SYLLABUS

1. Information about the program

1.1 Higher education institution	Politehnica University Timisoara
1.2 Faculty[1]/ Department [2]	Industrial Chemistry and Environmental Engineering / CAICON
1.3 Field of study (name/code[3])	Chemical Engineering / 10.30.50
1.4 Study cycle	License
1.5 Study program (name/code/qualification)	Chemical Engineering / 10.30.50.60 / engineer

2. Information about the discipline

2.1 Name of discipline/ formative category[4]			Organic Chemistry II / DD				
2.2 Coordinator (holder) of course activities			S.L. dr. ing. Valentin BADEA				
2.3 Coordinator (holder) of applied activities[5]			S.L. dr. ing. Iulia Pauşecu				
2.4 Year of study[6]	II	**2.5** Semester	4	**2.6** Type of evaluation	E	**2.7** Regime of discipline[7]	DI

3. Total estimated time – hours / semester: direct teaching activities (fully assisted or partly assisted) and individual training activities (unassisted) [8]

3.1 Number of fully assisted hours / week	4.5 of which:	**3.2** course	2.5	**3.3** seminar / laboratory / project	0/2/0
3.1* Total number of fully assisted hours / semester	63 of which:	**3.2*** course	35	**3.3*** seminar / laboratory / project	0/28/0
3.4 Number of hours partially assisted / week	of which:	**3.5** training		**3.6** hours for diploma project elaboration	
3.4* Total number of hours partially assisted / semester	of which:	**3.5*** training		**3.6*** hours for diploma project elaboration	
3.7 Number of hours of unassisted activities / week	4.43 of which:	additional documentary hours in the library, on the specialized electronic platforms and on the field			1
		hours of individual study after manual, course support, bibliography and notes			2
		training seminars / laboratories, homework and papers, portfolios and essays			1,45
3.7* Number of hours of unassisted activities / semester	62 of which:	additional documentary hours in the library, on the specialized electronic platforms and on the field			14
		hours of individual study after manual, course support, bibliography and notes			28
		training seminars / laboratories, homework and papers, portfolios and essays			20
3.8 Total hours / week [9]	8.93				
3.8* Total hours /semester	125				
3.9 Number of credits	5				

4. **Prerequisites** (where applicable)

4.1 Curriculum	• Organic chemistry I, Inorganic chemistry, mathematics, physics
4.2 Competencies	•

[1] The name of the faculty which manages the educational curriculum to which the discipline belongs
[2] The name of the department entrusted with the discipline, and to which the course coordinator/holder belongs.
[3] The code provided in HG - on the approval of the Nomenclature of fields and specializations / study programs, annually updated.
[4] Discipline falls under the educational curriculum in one of the following formative disciplines: Basic Discipline (DF), Domain Discipline (DD), Specialist Discipline (DS) or Complementary Discipline (DC).
[5] Application activities refer to: seminar (S) / laboratory (L) / project (P) / practice/training (Pr).
[6] Year of studies in which the discipline is provided in the curriculum.
[7] Discipline may have one of the following regimes: imposed discipline (DI) or compulsory discipline (DOb)-for the other fundamental fields of studies offered by UPT, optional discipline (DO) or optional discipline (Df).
[8] The number of hours in the headings 3.1 *, 3.2 *, ..., 3.8 * is obtained by multiplying by 14 (weeks) the number of hours in headings 3.1, 3.2, ..., 3.8. The information in sections 3.1, 3.4 and 3.7 is the verification keys used by ARACIS as: (3.1) + (3.4) ≥ 28 hours / wk. and (3.8) ≤ 40 hours / wk.
[9] The total number of hours / week is obtained by summing up the number of hours in points 3.1, 3.4 and 3.7.

5. Conditions (where applicable)

5.1 of the course	• Classroom with computer, video projector and board. It is forbidden the use of mobile phones for calls, messages and recording the activities in the classroom
5.2 to conduct practical activities	• Chemistry laboratory with specific equipment for organic chemistry. Protective clothing, glasses and gloves are mandatory. It is forbidden the use of mobile phones for calls, messages and recording the activities in the classroom

6. Specific competencies acquired through this discipline

Specific competencies	• Understanding the fundamental concepts and theories of applied chemistry in the field of organic chemistry. The ability to apply in practice the theoretical concepts, to make correlations with other knowledges from chemistry and other related sciences. • The ability to work in a team to resolve problems and use modern methods to get scientific information, including the use of the library
Professional competencies ascribed to the specific competencies	• - Analyzes production processes for improvement • - Manages chemical analysis procedures • - Tests materials • - Writes technical reports • - Performs chemical experiments • - Approves engineering projects • - Manages the environmental impact of operations.
Transversal competencies ascribed to the specific competencies	• - Conducts quality control; • - Applies scientific, technological and engineering knowledge; • - Uses equipment, instruments or technological equipment with precision

7. Objectives of the discipline (based on the grid of specific competencies acquired - pct.6)

7.1 The general objective of the discipline	• Understanding and learning the basic concepts in organic chemistry for all the students in the field of chemical engineering, no matter the specific program they will follow
7.2 Specific objectives	• Organic chemistry II will continue with basic structural and reactivity. • Systematic description of structure and properties of organic compounds belonging to organic functional groups not presented in the first part: oxygen compounds (alcohols, phenols, ethers), sulfur compounds, nitrogen and phosphorous, organo-metallic compounds, carbonyl and carboxyl compounds and derivatives • Major applications of organic chemistry

8. Content [10]

8.1 Course	Number of hours	Teaching methods [11]
Compounds with monovalent organic function oxygen, nitrogen, phosphorous, organo-metallics – structure and properties	10	Interactive dissertation. Video projector, computer, internet connection
Compounds with bivalent organic function: carbonyl, carboxyl and derivatives with sulfur and nitrogen	10	
Compounds with trivalent organic function: carboxylic acids and derivatives	10	
Carbonic acid derivatives and heterocyclic compounds - general presentation; Industrial applications of organic chemistry	5	

[10] It details all the didactic activities foreseen in the curriculum (lectures and seminar themes, the list of laboratory works, the content of the stages of project preparation, the theme of each practice stage). The titles of the laboratory work carried out on the stands shall be accompanied by the notation "(*)".
[11] Presentation of the teaching methods will include the use of new technologies (e-mail, personalized web page, electronic resources etc.).

Bibliography [12] [13] T.W. Graham Solomons, Craig B. Fryhle, Organic Chemistry, 9th Edition, Wiley Publishing, 2007
2. Margareta Avram, Chimie Organică, vol I şi II, Ed. Zecasin, Bucureşti, ediţia a II-a, 1994.
3. R. Bacaloglu, C. Csunderlik, Curs de Chimie Organică, vol. I-IV, Institutul Politehnic „Traian Vuia", Timişoara 1983-1985
4. J. Clayden, N. Greeves, S. Warren – Organic Chemistry – Oxford Univ. Press., 2012
5. *** Note de curs online

8.2 Applied activities [14]	Number of hours	Teaching methods
Laboratory: work safety rules; acetanilide synthesis	2	Talks about subject, analysis and set-up the experiment; results, conclusions, test
Laboratory: organic syntheses	20	
Laboratory: Summary applications; reactions of organic compounds	6	

Bibliography [15] 1. I. Iorga, D. Ciubotariu, M. Medeleanu, Ariana Moraru, Diana Oana, Marcela Silaşi - Lucrări practice de chimie organică, U. T. Timişoara 1992
2. *** - ORGANICUM – manual de lucrări practice
3. Referate lucrări
4. J. Gilbert, St.F. Martin – Experimental Organic Chemistry, Brooks/Cole Laboratory Series for Organic Chemistry 5th, 2011

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 subjects of Organic Chemistry II are in agreement with similar subjects in Romania and abroad, and with the expectations of professional associations and representative's employers in the field

10. Evaluation

Type of activity	**10.1** Evaluation criteria [16]	**10.2** Evaluation methods	**10.3** Share of the final grade
10.4 Course	Knowledge of fundamental items of organic chemistry and ability to apply them	Written examination, based on questions an problems with different difficulty degrees to evaluate the knowledges, the way of thinking and the ability of correlation and synthesis	0.66
10.5 Applied activities	**S:**		
	L: The ability to work in a team, the degree of understanding the laboratory work and the acquired abilities in practical work	Permanent evaluation through talks and tests	0.34

[12] At least one title must belong to the discipline team and at least one title should refer to a reference work for discipline, national and international circulation, existing in the UPT library.
[13] At least one title must belong to the discipline team and at least one title should refer to a reference work for discipline, national and international circulation, existing in the UPT library.
[14] Types of application activities are those specified in footnote 5. If the discipline contains several types of applicative activities then they are sequentially in the lines of the table below. The type of activity will be in a distinct line as: "Seminar:", "Laboratory:", "Project:" and / or "Practice/training".
[15] At least one title must belong to the discipline team.
[16] Syllabus must contain the procedure for assessing the discipline, specifying the criteria, methods and forms of assessment, as well as specifying the weightings assigned to them in the final grade. The evaluation criteria shall be formulated separately for each activity foreseen in the curriculum (course, seminar, laboratory, project). They will also refer to the forms of verification (homework, papers, etc.)

	P[17]**:**		
	Pr:		
10.6 Minimum performance standard (minimum amount of knowledge necessary to pass the discipline and the way in which this knowledge is verified [18])			
• Demonstration of acquired knowledge and the use of them in resolving assignments. Examination is passed with minimum mark 5. • Laboratory and seminar: Permanent evaluation through talks and tests. Evaluation is passed with minimum mark 5			

Date of completion	**Course coordinator (signature)** S.L. dr. ing. Valentin BADEA	**Coordinator of applied activities (signature)** S.L. dr. ing. Iulia Pauşecu
Head of Department (signature) S.L.dr.ing. Andra TĂMAŞ	**Date of approval in the Faculty Council** [19]	**Dean (signature)** S.L.dr.ing. Mircea DAN

[17] In the case where the project is not a distinct discipline, this section also specifies how the outcome of the project evaluation makes the admission of the student conditional on the final assessment within the discipline.
[18] It will not explain how the promotion mark is awarded.
[19] The endorsement is preceded by the discussion of the board's view of the study program on the discipline record.