

The Role of Industry Support and Cooperation in Engineering Education-Friction Materials Engineering

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There are several dominant factors in the field of engineering worldwide: 1) Industries must innovate and involve the latest technologies to remain competitive in the world market, and for that purpose, new highly qualified and creative engineers are needed; 2) The principal goal of any university is to educate and prepare students who will fit the demands of a labor market easily and so will be beneficial to the whole society; 3) The faster technological development means higher requirements that engineers have to face.

Based on the facts, there is always this question on the mind of human resources specialists from industry and managers of educational institutions altogether: *How can we manage it that the skills and knowledge of new engineers meet exactly the requirements of potential industrial employers?* The answer and the best solution for both universities and industrial companies is *to cooperate together*.

A good example of such cooperation could be the *research team* which was established by the VSB - Technical University of Ostrava and Southern Illinois University at Carbondale in 1999. The aim of this team is to solve the complex problems of the Czech automotive industry. The work of the team represented by faculty members and students of both M.Sc. and Ph.D. degrees are oriented on the analysis and quality control of automotive brake *composite materials*. In particular, the research is focused on: 1) quality analysis of brake lining composites, their formulations and structure; 2) interaction of composites and the saline solution used in the winter season for road maintenance; and 3) development of environmentally friendly composites.

During this mutual project in the field of friction materials engineering, students were enabled to gain experience with the handling of modern instruments used in the automotive industry. At the same time, they were solving concrete research assignments for the company.

This paper describes the positive results and benefits of the mutual research education programs for the industrial companies as well as for the representatives from university, students and faculty members.