

# SYLLABUS <sup>1</sup>

**THIS COURSE UNIT IS TAUGHT IN ROMANIAN LANGUAGE**

## 1. Information about the program

1.1 Higher education institution	Politehnica University of Timișoara
1.2 Faculty <sup>2</sup> / Department <sup>3</sup>	Mechanics/Mechatronics
1.3 Chair	—
1.4 Field of study (name/code <sup>4</sup> )	Mechatronics and Robotics
1.5 Study cycle	Master
1.6 Study program (name/code/qualification)	Quality Engineering in Mechatronics and Robotics

## 2. Information about discipline

2.1 Name of discipline/The educational classe <sup>5</sup>	Computer Aided Quality Analysis						
2.2 Coordinator (holder) of course activities	Liana-Maria DEHELEAN, PhD, BEng Senior Lecturer						
2.3 Coordinator (holder) of applied activities <sup>6</sup>	Liana-Maria DEHELEAN, PhD, BEng Senior Lecturer						
2.4 Year of study <sup>7</sup>	1	2.5 Semester	2	2.6 Type of evaluation	E	2.7 Type of discipline <sup>8</sup>	DA

## 3. Total estimated time (direct activities (fully assisted), partially assisted activities and unassisted activities<sup>9</sup>)

3.1 Number of hours fully assisted/week	4 ,of which:	3.2 course	2	3.3 seminar/laboratory/project	0/1/1
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	,of which:	3.5 project, research		3.6 training	3.7 hours designing M.A. dizertation
3.4* Number of hours pasrtially assisted/ semester	,of which:	3.5* project of research		3.6* training	3.7* hours designing M.A. dizertation
3.8 Number of hours of unassisted activities/ week	4,5 ,of which:	Additional documentation in the library, on specialized electronic platforms, and on the field			2
		Study using a manual, course materials, bibliography and lecture notes			1,5
		Preparation of seminars/ laboratories, homework, assignments, portfolios, and essays			1
3.8* Total number of hours of unasssited asctivities/ semester	63 ,of which:	Additional documentation in the library, on specialized electronic platforms, and on the field			28
		Study using a manual, course materials, bibliography and lecture notes			21
		Preparation of seminars/ laboratories, homework, assignsments, portfolios, and essays			14
3.9 Total hrs./week <sup>10</sup>	8,5				

<sup>1</sup> 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.

<sup>2</sup> The name of the faculty which manages the educational curriculum to which the discipline belongs

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

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

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

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

<sup>7</sup> The year of study to which the discipline is provided in the curriculum .

<sup>8</sup> 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)).

<sup>9</sup> Within UPT, the number of hours from 3.1\*, 3.2\*, ..., 3.9\* are obtained by multiplying by 14 (weeks) the number of hours from 3.1, 3.2, ..., 3.9.

<sup>10</sup> The total number of hours/week is obtained by summing up the number of hours from 3.1, 3.4 și 3.8.

<b>3.9* Total hrs./semester</b>	105
<b>3.10 No. of credits</b>	7

#### 4. Prerequisites (where applicable)

<b>4.1 Curriculum</b>	<ul style="list-style-type: none"> <li>Mathematical Statistics, Transducers and Sensors, Data Acquisition Boards</li> </ul>
<b>4.2 Competencies</b>	<ul style="list-style-type: none"> <li>Computer skills - the Microsoft Office suite</li> </ul>

#### 5. Conditions (where applicable)

<b>5.1 of the course</b>	<ul style="list-style-type: none"> <li>Classroom with blackboard and video projector</li> </ul>
<b>5.2 to conduct practical activities</b>	<ul style="list-style-type: none"> <li>Application room with computer network - with software installed individually on all workstations</li> </ul>

#### 6. Specific competencies acquired through this discipline

Specific competencies	<ul style="list-style-type: none"> <li>Deepening the knowledge in the field of measuring and analyzing the quality of products using a computer</li> <li>Acquisition of scientific research skills in the field of quality</li> </ul>
Professional competencies ascribed to the specific competencies	<ul style="list-style-type: none"> <li>CP2. Capabilities in the field of quality management</li> <li>CP3. Capabilities in analyzing and testing the performance of mechatronic systems</li> </ul>
Transversal competencies ascribed to the specific competencies	<ul style="list-style-type: none"> <li>CT2. Fulfilling the professional tasks with the exact identification of the objectives to be achieved, the available resources, the conditions for their completion, the work stages, the working time and the related deadlines</li> </ul>

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

<b>7.1</b> The general objective of the discipline	<ul style="list-style-type: none"> <li>Training skills for the use of information technology in quality analysis</li> </ul>
<b>7.2</b> Specific objectives	<ul style="list-style-type: none"> <li>Knowledge of methods and means of data processing for quality management</li> </ul>

#### 8. Content

<b>8.1</b> Course	Number of hours	Teaching methods
Acquisition and processing of measurement data. Statistical processing. Graphic representations. Optimization	4	Classics - on the board with explanations Modern - presentation with explanations with electronic material
Transducers and sensors for measuring technological parameters	2	
Analog and digital signals	2	
Analog to digital converters	2	
Adapters for transducers and sensors	2	
The structure of a data acquisition board	2	
Method of selecting a data acquisition board for a given technological installation	2	
Elements of mathematical statistics	2	
Statistical data processing and display of results	2	
Vision on the technological process from the perspective of error	4	

generating sources		
Errors. Deviations. Tolerances	2	
Measurement methods and instruments	2	
Bibliography <sup>11</sup> 1.SAP R/3 Prozessorientiert Anwenden – Iteratives Prozess-Prototyping mit Ereignisgesteuerten Prozessketten und Knowledge Maps, Addison-Westley, ISBN 3 8273 1496 8 2. Measuring Instruments and Systems – General Catalog, Schut Geometrical Metrology, Schut.com. 3. Drăgulănescu, Nicolae – Impactul transpunerii sistemului calității din UE în anumite sectoare industriale din România, Studiu publicat în 2003, de către Institutul European din România. 4. Grămescu, Traian, ș.a. – Calitatea și fiabilitatea produselor, Editura Tehnica-Info, Chișinău, 2002. 5. Popescu, Mihai – Aprecierea fiabilității folosind metrici software, Revista Informatică nr. 1 (13)/2000, pag. 41-50. 6. Rusu, Costache, s.a. – Bazele managementului calității, Editura Dacia, Cluj-Napoca, 2002		
<b>8.2 Applied activities<sup>12</sup></b>	<b>Number of hours</b>	<b>Teaching methods</b>
The theme of the laboratory works follows the main chapters of the course	14	Classics - on the board with explanations Modern - presentation with explanations with electronic material Practical - on the computer network
Statistical processing of measured data and drawing of suggestive graphical representations for the measured parameters	14	
Bibliography <sup>13</sup> 1.SAP R/3 Prozessorientiert Anwenden – Iteratives Prozess-Prototyping mit Ereignisgesteuerten Prozessketten und Knowledge Maps, Addison-Westley, ISBN 3 8273 1496 8 2. Measuring Instruments and Systems – General Catalog, Schut Geometrical Metrology, Schut.com		

**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**

- Through contacts with companies, the content of the discipline was discussed and agreed

**10. Evaluation**

Type of activity	10.1 Evaluation criteria <sup>14</sup>	10.2 Evaluation methods	10.3 Share of the final grade
10.4 Course	Learning the principles of	Written exam containing 5 topics from the	60%

<sup>11</sup> 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.

<sup>12</sup> The types of applied activities are those mentioned in 5. If the discipline contains 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:”.

<sup>13</sup> At least one title must belong to the staff teaching the discipline.

<sup>14</sup> The Syllabus must contain the evaluation method of the discipline, specifying the criteria, the methods 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.)

	global quality analysis. Ability to assimilate theoretical knowledge in the field of course topics	course syllabus and practical applications	
<b>10.5</b> Applied activities	<b>S:</b>		
	<b>L:</b> Ability to perform a computer-assisted quality analysis	Average grades obtained for each laboratory paper	20%
	<b>P:</b> Ability to perform a computer-assisted quality analysis	Project support with grade	20%
	<b>Pr:</b>		
	<b>Tc-R<sup>15</sup>:</b>		
<b>10.6</b> Minimum performance standard (minimum amount of knowledge necessary to pass the discipline and the way in which this knowledge is verified <sup>16</sup> )			
<ul style="list-style-type: none"> <li>• Evaluation note of the practical activities minimum 5 (five);</li> <li>• Minimum Exam Grade 5 (five)</li> </ul>			

**Date of completion**

01.12.2020

**Course coordinator  
(signature)**

**Coordinator of applied activities  
(signature)**

**Head of Department  
(signature)**

**Date of approval in the Faculty  
Council <sup>17</sup>**

**Dean  
(signature)**

<sup>15</sup> Tc-R= Homework-Reports

<sup>16</sup> 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](http://univagora.ro/m/filer_public/2012/10/21/ghid_de_completare_fisa_disciplinei.pdf)

<sup>17</sup> The approval is preceded by discussing the study program's board's point of view with redgards to the syllabus.