

SYLLABUS¹

1. Information about the program

1.1 Higher education institution	Politehnica University of Timișoara
1.2 Faculty ² / Department ³	Mechanical Engineering / Materials and Manufacturing Engineering
1.3 Chair	—
1.4 Field of study (name/code ⁴)	Industrial Engineering/10
1.5 Study cycle	Master
1.6 Study program (name/code/qualification)	Integrated Engineering

2. Information about the discipline

2.1 Name of discipline	Design for Manufacturing and Assembly						
2.2 Coordinator (holder) of course activities	Cristian-Gheorghe Turc						
2.3 Coordinator (holder) of applied activities ⁵	Cristian-Gheorghe Turc						
2.4 Year of study ⁶	1	2.5 Semester	1	2.6 Type of evaluation	E	2.7 Type of discipline	DA

3. Total estimated time (hours / semester of didactic activities)

3.1 No. of hrs. / week	3 , of which:	3.2 course	1,5	3.3 seminar/laboratory/ project/training	1,5
3.4 Total no. of hrs. in the education curricula	42 , of which:	3.5 course	21	3.6 applied activities	21
3.7 Distribution of time for individual activities related to the discipline					hrs.
Study using a manual, course materials, bibliography and lecture notes					53
Additional documentation in the library, on specialized electronic platforms and on the field					20
Preparation for seminars / laboratories, homeworks, assignments, portfolios, and essays					30
Tutoring					7
Examinations					2
Other activities					
Total hrs. of individual activities					112
3.8 Total hrs. / semester ⁷	154				
3.9 No. of credits	6				

4. Prerequisites (where applicable)

4.1 Curriculum	•
4.2 Competencies	•

5. Conditions (where applicable)

5.1 of the course	•
5.2 to conduct practical activities	•

6. Specific competencies acquired

¹ The form corresponds to the Syllabus promoted by OMECTS 5703/18.12.2011 (Annex3).

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 GD no. 493/17.07.2013.

⁵ The applied activities refer to: seminar (S) / laboratory (L) / project (P) / practice/training (Pr).

⁶ The year of study to which the discipline is provided in the curriculum.

⁷ It is obtained by summing up the number of hrs. from 3.4 and 3.7.

Professional competencies ⁸	<ul style="list-style-type: none"> • Knowledge needed in integrated, collaborative design of products, processes and project management. • Developing the capacity and ability to implement methods to improve product quality and manufacturing processes, ensuring maintenance and reliability. • Developing the capacity for planning, optimal control and management of process and production systems.
Transversal competencies	<ul style="list-style-type: none"> • Applying of engineering values and ethics, and accurate execution of professional tasks in conditions of limited autonomy and qualified assistance. Promoting of: logical, convergent and divergent reasoning, practical applicability, assessment/self-assessment in decision making. • Applying of engineering values and ethics, and accurate execution of professional tasks in conditions of limited autonomy and qualified assistance. Promoting of: logical, convergent and divergent reasoning, practical applicability, assessment/self-assessment in decision making. • Applying of engineering values and ethics, and accurate execution of professional tasks in conditions of limited autonomy and qualified assistance. Promoting of: logical, convergent and divergent reasoning, practical applicability, assessment/self-assessment in decision making.

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

7.1 General objective of the discipline	<ul style="list-style-type: none"> • The discipline forms necessary knowledge for optimization of product constructive and functional conception.
7.2 Specific objectives	<ul style="list-style-type: none"> • Capacity of product functional analysis. • Ability to improve the product design in order to reduce the product cost.

8. Content

8.1 Course	No. of hours	Teaching methods
Introduction in design for manufacturing and assembly.	2	Lecture
Tooling cost in injection molding	2	Lecture
Relative tooling cost in injection molding	1	Explanation, demonstration
Relative Tooling Construction Costs	3	Explanation, demonstration
Relative Tooling Materials Costs	2	Explanation, demonstration
Processing Costs	2	Explanation
Material cost	1	Explanation
Tooling cost in die casting	4	Explanation
Design for assembly guidelines	2	Explanation
The choosing of tolerances	1	Explanation
Part design for assembly optimization.	1	Explanation
Bibliography ⁹ 1. Corrado Poli, Design for Manufacturing, Elsevier Inc., 2001, ISBN-13: 978-0-7506-7341-9. 2. Drăghici G., Concepția proceselor de prelucrare mecanică, Editura Politehnica, Timișoara, 2005. 3. Harry Cather, Richard Morris, Mathew Philip and Chris Rose, Design Engineering, 2001 Elsevier Ltd., ISBN-13: 978-0-7506-5211-7. 4. K. G. Swift, J. D. Booker, Process Selection. From Design to Manufacture, 2003 Elsevier Ltd., ISBN-13: 978-0-7506-5437-1		
8.2 Applied activities ¹⁰	No. of hours	Teaching methods

⁸ The professional competencies and the transversal competencies will be treated according to the Methodology of OMECTS 5703/18.12.2011. The competencies listed in the National Register of Qualifications in Higher Education [Registrul Național al Calificărilor din Învățământul Superior RNCIS] (http://www.rncis.ro/portal/page?_pageid=117_70218&_dad=portal&_schema=PORTAL) will be used for the field of study from 1.4 and the program of study from 1.6 of this form, involving the discipline.

⁹ At least one title must belong to the department staff teaching the discipline, and at least 3 titles must refer to national and international works relevant for the discipline, and which can be found in the Politehnica University Library.

¹⁰ The types of applied activities are those specified in footnote 5. If the discipline contains several types of applied activities, then these will be written consecutively in the lines of the table below. The type of activity will be written in a distinct line, as „Seminar:”, „Laboratory:”, „Project:” and/or „Practice/Training:”.

Introducing the project theme.	2	Explanation
CAD of the part to be optimized.	5	Case study
Tooling relative cost – 1st design.	3	Case study
Processing cost– 1st design.	2	Case study
Material cost– 1st design..	2	Case study
Tooling relative cost – 2nd design.	3	Case study
Processing cost– 2nd design.	2	Case study
Material cost– 2nd design.	2	Case study
		Case study

Bibliography¹¹

1. Corrado Poli, Design for Manufacturing, Elsevier Inc., 2001, ISBN-13: 978-0-7506-7341-9.
2. Drăghici G., Concepția proceselor de prelucrare mecanică, Editura Politehnică, Timișoara, 2005.
3. Harry Cather, Richard Morris, Mathew Philip and Chris Rose, Design Engineering, 2001 Elsevier Ltd., ISBN-13: 978-0-7506-5211-7.
4. K. G. Swift, J. D. Booker, Process Selection. From Design to Manufacture, 2003 Elsevier Ltd., ISBN-13: 978-0-7506-5437-1

9. Corroboration 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

- The knowledge gained in this discipline facilitates understanding of all the other disciplines of the curriculum of the master program
- Most employers require specialists who have skills acquired in this course..

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Share of the final grade
10.4 Course	To solve some topics related to the theoretical courses	written examination	2/3
10.5 Applied activities	S:		
	L:		
	P: Case study	Evaluation of solved issues	1/3
	Pr:		
10.6 Minimum performance standard (minimum amount of knowledge necessary to pass the discipline and the way in which this knowledge is verified)			
<ul style="list-style-type: none"> • Using of correct notions and concepts presented. Solving of some of the issues of medium complexity. Carrying out of applications and specific tasks, the interpretation of the results. 			

Date of completion

14.12.2015

**Course coordinator
(signature)**

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**Coordinator of applied activities
(signature)**

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**Head of Department
(signature)**

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**Date of approval in the Faculty
Council¹²**

**Dean
(signature)**

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¹¹ At least one title must belong to the staff teaching the discipline.

¹² Avizarea este precedată de discutarea punctului de vedere al board-ului de care aparține programul de studiu cu privire la fișa disciplinei.