

SYLLABUS¹

1. Information about the program

1.1 Higher education institution	University Politehnica Timisoara
1.2 Faculty ² / Department ³	Faculty of Chemical Industry and Environmental Engineering / Applied Chemistry and Organic and Natural Compounds Engineering
1.3 Chair	—
1.4 Field of study (name/code ⁴)	Chemical Engineering / 10.30.20
1.5 Study cycle	Master Degree
1.6 Study program (name/code)/Qualification	Control and Approval of Food Products /10.30.20.20/Chemical Engineer, Food Chemistry, Control and Approval of Food Products

2. Information about the discipline

2.1 Name of discipline	Chemical reactivity and Biological Activity						
2.2 Coordinator (holder) of course activities	Assoc. Prof. Dr. Eng. MEDELEANU MIHAI						
2.3 Coordinator (holder) of applied activities ⁵	Lecturer Dr. Eng. BADEA VALENTIN						
2.4 Year of study ⁶	II	2.5 Semester	1	2.6 Type of evaluation	E	2.7 Type of discipline	optional

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

3.1 No. of hrs. / week	3 , of which:	3.2 course	2	3.3 seminar/laboratory/ project/training	1
3.4 Total no. of hrs. in the education curricula	42 , of which:	3.5 course	28	3.6 applied activities	14
3.7 Distribution of time for individual activities related to the discipline					hrs.
Study using a manual, course materials, bibliography and lecture notes					56
Additional documentation in the library, on specialized electronic platforms and on the field					26
Preparation for seminars / laboratories, homeworks, assignments, portfolios, and essays					28
Tutoring					6
Examinations					4
Other activities					
Total hrs. of individual activities					120
3.8 Total hrs. / semester ⁷	162				
3.9 No. of credits	8				

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.

4. Prerequisites (where applicable)

4.1 Curriculum	<ul style="list-style-type: none">organic chemistry, physical chemistry, structure and properties of molecules
4.2 Competencies	<ul style="list-style-type: none">

5. Conditions (where applicable)

5.1 of the course	<ul style="list-style-type: none">Classroom, video projector system, modeling programs
5.2 to conduct practical activities	<ul style="list-style-type: none">Computer network, modeling programs

6. Specific competencies acquired

Professional competencies ⁸	<ul style="list-style-type: none">A broader understanding of the bachelor studies or in the related field, acquiring of complementary competences in other areas, as well as development of scientific research capacityAn amount of specialty knowledge regarding the latest manufacturing technologies in the food industryAdvanced knowledge on the modern techniques of analysis and control for food products and related industryImproving the knowledge of optimal management of modern technological processes in the industry, knowledge of food safety management legislationThe development of the capacity of analysis and synthesis of new knowledge, increasing the capacity to identify new development directions of the field, as well as the identification of own professional development opportunities
Transversal competencies	<ul style="list-style-type: none">

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">Student training and advanced knowledge acquiring in the field of organic compounds reactivity and biological activity.
7.2 Specific objectives	<ul style="list-style-type: none">Methods to model the chemical reactivity and biological activity and interpretation of correlational equations

8. Content

8.1 Course	No. of hours	Teaching methods
Classic structural theory	2	Dashboard, oral presentatuin and videoprojector
Modern structural theory. Modeling in chemistry. Correlational analysis	4	

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.

Topological Model	2	
Molecular mechanics Model (Geometric)	2	
Quantum model	2	
Properties and Structure Quantification. Biological activity	4	
Linear Free Energy Relationships. The Hammett-Taft Equation	4	
Quantitative relationships setup and data interpretation	8	
Bibliography ⁹ D. Ciubotariu, S. Mureşan, V. Gogonea, M. Medeleanu, D. Dragoş <i>Metoda Hansch clasică. Parametri structurali pentru QSAR în Relații cantitative structură chimică – proprietăți. Metoda MTD.</i> Editori A. Chiriac, D. Ciubotariu, Z. Simon. Ed. Mirton Timișoara, 1996		
M. Medeleanu <i>Modelarea nanostructurilor</i> , ed. POLITEHNICA, Timisoara, 2013		
M.B. Smith, J. March <i>March's Advanced Organic Chemistry. Reactions, Mechanisms and Structure.</i> Wiley, 2001		
8.2 Applied activities¹⁰	No. of hours	Teaching methods
Structure of organic compounds. Modeling programs in chemistry	2	Practical work on computers
Conformational analysis. Rotational barrier	2	
Obtaining molecular descriptors through topological, geometrical and quantum methods	4	
Quantitative relationships. Correlation with properties	6	
Bibliography ¹¹ Individual laboratory datasheets available in electronic format		

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:”.

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

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

•

10. Evaluation

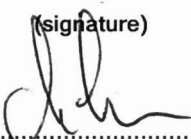
Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Share of the final grade
10.4 Course	Capacity of understanding and resolving exercises and problems	Final examination	66.67%
10.5 Applied activities	S:		
	L: Capacity of understanding, setup and finalizing a laboratory work	Discussions, exercises, ability to work with modeling programs	33.33%
	P:		
	Pr:		
10.6 Minimum performance standard (minimum amount of knowledge necessary to pass the discipline and the way in which this knowledge is verified)			
• Resolving at least 50% of written evaluation subjects and at least mark 5 to laboratory activity			

Date of completion

20.11.2015

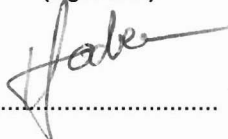
Course coordinator

(signature)



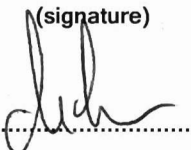
Coordinator of applied activities

(signature)



Head of Department

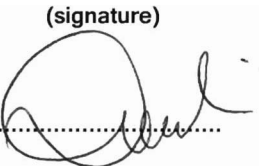
(signature)



Date of approval in the Faculty Council¹²

Dean

(signature)



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