

07 Objective-Module Matrix of Electrical Engineering and Automation

ASIIN Subject-Specific Criteria (SSC)	Learning Outcomes of the Study Programme	Corresponding Modules
Knowledge and Understanding Graduates have in particular		
Master a solid foundation of mathematics, natural sciences, and engineering fundamentals, be able to apply knowledge of mathematics, natural sciences, engineering fundamentals, and electrical engineering and its automation expertise to solve complex engineering problems in the field of electrical engineering, and understand the broader ethical and multidisciplinary context of the engineering field.	<p>Possess a solid foundation in mathematics, natural sciences, and engineering fundamentals.</p> <p>Demonstrate the ability to apply knowledge of mathematics, natural sciences, engineering basics, and professional disciplines to articulate technical problems appropriately, be capable of understanding and analyzing complex phenomena in the electrical engineering domain, as well as establishing and solving mathematical models for practical engineering problems.</p> <p>Be able to employ mathematical methods to observe, analyze, and resolve practical problems in engineering practice; apply engineering fundamentals, professional knowledge, and mathematical modeling approaches to address engineering problems in the field of electrical engineering; comprehend the complexity of engineering problems involving ethical implications and multidisciplinary contexts, and propose effective, contextually informed solutions through comprehensive consideration.</p>	<p>Module2: Mathematics and Natural Science Courses</p> <ul style="list-style-type: none"> ● Advanced mathematics ● Linear Algebra ● Complex Analysis <p>Module 3: Engineering Foundation Courses</p> <ul style="list-style-type: none"> ● Circuit Theory ● Analog Electronics Technology ● Digital Electronics Technology <p>Module 4: Professional Foundation Courses</p> <ul style="list-style-type: none"> ● Power System Analysis ● Power System Relay Protection <p>High Voltage Engineering</p>
Interdisciplinary Competences Graduates		
Be able to apply the fundamental principles and knowledge of mathematics, natural sciences, and relevant disciplines such as electrical engineering, control engineering, and computer science to identify and articulate complex engineering	<p>Possess a command of the fundamental principles and mathematical modeling methods of mathematics, natural sciences, and engineering sciences.</p> <p>Demonstrate the ability to precisely articulate complex engineering</p>	<p>Module 3: Engineering Foundation Courses</p> <ul style="list-style-type: none"> ● Circuit Theory <p>Module 4: Professional Foundation Courses</p> <ul style="list-style-type: none"> ● Power System Analysis ● Electrical Machines

<p>problems; and to analyze complex engineering problems in the field of electrical engineering through literature research, so as to obtain valid conclusions.</p>	<p>problems by leveraging the principles and mathematical modeling methods from interdisciplinary courses in electrical engineering, control engineering, computer science, and economics, identify and evaluate the critical components of complex engineering problems; and conduct rigorous analysis through the integration of interdisciplinary expertise.</p> <p>Apply interdisciplinary knowledge to analyze complex problems, examine the influencing factors of complex electrical engineering problems via literature analysis, data retrieval, and other scholarly methods to derive valid conclusions, and proactively explore alternative solutions.</p>	<ul style="list-style-type: none"> ● Power Electronics Technology ● Principles of Automatic Control ● Principles and Applications of Single-Chip Microcomputers ● Principles and Applications of PLC <p>Module 5: Professional Courses</p> <ul style="list-style-type: none"> ● Relay Protection of Power Systems ● Electrical Engineering of Power Plants ● High Voltage Technology
<p>Possess a spirit of teamwork and collaboration, and be able to assume the roles of individual, team member, or leader in multidisciplinary teams.</p>	<p>Possess a robust team-oriented mindset, enabling effective communication and collaborative work with members from diverse disciplinary backgrounds.</p> <p>Demonstrate the ability to fulfill technical tasks within a team context, and to perform work independently or in collaborative settings within a team.</p> <p>Be able of assuming the roles of an individual contributor, team member, and team leader in multi-disciplinary teams, and be able to organize, coordinate, and direct team efforts to achieve objectives.</p>	<p>Module 6: Engineering Practice and Graduation Project</p> <ul style="list-style-type: none"> ● Production Internship ● Engineering Training ● PLC Control System Practice <p>Module 8: Comprehensive Competency Development</p> <ul style="list-style-type: none"> ● Innovation and Entrepreneurship Practice ● Student Association Activities

<p>Understand and master the principles of engineering management and economic decision-making methods in the field of electrical engineering, and be able to apply them in a multidisciplinary environment.</p>	<p>Possess a comprehensive understanding and command of management and economic decision-making methodologies embedded in engineering project practices.</p> <p>Demonstrate a clear grasp of the cost structure spanning the full lifecycle and end-to-end processes of electrical energy production and control within the electrical engineering domain.</p> <p>Be able to apply engineering management principles and economic decision-making frameworks to the design and development of solutions in multi-disciplinary contexts.</p>	<p>Module7 : Interdisciplinary Courses</p> <ul style="list-style-type: none"> ● Power Technology Economics and Management ● Power Market <p>Module4 : Professional Foundation Courses</p> <ul style="list-style-type: none"> ● Power System Analysis
<p>Have an awareness of autonomous learning and lifelong learning, and possess the ability to continuously learn and adapt to career development.</p>	<p>Possess the awareness of self-directed learning and lifelong learning, and master the methodologies of self-directed learning.</p> <p>Demonstrate the ability to recognize the necessity of self-directed learning and lifelong learning within the context of social development.</p> <p>Possess self-directed learning capabilities, including the ability to comprehend technical issues, synthesize and summarize information, and formulate questions, among others, and be able to adapt to the requirements of career development.</p>	<p>Module 6: Engineering Practice and Graduation Project</p> <ul style="list-style-type: none"> ● Course Design for Power System Analysis ● Course Design for Power System Relay Protection ● Scientific and Technical Writing and Literature Retrieval ● Graduation Project <p>Module 8:Comprehensive Competency Development</p> <ul style="list-style-type: none"> ● Social Practice
<p>Possess foreign language knowledge relevant to professional practice; be able to communicate and exchange effectively with industry peers and the public on complex electrical engineering problems, including writing technical reports and design</p>	<p>Acquire foreign language knowledge relevant to professional practice.</p> <p>Possess linguistic and written communication competencies for cross-cultural interaction, enabling basic communication and exchange on professional issues in cross-cultural contexts.</p> <p>Demonstrate the ability to accurately articulate viewpoints, respond to</p>	<p>Module 1: Humanities and Social Sciences Courses</p> <ul style="list-style-type: none"> ● College English ● Writing and Communication <p>Module 6: Engineering Practice and Graduation Project</p>

<p>documents, delivering presentations, articulating ideas clearly, and responding to instructions; and have a certain international perspective, enabling communication and collaboration in cross-cultural contexts.</p>	<p>inquiries, and recognize communication disparities between industry peers and the general public regarding complex engineering problems in electrical engineering, through oral presentations, written documents, and graphical representations.</p>	<ul style="list-style-type: none"> ● Specialized Foreign Language Training ● Graduation Project ● Cognitive Internship ● Course Design for Power System Analysis ● Course Design for Electrical Engineering of Power Plants <p>Module 5: Professional Courses</p> <ul style="list-style-type: none"> ● High Voltage Engineering
<p>Possess humanities and social science literacy, a sense of social responsibility, and professional ethical competence; be able to engage in electrical engineering practice with critical thinking, and contribute to shaping social processes with a sense of responsibility and a spirit of democracy.</p>	<p>Acquire knowledge pertaining to humanities and social sciences literacy, professional ethics, and occupational ethics; hold sound values; and possess robust physical and mental health.</p> <p>Comprehend engineering ethical norms and professional conduct centered on honesty, impartiality, integrity, and compliance, and demonstrate the ability to consciously adhere to these principles and fulfill corresponding responsibilities in engineering practice.</p> <p>In electrical engineering practice, be capable of shaping social processes through critical thinking, while upholding a sense of responsibility and a democratic ethos.</p>	<p>Module 1: Humanities and Social Sciences Courses</p> <ul style="list-style-type: none"> ● Mental Health Education for College Students ● Ideological and Moral Cultivation and the Rule of Law ● Basic Principles of Marxism ● An Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics ● An Introduction to Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era
<p>Engineering Methodology Graduates</p>		
<p>In response to complex electrical engineering problems, develop, select, and apply appropriate technologies, resources, modern engineering tools, and information technology tools to achieve testing, analysis, prediction, simulation, and development of complex electrical engineering</p>	<p>Master the usage principles and methods of modern instruments and meters, information technology tools, engineering tools, and simulation software commonly used in the electrical engineering field.</p> <p>Be capable of selecting and using appropriate instruments and meters, information resources, engineering tools, and professional simulation</p>	<p>Module 6: Engineering Practice and Graduation Design</p> <ul style="list-style-type: none"> ● Practical Training in Power System Relay Protection ● Practical Training on Fundamentals and Applications of MATLAB

<p>problems, and be able to understand their limitations.</p>	<p>software to test, analyze, calculate, and design complex engineering problems. Be able to develop or select modern tools that meet specific requirements for specific objects in the power system, simulate and predict professional issues in the electrical engineering field, and understand their limitations.</p>	<ul style="list-style-type: none"> ● Comprehensive Practical Training in High-Voltage Technology ● Practical Training in Electrical CAD ● Power System Simulation Internship ● Electronic Process Internship ● Engineering Training ● Practical Training on PLC Control Systems
<p>Be able to conduct research on complex electrical engineering problems based on scientific principles and employing scientific methods such as testing, experimentation, data analysis, and interpretation, and obtain reasonable and valid conclusions through information synthesis.</p>	<p>Master the scientific methods of testing, experimentation, data analysis and interpretation based on scientific principles. Be capable of choosing research routes, designing experimental schemes, constructing experimental systems and conducting experiments safely according to the characteristics of the research objects of electronic circuits or power systems. Be able to analyze and interpret the experimental data of electronic circuits or power systems and draw reasonable and effective conclusions through information synthesis.</p>	<p>Module 3: Engineering Foundation Courses</p> <ul style="list-style-type: none"> ● Circuit Theory ● Analog Electronic Technology ● Digital Electronic Technology <p>Module 4: Professional Foundation Courses</p> <ul style="list-style-type: none"> ● Power Electronics Technology ● Principles and Applications of Single-Chip Microcomputers <p>Module 6: Engineering Practice and Graduation Design</p> <ul style="list-style-type: none"> ● Practical Training of Relay Protection in Power Systems ● Comprehensive Experiment of High Voltage Technology ● Comprehensive Practice of Relay Protection in Power Systems ● Comprehensive Experiment of Power Systems
<p>Engineering Development Graduates</p>		
<p>In addressing solutions to complex engineering problems in the field of electrical engineering,</p>	<p>Master the basic design/development methods and techniques for the entire cycle and process of engineering design of electrical systems and</p>	<p>Module 4: Professional Foundation Courses</p> <ul style="list-style-type: none"> ● Power Plant Electrical Engineering

<p>design electrical systems, devices, or processes that meet specific needs, and demonstrate a spirit of innovation in the design process, while taking into account factors such as society, health, safety, law, culture, and the environment.</p>	<p>development of electrical control and protection devices, and understand various factors that affect design goals and product technical solutions.</p> <p>Be capable of developing and designing electrical system products or process flows that meet requirements for complex engineering problems and specific needs in electrical engineering, and demonstrate innovative consciousness in the design.</p> <p>Be able to take into account social, health, safety, legal, cultural and environmental factors in the design of electrical engineering and the development and design of electrical products.</p>	<p>Module 6: Engineering Practice and Graduation Design</p> <ul style="list-style-type: none"> ● Power Plant Electrical Engineering ● Practice on Single-Chip Microcomputer Application Technology ● Course Design for Power System Analysis ● Course Design for Power System Relay Protection ● Course Design for Power Plant Electrical Engineering ● Course Design for Power Electronics Technology ● Graduation Design
<p>Engineering Practice and Product Development Graduates</p>		
<p>Be able to analyze and evaluate the impact of professional engineering practices and solutions to complex engineering problems on society, health, safety, law, and culture, based on relevant background knowledge in the field of electrical engineering, and understand the responsibilities entailed.</p>	<p>Acquire an understanding of the technical standards system, intellectual property rights, industrial policies, and relevant laws and regulations within the field of electrical engineering.</p> <p>Comprehend the implications of diverse social and cultural contexts on engineering practice.</p> <p>Demonstrate the ability to analyze and evaluate the impacts of professional engineering practices and solutions to complex engineering problems in electrical engineering and automation on society, health, safety, law, and culture, as well as the influence of these constraining factors on project implementation, and grasp the corresponding responsibilities to be borne.</p>	<p>Module 6: Engineering Practice and Graduation Design</p> <ul style="list-style-type: none"> ● Professional Orientation Internship ● Professional Orientation Internship ● Training on Electrical Power Safety Work Regulations ● Electrical Production Internship
<p>Understand and evaluate the impact of professional engineering practices addressing complex</p>	<p>Master the knowledge system and methodological frameworks pertaining to environmental protection and sustainable development.</p>	

<p>engineering problems in the field of electrical engineering on environmental and social sustainable development.</p>	<p>Comprehend the core concepts and inherent connotations of environmental protection and sustainable development.</p> <p>Demonstrate the ability to analyze and evaluate the impacts of professional engineering practices addressing complex engineering problems in the field of electrical engineering on environmental and social sustainability, from the perspective of environmental protection and sustainable development.</p>	<p>Module 2: Mathematics and Natural Science Courses</p> <ul style="list-style-type: none"> ● Introduction to Environmental Science <p>Module 6: Engineering Practice and Graduation Project</p> <ul style="list-style-type: none"> ● Production Internship ● Graduation Project
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