading List	1. Song Tian, Li Xin, and Huang Tianyu. *Fundamentals of Python Programming* (3rd Edition). Higher Education Press. 2. Zhang Liangjun, Tan Liyun, Liu Mingjun et al. *Python Data Analysis and Applications* (2nd Edition). Peoples Posts and Telecommunications Press. 3. Wes McKinney; translated by Tang Xuetao et al. *Data Analysis with Python* (3rd Edition). China Machine Press.
version number	V2026: The major version becomes effective in September 2026. V202 6.1 – Update: Credit and workload calculation based on ECTS

Intelligent Monitoring and Fault Diagnosis for Electrical Equipment

Module Name	Intelligent Monitoring and Fault Diagnosis for Electrical Equipment		
Semester in which this module is taught	Semester 7		
Module Lead	Yin Ping		
language	the Chinese language		
Relationship to the course	Professional Elective Courses		
teaching method	Teacher-centered approach: lectures, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical Approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 90 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 hours in total) Self-study hours: 3.6 hours per week, over a total of 16 weeks (58 hours); includes: homework, pre-class preparation time, post-class practice problems, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	High-voltage technology, Power plant electrical systems, Circuit theory, Power plant electrical systems, Signals and Systems		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Demonstrate a deep understanding of the typical fault mechanisms associated with core electrical equipment in power systems; become thoroughly familiar with the entire intelligent fault diagnosis workflow; master the principles and applicable scenarios of the three mainstream data-driven diagnosis methods; and stay abreast of the latest technological advancements in this field.	R2

CLO2	Skilled in data cleaning, annotation, and standardization of multi-source monitoring data. Proficient in feature engineering, model training and tuning for fault diagnosis. Capable of independently developing a simple online fault diagnosis prototype system and conducting performance evaluation.	R4
CLO3	Develop a systematic engineering mindset centered on the "Data – Features – Model – Decision" framework, establishing a problem-solving approach tailored to the complex fault scenarios inherent in modern power systems, and fostering an engineering innovation mindset aligned with the practical needs of equipment operation and maintenance within the power industry. Equip students with the ability to identify problems, solve them, and troubleshoot faults; cultivate in them the skills to conduct literature searches, decompose problems, formulate questions and draw conclusions, as well as perform experimental calculations.	R5 、 R6、 R9

content	By completing this course, students will gain a precise understanding of the typical fault mechanisms associated with core electrical equipment—such as transformers, generators, and transmission lines—and become familiar with the physical significance and mapping patterns of multi-source monitoring signals — including oil chromatography, partial discharge, and vibration data. They will be able to independently perform basic operations such as monitoring data preprocessing and feature extraction, master the core principles of two mainstream intelligent diagnostic approaches — traditional machine learning and deep learning — and be capable of building and optimizing simple diagnostic models tailored to specific equipment fault scenarios. Furthermore, students will develop an initial systems engineering mindset centered on the "data – features – model – decision" framework, enabling them to conduct preliminary assessments of the suitability of intelligent monitoring solutions in light of the operational and maintenance requirements of modern power systems. This will cultivate rigorous professional competence in power equipment fault analysis, laying a solid foundation for their future careers in electrical equipment maintenance and condition-based assessment. content of courses: Chapter 1: Overview (Weight: 1/32; Level: Memory) Chapter 2: Turbine Generator Condition Monitoring and Fault Diagnosis (Weight: 4/32; Level: Knowledge – Analysis – Evaluation) Chapter 3: Turbine Generator Condition Monitoring and Fault Diagnosis (Weight: 1/32; Level: Knowledge – Analysis – Evaluation) Chapter 4: Condition Monitoring and Fault Diagnosis for Wind Turbine Generators (Weight: 2/32; Level: Knowledge – Analysis – Evaluation) Chapter 5: Condition Monitoring and Fault Diagnosis of AC Motors (Weight: 3/32; Level: Knowledge – Analysis – Evaluation) Chapter 6: State Monitoring and Fault Diagnosis of Power Transformers (Weight: 5/32; Level: Knowledge – Analysis – Evaluation) Chapter 7: State Monitoring and Fault Diagnosis of High-Voltage Circuit Breakers (Weight: 3/32; Level: Knowledge – Analysis – Evaluation) Chapter 8: State Monitoring and Fault Diagnosis for High-Voltage Switchgear (Weight: 1/32; Level: Knowledge – Analysis – Evaluation) Chapter 9: GIS Combination Switch State Monitoring and Fault Diagnosis (Weight: 3/32; Level: Knowledge – Analysis – Evaluation) Chapter 10: Transmission Line Condition Monitoring and Fault Diagnosis (Weight: 3/32; Level: Knowledge – Analysis – Evaluation) Chapter 11: Surge arrester condition monitoring and fault diagnosis (Weight: 2/32; Level: Knowledge – Analysis – Evaluation) Chapter 12: State Monitoring and Fault Diagnosis of Electrical Capacitors (Weight: 2/32; Level: Knowledge – Analysis – Evaluation) Chapter 13: State Monitoring and Fault Diagnosis for Photovoltaic Power Generation Systems (Weight: 2/32; Level: Knowledge – Analysis – Evaluation)
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Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment, scored on a 100-point scale, accounts for 40% of the total grade. It primarily evaluates students completion of assignments, independent learning, performance on periodic quizzes, experimental projects, and midterm examinations. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily evaluates the teaching content through a written paper, measuring the extent to which the courses knowledge, competency, and literacy objectives have been achieved.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. *Principles of Automatic Protection Devices for Power Systems*, edited by Yang Guancheng, China Electric Power Press, July 2021,6th edition. 2. *Automatic Devices for Power Systems*, edited by Zhao Qing; Chongqing University Press, 1st edition, November 2019. 3."State Monitoring and Fault Diagnosis Technology for Electrical Equipment," edited by Zhu Deheng, Yan Zhang, Tan Kexiong et al., China Electric Power Press, 2009 (reprinted in 2023). 4.Online Monitoring and Fault Diagnosis of Power Equipment (2nd Edition), edited by Gao Shengyou, Wang Changchang, and Li Fuqi; Tsinghua University Press.
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Automatic devices for electric power systems

Module Name	Automatic devices for electric power systems		
Semester in which this module is taught	Third Semester		
Module Lead	Yin Ping		
language	the Chinese language		
Relationship to the course	Professional Elective Courses		
teaching method	Teacher-centered approach: lectures, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical Approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 90 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 hours in total) Self-study hours: 3.6 hours per week over 16 weeks (totaling 58 hours); includes: homework, pre-class preparation time, post-class practice problems, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	Advanced Mathematics, University Physics, Circuit Theory		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

CLO1	Understand the basic structural configurations of power system automation devices and grasp the principles underlying their data acquisition and processing; Understand the operating principles of automatic power system synchronization devices and generator excitation control systems; possess the ability to analyze and design automatic power system equipment; and comprehend the fundamental principles and applications of low-frequency load shedding and other automatic safety control devices. This course lays a solid foundation for students to engage in practical engineering applications.	R3
CLO2	Possess the relevant professional knowledge and skills required for power generation, operation, and control — such as active power control for power plant units, grid synchronization, reactive power and voltage control during transmission operations, and power system frequency stability control; demonstrate a solid grasp of the fundamental theoretical knowledge in Electrical(Power) Engineering and Its Automation, and stay informed about the latest developments and trends in electrical control equipment; possess the ability to comprehensively apply acquired scientific theories and technical methodologies to design electrical systems, components, and processes; demonstrate the capability to systematically articulate, model, analyze, solve, and validate electrical engineering problems; and master the basic methods for literature retrieval, data querying, and utilizing modern information technologies to obtain relevant information.	R3
CLO3	Help students develop a strong awareness of prioritizing safety and conserving electricity, thereby ensuring their personal and property safety while improving the efficiency of electrical equipment; foster in students the ability to recognize, use, protect, and be responsible for electricity; cultivate in them a spirit of professionalism, dedication, diligence, and entrepreneurship; equip students with the skills to identify problems, solve them, and troubleshoot equipment; and develop in them the ability to consult reference materials, break down problems, pose questions and draw conclusions, as well as conduct experimental calculations.	R3

content	By completing this course, students will gain an understanding of the fundamental concepts, functions, and future development prospects of power system automation; master the principles of power system safety control devices; become familiar with the operating principles of automatic synchronization devices for synchronous generators, synchronous generator excitation systems, and excitation regulators; analyze the dynamic behavior of primary and secondary frequency regulation in power systems and the corresponding regulation criteria; and understand the operating principles of automatic standby power supply transfer devices, automatic reclosing devices for transmission lines, and automatic frequency-dependent load shedding devices. This course provides students with a solid foundation for the correct operation of conventional automation systems and for enhancing their ability to analyze and solve engineering problems. content of courses: Chapter 1: Automatic Control Systems and Data Acquisition and Processing (Weight: 7/32; Level: Memory – Assessment) Chapter 2: Automatic Parallel Operation of Synchronous Generators (Weight: 7/32; Level: Memorization + Assessment + Understanding) Chapter 3: Automatic Excitation Control System for Synchronous Generators (Weight: 7/32; Level: Memory-Analytical) Chapter 4: Frequency Characteristics of Power Systems (Weight: 4/32; Level: Memory-Analytical) Chapter 5: Automatic Regulation of Power System Frequency and Active Power (Weight: 6/32; Level: Memory–Analysis) Chapter 6: Weighting Factor for Automatic Low-Frequency Load Shedding in Power Systems and Other Security Automatic Control Devices – 1/32; Level: Understanding + Application + Analysis
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment, scored on a 100-point scale, accounts for 40% of the total grade. It primarily evaluates students completion of assignments, independent learning, performance on periodic quizzes, experimental projects, and midterm examinations. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily evaluates the teaching content through a written paper, measuring the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.

Reading List	1. *Principles of Automatic Control Devices for Power Systems*, edited by Yang Guancheng, China Electric Power Press, July 2021,6th edition. 2. *Automatic Devices for Power Systems*, edited by Zhao Qing; Chongqing University Press, 1st edition, November 2019.
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Electrical Engineering Materials

Module Name	Electrical Engineering Materials		
Semester in which this module is taught	Third Semester		
Module Lead	Lu Xiaolei		
language	the Chinese language		
Relationship to the course	Professional Elective Courses		
teaching method	Teacher-centered approach: lectures, case-based teaching, and questioning;		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 32 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 hours in total) Self-study hours: 3.6 hours per week over 16 weeks (totaling 58 hours); includes: homework, exam preparation time, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	University Physics, Circuit Theory		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	Master the properties, failure patterns, and selection specifications of various electrical engineering materials; stay informed about the latest trends in new material development. Develop engineering capabilities in material selection, fault analysis, and optimization and improvement; be able to interpret relevant technical standards and drawings. Foster a safety- and environmental-conscious application mindset, and cultivate interdisciplinary thinking as well as strong professional engineering ethics.	Supports graduation requirements

CLO1	Master the basic classification, structural characteristics, and core electrical and physical properties of conductive materials, superconducting materials, magnetic materials, insulating materials, electrical contact materials, electrical heating materials, and semiconductor materials; understand the failure mechanisms, aging patterns, and factors influencing the service life of materials under the influence of electric fields, temperature, and mechanical stress; master the selection principles, relevant standards and specifications, as well as the engineering application scenarios for commonly used materials in electrical engineering;	R 1
CLO2	This course aims to equip students with the ability to appropriately select electrical engineering materials based on the actual operating conditions of electrical equipment, taking into account voltage, current, temperature, frequency, and environmental factors; to apply theoretical knowledge to analyze the failure and aging mechanisms of materials and propose improvement measures; and to interpret material specifications, technical manuals, and material markings on engineering drawings. It fosters an engineering mindset that integrates materials selection with electrical equipment design, thereby laying a solid professional foundation for careers in the electrical engineering field.	R 1
CLO3	This course guides students in developing a safe, reliable, energy-efficient, and environmentally friendly approach to the application of electrical engineering materials; it fosters rigorous engineering logical thinking, strengthens students awareness of standards and quality, emphasizes the application requirements throughout the entire lifecycle of electrical equipment, and helps students cultivate a systems-thinking mindset that integrates materials science with electrical engineering, thereby shaping engineering competence and professional values aligned with industry demands.	R 1

content	This course is a specialized elective for students majoring in Intelligent Electrical Engineering within the Electrical(Power) Engineering and Its Automation program. It builds upon prerequisite courses such as University Physics, Materials Mechanics, Circuit Theory, and Electric Machines, and is designed for those engaged in the design, manufacturing, operation, and maintenance of electrical equipment. The course provides a systematic exposition of the structure, performance mechanisms, and engineering applications of various electrical functional materials; it elucidates the different properties of these materials, the impact of operating conditions, aging and degradation processes, and corresponding mitigation strategies; and it applies these concepts to the selection of materials and engineering challenges specific to electrical equipment. Through this approach, the course enables students to master relevant professional theories and enhance their ability to select appropriate materials, thereby laying a solid foundation for their future studies and careers in the field of electrical engineering. content of courses: Chapter 1: Introduction to Electrical Engineering Materials (Weight: 2/32; Level: Memorization + Understanding) Chapter 2: Conductive and Electrical Heating Materials (Weight: 4/32; Level: Understanding + Application + Analysis) Chapter 3: Insulating Materials (Weight: 6/32; Level: Understanding + Application + Analysis) Chapter 4: Magnetic Materials (Weight: 4/32; Level: Understanding + Application + Analysis) Chapter 5: Semiconductor and Superconducting Materials (Weight: 4/32; Level: Understanding + Application + Analysis) Chapter 6: Electrical Contact and Special Electrical Engineering Materials (Weight: 4/32; Level: Understanding + Application) Chapter 7: Failure, Aging and Protection of Electrical Materials (Weight: 4/32; Level: Application + Analysis) Chapter 8: Engineering Selection and Comprehensive Application of Electrical Materials (Weight: 4/32; Level: Understanding + Application + Analysis)
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily uses written examinations to evaluate the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.

Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. *Electrical Engineering Materials and Applications*, by Li Gang and Zhao Jun, China Electric Power Press, published in 2020. 2. *Electrical Engineering Materials* (3rd Edition), Wang Xianchong, China Machine Press, 2022
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Power Communication Technology

Module Name	Power Communication Technology		
Semester in which this module is taught	Semester 4		
Module Lead	Wei Yi		
language	the Chinese language		
Relationship to the course	Professional Elective Courses		
teaching method	Teacher-centered approach: lecture-based instruction, case study analysis, questioning, and integration of theory and practice; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical Approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 90 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 hours in total) Self-study hours: 3.6 hours per week over 16 weeks (totaling 58 hours); includes: homework, exam preparation time, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	Introduction to Electrical Engineering; Fundamentals of Analog Electronics; Fundamentals of Digital Electronics		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Implement relevant national standards; be familiar with the fundamental knowledge contained within these standards; and understand the technical standards, intellectual property rights, industrial policies, laws and regulations, as well as corporate management systems related to electrical engineering.	R 5
	CLO2	Be able to select and apply appropriate, proven, and reliable technical solutions to complex electrical engineering problems, as well as choose suitable instruments, equipment, information processing tools, engineering tools, and software for analysis and calculation.	R 5

	CLO3	Understand the impact of electrical engineering on public safety and health, as well as the social responsibility associated with environmental protection, and consciously fulfill these responsibilities in engineering practice.	R 6
content	This course is designed for undergraduate students majoring in Electrical(Power) Engineering and Its Automation, and it provides a systematic introduction to the fundamental theories and key technologies of power system communications. The curriculum covers fundamental communication concepts (signal analysis, modulation and coding, multiplexing and multiple access techniques, synchronization techniques), power line carrier communication, optical fiber communication (including special power optical cables such as OPGW/ADSS and the SDH transmission system), microwave and satellite communication, mobile communication, modern switching technologies, as well as communication and access network technologies. The course places particular emphasis on specialized communication methods used in the power industry and their applications in power grid dispatching, relay protection, and remote monitoring systems. Through this course, students will gain a thorough understanding of the composition, principles, and technical characteristics of power communication systems, and will develop the ability to select appropriate communication methods to solve practical power system communication engineering problems, thereby laying a solid foundation for careers in power grid operation, power automation, or related fields. content of courses: Chapter 1: Overview (Weight: 2/32; Level: Memory + Understanding) Chapter 2: Basic Communication Concepts (Weight: 6/32; Level: Memorization + Understanding + Analysis) Chapter 3: Power Line Carrier Communication (Weight: 2/32; Level: Memory + Understanding + Application + Analysis + Evaluation) Chapter 4: Fiber Optic Communication Technology (Weight: 4/32; Level: Memorization + Understanding + Application + Evaluation) Chapter 5: Microwave and Satellite Communication Technologies (Weight: 2/32; Level: Understanding + Application + Analysis + Evaluation) Chapter 6: Mobile Communication Technologies (Weight: 4/32; Level: Memory + Understanding + Analysis + Evaluation) Chapter 7: Modern Exchange Techniques (Weight: 4/32; Level: Understanding + Application + Analysis + Evaluation) Chapter 8: Communication Networks (Weight: 4/32; Level: Memory + Understanding + Analysis + Evaluation + Creation) Chapter 9: Access Network Technologies (Weight: 4/32; Level: Application + Analysis + Evaluation + Innovation)		

Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily evaluates the teaching content through a written paper, measuring the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Study Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. *Power System Communication Technology*, edited by Zhang Shuee. China Electric Power Press. July 2025. 2. *Power System Communications and Network Technology*, edited by Zhong Xiyan. China Electric Power Press. September 2025. 3. *Smart Grid Information and Communication Technology*, edited by Zhang Tiefeng; China Electric Power Press, February 2023.
version number	V2026: The major version becomes effective in September 2026. V2026.1 – Update: Credit and workload calculation based on ECTS

High voltage technology

Module Name	High voltage technology		
Semester in which this module is taught	Semester 4		
Module Lead	Cao Zhe		
language	the Chinese language		
Relationship to the course	Professional Elective Courses		
teaching method	Teacher-centered approach: lectures, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical Approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 90 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 hours in total) Self-study hours: 3.6 hours per week (over 16 weeks, totaling 58 hours); includes: homework, exam preparation time, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	Advanced Mathematics, University Physics, Circuit Theory, Engineering Electromagnetics, Electric Machines, Power Electronics Technology, Power System Analysis		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Be able to objectively analyze and evaluate the development of new electrical products, technologies, and processes, as well as the impact of electrical manufacturing on society, health, safety, legal matters, and culture, and to understand the responsibilities that should be assumed.	R 1

	<table><tr><td>CLO2</td><td>Apply fundamental knowledge and scientific methods from mathematics, natural sciences, and electrical engineering to perform modeling and simulation; analyze and explore the underlying mechanisms and patterns of key parameters within complex electrical systems; progressively formulate solutions to complex electrical engineering problems; and evaluate the soundness of these solutions.</td><td>R 2</td></tr><tr><td>CLO3</td><td>Understand the impact of electrical engineering on public safety and health, as well as the social responsibility associated with environmental protection, and consciously fulfill these responsibilities in engineering practice.</td><td>R 6</td></tr></table>	CLO2	Apply fundamental knowledge and scientific methods from mathematics, natural sciences, and electrical engineering to perform modeling and simulation; analyze and explore the underlying mechanisms and patterns of key parameters within complex electrical systems; progressively formulate solutions to complex electrical engineering problems; and evaluate the soundness of these solutions.	R 2	CLO3	Understand the impact of electrical engineering on public safety and health, as well as the social responsibility associated with environmental protection, and consciously fulfill these responsibilities in engineering practice.	R 6
CLO2	Apply fundamental knowledge and scientific methods from mathematics, natural sciences, and electrical engineering to perform modeling and simulation; analyze and explore the underlying mechanisms and patterns of key parameters within complex electrical systems; progressively formulate solutions to complex electrical engineering problems; and evaluate the soundness of these solutions.	R 2					
CLO3	Understand the impact of electrical engineering on public safety and health, as well as the social responsibility associated with environmental protection, and consciously fulfill these responsibilities in engineering practice.	R 6					
content	By taking this course, students will gain a thorough understanding of electrical equipment insulation, overvoltage in power systems, and the corresponding protective measures. This will enhance their practical skills and lay a solid professional foundation for their future research and technical careers in the field of high-voltage engineering. Part 1: Dielectric Electrical Strength (Weight: 6/32; Level: Memory + Understanding) Part II: Electrical Equipment Insulation Testing (Weight: 12/32; Level: Memorization + Understanding + Analysis + Evaluation) Part III: Power System Overvoltage and Insulation Coordination (Weight: 10/32; Level: Memorization + Understanding + Analysis + Evaluation) Part IV: High-Voltage Technologies Advanced by New Transmission Systems (Weight: 4/32; Level: Memorization + Understanding)						
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily evaluates the teaching content through a written paper, measuring the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.						
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.						

Reading List	1.Wu Guangning, ed., High Voltage Technology (2nd Edition). Beijing: China Machine Press, 2017. 2.Lin Fuchang, Ed. High Voltage Engineering (2nd Edition). Beijing: China Electric Power Press, 2011. 3.Liang Xidong et al., eds. High-Voltage Engineering (2nd ed.). Beijing: Tsinghua University Press, 2019. 4.Zhang Yichen, Ed. *High Voltage Technology* (3rd Edition). Beijing: China Electric Power Press, 2021.
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Power Plant Power Section

Module Name	Power Plant Power Section		
Semester in which this module is taught	Semester 5		
Module Lead	Stone Essence		
language	the Chinese language		
Relationship to the course	Professional Elective Courses		
teaching method	Teacher-centered approach: lecture-based instruction, case-based teaching, and questioning; Interactive approaches: blended learning, teaching workshops (including group discussions); Practical method: Experimental method		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 90 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 hours in total) Self-study hours: 3.6 hours per week over 16 weeks (totaling 58 hours); includes: pre-class preparation, post-class assignments, exam preparation time, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	Advanced Mathematics; Electrical Systems for Power Plants and Substations		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Understand the power generation processes of different types of power plants; master the structural design, system composition, and operating modes of the primary power equipment in thermal power plants, hydroelectric power plants, and nuclear power plants; demonstrate a thorough understanding of the operating principles of thermal power plants, hydroelectric power plants, and nuclear power plants; and be familiar with the operational regulation methods employed in thermal power plants, hydroelectric power plants, and nuclear power plants.	R 3

CLO2	Possess the relevant professional knowledge and skills required for the design, installation, commissioning, operation, and maintenance of thermal power plants, hydroelectric power plants, and nuclear power plants; demonstrate the ability to comprehensively apply scientific theories and technical methods to design the power equipment for thermal power plants, hydroelectric power plants, and nuclear power plants; possess the capability to systematically describe, model, analyze, solve, and validate thermal power plants, hydroelectric power plants, and nuclear power plants; and master the fundamental methods for literature retrieval, data querying, and utilizing modern information technologies to obtain relevant information.	R3
CLO3	Passionate and highly curious; pragmatic, with the confidence and determination to overcome challenges; adheres to work hours and operational procedures, and integrates the companys 5S system; capable of effectively dividing tasks and collaborating based on work requirements, demonstrating strong team spirit; able to accurately describe work tasks and requirements, as well as prepare and deliver work summaries or presentations;dare to expressing differing opinions and is willing to correct or abandon incorrect views; eager to test and evaluate various technical issues through hands-on practice.	R 3

content	The Power Plant Power Systems course is an elective course offered within the Non-Thermal Power Engineering program. This textbook is divided into three relatively independent sections: the Power Systems for Thermal Power Plants, the Power Systems for Hydroelectric Power Plants, and the Power Systems for Nuclear Power Plants. Each section elaborates on the theoretical foundations of power plant power systems, as well as the structure, operating principles, system composition, and operational modes of the primary power generation equipment. Upon completing this course, students should acquire a comprehensive and systematic understanding of the fundamental theories governing the conversion between thermal and mechanical energy; gain an understanding of the operating principles, composition, function, structural characteristics, and basic principles of the primary power generation equipment; become familiar with the production processes involved in both conventional and renewable energy power generation; and develop the ability to perform safety-and economic-operational analyses for power plant power systems, as well as efficiency analyses and basic computational skills related to energy conversion. content of courses: Chapter 1: Basic Thermodynamic Concepts and Fundamental Laws (Weight: 2/32; Difficulty Level: Memorization + Understanding) Chapter 2: Basic Principles of Heat Transfer (Weight: 2/32; Level: Memory + Comprehension) Chapter 3: Boiler Equipment (Weight: 4/32; Level: Memorization + Understanding + Application) Chapter 4: Steam Turbine Equipment (Weight: 6/32; Level: Understanding + Application + Analysis) Chapter 5: Methods for the Development and Utilization of Hydropower (Weight: 4/32; Level: Understanding + Application + Analysis) Chapter 6: Selection of Installed Capacity for Hydropower Plants (Weight: 6/32; Level: Application + Analysis + Evaluation) Chapter 7: Main Hydraulic Structures and Power Generation Equipment in Hydroelectric Power Plants (Weight: 4/32; Difficulty Level: Memorization + Understanding + Application) Chapter 8: Power Plant Equipment and Operational Weighting for Nuclear Power Plants (Page 4/32; Level: Understanding + Application + Analysis)
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Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. This assessment primarily evaluates students homework completion, independent learning, and performance on periodic quizzes and midterm examinations. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily employs an open-book written examination format to evaluate the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1.Guan Jinfeng. Power Plant Power Section. China Electric Power Press, reprinted in May 2021. 2.Edited by Xia Yong and Zhang Zheng. *Power Plant Power Systems*, Mechanical Industry Press, August 2017. 3.Yan Junjie. Thermal Systems and Equipment for Power Plants; Xian Jiaotong University Press, January 2019.
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Electrical measuring technology

Module Name	Electrical measuring technology		
Semester in which this module is taught	Semester 5		
Module Lead	Stone Essence		
language	the Chinese language		
Relationship to the course	Professional Elective Courses		
teaching method	Teacher-centered approach: lecture-based instruction, case-based teaching, and questioning; Interactive methods: video demonstrations, instructional workshops (including group discussions); Practical methods: Experimental method, Practice method		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 90 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 hours in total) Self-study hours: 3.6 hours per week over 16 weeks (totaling 58 hours); includes: homework, exam preparation time, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	Advanced Mathematics, Circuit Theory, Fundamentals of Analog Electronics		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Through this course, students will gain a thorough theoretical understanding of the basic concepts, methods, and relevant units in surveying; they will learn how to calculate the distribution and summation of surveying errors, as well as how to correctly select surveying instruments and design a well-structured surveying system; they will master the measurement, analysis, and application of electrical and circuit parameters; and they will gain an understanding of the sources and propagation of interference, as well as the commonly used methods for suppressing such interference.	R 4

	CLO2	Enable students to become proficient in using basic electrical measurement tools and related instruments; enable students to become proficient in identifying, measuring, and operating electrical circuit components; enable students to become proficient in the supply, distribution, and measurement of three-phase electricity; and enable students to master the wiring, inspection, and operation of simple electrical control circuits.	R 4
	CLO3	Foster a conscientious and responsible approach to learning, as well as a rigorous and meticulous work ethic; develop students ability to identify and solve problems.	R 4
content	Electrical measuring technology is a highly practical course. Through this course, students will systematically acquire knowledge regarding modern measurement principles, measurement methods, data acquisition, and error analysis; they will also master the structural principles, selection, and usage of commonly employed measurement instruments, thereby laying a solid foundation for their future work involving the operation and calibration of electrical measuring devices. content of courses: Chapter 1: Basic Concepts of Measurement and Measurement Systems (4/32 – Memory + Comprehension) Chapter 2: Measurement Errors and Their Analysis (4/32 – Understanding + Application) Chapter 3: Basic Characteristics of Measurement Systems (4/32 – Memorization + Understanding + Application) Chapter 4: Measurement of Electrical Parameters (8/32 – Understanding + Application + Analysis) Chapter 5: Measurement of Circuit Parameters (8/32 – Understanding + Application + Analysis) Chapter 6: Magnetic Parameter Measurement (2/32 – Memory + Understanding) Chapter 7: Interference and Suppression (2/32 – Memory + Comprehension)		

Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. This assessment primarily evaluates students completion of assignments, independent learning performance, participation in experimental projects, and performance on midterm examinations. (2) Summative assessment – maximum score: 100 points; accounts for 60% of the overall grade. This assessment primarily employs an open-book written examination format to evaluate the teaching content and measure the extent to which the courses knowledge, competency, and literacy objectives have been achieved.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1.He Daoqing, ed., Electrical measuring technology. Chemical Industry Press, 20 22. 2.He Daoqing, ed., Electrical measuring technology. Chemical Industry Press, 2015. 3.Tao Shishu, Ed. Electrical Measurement. Harbin Institute of Technology Press, 2019.
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Power plant substation secondary circuit

Module Name	Power plant substation secondary circuit		
Semester in which this module is taught	Semester 6		
Module Lead	Qian Yucheng		
language	the Chinese language		
Relationship to the course	Professional Elective Courses		
teaching method	Teacher-centered approach: lecture-based instruction, case-based teaching, and questioning; Interactive methods: video demonstrations, instructional workshops (including group discussions); Practical methods: Experimental method, Practice method		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 90 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 hours in total) Self-study hours: 3.6 hours per week over 16 weeks (totaling 58 hours); includes: homework, exam preparation time, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	Circuit Theory, Power Electronics Technology, Electric Machines		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

CLO1	Master the graphic and textual symbols used for common secondary circuit components; understand the wiring methods for current transformers; comprehend the operating principles of disconnector control and misoperation locking circuits; understand the composition and operating principles of synchronization devices, as well as the procedures for performing synchronization operations; understand the structure and operating principles of full-signal circuits; understand the composition and operational sequence of the basic control signal circuits for light-and sound-based circuit breaker monitoring; grasp the fundamental requirements for circuit breaker control circuits, including the automatic reset control switches for the LW2 series; and master the configuration principles for measuring instruments in measurement circuits.	R 3
CLO2	Ability to analyze secondary system wiring diagrams; ability to design conventional power plant and substation secondary circuits; development of independent problem-analysis and problem-solving skills.	R 3
CLO3	Foster a conscientious and responsible work ethic as well as a rigorous and meticulous work style; cultivate a scientific way of thinking and a spirit of seeking truth.	R 6

content	This course is one of the specialized elective courses for the Electrical(Power) Engineering and Its Automation major and is a professional course characterized by both strong theoretical and practical components. Based on the actual conditions of China's power grids and power plants, this course not only delves into fundamental professional theoretical knowledge but also closely links theory to real-world production practices, thereby enhancing students' understanding and mastery of field application knowledge. The aim of the course is to develop students' ability to independently analyze and solve engineering problems, cultivate their skills in interpreting schematics and performing hands-on operations related to the secondary systems of power plants and substations, and enable them to design secondary circuits based on these skills. Additionally, students will gain an understanding of emerging technologies and equipment within secondary systems and their applications, as well as receive training in analyzing and resolving practical engineering challenges, thereby laying a solid foundation for their future careers in this field upon graduation. content of courses: Chapter 1: Basic Knowledge of Secondary Circuits (Weight: 2/32; Difficulty Level: Memorization + Understanding) Chapter 2: Instrument Transformers and Their Secondary Circuits (Weight: 4/32; Difficulty Level: Memorization + Understanding + Application) Chapter 3: Measurement Circuit (Weight: 4/32; Level: Understanding + Application + Analysis) Chapter 4: Circuit Breaker Control and Signal Circuits (Weight: 6/32; Level: Understanding + Application + Analysis) Chapter 5: Signal Circuit (Weight: 4/32; Level: Memory + Understanding + Application) Chapter 6: Isolating Switch Control and Lockout Circuits (Weight: 4/32; Level: Memory + Understanding + Application) Chapter 7: Synchronous System (Weight: 4/32; Level: Understanding + Application + Analysis) Chapter 8: Transformer Secondary Circuit (Weight: 2/32; Level: Memorization + Understanding) Chapter 9: Operating Power Supply (Weight: 2/32; Level: Memory + Understanding)
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Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. This assessment primarily evaluates students completion of assignments, independent learning performance, midterm exam results, and participation in discussion activities. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily evaluates the teaching content through a design report, measuring the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1.Lin Shan, Ed. Electrical Secondary Circuits. China Electric Power Press, 2019. 2.Human Resources Department, State Grid Corporation of China; compiled. Secondary Circuits. China Electric Power Press, 2010. 3.He Yonghua, Ed. Secondary Circuits for Power Plants and Substations. China Electric Power Press, 2012.
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

New Energy Power Generation Technology

Module Name	New Energy Power Generation Technology		
Semester in which this module is taught	Semester 6		
Module Lead	Yang Chuanzhi		
language	the Chinese language		
Relationship to the course	Professional Elective Courses		
teaching method	Teacher-centered approach: lecture-based instruction, case-based teaching, and questioning; Interactive teaching methods: modeling approach, discussion-based approach;		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 90 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 hours in total) Self-study hours: 3.6 hours per week, over a total of 16 weeks (58 hours); includes: pre-class preparation, post-class assignments, exam preparation time, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	/		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Implement relevant national policies and guidelines; gain a solid understanding of the fundamental concepts related to new energy in China; and familiarize oneself with the countrys energy conservation and emission reduction policies. This enables students to understand the current state of development and future trends in new energy utilization technologies, and to apply their professional knowledge to comprehend the underlying principles, technologies, and process flows.	R1、 R4

CLO2	This lesson aims to provide students with a comprehensive understanding of all sectors related to new energy, help them comprehend and master the fundamental knowledge of new energy, equip them with key new energy technologies, link their study of new energy knowledge to their professional expertise, integrate theoretical learning with practical application, and enhance their environmental awareness, awareness of the energy crisis, and innovative mindset.	R 6
CLO3	Provide students with education on environmental protection and the energy crisis, promote the concept of scientific development, and enhance their awareness of environmental conservation, energy efficiency, and the utilization of new energy sources; broaden students horizons and stimulate their interest in learning.	R 6

content	The New Energy Power Generation Technology Course is a comprehensive program that integrates various new energy technologies, environmental protection, and education on the energy crisis. It enables students to understand the current state of development and future trends in new energy utilization technologies, and to apply their professional knowledge to comprehend the underlying principles, technologies, and process flows; while learning, students also receive education on environmental protection and the energy crisis, are introduced to scientific development concepts, and their awareness of environmental conservation, energy efficiency, and the utilization of new energy sources is enhanced; furthermore, this course broadens students horizons and stimulates their interest in learning. Chapter 1: Introduction (Weight: 2/32; Level: Memory + Understanding) Chapter 2: Solar Energy (Weight: 4/32; Level: Understanding + Application) Chapter 3: Wind Energy (Weight: 4/32; Level: Application + Analysis) Chapter 4: Geothermal Energy (Weight: 2/32; Level: Memory + Understanding) Chapter 5: Marine Energy (Weight: 4/32; Level: Understanding + Analysis) Chapter 6: Biomass Energy (Weight: 2/32; Level: Memory + Understanding) Chapter 7: Hydrogen Energy Technology (Weight: 4/32; Level: Application + Assessment) Chapter 8: Nuclear Energy (Weight: 4/32; Level: Analysis + Evaluation) Chapter 9: Natural Gas Hydrates (Weight: 2/32; Difficulty Level: Memory + Understanding) Chapter 10: Clean Coal Technology (Weight: 2/32; Level: Understanding + Application) Chapter 11: New Energy and Sustainable Development (Weight: 2/32; Level: Assessment + Innovation)
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment, scored on a 100-point scale, accounts for 40% of the total grade. It primarily evaluates students completion of assignments, independent learning, classroom participation, and performance on periodic quizzes. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily involves an open-book written examination to evaluate the extent to which the courses knowledge, competency, and literacy objectives have been achieved.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.

Reading List	1.Yu Lijun and Liu Dangke, eds. New Energy Power Generation Technology. China Machine Press, 202 5. 2.Edited by Fu Rong, Ma Haixiao, and Zhou Yan.New Energy Power Generation and Control Technology.China Electric Power Press. 2025
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

C Language Programming

Module Name	C Language Programming		
Semester in which this module is taught	Third Semester		
Module Lead	Zhao Xiong		
language	the Chinese language		
Relationship to the course	Professional Elective Courses		
teaching method	Teacher-centered approach: classroom lectures, case studies, and interactive questioning; Interactive approaches: classroom discussions, problem-based learning; Practical approach: Hands-on computer lab sessions		
Workload (including teaching hours and self-study hours)	Total workload: 90 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 total teaching hours) Self-study hours: 3.6 hours per week, over 16 weeks (totaling 58 hours; includes post-class exercises, computer-based preparatory work, and exam preparation)		
credit	3 credits		
Required and recommended prerequisites for installing this module	Artificial Intelligence and Computational Thinking		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Master the core concepts of the C language, including its basic syntax, data types, operators, and program control structures; possess the ability to read and write simple C programs;	R 5
	CLO2	Master the use of advanced C language features—such as arrays, functions, pointers, and structures—and be able to write moderately complex applications.	R 5
	CLO3	Develop logical thinking and algorithmic design skills; master fundamental program debugging techniques; and cultivate good programming habits.	R 5

content	This course is a specialized elective for the Electrical(Power) Engineering and Its Automation major, designed for applied undergraduate students and is classified as an introductory-level course. The C language is a fundamental programming language widely used in embedded systems, low-level development, and electrical control applications. The course content includes: an overview of the C language and the development environment; data types and operators; sequential and conditional control structures; loop structures; arrays; functions; basic pointers; structures; and file operations. The course emphasizes the integration of theory and practice; through numerous programming examples and hands-on laboratory exercises, students will master the basic methods and common algorithms of C language programming, thereby laying a solid programming foundation for subsequent courses such as Python programming, microcontroller development, and embedded systems. The course content is arranged as follows: Chapter 1: Overview of the C Language and Development Environment (Weight: 3/32; Level: Understanding) Chapter 2: Data Types, Operators, and Expressions (Weight: 3/32; Level: Understanding + Application) Chapter 3: Sequential and Selection Structures in Programming (Weight: 4/32; Level: Understanding + Application + Analysis) Chapter 4: Loop Structures in Program Design (Weight: 4/32; Level: Understanding + Application + Analysis) Chapter 5: Arrays (Weight: 4/32; Levels: Understanding + Application + Analysis) Chapter 6: Functions (Weight: 4/32; Level: Understanding + Application + Analysis) Chapter 7: Pointer Basics (Weight: 4/32; Level: Understanding + Application + Analysis) Chapter 8: Structures and File Operations (Weight: 4/32; Level: Understanding + Application + Analysis) Chapter 9: Comprehensive Application (Weight: 2/32; Level: Application + Creation)
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily uses written examinations to evaluate the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.

Reading List	1. Tan Haoqiang. *C Programming Language* (6th Edition). Tsinghua University Press. 2. Su Xiaohong, Wang Yuying, Sun Zhigang et al. *C Language Programming* (5th Edition). Higher Education Press. 3. He Qinming, Yan Hui. C Language Programming (4th Edition). Higher Education Press.
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Power System Microcomputer Protection

Module Name	Power System Microcomputer Protection		
Semester in which this module is taught	Third Semester		
Module Lead	Yang Chuanzhi		
language	the Chinese language		
Relationship to the course	Professional Elective Courses		
teaching method	Teacher-centered approach: lecture-based teaching (PPT presentations), case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical approach: Experimental practice		
Workload (including teaching hours and self-study hours)	Total workload: 90 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 hours in total) Self-study hours: 1.5 hours per week, over 16 weeks (totaling 58 hours); includes: homework, exam preparation time, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	Principles of Power System Relay Protection; Power System Relay Protection Course Design		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Understand the historical development, characteristics, and current application status of microprocessor-based power system protection both domestically and internationally; master the basic composition and structure of microprocessor-based protection systems, the configuration and operating principles of analog input (data acquisition system) circuits, the operating principles of digital input/output (I/O) circuits, and the fundamental principles of networked hardware circuits; grasp the basic concepts of discrete-time systems, the characteristics and applications of commonly used digital	R2

		filters in microprocessor-based protection; understand the classification of interference sources, the pathways of interference coupling, and measures to enhance the anti-interference capability of microprocessor-based protection systems; and comprehend the software functionality and architecture of microprocessor-based protection systems, as well as the operating principles and program flowcharts of the primary modules within such systems.	
	CLO2	Through diligent study and the practice of solving exercises, students will gradually integrate and master the knowledge they have acquired, developing an initial ability to analyze and solve real-world problems; they will cultivate an awareness of lifelong learning, autonomous learning skills, and potential for self-development, enabling them to achieve deep expansion and horizontal transfer of knowledge and competencies through continuous learning, thereby adapting to both societal and personal sustainable development.	R2
	CLO3	Comply with laws and regulations; possess strong integrity, professional dedication, a sense of responsibility, as well as sound social and professional ethics; demonstrate high cultural literacy, robust aesthetic sensibility, and noble moral character; and embody a rigorous, scientific way of thinking coupled with a spirit of seeking truth.	R 2
content	By completing this course, students will master the hardware architecture principles and software design methodologies for microprocessor-based power system protection, thereby establishing a solid theoretical and practical foundation for their future careers in the design and development of relay protection systems, as well as in field maintenance and commissioning tasks. content of courses: Chapter 1: Overview of Microprocessor-Based Relay Protection (Weight: 2/3; Level: Memorization + Understanding) Chapter 2: Hardware Principles of Microcomputer-Based Relay Protection (Weight: 4/3; Level: Memorization + Understanding) Chapter 3: Digital Signal Processing and Digital Filters (Weight: 8/3; Level: Understanding) Chapter 4: Algorithms and Simulation for Microcomputer-Based Relay Protection (Weight: 8/3; Level: Memory + Analysis + Application) Chapter 5: Software Design for Microcomputer-Based Relay Protection (Weight: 6/3; Level: Understanding + Application)		

	Chapter 6: Anti-interference Measures for Microprocessor-Based Relay Protection Devices (Weight: 4/3; Level: Understanding + Application)
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment, scored on a 100-point scale, accounts for 40% of the total grade. It primarily evaluates students completion of assignments, performance on periodic quizzes, participation in laboratory projects, independent learning, and midterm exam results. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily involves an open-book written examination to evaluate the extent to which the courses knowledge, competency, and literacy objectives have been achieved.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. Zhao Jianwen, Fu Zhouxingzhuo. *Microcomputer Protection for Power Systems*. China Machine Press, 2020. 2. Cao Na and Yu Qun, eds. Microcomputer-Based Relay Protection for Power Systems. China Machine Press, 2019. 3. High-Light: Microcomputer-Based Relay Protection for Power Systems. China Electric Power Press, 2020.
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Single-Chip Microcomputer Principles and Interface Technology

Module Name	Single-Chip Microcomputer Principles and Interface Technology		
Semester in which this module is taught	Semester 4		
Module Lead	Li Xingyuan, Zhao Xiong, Yang Lin, Cao Zhe		
language	the Chinese language		
Relationship to the course	Professional Elective Courses		
teaching method	Teacher-centered approach: lectures, case-based teaching, questioning, and demonstrations; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical Approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 90 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 hours in total) Self-study hours: 3.6 hours per week, over a total of 16 weeks (58 hours); includes: homework, exam preparation time, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	Circuit Theory, Fundamentals of Digital Electronics, Fundamentals of Analog Electronics, Power Electronics, Principles of Automatic Control, Sensor Technology		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

CLO1	Help students become familiar with the features, internal interface circuits, and operating principles of the MicroPython microcontroller; teach them fundamental programming methods, the basic syntax elements of the Python language, basic data types, program control structures, functions and code reuse, as well as an overview of Python third-party libraries; enable students to master the use of human-machine interface (HMI) devices and gain an understanding of these devices through independent research and study; equip students with the knowledge and methodology for integrating sensors with an MCU, allowing them to design their own control systems and implement functional extensions; complete relevant experiments using the MicroPython-based ESP32PICO development board—including button, LED, and buzzer control experiments; light-sensitive and temperature-sensitive resistor detection and input experiments; OLED display experiments; ADC input and display experiments; DC motor and servo motor control experiments; IoT Wi-Fi control experiments; and comprehensive clock design experiments; and teach students how to use AI-powered programming and simulation platforms.	R 5
CLO2	Develop students ability to apply MCUs in fields such as automation, measurement and testing technology, signal processing, and electric drive systems; and cultivate their capability to design and develop microcontroller-based application systems.	R 5
CLO3	Develop students ability to engage in abstract thinking — both by skillfully identifying commonalities from individual cases and by gaining a deep understanding of individuality based on those commonalities; and foster in students the fundamental ability to think, analyze, and solve problems using the methodology of dialectical materialism.	R 5

content	Through this course, students will acquire a solid foundation in the principles and applications of microcontrollers, gain the fundamental theories and practical skills required for designing microcontroller-based application systems, and master the design, debugging methodologies, and development procedures for the key components of such systems. The course aims to cultivate students comprehensive ability to analyze and solve problems, thereby laying a strong foundation for their further studies in related courses and for their future careers in fields involving microcontroller application technology. This course adopts an integrated "teaching – learning – practice" approach, seamlessly combining theoretical instruction with practical training. content of courses: Chapter 1: Overview of Basic Microcontroller Concepts (Weight: 3/32; Level: Understanding) Chapter 2: Introduction to the ESP32 Microcontroller (Weight: 3/32; Level: Memory + Understanding + Evaluation) Chapter 3: Micropython Programming Knowledge (Weight: 3/32; Level: Memorization + Understanding + Application) Chapter 4: Human-Computer Interaction Devices (Weight: 8/32; Level: Memory + Understanding + Application) Chapter 5: Extended Interface Technologies (Weight: 8/32; Level: Memory + Understanding + Application) Chapter 6: Overview of IoT Technology (Weight: 4/32; Level: Memorization + Understanding + Application) Chapter 7: Design and Development of MCU Application Systems (Weight: 3/32; Level: Memorization + Understanding + Application)
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily evaluates the teaching content through the submission of student works, measuring the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.

Reading List	[1] Li Yonghua. *ESP32 IoT Smart Hardware Development Practice*. Peoples Posts and Telecommunications Press, 2023. [2] Lei Xuetang: Development and Practice of Micropython. Beihang University Press, 2021. [3] Zhang Yigang. *Microcontroller Principles and Interface Technology (C51)* (3rd Edition). Peoples Posts and Telecommunications Press, 2020. [4] Zhou Xianghong. *Microcontroller and Practical Application Tutorial*. Beihang University Press, 2018.
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Factory Data Acquisition and Monitoring & Control (DAS-MSC)

Module Name	Factory Data Acquisition and Monitoring & Control (DAS-MSC)		
Semester in which this module is taught	Semester 4		
Module Lead	Heng Zhang		
language	the Chinese language		
Relationship to the course	Professional Elective Courses		
teaching method	Teacher-centered approaches: heuristic teaching, project-based teaching; Interactive approaches: inquiry-based problem-solving learning, teaching workshops (including project design presentations and group discussions); Practical Approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 90 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 hours in total) Self-study hours: 3.2 hours per week over 18 weeks (totaling 58 hours); includes: pre-class preparation, post-class assignments, course projects, final project, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	Digital Electronics, Electrical Control and PLC Technology		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements

CLO1	Master specialized knowledge encompassing SCADA system architecture, data acquisition, monitoring and control, and data storage; acquire core theoretical and practical expertise in PLC programming, industrial communication, GSD configuration, monitoring interface configuration, alarm and scripting, and data archiving; be able to distinguish between SCADA, DCS, and PLC systems; and understand the application scenarios of SCADA in smart manufacturing and Industry 4.0.	R5
CLO2	Be able to comprehensively apply testing, control, and information technology to complete experimental tasks such as PLC analog control, data processing, industrial network configuration, SCADA interface development, and alarm management; demonstrates proficiency in selecting modern industrial control tools—such as SCADA and PLC configuration software—to perform system configuration, simulation debugging, and data acquisition and analysis, while understanding the appropriate use cases and limitations of these tools; possesses fundamental capabilities in developing, monitoring, debugging, and operating/maintaining factory-level data engineering projects for smart factories, and is capable of resolving common engineering issues encountered during the joint debugging process of SCADA systems.	R 5
CLO3	Cultivate a rigorous and pragmatic engineering mindset and develop standardized practices for industrial control system project development; be able to understand the constraints involved in selecting SCADA engineering solutions in the context of industrial site safety, industry regulations, and societal demands, as well as recognize the social responsibility inherent in the role of industrial control technicians; comprehend the professional responsibilities of industrial control technicians within the framework of smart manufacturing, and possess a broad perspective along with a strong sense of national commitment; demonstrate strong professional ethics, a scientific spirit characterized by truth-seeking and innovation, establish sound professional values, and meet the professional competency requirements for automation engineering positions.	R 6

content	By completing this course, students will gain a comprehensive understanding of the SCADA system, including data acquisition, data monitoring, data control, data storage, and system operation and maintenance; they will also be able to apply modern testing, control, and information technologies to perform system development, system monitoring, or system operation and maintenance for general factory-level data engineering within the "Intelligent Manufacturing" domain. content of courses: Chapter 1: Getting Started with the SCADA System (Weight: 4/32; Level: Memory + Understanding) Chapter 2: Data Acquisition and Control Based on PLC (Weight: 12/32; Level: Memory – Evaluation) Chapter 3: Implementing Factory Data Monitoring (Weight: 8/32; Level: Memory–Evaluation) Chapter 4: Industrial Fieldbus Communication Technology (Weight: 4/32; Level: Memory – Assessment) Chapter 5: Advanced Monitoring Application Technologies (Weight: 4/32; Level: Memory – Assessment)
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily evaluates the teaching content through a final project, measuring the extent to which the courses knowledge, competency, and literacy objectives have been achieved.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. *Factory Data Acquisition and Monitoring and Control System*, edited by Lin Yanwen and Wan Jin; Higher Education Press, published in 2019. 2. Industrial Control System Configuration Technology and Applications; edited by Li Hongping; Xian Electronic Science and Technology University Press; published in January 2013.
version number	V202 6 – The major version was released in September 202 6. V202 6.1 – Update: Credit and workload calculation based on ECTS

Embedded Systems and Applications

Module Name	Embedded Systems and Applications
Semester in which this module is taught	Semester 5
Module Lead	Zuo Jihuai
language	the Chinese language
Relationship to the course	Professional Elective Courses
teaching method	Teacher-centered approach: lectures, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical Approach: Project-Based Practice 1. Teacher-centered approach: Lecture-based instruction – delivering theoretical course content and conducting PPT demonstrations to explain topics such as the STM32 hardware architecture, registers, and peripheral operating principles. 2. Interactive approach: The syllabus does not include teaching activities such as discussions or group collaboration; therefore, no corresponding method is available. 3. Personalized Approach: Utilize the Cloud Class Platform to facilitate self-directed learning, enabling students to independently complete assignments, periodic quizzes, and midterm exams, as well as engage in resource-based learning and self-assessment according to their individual progress. 4. Practical Approach: Includes the demonstration method and five course-based experimental projects; instructors demonstrate the development environment and the simulation debugging process; students independently complete the circuit design and simulation debugging for applications involving scrolling displays, digital tubes, button recognition, timers, and serial communication.
Workload (including teaching hours and self-study hours)	Total workload (estimated): 90 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 hours in total) Self-study hours: 3.6 hours per week over 16 weeks (totaling 58 hours); includes: homework, exam preparation time, etc.
credit	3 credits
Required and recommended prerequisites for installing this module	Artificial Intelligence and Computational Thinking; C Language Programming; Principles and Interface Technology of Single-Chip Microcomputers

Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Master the fundamental concepts, principles, development methodologies, and engineering design approaches of embedded systems; be capable of designing embedded system solutions for measurement and control-related engineering problems, and completing the design of systems and components that meet measurement and control requirements.	R 5
	CLO2	Be able to identify and articulate practical embedded engineering problems, and conduct literature review and analysis to determine the appropriate technical approach; capable of performing project requirement analysis and developing development and implementation plans; able to independently complete comprehensive design experiments, possessing the skills to conduct literature searches, implement solutions, integrate resources, and independently solve real-world engineering problems through practical application.	R 5
	CLO3	Cultivate a rigorous mindset, uphold strong moral principles, adopt a scientific attitude characterized by the pursuit of truth and critical inquiry, and be able to express personal viewpoints.	R 5

content	Embedded systems and their application research and development represent one of the current research and development hotspots. This course serves as an introductory course into the theory of embedded systems and is a specialized elective for the Automation major. Through this course, students are expected to master the fundamental concepts, theories, and analytical methods of embedded systems, as well as gain an initial understanding of the basic methodologies for embedded system development, thereby laying a solid foundation for developing and designing embedded systems. content of courses: Chapter 1: LED Control Design and Implementation (Weight: 4/3; Level: Memory–Application) Chapter 2: Running Light Display Control Design and Implementation (Weight: 6/3; Level: Understanding–Creation) Chapter 3: Digital Display and Implementation (Weight: 6/3; Level: Understanding–Creation) Chapter 4: Button Control Design and Implementation (Weight: 6/3; Level: Understanding–Creation) Chapter 5: Timer Control Design and Implementation (Weight: 4/3; Level: Understanding–Creation) Chapter 6: Serial Communication Design and Implementation (Weight: 4/3; Level: Understanding–Creation) Chapter 7: Analog-to-Digital Conversion Design and Implementation (Weight: 2/3; Level: Memory–Analysis)
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment, scored on a 100-point scale, accounts for 40% of the total grade. It primarily evaluates students completion of assignments, independent learning, performance on periodic quizzes, experimental projects, and midterm examinations. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily employs a closed-book written examination format to evaluate the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	[1]. Guo Zhiyong, ed. Embedded Technology and Application Development Project Tutorial (STM32 Edition). Higher Education Press, 2017. [2] Zhang Shi (Ed.). ARM Cortex-A9 Embedded Technology Tutorial. China Machine Press, 2017.

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DSP Principles and Applications

Module Name	DSP Principles and Applications		
Semester in which this module is taught	Semester 5		
Module Lead	Lu Xiaolei		
language	the Chinese language		
Relationship to the course	Professional Elective Courses		
teaching method	Teacher-centered approach: lectures, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical Approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 75 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 hours in total) Self-study hours: 3.6 hours per week, over 16 weeks (totaling 58 hours); includes: homework, exam preparation time, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	Advanced Mathematics, Circuit Theory, Analog Electronics, Digital Electronics		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	Master the fundamental concepts of DSP, chip architecture, memory and instruction sets, as well as the implementation of commonly used algorithms; demonstrate proficiency in using the CCS development environment to program and debug various DSP peripherals, and possess basic skills in embedded system development and troubleshooting; cultivate a disciplined engineering mindset by applying real-world electrical engineering case studies to foster systematic thinking and engineering competence, while stimulating an innovative mindset.	Supports graduation requirements

CLO1	This section requires a thorough understanding of the basic concepts, development, classification, and technical specifications of DSPs; an understanding of their core architecture, pipeline design, hardware multiplier, and other characteristics; familiarity with the principles governing the CPU, bus, memory, and both on-chip and off-chip peripherals in the TMS320 series DSPs; mastery of instruction formats, addressing modes, and assembly language instructions; and an understanding of the implementation mechanisms of algorithms such as FFT and FIR filters on DSPs.	R 5
CLO2	This course aims to equip students with the proficiency to utilize CCS for building DSP engineering systems, writing code, compiling and debugging, as well as downloading and running programs; to master the configuration and programming of core peripherals such as GPIO, timers, interrupts, PWM, and ADC; to perform peripheral initialization and functional development according to engineering requirements; to acquire a solid foundation in the collaborative design and debugging of DSP hardware and software; and to be able to diagnose and resolve common DSP development issues.	R 5
CLO3	This course guides students in developing a rigorous and disciplined engineering development mindset, fosters good programming habits and standardized documentation practices, strengthens their awareness of security and reliability in embedded system development, and helps students cultivate a systems thinking approach spanning from theoretical analysis to engineering implementation, thereby shaping engineering literacy and professional values that align with the demands of the electrical engineering industry.	R 5

content	DSP Principles and Applications is a specialized elective course for the Electrical(Power) Engineering and Its Automation major, designed for students specializing in digital control and signal processing within the electrical engineering field. Centered on the TI TMS320 series DSPs, this course covers the chips hardware architecture, instruction set, software development, and peripheral principles. Combining theoretical instruction with practical exercises, the course utilizes the CCS development environment for programming and debugging exercises, enabling students to master DSP system development methodologies, enhance their ability to solve real-world electrical engineering problems, and lay a solid foundation for careers in power electronics, electrical drives, new energy applications, and related fields. content of courses: Chapter 1: DSP Overview (Weight: 2/32; Level: Memory + Understanding) Chapter 2: DSP Hardware Architecture (Weight: 4/32; Level: Understanding + Application + Analysis) Chapter 3: DSP Instruction Set and Addressing Modes (Weight: 4/32; Level: Application + Analysis) Chapter 4: Fundamentals of DSP Software Development (Weight: 4/32; Level: Understanding + Application + Analysis) Chapter 5: DSP Internal and External Peripherals (Weight: 8/32; Level: Understanding + Application + Analysis) Chapter 6: Advanced DSP Peripherals (Weight: 6/32; Level: Application + Analysis) Chapter 7: Comprehensive DSP Applications (Weight: 4/32; Level: Understanding + Application + Creation)
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily uses written examinations to evaluate the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	*DSP Principles and Applications* (2nd Edition), Zou Yan, China Electronics Press, 2020. *DSP Controller Principles and Applications*, Xu Yishen, China Electronics Press, 2021. [2] *Digital Signal Processing: Principles, Algorithms and Applications* (4th Edition), by John G. Proakis (USA), Electronic Industry Press, 2014.

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Inverter Principle and Applications

Module Name	Inverter Principle and Applications		
Semester in which this module is taught	Semester 6		
Module Lead	Lu Lingtong		
language	the Chinese language		
Relationship to the course	Professional Elective Courses		
teaching method	Teacher-centered approach: lecture-based instruction, case-based teaching, and questioning; Interactive approaches: inquiry-based problem-solving learning, instructional workshops (including group discussions); Practical Approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 90 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 hours in total) Self-study hours: 3.6 hours per week over 16 weeks (totaling 58 hours); includes: homework, exam preparation time, etc.		
credit	3 credits		
Required and recommended prerequisites for installing this module	Power Electronics Technology, Electrical Machines, Automatic Control Theory		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Master the basic structure of frequency converters and the operating principle of AC-DC-AC conversion; understand speed control methods such as SPWM modulation, V/F control, and vector control; become familiar with the variable-frequency speed regulation mechanism for three-phase asynchronous motors; be able to select appropriate frequency converters based on the load requirements; and master the wiring methods for both the main circuit and the control circuit.- -	R 4

	CLO2	Learn the basic parameter settings and operational debugging of variable frequency drives (VFDs), enabling you to diagnose common faults such as overvoltage, overcurrent, and overload conditions. Understand the application of VFDs in fans, water pumps, and conveying systems, as well as the energy-saving principles behind their use; gain the ability to design simple variable frequency drive control systems by integrating them with PLCs.	R 5
	CLO3	Consolidate foundational expertise in fields such as power electronics and motor drives, develop fundamental engineering capabilities for the on-site application and troubleshooting of frequency converters, and lay a solid foundation for careers in electrical automation-related fields.	R 4
content	By completing this course, you will be able to comprehensively apply professional knowledge in power electronics, motor drive systems, and automatic control to understand speed regulation mechanisms such as AC-DC-AC conversion, PWM modulation, V/F control, and vector control. You will master the selection, wiring, parameter configuration, commissioning of frequency converters, as well as the analysis and troubleshooting of common faults, enabling you to solve practical field challenges related to industrial motor speed regulation, braking, and harmonic mitigation.-- content of courses: Chapter 1: Understanding Inverters (Weight: 2/32; Level: Memorization) Chapter 2: Common Power Electronics Devices for Frequency Converters (Weight: 3/32; Level: Memorization + Understanding) Chapter 3: AC-DC-AC Variable Frequency Conversion Technology (Weight: 3/32; Level: Memorization + Understanding + Analysis) Chapter 4: AC-AC Variable Frequency Conversion Technology (Weight: 3/32; Level: Memory + Understanding + Analysis) Chapter 5: High-and Medium-Voltage Frequency Converter (Weight: 3/32; Level: Memory + Understanding) Chapter 6: Inverter Wiring Terminals and Functional Parameters (Weight: 5/32; Level: Memory + Application) Chapter 7: Inverter Control Methods (Weight: 5/32; Level: Memorization + Understanding + Application) Chapter 8: Selection and Operation of Variable Frequency Drive Speed Regulation Systems (Weight: 3/32; Level: Memory + Application) Chapter 9: Installation and Maintenance of Variable Frequency Drives (Weight: 2/32; Level: Analysis + Application) Chapter 10: Practical Applications of Variable Frequency Drives (Weight: 3/32; Level: Application + Innovation)		

Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily uses written examinations to evaluate the extent to which the courses knowledge objectives, competency objectives, and literacy objectives have been achieved.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. *Principles and Applications of Variable Frequency Drives*, edited by Zhou Zhenchao, Sun Zhenlong, and Guo Haifeng; Tsinghua University Press, published in 2023. 2. *Frequency Conversion Control Technology and Applications*, edited by Fu Lijun and Sun Jingen; Tsinghua University Press, published in 2020. 3. *Inverter Technology and Applications*, edited by Li Fangyuan; China Machine Press, published in 2017. 4. *Principles and Application Technologies of Variable Frequency Drives*, edited by Tong Kebo; Dalian University of Technology Press, published in July 2025.
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Automated Engineering Design and Application

Module Name	Automated Engineering Design and Application		
Semester in which this module is taught	Semester 6		
Module Lead	Heng Zhang		
language	the Chinese language		
Relationship to the course	Professional Elective Courses		
teaching method	Teacher-centered approaches: heuristic teaching, project-based teaching; Interdisciplinary approaches: inquiry-based problem-solving learning, teaching workshops (including project design presentations and group discussions); Practical Approach: Project-Based Practice		
Workload (including teaching hours and self-study hours)	Total workload (estimated): 64 credit hours Total teaching hours: 2 hours per week, over 16 weeks (32 hours in total) Self-study hours: 3.625 hours per week over 16 weeks (totaling 58 hours); includes: homework, course projects, final project, etc.		
credit	2 credits		
Required and recommended prerequisites for installing this module	Engineering Drawing, Digital Electronics Technology, Electrical Control and PLC Technology		
Module Objectives/Expected Learning Outcomes	Course Learning Outcomes	description	Supports graduation requirements
	CLO1	Be familiar with the overall design process for automation engineering projects and clearly identify the core tasks within each phase of this process; be able to develop solution designs for small-scale automation engineering projects based on specific requirements.	R3

CLO2	Be able to utilize electrical CAD tools to create electrical drawings—including electrical schematics, I/O allocation sheets, and wiring diagrams—in compliance with project control requirements and national electrical design codes; perform component selection appropriately to ensure that the drawings are standardized, complete, and suitable for on-site installation; integrate process control logic to design PLC control program architectures, assign I/O addresses, and develop control programs for logic control, interlock protection, and other functions, while possessing the capability to debug, troubleshoot, and optimize these programs; and design configuration interfaces based on human-machine interface (HMI) requirements, implementing variable association, alarm configuration, and interface layout to enable HMI functionalities such as equipment status monitoring, parameter setting, and fault notification.	R 3
CLO3	Proficient in using modern design tools to generate standardized design deliverables; capable of conducting self-inspections and making adjustments to design outcomes in accordance with engineering specifications; able to resolve common technical issues encountered during the project design process; possesses the standardized design competence, project implementation skills, and rigorous professional engineering ethics required for engineering roles.	R5、 R8

content	By completing this course, students will master the overall implementation process for automation engineering projects and identify the core tasks within each phase of this process; they will also gain proficiency in applying typical automation software and hardware to real-world engineering tasks. Additionally, students will develop the ability to conduct literature review and analysis, formulate technical solutions, and perform automation engineering design. content of courses: Chapter 1: Introducing Automation Engineering (Weight: 2/32; Level: Memorization + Understanding) Chapter 2: Project Scheme Design (Weight: 4/32; Level: Memory – Evaluation) Chapter 3: Electrical Drawing Design for Projects (Weight: 6/32; Level: Memorization–Assessment) Chapter 4: PLC Programming (Weight: 10/32; Level: Memory – Assessment) Chapter 5: HMI Human-Machine Interface Design (Weight: 6/32; Level: Memory–Evaluation) Chapter 6: Joint Simulation, Debugging and Verification (Weight: 4/32; Level: Memory–Evaluation)
Assessment Methodology	1. Course assessment consists of formative assessment and summative assessment. 2. Grade Calculation: Overall Course Grade = Formative Assessment × 40% + Summative Assessment × 60% (1) Process-based assessment: scored on a 100-point scale, accounting for 40% of the total grade. (2) Summative assessment: Maximum score of 100 points; accounts for 60% of the overall grade. This assessment primarily evaluates the teaching content through a final project, measuring the extent to which the courses knowledge, competency, and literacy objectives have been achieved.
Study and Examination Requirements	A 100-point grading system; a score of 60 is the passing grade for this course.
Reading List	1. *Automated Engineering Design and Application*, edited by Tian Libu, Chen Nanjiang, and Lin Yanwen; Higher Education Press, published in 2021. 2.*Equipment Automation Engineering Design and Practice (2nd Edition)*, edited by Xiao Weirong and Qi Rong; published by China Machine Press in 2021. 3."Design, Installation, Commissioning and Fault Diagnosis of Automated Equipment and Systems," China Machine Press, published in 2018. 4.*Automated Equipment and Production Line Design* – Edited by Rui Yannian – Science Press, published in 2021. 5. *Automatic Line Control Technology*, edited by Zhen Jiujun; Higher Education Press, published in 2020.

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