Training objectives	Learning outcomes of the study programme	Corresponding module
Apply integrated knowledge of mathematics, natural sciences, engineering economics, and management principles to systematically analyze complex chemical engineering challenges, developing industry-compliant technical solutions.	**Knowledge:** Mastery of fundamental knowledge in mathematics, natural sciences, information technology, and computer-related fields. **Skills:** The ability to apply mathematical knowledge to understand and appropriately express engineering practical problems, and to establish basic models to solve various practical problems in technology and engineering applications. **Competences:** The ability to observe, analyze, and solve technical problems using the perspectives and thinking methods of mathematics and information technology. Based on the characteristics of mathematics and information technology, one can conduct continuous analysis, synthesis, calculation, judgment, and reasoning on engineering phenomena, thereby solving engineering problems.	1) General education 2) Discipline fundamentals 3) Core specializations 4) Intensive practical training
Develop humanistic literacy and engineering ethics frameworks. Implement chemical engineering projects with rigorous consideration of societal safety, environmental sustainability, and socialist core values.	**Knowledge:** Master the knowledge of modern Chinese history, the basic principles of Marxism, patriotism, humanistic spirit, physical education, and military training. **Skills:** Understand social phenomena, pay attention to and adapt to social development, possess the ability to communicate and collaborate with others, exhibit team spirit, and promote physical and mental health and self-improvement. **Competences:** Develop a sound personality and good psychological qualities, hold a correct worldview, values, moral views, and legal perspectives, and possess cultural literacy and a sense of social responsibility.	1) General education 2) Core specializations 3) Autonomous development
Cultivate advanced capabilities in chemical process optimization and system engineering. Execute full-cycle engineering practices (R&D-design-production-testing) with comprehensive	**Knowledge:** Master professional knowledge in chemical engineering and technology, particularly in the design of processes related to chemical reactions and separation processes. **Skills:** Possess specialized knowledge to analyze and solve practical problems in chemical engineering and technology, design chemical reaction processes that meet specific needs, and provide solutions for complex chemical reaction engineering problems,	1) General education 2) Core specializations 3) Intensive practical training

sustainability assessments, positioning graduates as technical leaders in process engineering and quality management.	including prediction and simulation of complex chemical engineering and technology issues. **Competences:** Master comprehensive knowledge in system design, diagnosis, energy saving and optimization, operation, and management in chemical engineering and technology. Able to analyze and evaluate practical problems using engineering background knowledge, understand its limitations, demonstrate innovative awareness in the design phase, and provide valuable solutions.	
Develop cross-functional communication proficiency for effective collaboration with industry professionals, interdisciplinary experts, and community stakeholders.	**Knowledge:** Master a foreign language and pass the National College English Test Band 4, acquiring core knowledge in English. **Skills:** Read professional literature in English and communicate and discuss professional issues with others in the language. **Competences:** Possess comprehensive expertise in the English specialty, enabling work in relevant national fields and the ability to conduct cross-cultural communication.	General education
Foster global engineering perspectives through continuous knowledge system upgrading, maintaining professional currency in evolving chemical engineering paradigms through self-directed learning.	**Knowledge:** Master specialized knowledge in cutting-edge fields related to design. **Skills:** Broaden professional knowledge, stay abreast of trends in professional and related fields, and develop the capacity for knowledge accumulation and in-depth study. **Competences:** Cultivate comprehensive qualities in interdisciplinary fields related to this course, and be capable of applying learned professional knowledge in a broad range of applications.	1) General education 2) Intensive practical training