SYLLABUS 1

THIS COURSE UNIT IS TAUGHT IN ROMANIAN LANGUAGE

1. Information about the program

1.1 Higher education institution	Politehnica University Timișoara
1.2 Faculty ² / Department ³	Mechanical /Material and Manufacturing Engineering
1.3 Chair	_
1.4 Field of study (name/code ⁴)	Industrial Engineering/ 20.70.10 (HG185/2018 and HG158/2018)
1.5 Study cycle	Master
1.6 Study program (name/code/qualification)	Integrated Engineering

2. Information about discipline

2.1 Name of discipline/The educational classe ⁵ Integrated product design							
2.2 Coordinator (holder) of course activities			Ştef	Dorian			
2.3 Coordinator (holder) of applied activities ⁶			Ştef	Dorian			
2.4 Year of study ⁷	1	2.5 Semester	1 2.6 Type of evaluation E 2.7 Type of discipline ⁸				DCAV

Total estimated time (direct activities (fully assisted), partially assisted activities and unassisted activities (fully assisted), partially assisted activities and unassisted activities (fully assisted).

3.1 Number of hours fully assisted/week	4 ,of which:	of which: 3.2 course 2 3.3 seminar/laboratory/project		2			
3.1* Total number of hours fully assisted/sem.	56 ,of which:	3.2 * course	28	3.3* seminar/laboratory/project		28	
3.4 Number of hours partially assisted/week	2 ,of which:	3.5 project, research	1	3.6 training	1	3.7 hours designing M.A. dizertation	
3.4* Number of hours pasrtially assisted/ semester	28 ,of which:	3.5* project of research	14	3.6* training	14	3.7* hours designing M.A. dizertation	
3.8 Number of hours of unassisted activities/ week	2 ,of which:	h: Additional documentation in the library, on specialized electronic platforms, and on the field		0.5			
		Study using a manual, course materials, bibliography and lecture notes				0.5	
				ninars/ laborator folios, and essay		omework,	1
3.8* Total number of hours of unasssited asctivities/ semester	28 ,of which:			7			
		Study using and lecture r		nual, course mat	erials	, bibliography	7
				ninars/ laborator folios, and essay		omework,	14
3.9 Total hrs./week ¹⁰	8	<u>-</u>					•
3.9* Total hrs./semester	112						
3.10 No. of credits	9						

4. Prerequisites (where applicable)

4.1 Curriculum	•
4.2 Competencies	•

5. Conditions (where applicable)

¹ The form corresponds to the Syllabus promoted by OMECTS 5703/18.12.2011 (Annex 3), updated based on the Specific Standards ARACIS of December 2016.

² The name of the faculty which manages the educational curriculum to which the discipline belongs

³ The name of the department entrusted with the discipline, and to which the course coordinator/holder belongs.

⁴ Fill in the code provided in HG no. 376/18.05.2016 or in HG similars annually updated.

⁵ The educational classes of disciplines (ARACIS – specific standards, art./paragraph 4.1.2.a) are: fundamental disciplines, field disciplines, majoring/specialization disciplines.

⁶ The applied activities refer to: seminar (S) / laboratory (L) / project (P) / practice/training (Pr).

⁷ The year of study to which the discipline is provided in the curriculum

⁸ The types of disciplines (ARACIS – specific standards, art./paragraph 4.1.2.a) are: extended knowledge discipline / advanced knowledge discipline and synthetic discipline (DA / DCAV and DS) or art./paragraph 4.1.2 b) complementary discipline (DC)).

§ Within UPT, the number of hours from 3.1*, 3.2*,...,3.9* are obtained by multipling by 14 (weeks) the number of hours from 3.1, 3.2,..., 3.9.

The total number of hours/week is obtained by summing up the number of hours from 3.1, 3.4 şi 3.8.

5.1 of the course	•
5.2 to conduct practical activities	•

6. Specific competencies acquired through this discipline

Specific competencies	• C4.1 - Identification of methods for designing the structure of products, the shape, and materials of component parts to reduce manufacturing and assembly costs
	• C6.2 - Explanation and interpretation of the methodology for the development of innovative products and of the methods of design, assurance, realization, and capitalization of product quality
	C4.3 - Application of advanced design methods for modern manufacturing
	• C6.3 - Integrated application of a wide range of principles and methods of design, maintenance, management and quality assurance in manufacturing systems
	C5.4 - Evaluation and establishment of optimal design variants and establishment of manufacturing systems management
	C6.5 - Development of professional and / or research projects, which include the integrated concept in the product development process
Professional	C4 - Conception and design of products for competitive manufacturing
competencies ascribed to the	C5 - Design and management of new or improved manufacturing systems
specific competencies	C6 - The concept integrated in the product development process
competencies	
Transversal competencies ascribed to the	CT1 - Application of the values and ethics of the engineering profession and responsible execution of complex professional tasks in conditions of professional autonomy and independence; promoting logical, convergent, and divergent reasoning, practical applicability, evaluation, and self-evaluation in decision making.
specific competencies	CT2 - Carrying out the activities with the exercise of the specific roles of teamwork on different hierarchical levels and with the assumption of leadership roles; promoting the spirit of initiative, dialogue, cooperation, positive attitude and respect for others, diversity and multiculturalism and the continuous improvement of one's activity

7. Objectives of the discipline (based on the grid of specific competencies acquired)

7.1 The general objective of the discipline	Acquiring and implementing knowledge related to integrated product design	
7.2 Specific objectives	 Understanding the industrial environment through typologies and organization Product life cycle analysis, modeling, and management Integrated product modeling approaches, methods, and systems Approaches, methods, and systems for integrated product manufacturing 	

8. Content

8.1 Course	Number of hours	Teaching methods
Introduction	2	Lecture /
Industrial environment	4	exemplification / case
Product lifecycle	8	study / debate
Integrated product design	8	
Integrated product manufacturing	6	

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Draghici, G – Ingineria integrata a produselor, Editura Eurobit, Timisoara, ISBN 973-96065-7-1

Usher, J.M., Roy, U., Parsaei, H. (2005), Integrated Product and Process Development: Methods, Tools, and Technologies, John Wiley & Sons

Kuehn, W. (2006). Digitale Fabrik, Fabriksimulation fur Produktionsplaner. Hanser, Viena

Coze, Y. (2009). Virtual Concept > Real Profit with Digital Manufacturing and Simulation. Sogeti High Tech – Dassault Systems Suh, N. P. (2001). Axiomatic Design-Advances and Applications. New York: Oxford University Press

8.2 Applied activities ¹²	Number of hours	Teaching methods
Introduction	2	Lecture /
Evaluating the communication style	2	questionnaire / debate
Assessing the role in the work team	2	/ case study
Elaboration of a product development project based on integrated engineering methods and models	22	

Bibliography¹³

Draghici, G - Ingineria integrata a produselor, Editura Eurobit, Timisoara, ISBN 973-96065-7-1

Coze, Y. (2009). Virtual Concept > Real Profit with Digital Manufacturing and Simulation. Sogeti High Tech – Dassault Systems Suh, N. P. (2001). Axiomatic Design-Advances and Applications. New York: Oxford University Press

Suh Nam Pyo (2006) - Axiomatic Design and Fabrication of Composite Structures: Applications in Robots, Machine Tools and Automobiles, Oxford series on advanced manufacturing ISBN 0-19-517877-7 Oxford University Press 2006

9. Coroboration of the content of the discipline with the expectations of the main representatives of the epistemic community, professional associations and employers in the field afferent to the program

In order to sketch the contents, choosing the teaching / learning methods, the head of the discipline organized a series of meetings with the business environment in the western part of the country, in the industrial field, as well as with other teachers who have concerns in the field. The meetings aimed at identifying the needs and expectations of employers in the field and coordinating with similar programs within other higher education institutions.

10. Evaluation

Type of activity	10.1 Evaluation criteria ¹⁴	10.2 Evaluation methods	10.3 Share of the final grade
10.4 Course	Acquiring theoretical knowledge about the content of the course	Written exam	60%
10.5 Applied activities	S:		
	L:		
	P: Project	Presentation / discussion/dabate	40%
	Pr:		
	Tc-R ¹⁵ :		

¹¹ At least one title must belong to the department staff teaching the discipline, and at least one title must refer to a relevant work for the discipline, a national and international work that can be found in the UPT Library.

¹² The types of applied activities are those mentioned in 5. If the discipline containes more types of applied activities then they are marked, consecutively, in the table below. The type of activity will be marked distinctively under the form: "Seminar:", "Laboratory.", "Project:" and/or "Practice/Training:".

 $^{^{13}}$ At least one title must belong to the staff teaching the discipline.

¹⁴ The Syllabus must contain the evaluation method of the discipline, specifying the criteria, the metods and the forms of evaluation, as well as mentioning the share attached to these within the final mark. The evaluation criteria must correspond to all activities stipulated in the curriculum (course, seminar, laboratory, project), as well as to the methods of continuous assessment (homework, essays etc.)

10.6 Minimum performance standard (minimum amount of knowledge necessary to pass the discipline and the way in which this knowledge

- Outline knowledge of life cycle approaches and methods and integrated product design
- · Project development

Course coordinator Date of completion (signature)

Coordinator of applied activities (signature)

Head of Department (signature)

Date of approval in the Faculty Council 17

Dean (signature)

 ¹⁵ Tc-R= Homework-Reports
 16 For this point turn to "Ghid de completare a Fișei disciplinei" found at: http://univagora.ro/m/filer_public/2012/10/21/ghid_de_completare_fisa_disciplinei.pdf
 17 The approval is preceded by discussing the study program's board's point of view with redgards to the syllabus.