



The application of Microsoft Excel in teaching courses of mechanical engineering

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Abstract: *The applications of information technologies in the field of mechanical engineering are various and numerous. This paper presents the application of basic computer software i.e. Microsoft Excel in solving a series of calculations in the field of mechanical engineering which can be encountered during studies, or later in practice. Using the knowledge and literature both in these areas and in the field of information technology, this software is used through an interactive application to calculate the geometric characteristics of standard profiles, as well as the calculation of the efficiency and state parameters of the thermodynamic cyclic processes. The examples shown in this paper will provide students a great help in the preparation of assignments from these fields of study, and also teachers when reviewing them.*

Keywords: *geometric characteristics; cyclic processes; Microsoft Excel*

1. INTRODUCTION

The teaching process of mechanical engineering courses of the Faculty of Technical Sciences in Čačak is based on the theoretical lectures and exercises in which the practical problems are solved. In the exercises, students get homework, graphical and design assignments in which they are solving a variety of practical problems that they may encounter in the future.

Due to the increased number of students and wish to improve the efficiency of teaching, it is generated the need for using a variety of applications and tools to allow students to study more effectively and improving their skills, and enabling a more efficient work and review of students papers by a teacher.

As these practical problems can include a series of computing and can be very comprehensive, it is generated a possibility of using a certain type of tools to process data through a series of formulas and conditions that may be encountered in accordance to the diversity of students personal assignments.

Within the framework of this paper, it will be presented the application of Microsoft Excel tools for solving problems in the field of strength of materials, as part of the teaching course of the Technical Mechanics 2, and problems in the field of the thermodynamic cyclic processes in heat engines within the course of the thermodynamics.

