In atenția studenților de la specializările IA, I, IAG, MI

Sunteți invitați să va inscrieți la cursurile din programul

"**Joia după-masă la facultate**"!

Cine susține cursurile?

Specialiștii din cadrul companiilor IT:

1. **ELEKTROBIT**
2. **SIEMENS INDUSTRY SOFTWARE**

În ce perioadă?

Semestrul al 2-lea al anului universitar 2024-2025, joia după-masă.

Termen de înscriere: 09.02.2025

Cum aplici?

Trimite un email cu **CV-ul** și **titlul cursului** la care dorești să te înscrii, la adresa de email a firmei sau scaneaza codul.

1. ELEKTROBIT

Locatie: Facultatea de Matematica si Informatica (corpul P)

Inscrieri: scanați codul de mai jos

Build the software – build the future

AGENDA:

- What is professional SW Engineering?

- Introduction to Requirements Engineering and management

- Requirements Elicitation & Analysis

- Change and Problem Management

- Configuration Management

- Software design and construction

- Safety and security in software

- Agile

- Scrum

- Integration and Test

- Ensure the quality of the software

2. SIEMENS INDUSTRY SOFTWARE

Email pentru înscrieri: **roxana.spinu@siemens.com**

Locație: Bld. Gării, nr. 13A, Clădirea Nine, Brașov

Durată: 10 cursuri

Structural Optimization Using Genetic Algorithms

Description:

The manufacturing field faces the problem of optimizing the amount of material used for packing their products. Architects and engineers in their day-to-day work need to reconsider again and again different scenarios to find the best solution while designing structures. Today the optimization calculations are done manually, and the process ends up most of the time with a compromise. With manual calculations it is extremely hard to design both a resistant and low-priced structure. In the last few years, Artificial Intelligence techniques showed remarkable improvements in optimization problems, helping professionals in their day-to-day work.

In the case of optimization of physical structures, the answer came quickly using genetic algorithm methods.

The usage of genetic algorithms in structural optimization helps with:

• a qualitative improvement of components

• a significant reduction of material and production costs

• a shorter time required in product design process.

The scope of the proposed project is to develop genetic algorithms based on mathematical methods that solve the structural optimization problems satisfying multiple design constraints. At present, the tendency is to create a structure with more support than needed just to guarantee safety. Unfortunately, this implies a greater weight on the structure and greater costs for building and shipping. The project aims to provide solutions that optimize the balance between costs, structural performance, reliability, and safety.

Working on this project exposes the software developers to concepts such as: finite element analysis, finite element method, structural optimization, meshing, constraints, forces, space geometry, structural optimizations, simulations, and Genetic Algorithms.

Using Project Chrono - an open-source C++ library for physics simulations - software developers will be able to test the evolutionary algorithm and graphically visualize the obtained results.