COURSE OUTLINE

of the class 2022 - 2026

Transilvania University of Braşov

Bachelor's degree
study programme
INDUSTRIAL DESIGN (in English)

Fundamental field
ENGINEERING SCIENCES

Bachelor's degree study field
INDUSTRIAL ENGINEERING

Faculty
PRODUCT DESIGN AND ENVIRONMENT

Duration of studies:
4 YEARS

Form of education:
Full-time (IF)

1. EDUCATIONAL OBJECTIVES AND COMPETENCES

General objective of the study programme: training of Industrial Design engineers, with skills in the design and development of products through design (design specifications, conceptual design, embodiment design), prototyping, promotion, implementation, exploitation and decommissioning.

The objectives and the profile of competencies developed in accordance with the needs identified on the labour market and with the national qualifications framework are summarized below and detailed in the syllabi of the curriculum.

Objectives

To provide the set of general knowledge and skills in the field of engineering sciences, and those applied in product design and development.

To provide the theoretical and practical toolkit for identifying, interpreting and solving problems in the field of industrial engineering and, in particular, in product design and development.

To provide professional and transversal competencies necessary to the Industrial Design engineer, which ensure a quick insertion of the graduates on the national and / or international labour market and skills of action in a social context.

To ensure the quality of learning processes and outcomes in compliance with current national legislation, norms and standards.

Professional competences

To perform calculations, demonstrations and applications, to solve tasks specific to industrial engineering based on knowledge from fundamental sciences

To associate knowledge, principles and methods from the technical sciences of the field with graphic representations for solving specific tasks

To use software applications and digital technologies to solve tasks specific to industrial engineering, in general, and industrial design, in particular

To associate industrial design knowledge in order to harmonize functional, constructive, technological aspects with aesthetic, ergonomic and ecological aspects

To apply creativity techniques in the development of new products and management of the product throughout its life cycle

To associate industrial design knowledge with classical and digital techniques of artistic creation for product promotion

Transversal competences

To apply the values and ethics of the engineering profession and the responsible execution of professional tasks under conditions of limited autonomy and qualified assistance. To promote logical, convergent and divergent reasoning, practical applicability of evaluation and self-evaluation in decision-making

To carry out the activities and exercise the specific team work roles on different hierarchical levels. To promote the spirit of initiative, dialogue, cooperation, positive attitude and respect for others, diversity and multiculturalism and the continuous improvement of one's own activity

To self-assess objectively the need for continuous professional training under the purpose of insertion on the labour market and adaptation to the dynamics of its requirements and for personal and professional development. To use effectively language skills, information knowledge and communication technology.

2. STRUCTURE PER WEEKS OF THE ACADEMIC YEAR

Number of semesters: 2

Number of credits per semester: 30

Number of hours of teaching activities /week: 26-28

Number of weeks: 14

	Teaching	activities	E	xam sessio	ns	Internship		Holidays	
	Sem. I	Sem. II	Winter	Summer	Retakes	internsinp	Winter	Spring	Summer
Year I	14	14	4	4	2	-	3	1	10
Year II	14	14	4	4	2	3	3	1	10
Year III	14	14	4	4	2	3	3	1	10
Year IV	14	10	3	3	1	4	3	1	-

Depending on the specifics of the study programme, the internship is organized all together and / or along the semesters.

3. PROVISION OF EDUCATION FLEXIBILITY. CONDITIONINGS

The flexibilization of the study programme is ensured by optional disciplines and facultative disciplines. The disciplines at choice (optional) are proposed starting with the second semester and are grouped into optional subjects or optional packages, which completes the student's specialization route. The choice of the route is made by the student in the academic year prior to the conduct of the optional subjects or packages (except the options for the second semester, which are expressed in the first semester).

The courses of the **facultative disciplines** are organized through the *Centre for Continuing Education* (CFC). In the curriculum of each bachelor's study programme, only the modules and the corresponding number of hours are recorded; the name of the discipline is to be entered in the academic record according to the student's option. The facultative disciplines proposed by the faculties or the disciplines of other study programmes chosen by the student are grouped into 5 modules:

- a) Module A (socio-humanistic disciplines)
- b) Module B (Romanian and other modern languages)
- c) Module C (computer-science disciplines, TIC)
- d) Module D (technical disciplines)
- e) Module E (sports disciplines).

The procedure for conducting teaching activities within the facultative disciplines and for registering the grades / qualifiers in the Diploma Supplement is presented in the *Regulations on students' professional activity* and in the Instruction *Initiation and conduct of facultative disciplines*. The credits for the facultative disciplines are allocated after taking the course graduation colloquium. The credits obtained in the facultative subjects do not replace the credits for compulsory and optional subjects.

4. CONDITIONS FOR PASSING IN THE FOLLOWING STUDY YEAR. CONDITIONS FOR PASSING A STUDY YEAR

The conditions for being enrolled in the following year, the conditions for attending course modules in advance, the conditions for passing are included in *Regulations on students' professional activity*.

5. BACHELOR'S DEGREE FINAL EXAMINATION

Period of drafting the bachelor's degree project: starting with the penultimate semester of studies. Completion of the bachelor's degree project: in the last semester of studies.

Period of defending the bachelor's degree project: in the session June-July of the last study year. Number of credits for defending the bachelor's degree project: 10 credits (in addition to the 240).

6. PREPARATION FOR FILLING BY COMPETITION A TEACHING POSITION

In order to fill by competition a vacancy in education, the graduate has to hold the Certificate of Graduation of the Psycho-pedagogical Training Programme - 1st level for secondary education and the Certificate of Graduation of the Psycho-pedagogical Training Programme - 2nd level for high school, post-high school or higher education. The 1st and 2nd level psycho-pedagogical training programmes are organized and coordinated by the Teacher Training Department (DPPD) according to the legislation in force.

The certification of competences for the teaching profession can be obtained at two levels, respectively:

- 1st level (initial) which grants university graduates the right to fill teaching positions in secondary education, provided that they accumulate a minimum of 30 transferable credits from the psychopedagogical training programme;
- 2nd level (advanced) which grants university graduates the right to fill teaching positions in high school, post-high school or higher education, provided they meet two conditions:
- accumulation of a minimum of 60 transferable credits from the psycho-pedagogical training programme;
- graduation of a master's programme in the field of bachelor's degree diploma.

The 1st and 2nd level psycho-pedagogical training programmes are completed with a graduation exam for each certification level.

7. STUDY DISCIPLINES PER YEARS

Faculty: Product Design and Environment

Bachelor's degree study programme: Industrial Design (in English)

Fundamental field: Engineering Sciences Bachelor's degree field: Industrial Engineering

Duration of studies: 4 years Form of education: Full-time Ministry of Education

Valid in the academic year 2022-2023

Aprobat în ședința
Senatului Universității Transilvania
din Brașov din data de
...24 Septembrie 2022

YEAR I

				Cadaat		YEAR					-							
No.	Discipline	C ₁ *	C2"	Code of discipline	С	S	L	P	Ster I	V	Cr	С	S	L	eme	ster II	V	Cr
1.	Mathematical Analysis	FC	CPC	MAT1	2	2	-		44	E	4	-	3	-	-	31	V	CI
2.	Chemistry	FC	CPC	CHIM	2		1		58	Е	4							
3.	Technical Drawing and Computer Graphics I	FC	CPC	DTIF	2		2		44	Е	4							
4.	Computer Programming and Programming Languages I	FC	CPC	IDPC1	2		2		44	С	4							
5.	Descriptive Geometry	FC	CPC	GEOD	2		1		58	С	4							
6.	Physics	FC	CPC	FIZ1	2		2		44	Е	4							
7.	Industrial Design Fundamentals I	DC	CPC	IDDI	1	1			47	С	3							
8.	Materials Science and Engineering I	DC	CPC	STMA								4		2		66	Е	6
9.	Linear Algebra, Analytical and Differential Geometry	FC	CPC	MAT2								2	2			44	E	4
10.	Technical Drawing and Computer Graphics II	FC	CPC	DTI2								2		2		44	С	4
11.	Computer Programming and Programming Languages II	FC	CPC	IDPC2								2		2		44	Е	4
12.	Mechanics	DC	CPC	MEC1								3	2			80	E	6
13.	Artistic Drawing	SC	CPC	IDDS										2		47	С	3
14.	French German Spanish	СС	CPC	LF01/ LF02 LG01/LG02 LS01/LS02	1	1			47	С	3	1	1			47	С	3
15.	Physical education and sports I, II	СС	CPC	EF01/EF0 2		1			11	A/R	1		1			11	A/R	1
	Tota	d			14	5	8	0	397	E C		14	6	8	0	383	E C 4 3	30 +1
	Total teaching ho	urs pe	r week	(-		27								8		
-															_			

No.	Facultative	C ₁	c."	Code			Se	mes	ter I					9	Seme	ester II		
1401	disciplines		C ₂	code	С	S	L	P	SI	V	Cr	С	S	L	Р	SI	V	Cr
1.	MODULE A (socio-	SC	NCPC		2	1			33	С	3							

MODULE B (modera				1 2			T		T						
languages)	CC	NCPC		2			33	С	3	2	1		33	С	3
MODULE C (computer science)	sc	NCPC								2		1	33	С	3
MODULE D (technical)	SC	NCPC								7		1	-		
MODULE E (sports)	CC	NCPC			2		22		2		2	-	22	C	3
	languages) MODULE C (computer science) MODULE D (technical)	Ianguages) MODULE C (computer science) MODULE D (technical) SC	Ianguages)	Ianguages) MODULE C (computer science) MODULE D (technical) SC NCPC	Ianguages) MODULE C (computer science) MODULE D (technical) SC NCPC	Ianguages) MODULE C (computer science) MODULE D (technical) SC NCPC MODULE E (sports) CC NCPC	Ianguages) MODULE C (computer science) MODULE D (technical) SC NCPC MODULE E (sports) CC NCPC	Ianguages) MODULE C (computer science) MODULE D (technical) SC NCPC MODULE D (technical) SC NCPC	Ianguages) MODULE C (computer science) MODULE D (technical) SC NCPC MODULE D (technical) CC NCPC	Ianguages) MODULE C (computer science) MODULE D (technical) SC NCPC MODULE D (technical) CC NCPC	Ianguages) CC NCPC SS 2	Ianguages	Ianguages	Ianguages	Ianguages)

Legend:

C₁* = *criterion of content*:

FC -fundamental course

DC – courses in the field (where applicable)

SC – specialized course

CC – complementary courses

 C_2 " = criterion of obligation.

CPC – compulsory subjects (imposed)

EC -optional disciplines

NCPC –facultative disciplines

SI = individual study hours

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Rector

Prof.dr.eng. Luciana CRISTEA

Head of Department

Prof.dr.eng. Codruța JALIU

Dean

Prof.dr.eng. Codruța JALIU

Coordinator of study programme

Faculty: Product Design and Environment

Bachelor's degree study programme: Industrial Design (in English)

Fundamental field: Engineering Sciences Bachelor's degree field: Industrial Engineering

Duration of studies: 4 years Form of education: Full-time Ministry of Education Valid in the academic year 2023-2024

YEAR II

					YE	ARI	1							-				
No.	Discipline	C ₁ *	C2"	Code of			S	eme	ster II	I				S	em	ester l	V	
IVO.	Discipline	C1	C ₂	discipline	С	S	L	Р	SI#	V	Cr	С	S	L	Р	SI	V	Cr
1.	Special Mathematics	FC	CPC	MASP	2	2			44	E	4							
2.	Measurement Techniques and Systems	DC	СРС	TOCD	2		2		44	Е	4							
3.	Strength of Materials	DC	СРС	REZ1	2	2	1		55	E	5							
4.	Industrial Design Fundamentals II	DC	CPC	BDP	1		1		47	С	3							
5.	Technical Drawing and Computer Graphics III	FC	СРС	IDMODE	2		2		44	С	4							
6.	Communication Skills-Ethics	СС	CPC	IDCOM	1	1			22	С	2							
7.	Strength of Materials	DC	CPC	REZ2								3	1	1		30	Е	4
8.	Fluid Mechanics	DC	CPC	MEFM								2		2		19	Е	3
9.	Machine Elements I	DC	CPC	IDORM1								2		1	1	44	E	4
10.	Numerical Methods	FC	CPC	IDMNI								2		2		44	Е	4
11.	Mechanisms I	DC	CPC	IDMECA								3		1	2	41	Е	5
12.	Practical work 90 hours	DC	CPC	IDPr04												10	С	4
	(O1) Electrical Engineering	DC	EC	ELEA														
13.	(O1) Electrical Machines and Actuators	DC	EC	MAEID	2		2		69	E	5							
11	(O2) Industrial Management	DC	EC	IDMANF														
14.	(O2) Quality Management	DC	EC	IDMC								1	1			47	С	3
	French			LF03/LF04														
15.	German	CC	CPC	LG03/LG04	1	1			47	С	3	1	1			47	С	3
	Spanish			LS03/LS04														
16.	Physical education and sports III, IV	СС	CPC	EF03/EF04		1			11	A/R	1		1			11	A/R	1
	Tota	al			13	7	8	0	383	E C 4 4	30 +1	14	4	7	3	293	E C	
	Total teaching h	ours p	er wee	k					28						-	28		

No.	Facultative	C ₁	c."	Code			S	eme	ster I					5	em	ester l	ı	
140.	disciplines		C2	code	С	S	L	Р	SI	V	Cr	С	S	L	P	SI	V	Cr

1.	MODULE A (socio-	sc	NCPC	2	1	33	С	3							
2.	MODULE B (modern languages)	СС	NCPC	2	1	33	С	3	2	1		3	33	С	3
3.	MODULE C (computer science)	SC	NCPC						2		1	3	33	С	3
4.	MODULE D (technical)	SC	NCPC						2		1	3	33	С	3
5.	MODULE E (sports)	CC	NCPC		2	22	С	2		2		2	22	С	2

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Head of Department	Coordinator of study programme

Faculty: Product Design and Environment

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Bachelor's degree study programme: Industrial Design (in English)

Fundamental field: Engineering Sciences Bachelor's degree field: Industrial Engineering

Duration of studies: 4 years Form of education: Full-time Ministry of Education Valid in the academic year 2024-2025

YEAR III

						YEA	R III												
No.	Discipline	C ₁ ·	C2"	Code of			S	eme	ester II	ı				Se	me	ster IV			
NO.	Discipline	L ₁	C ₂	discipline	C	S	L	P	SI#	V	Cr	C	S	L	P	SI	V		Cr
1.	Manufacturing Technologies and Cutting Tools	DC	CPC	IDTASA	2		1		33	С	3								
2.	Machine Elements II	DC	CPC	IDORM2	2	1	1	2	66	Е	6								
3.	Heat Engineering and Thermal Machines	DC	CPC	TERM	2		1		33	E	3								
4.	Materials Science and Engineering II (Special Materials)	DC	CPC	IDMS05	1		2		33	С	3								
5.	Conceptual Design I	DC	CPC	IDSPD5	2			2	69	С	5								
6.	Finite Element Analysis	DC	CPC	IDMEF5	2		2		69	Е	5								
7.	Aesthetics and Ergonomics	SC	CPC	IDEE05	2			2	69	E	5					7			
8.	Computer Aided Shape Modelling in Design	SC	CPC	ID MAF06								2		1	1	44	E		4
9.	Mechanisms II (Computer Aided Modelling)	DC	CPC	MAS06								3		2	1	66	Е		6
10	Form-giving in Design I (Mock-up making)	SC	СРС	IDMa06								2		1		33	C		3
11	Conceptual Design II	DC	СРС	IDDC06								2		1		33	E		3
12.	Conceptual Design II project	DC	CPC	IDDC06P											2	22	C		2
13.	Practical work 90 hours	SC	СРС	IDPr06												10	C		4
14.	(O3) Study of Colour for Design	SC	EC	IDCDP6															
14.	(03) Sustainable Product Design	SC	EC	IDDD06								2		3		55	E		5
15.	(O4) Design (semiotics)	DC	EC	IDDS06								2		1		33	C		3
	(O4) Tribology	DC	EC	IDTR06															
	Tot	:al			13	1	7	6	372	E C	30	13	0	9	4	296	E 4	C 4	30
	Total teaching h	ours p	er wee	ek		-	-		27						7	26			

NI-	Facultative	٠.	c "	5-1-			S	eme	ster I					S	emes	ster II		
No.	disciplines	C ₁ *	C2**	Code	С	S	L	P	SI	V	Cr	С	S	L	Р	SI	V	Cr
1.	MODULE A (socio-	SC	NCPC		2	1			33	С	3							
2.	MODULE B (modern languages)	СС	NCPC		2	1			33	С	3	2	1			3	С	3
3.	MODULE C (computer science)	SC	NCPC									2		1		3	С	3
4.	MODULE D (technical)	SC	NCPC									2		1		3	С	3
5.	MODULE E (sports)	СС	NCPC			2			22	С	2		2			2 2	С	2

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Head of Department	Coordinator of study programme

Faculty: Product Design and Environment

Bachelor's degree study programme: Industrial Design (in English)

Fundamental field: Engineering Sciences Bachelor's degree field: Industrial Engineering

Duration of studies: 4 years Form of education: Full-time Ministry of Education Valid in the academic year 2025-2026

YFAR IV

	processor the same transfer of				YE	ARI	V											
No.	Discipline	C ₁ ·	C2"	Code of			Se	me	ster III					S	eme	ester l'	V	
140.	Discipline	C1	C ₂	discipline	С	S	L	P	SI [#]	V	Cr	С	S	L	Р	SI	V	Cr
1.	Actuation, Command and Control of Mechanical Systems	SC	CPC	IDACC7	3		3		91	E	7							
2.	Embodiment Design	SC	CPC	DC07	2				47	E	3							
3.	Embodiment Design - project	SC	CPC	DC07Pr				2	22	С	2							
4.	Design of Mechatronic Products	SC	CPC	IDMDP7	2			2	44	С	4							
5.	Product Design for Solar Energy Conversion	SC	CPC	CFD07	2		1		33	С	4							
6.	Graphic Design	SC	CPC	IDDG7	2			1	33	E	3							
7.	Project Management (10 weeks)	SC	CPC	MP08								1	1			30	С	2
8.	Creativity and Innovation in Design (10 weeks)	SC	CPC	CID08								2		1		45	E	3
9.	Innovation Management in Product Design (10 weeks)	SC	CPC	MINOVID								2			2	35	Е	3
10.	Virtual Prototyping (10 weeks)	SC	СРС	PV08								2		1	2	50	Е	4
11.	Web-design (10 weeks)	SC	СРС	CDP08								2		1		45	С	3
12.	Detail Design (10 weeks)	SC	СРС	PD08								2			2	60	С	4
13.	Elaboration of the Diploma Project (14 weeks x 4 hours)	SC	CPC	IDPRD											4	44	С	4
14.	Practical Work for the Elaboration of the Diploma Project (4 weeks.x 24 hours)	SC	CPC	Pr08												4	С	4
	(O5) Object Design	SC	EC	D007		11.13				955						0.959		
15.	(O5) Form-giving in Design II	SC	EC	CES07	1		2		58	С	3							
16.	(06) Eco-design and Product Recycling	SC	EC	RP07	-				,,			-						
10.	(06) Quality in Product Design	SC	EC	WD07	2		2		44	Е	4							

	Total teaching hours per week			27					28											
	Total			14	0	8	5	372	E 4	C 4	30	12	1	5	1	358	E 3	6	30	
17.	(07) Mechanical and tribological tests (10 weeks)	SC	EC	IMT08									1		2		45	C		3
	(07) Package Design (10 weeks)	SC	EC	IDDA08																

No.	Facultative	C1.	C ₂ "	Code	Semester I							Semester II						
IVO.	disciplines	C1	C ₂	Code	С	S	L	P	SI	V	Cr	С	S	L	Р	SI	V	Cr
1.	MODULE A (socio-	SC	NCPC		2	1			3	С	3							
2.	MODULE B (modern languages)	СС	NCPC		2	1			3	С	3	2	1			33	С	3
3.	MODULE C (computer science)	SC	NCPC									2		1		33	С	3
4.	MODULE D (technical)	SC	NCPC									2		1		33	С	3
5.	MODULE E (sports)	СС	NCPC			2			2 2	С	2		2			22	С	2

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Head of Department	Coordinator of study programme

Ministry of Education

Faculty: Product Design and Environment

Valid beginning with the academic year 2022-2023

Bachelor's degree study programme: Industrial Design (in English)

Fundamental field: Engineering Sciences Bachelor's degree field: Industrial Engineering

Duration of studies: 4 years Form of education: Full-time

GENERAL BALANCE SHEET I

No.	Disciplines		No	of hours		То	ARACIS		
		Year I	Year II	Year III	Year IV	ore	%	Standard *	
1	Compulsory	770	790	720	642/606	2922/2886	89,91%	<90%	
2	Optional	0	84	112	128	324	10,09 %	>10%	
	TOTAL		770	874	832	770/734	3246/3210	100%	
3	Facultative	266	266	266	222	1020	31,42%	>10%	

GENERAL BALANCE SHEET II

No.			No of	hours		To	tal	a D a G I G	
	Disciplines	Year I	Year II	Year III	Year IV	hours	%	ARACIS Standard *	
1	fundamental	476	168	0	0	644	20,06%	>17%	
2	field-specific	182	594	518	0	1294	40,31%	>38%	
3	specialized	28	0	314	770 / 734	1112 / 1076	33,52%	>25%	
4	complementary	84	112	0	0	196	6,11%	<8%	
	TOTAL	770	874	832	770 / 734	3246 / 3210	100%		

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	Tell of	
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