University POLITEHNICA of Bucharest
Faculty of Industrial Engineering and Robotics
Department for Manufacturing Technology

Program Abstract
Code: IAAC

Advanced Computer Aided Engineering

2021
Master

DURATION

Full-time: 2 years

LOCATION

Campus UPB
Faculty IER

PROGRAM COORDINATOR

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Get your skills to integrate advanced design technology and digital manufacturing technologies with product lifecycle management.

Industrial Engineering

This program focuses on technologies that support the entire lifecycle of a product. All aspects of design for manufacturing, industrial products are included.

Special emphasis is placed on constructive technological design and on the creation and analysis of information flows associated with the products required in all phases of its manufacturing.

You will develop the skills needed to meet the global demand of specialist engineers and industrial designers. The program provides a comprehensive understanding of computer-based engineering (CAE) computer-based engineering life cycle management process. These platforms are now regarded by industry as best practices.

Applying advanced technical knowledge and expertise in creating associated products and services will have a strong potential to bring sustainable growth and high economic return.

The program uses a learning-based, project-based approach that will expose you to Advanced Computer Assisted Design (CAD) and Computer Assisted Manufacturing (CAM) concepts and abilities.

You will study in state-of-the-art laboratories hardware and software,
Autodesk Inventor Pro, Catia V5, Edge CAM, Solid Works, AutoCAD.

You will discover a team of professionals ready to lead you to a successful career.

Study program

Teaching, tutorial and laboratory classes take place during the afternoon and evening to match the work commitments of part-time students.

The program gives you access to online learning resources.

Learning and teaching techniques are dealt with to develop your skills and to help you become an independent learner throughout your life. These approaches can include classroom and / or online sessions, laboratory sessions, problem-based learning, tasks and projects.

Career Perspective

Graduates will have an overall understanding of product lifecycle management, including the design, manufacture, maintenance and recycling of industrial products.

The Romanian Government, the Ministry of Labor, the Ministry of Education, foresees growth in the areas of information systems design, operation and maintenance of mechanical and process installations and installations, and programs that coordinate production activities to ensure resource efficiency in terms of costs.

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S1	Discipline name	ECTS	Exam/ Verify
1	Product Development 1	4	E
2	3D Parametric Design 1	4	E
3	Finite Element Method Analysis	4	E
4	Mathematical methods in engineering	4	E
5	Entrepreneurship and business development	4	V
6	Scientific research 1 / Practice 1	10	V
	TOTAL	30	
S2	**Discipline name**	**ECTS**	**Exam/ Verify**
1	Product Development 2	4	E
2	Design and Assisted Manufacturing 1	4	E
3	Modern methods of programming the fabrication	5	E
4	Assisted measurement and data acquisition	3	E
5	Individual and Group Project 1	4	V
6	Scientific research 2 / Practice 2	10	V
	TOTAL	30	
S3	**Discipline name**	**ECTS**	**Exam/ Verify**
1	Parametric 3D Design 2	4	E
2	Design and Assisted Manufacturing 2	4	E
3	Logistic Networks	5	E
4	Project and quality management	2	E
5	Individual and Group Project 2	3	V
6	Ethics and integrity	12	V
	TOTAL	30	
S4	**Discipline name**	**ECTS**	**Exam/ Verify**
1	Scientific research 4	20	V
2	DISSERTATION EXAMINATION	10	E
	TOTAL	30	

Specific skills

CS1. Conducting research on the design and manufacture of innovative products in computer assisted environments.

CS2. Development of innovative products.

CS3. Detailed design of innovative products in various IT systems.

CS4. Design and realization of models and prototypes in a computer assisted system.

CS5. Design and management of manufacturing processes in assisted systems.

Target groups / potential target candidates

- Graduates of the field of undergraduate studies in Industrial Engineering and of some undergraduate university studies.
- Graduates of the field of long-term higher education, Industrial Engineering and of some fields of lasting high education.
- Graduates of undergraduate or postgraduate university studies with concerns about the design and / or manufacture of products or close to them.

General skills

CG1. Creative application of research and problem-solving techniques in various contexts.

CG2. Develop publicity or professionally applicable studies and reports.

CG3. The ability to work independently and team-based, objective and constructive.

CG4. Assuming social and ethical responsibilities.

CG5. Continuous support of your own professional development.

Objectives of the Master program

- Acquiring knowledge and skills training, ie developing general skills and specific skills in assisted design and manufacturing, in integrated systems, innovative processes and products;
- Acquiring knowledge and skills regarding the use of dedicated software applications in production processes;
- Development of innovative products and, correlated, the realization of models and prototypes