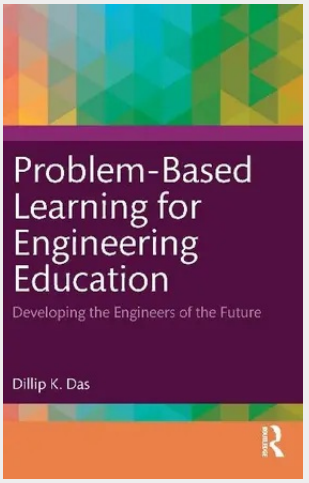
Das

Problem-Based Learning for Engineering Education

Developing the Engineers of the Future



This book embarks on an in-depth exploration of Problem-Based Learning (PBL) in the context of engineering education. Its overarching goal is to provide a comprehensive understanding of the genesis, potential, challenges, contemporary relevance, and methodological approaches of PBL. The impetus behind this undertaking arises from the acknowledged challenges within engineering education, necessitating a fundamental paradigm shift. The study's justification lies in the imperative adoption of innovative teaching methodologies for student performance improvement and fostering competency among engineering graduates. The narrative unfolds across four distinct sections: Background and Theoretical Perspectives; Methodological Aspects of PBL; Implications of PBL in Engineering Education and Case Studies; and Plausible Examples and Reflections and Future Direction. Part I establishes a robust foundation by defining PBL, tracing its historical roots, and weighing its potential against challenges. A critical examination of PBL's relevance underscores the urgent need for a paradigm shift in engineering education. The part weaves a "golden thread" that permeates subsequent explorations. A theoretical perspective of PBL follows, exploring its underpinnings and theoretical frameworks. This is complemented by a comparative analysis, offering insights into PBL's efficacy compared to traditional learning methods. The second part examines the alignment of PBL with Outcomes-Based Education, lays the groundwork for a coherent and practical integration of these educational approaches within the Engineering curriculum, and also offers methodological approaches to deliver and practice PBL. Part III explores PBL's application for reinforcing engineering education, emphasising its tangible impact. It probes into PBL as a means to instil entrepreneurial attributes in students and further expands to encompass the decolonisation and internationalisation of engineering education through PBL. The final part provides case studies, offer plausible examples, reflects on the lessons learned and draws insightful conclusions, synthesising the findings into a cohesive whole. Overall, this book seeks to make a substantial contribution to the ongoing discourse on innovative teaching methodologies, particularly within the context of engineering education. Through a meticulous examination of theoretical foundations, comparative analyses, and the provision of practical methodologies, it aims to serve as a valuable resource for educators, researchers, and policymakers who seek to enhance the effectiveness and relevance of engineering education in our ever-evolving world.

This book embarks on an in-depth exploration of Problem-Based Learning (PBL) in the context of engineering education.

136,00 €
136,00 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9781032863665
Medium: Buch
ISBN: 978-1-032-86366-5
Verlag: Routledge
Erscheinungstermin: 12.12.2025
Sprache(n): Englisch
Auflage: 1. Auflage 2025
Produktform: Gebunden
Gewicht: 643 g
Seiten: 316
Format (B x H): 161 x 240 mm

Kundenservice Verlag Dr. Otto Schmidt KG
Neumannstraße 10, 40235 Düsseldorf | kundenservice@otto-schmidt.de | 0221-93738-997 (Inland)