

SYLLABUS ¹

1. Information about the program

1.1 Higher education institution	Politehnica University Timisoara
1.2 Faculty ² / Department ³	Civil Engineering Faculty / Civil Constructions and Installations Department
1.3 Chair	—
1.4 Field of study (name/code ⁴)	Civil Engineering / 80
1.5 Study cycle	bachelor
1.6 Study program (name/code/qualification)	Civil Engineering / 10 / Civil Engineer

2. Information about the discipline

2.1 Name of discipline/ formative category ⁵	Introduction in Thermodynamics / DF						
2.2 Coordinator (holder) of course activities	Assoc. Prof. PhD. Eng. BRATA Silviana						
2.3 Coordinator (holder) of applied activities ⁶	Assoc. Prof. PhD. Eng. BRATA Silviana						
2.4 Year of study ⁷	II	2.5 Semester	3 I	2.6 Type of evaluation	D	2.7 Type of discipline ⁸	DI I

3. Total estimated time – hours / semester: direct teaching activities (fully assisted or partly assisted) and individual training activities (unassisted) ⁹

3.1 Number of fully assisted hours / week	3 of which:	3.2 course	2	3.3 seminar / laboratory / project	1
3.1* Total number of fully assisted hours / semester	42 of which:	3.2* course	28	3.3* seminar / laboratory / project	14
3.4 Number of hours partially assisted / week	of which:	3.5 training		3.6 hours for diploma project elaboration	0
3.4* Total number of hours partially assisted / semester	of which:	3.5* training		3.6* hours for diploma project elaboration	0
3.7 Number of hours of unassisted activities / week	2 of which:	additional documentary hours in the library, on the specialized electronic platforms and on the field			0,5
		hours of individual study after manual, course support, bibliography and notes			1
		training seminars / laboratories, homework and papers, portfolios and essays			0.5
3.7* Number of hours of unassisted activities / semester	14 of which:	additional documentary hours in the library, on the specialized electronic platforms and on the field			7
		hours of individual study after manual, course support, bibliography and notes			14
		training seminars / laboratories, homework and papers, portfolios and essays			7
3.8 Total hours / week ¹⁰	5				
3.8* Total hours /semester	70				
3.9 Number of credits	3				

4. Prerequisites (where applicable)

¹ The form corresponds to the Discipline File promoted by OMECTS 5703 / 18.12.2011 and to the requirements of the ARACIS Specific Standards valid from 01.10.2017.

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 The code provided in HG no.140 / 16.03.2017 or similar HGs updated annually shall be entered.

⁵ 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).

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

⁷ Year of studies in which the discipline is provided in the curriculum.

⁸ Discipline may have one of the following regimes: imposed discipline (DI), optional discipline (DO) or optional discipline (Df).

⁹ 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.

¹⁰ The total number of hours / week is obtained by summing up the number of hours in points 3.1, 3.4 and 3.7.

4.1 Curriculum	<ul style="list-style-type: none"> • Introduction in Computer Programming, Physics 1
4.2 Competencies	<ul style="list-style-type: none"> • Learning the fundamentals of curriculum prerequisites • Documentation in Romanian and English technical language

5. Conditions (where applicable)

5.1 of the course	<ul style="list-style-type: none"> • Classroom of medium capacity, Support Materials: laptop, projector, projection screen, whiteboard
5.2 to conduct practical activities	<ul style="list-style-type: none"> • Classroom of medium capacity, Support Materials: laptop, projector, projection screen, whiteboard.

6. Specific competencies acquired through this discipline

Specific competencies	Understanding fundamental concepts in thermodynamics in design of building elements
Professional competencies ascribed to the specific competencies	<ul style="list-style-type: none"> • Design of structural elements in civil engineering, specific to graduated study programme • Complying to quality and sustainable requirements for civil, industrial and agricultural constructions
Transversal competencies ascribed to the specific competencies	<ul style="list-style-type: none"> • Documentation in Romanian and foreign language, in view of professional and personal development, via continuous learning and efficient adaptation to the new technical specifications

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

7.1 The general objective of the discipline	<p>The objective of this course is to establish an understanding of fundamental concepts in thermodynamics, to provide students a basis for the courses Building Physics and Building Services.</p> <ul style="list-style-type: none"> •
7.2 Specific objectives	<ul style="list-style-type: none"> • to teach use of thermodynamics in design of building elements, with complying to quality and sustainability requirements specific to civil engineering constructions, 70%; • - efficient use of sources of information and communication resources, training assisted (Internet portals, specialized software applications, databases, online courses, etc.) both in Romanian and in a foreign language: 30% .

Bibliography ¹⁵ 1. Brata Silvana, Ostafe Petru – Termotehnica, Editura Politehnica Timisoara, 2013 2. Brata Silvana, Dobosi Ioan Silviu, Pescari Simaon -Alexandru, Maduta Carmen, Bistran Ioan – Certificarea performnatei energetice a cladirilor, Editura Politehnica Timisoara, 2015 3. ASHRAE Handbook - Fundamentals, American Society of Heating, Refrigerating and Air Conditioning Eng., New York, 2017 4. Jan F. Kreider, Ari Rabl – Heating and Cooling of Buildings, Mc Graw-Hill, Inc., 1994 5. Nellis, G., Klein S. – Heat Transfer, Cambridge University Press, 2009 6. SR EN ISO 7730 - Ergonomics of the thermal environment - Analytical determination and interpretation of thermal comfort using calculation of the PMV and PPD indices and local thermal comfort criteria 7. HEAT3 4.0 – Computational program for 3D transient heat transmission		

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

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| <ul style="list-style-type: none"> Completing the discipline content in accordance with didactic books, with theoretical and practical elements of professional associations textbooks, norms, standards. |
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10. Evaluation

Type of activity	10.1 Evaluation criteria ¹⁶	10.2 Evaluation methods	10.3 Share of the final grade
10.4 Course	- Understanding of concepts taught in every introductory theme and linked the notions - The correct approach to applications - Dexterity computing. Ensure recognition of the progressive accumulation	Written distributed evaluation lasting 1 hour Grade 10 is given for obtaining 95% of the maximum score in each subject (application) and minimum grade 9 course activity. The final grade is apparent considering share notes on paper with $k_1 = 0.5$, respectively activity during semester, with $k_2 = 0.5$.	50%
10.5 Applied activities	S: individually solving of applications	The attendance is monitored	50%
	L:		
	P¹⁷:		
	Pr:		
10.6 Minimum performance standard (minimum amount of knowledge necessary to pass the discipline and the way in which this knowledge is verified¹⁸)			
<ul style="list-style-type: none"> grade 5 is secured when promoting the applications hours and obtaining 50% of the total points at all subjects. 			

Date of completion

January 17th, 2018

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 Council¹⁹

12.02.2018

Dean (signature)

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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.)

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.

