

Transportation Programme Objective Matrix

Training Objectives	Expected Learning Outcomes of the Entire Course	Corresponding Modules/Module Objectives
1. Master foundational knowledge of mathematics, natural sciences, and information technology as a basis for advanced study and engineering problem solving.	Knowledge: Solid foundation in mathematics, physics, and information technology relevant to engineering. Skills: Apply mathematical and computational methods to model, analyze, and solve engineering problems. Competences: Integrate quantitative reasoning and information thinking to interpret and address technical challenges in transportation engineering.	Mathematics and Physics: Advanced Mathematics A (Part 1 & 2), College Physics B (Part 1 & 2), College Physics Experiments B (Part 1 & 2), Linear Algebra A, Probability and Statistics A, Operations Research. Informatics: College Computer A, Python Programming, Basic Programming B, Information Systems and Databases.
2. Master the basic engineering and professional knowledge in the field of transportation engineering to lay a solid foundation for future professional course studies.	Knowledge: Master the basic engineering and professional knowledge in the field of transportation engineering. Skills: Possess relevant basic engineering and professional knowledge and skills to analyze various engineering phenomena in transportation engineering and master the knowledge, methods, and skills to solve practical problems in engineering applications. Competences: Master the relevant concepts and basic principles in the field of transportation engineering, and understand engineering problems through continuous analysis, induction, judgment, and reasoning based on the characteristics of transportation engineering.	Engineering Fundamentals: Engineering Drawing and CAD, Engineering Mechanics, Fundamentals of Transportation Electro-technics Technology. Professional Practice: Industry Cognition, Engineering Survey Practice and Labor.

3. Master the professional knowledge related to solving complex engineering problems in the transportation field, including the composition and key technologies of urban road traffic and rail transit systems, as well as the key technologies in transportation system planning and operation organization.	Knowledge: Master professional knowledge in the transportation field, including urban road traffic, rail transit systems, and key technologies in transportation system planning and operation organization. Skills: Proficient in analyzing and solving practical problems in transportation engineering and providing reliable solutions to meet the specific needs of complex transportation engineering problems. Competences: Master the integrated capabilities required for the planning, design, management, and operation of multimodal transportation systems, applying engineering background knowledge to analyze and evaluate practical problems reasonably while reflecting innovative awareness in the design process.	Engineering Applications: Introduction to Rail Transit, Transportation Organization Theory, Transport Economics, Traffic Engineering, Principles of Urban Planning, Artificial Intelligence Technology and Application. Professional Practice: Innovative Practice Project (Level 1), Engineering Survey Practice and Labor. Graduation Thesis (Design)
4. Master cutting-edge professional knowledge and skills in the transportation field, tracking the development trends of related fields, and completing further self-development.	Knowledge: Master professional knowledge in the new fields and cutting-edge areas of transportation engineering. Skills: Expand professional knowledge, track the development trends in professional and related fields, and engage in related knowledge accumulation and in-depth learning. Competences: Obtain comprehensive quality in interdisciplinary fields related to the course and apply the acquired professional knowledge broadly.	Electives: Geographic Information System and Application, Green Manufacturing and Environment, Project Management, Traffic System Analysis, Data Analysis and Data Mining, Control Engineering Basis, Traffic Safety Engineering, Planning and Design of Transportation Terminals, Modern C++ programming, Measurement and Application of Key Standards, Introduction to Intelligent Transportation System, Operation Organization and

		Management of Rail Transit, Road traffic design, Fundamentals and technology of sensors, Infrastructure and equipment of rail transit, Rail transit train operation organization, Modeling and simulation of transportation system, Traffic planning, Traffic information detection and processing, Traffic management control, Railway vehicle and operation control. Professional Practice: Innovative Practice Project (Level 1), Internship in Enterprise. Graduation Thesis (Design)
5. Possess the foreign language proficiency required for international communication and study abroad, as well as the ability to adapt to international cross-cultural cooperation and communication skills.	Knowledge: Master one foreign language, including basic knowledge of professional English or German. Skills: Ability to read professional literature in a foreign language and communicate with international peers in the field, discussing professional issues. Competences: Possess comprehensive reading and expression skills in a foreign language, engage in global-related work, and conduct cross-cultural communication.	Foreign Languages: College English A (Part 1 & 2), German for Beginners I, Technical English and Thesis Writing. International Courses
6. Understand the current social model and social norms in China, possessing good social behavior, teamwork spirit, and humanistic care.	Knowledge: Master knowledge of modern Chinese history, basic principles of Marxism, patriotism, humanistic spirit, physical education, and military training. Skills: Understand social phenomena, focus on and adapt to social development,	General Education: Chinese Modern and Contemporary History, Situation and Policy Education 1~3, Ideology morality and rule under the law, Basic principles of Marxism, Introduction to Xi Jinping Thought on Socialism with

	possess the ability to communicate and collaborate with others, and foster a team spirit that promotes personal physical and mental health and self-improvement. Competences: Form a well-rounded personality and good psychological quality, possessing correct views on life, values, morals, and laws, as well as humanistic quality and social responsibility.	Chinese Characteristics for a New Era, Introduction to Maoism and Socialist Theoretical System with Chinese Characteristics, Laboratory Safety Training, Military Theory, Military Training, Sports Club I~IV, National Security Education for College Students, Mental Health for College Students.
--	--	---