

人工智能驱动《交通流与交通设计》课程本研一体化教学改革与探索

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摘 要 : 新工科建设背景下, 为应对智慧交通领域快速发展对复合型人才的需求以及教育数字化的要求, 本文针对《交通流与交通设计》课程存在的教学内容滞后、实践环节薄弱、评价体系不完善和教育数字化不足等问题, 进行了系统的课程改革探索。提出了以“强基础、重实践、促融合、提质量”为核心的改革路线, 具体措施包括: 重构“基础-前沿-应用”三层课程内容体系, 强化学科交叉融合; 强化实践环节; 构建多元化、过程化的考核评价机制; 采用混合教学模式。改革的核心驱动力在于充分利用人工智能等智慧教育技术赋能教学全过程, 旨在提升课程教学质量, 培养学生的创新思维、实践能力与跨学科解决复杂工程问题的能力, 为未来交通系统高质量发展提供人才支撑。

关 键 词 : 新工科; 交通运输工程; 交通流与交通设计; 教学全过程; 人工智能

Artificial Intelligence-Driven Integration of Undergraduate and Graduate Teaching Reform and Exploration in the Course "Traffic Flow and Traffic Design"

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Abstract : Under the background of the new engineering discipline construction, in response to the rapid development of the intelligent transportation field and the demand for compound talents as well as the requirements of educational digitalization, this paper conducts a systematic exploration of curriculum reform for the "Traffic Flow and Traffic Design" course in view of the problems such as lagging teaching content, weak practical links, imperfect evaluation system and insufficient educational digitalization. A reform route centered on "strengthening the foundation, emphasizing practice, promoting integration and improving quality" is proposed. Specific measures include: reconstructing a three-layer course content system of "foundation - frontier - application", strengthening the integration of disciplines; reinforcing practical links; establishing a diversified and process-oriented assessment and evaluation mechanism; and adopting a blended teaching mode. The core driving force of the reform lies in fully leveraging intelligent education technologies such as artificial intelligence to empower the entire teaching process, aiming to enhance the quality of course teaching, cultivate students' innovative thinking, practical ability and cross-disciplinary problem-solving skills for complex engineering issues, and provide talent support for the development of intelligent transportation systems.

Keywords : new engineering; transportation engineering; flow theory and traffic design; entire process of teaching; artificial intelligence

引言

在全球范围内, 新一轮科技革命与产业变革加速演进, 以人工智能等为代表的新兴产业快速崛起, 传统工科人才已难以满足新经济、新产业对人才的多元化、高层次需求, 急需大量既懂技术又具创新能力、跨学科知识融合能力的新型工程人才。“新工科”突破传统工科的范畴, 强调学科的交叉融合, 将新兴技术与传统工科专业深度结合, 注重培养学生的创新能力、实践能力和跨学科思维^[1]。《中