Chapter 7

THE SIMULATION OF MANUFACTURING AND SUPPORTING PROCESSES – EDUCATIONAL RESULTS

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1. INTRODUCTION

The classes in the form of a simulation\(^1\) of manufacturing process and supporting processes such as works transport, storage of half-finished products, quality control are conducted as part of Logistics course on Management Engineering Department at Poznan University of Technology\(^2\). They are carried out from academic year 2007/2008.

A theory and practice are more and more often combined in teaching process (Nalaskowski, 1997). Combining of theory and practice should bind to two part to push an earlier obtained knowledge into practice, as well as to refer to theoretical knowledge during executing certain practical activities. (Okoń, 1987), (Żegnałek, 2005). Authors’ teaching experience also suggests that an active teaching (i.e. project tasks, group works, case studies, simulations etc.) permit a complete

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\(^{2}\) “The simulation is the set of simple and complex activities, which consist in imitating a behaviour of certain system. This system is e.g. a company or its manufacturing system” (Pawlak, Grzybowska, 2009, p. 68). “Simulation games are a multidimensional decision games where a random factor is not necessary. These are specific situations imposed in artificial conditions where the participants decide on equal roles acted out in accordance with their real view of reality. They place participants with a complicated problem that they must solve through taking a particular action. Participants are to plan – as in case study – and also to execute actions” (Pawlak, Grzybowska, 2009, p. 68).  
\(^{2}\) Till the end of the academic year 2009/2010 as part of Computer Science and Management Department, from a new academic year as part of Management Engineering Department.
development of right competencies and skills of students – future specialists and managers.

So far passive and descriptive forms of teaching have been used within Production Management classes in the teaching of manufacturing issues. In the course of them students become familiar with basic production process problems. It was observed that students had difficulties with a proper understanding of the essence of manufacturing process in the company. The application of simulation in order to comprehend these matters has been turned out very useful. Therefore classes in the form of simulation have been introduced into a plan of didactic occupancies so as to introduce a real view of the process.

For these type of classes an appropriate teacher’s competence as well as a detailed programme are indispensable. A mistake on the beginning of classes could not be corrected without a consequence of future worse results. The discussion of preparation process and execution of classes in the form of simulation reader can find in the paper (Pawlak, Grzybowska, 2009, pp. 63-75).

The authors of didactic programme, conducting Production Management project with simulations, carried out a survey between students. The aim of the survey was the evaluation of educational results connected with students’ commitment and interest in subject as well as the determination which elements of active teaching provide the best didactic effects.

87 students participated in the survey, they had classes in the last academic year. The findings of research are presented hereunder.