

# THE IMPACTS OF DIGITAL TRANSFORMATION ON MECHANICAL ENGINEERING TECHNOLOGY INDUSTRY

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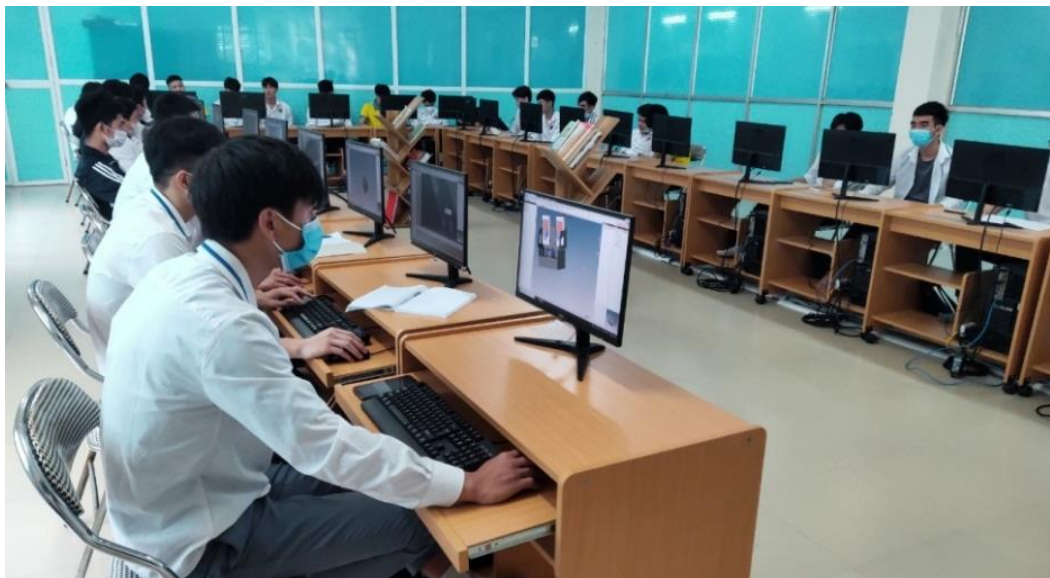
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Digital transformation is constantly having a strong impact on many fields in general and the mechanical industry in particular. To meet the competitive needs in the digital transformation era with the development of computer science, control engineering and automation, the mechanical engineering technology industry needs to innovate.

In the past 5 years, the Faculty of Mechanical Engineering has continuously developed in terms of quality: First of all, each lecturer in the department understands the importance, applicability and effectiveness of digital transformation, considering digital transformation as an inevitable trend. Overcoming the difficulties in digital transformation, up to now, the mechanical engineering department has done some initial work of the digital transformation process as follows:

## **1. Attaching digital transformation content in some modules in the training program**

In the training program, digital simulation software and parametric design software were transferred, applied and included in the training program from course 9 as modules: Optimization in mechanical design gas, reverse engineering, digital simulation to innovate training programs to help students have skills, thinking and first approach to new technologies in the digital transformation period.



*Figure 1. Mechanical engineering students practice numerical simulation on Solid Edge copyright software sponsored by Siement with a value of USD 230,000*

## 2. Innovating teaching methods in practice at a high-tech center

Lecturers research and self-educate on programming techniques and control codes of specialized software and CNC machines. Building a wireless connection program between the design practice room and the machining practice room in order to innovate technology, renovate the form of teaching from individual group practice to the form of collective practice using actual equipment and device simulation software.



*Figure 2. Teaching method in odd groups*



*Figure 3. Innovation with advanced teaching methods*

In addition to the above tasks during the Covid epidemic, mechanical engineering faculty actively implemented digital transformation in distance teaching for students to avoid disrupting the training progress and ensure timely graduation. Besides, some teachers also set up electronic databases in the form of automatic scoring tests to regularly evaluate students contributing to improve the training quality.

### **3. Suggestions and recommendations**

- It is necessary to increase the awareness of teachers and students about digital transformation.
- Encouraging lecturers to actively apply digital transformation technology into teaching and researching.
- Organizing field trips to institutions that perform well on digital transformation in Vietnam for lecturers to learn experience.
- Organizing contests on awareness and application of technology in digital transformation among students.