Project Approaches to Learning in Engineering Education

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The Practice of Teamwork

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FOREWORD

Engineering is the main pillar sustaining civilized life on earth. Engineers invent the tools that enable us to move faster and produce more than we ever could with our bare hands. To keep our economies going we need engineers to maintain and to innovate our machine park. Therefore it is of utmost importance to continuously train new generations of engineers.

The engineering profession is rooted in practice and in practice engineers have always been working in teams on projects. Utilising projects in the formation of young engineers makes a lot of sense and not surprisingly it is applied in one or another variety in many places around the world. Still there are huge differences between an engineering project and the pedagogical utilisation of projects in an engineering curriculum. In an engineering project all that counts is to find an optimal solution, trading of time, money and other recourses. Sometimes a quick fix needs to be made and if the necessary expertise to solve a particular problem is not available in the team, it is hired from outside. This is acceptable in a real engineering firm, but not from a group of students working in small teams on authentic engineering problems. The students should aim to understand how things work, not just solve a problem and they should be reminded by their teachers that they should utilize the opportunity for building their own knowledge base. Rather than assigning jobs to the ones who are good at it, as is common practice in a real engineering firm, the students should rotate and each practice the aspects where they lack expertise.

This book offers the reader an overview of interesting practices of applying the project method in engineering education. With examples from different study domains and from diverse countries, the book covers a wide range of project applications in relation to various cultural backgrounds. It is a good start to get oriented on the possibilities of learning from projects in engineering and to get inspiration for the development of new varieties of project-organized learning adapted to local needs and circumstances.

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