POLITEHNICA University of Bucharest (**UPB**)
Faculty of Industrial Engineering and Robotics **(FIIR)**
Study Programme: Industrial Engineering (**IE**)
Form of study: Licence (Bachelor)

COURSE SPECIFICATION

Course title:	TECHNICAL DRAWING	*Semester:*	3
Course code:	UPB.06.F.03.O.001	*Credits (ECTS):*	6

Course structure	Lecture	Seminar	Laboratory	Project	Total hours
Number of hours per week	2	1	2		5
Number of hours per semester	28	14	28		70

Lecturer	Lecture	Seminar / Laboratory / Project
Name, academic degree	Catalina ENACHE, Lecturer.	Ionel SIMION, Prof.
Contact (email, location)	catalina.enache@upb.ro BN324	catalina.enache@upb.ro BN324

Course description:
After completing this course the student will be able to: - read and interpret drawings conforming to ISO Standard drawing practice;   - represent geometric elements in various projection systems;   - use the arrangement of projections and rules for representing views;   - correctly represent the shapeof mechanical parts,   - produce fully dimensioned and annotated working drawings of engineering; component parts from dimensioned sketches or from measurements of component parts;   - generate freehand orthographic or pictorial views of engineering components working from pictorial or orthographic drawings;   - produce general assembly drawings of simple engineering products from detail drawings of their various component parts assisted by a general description listed in sequence of their method of assembly;   - represent the mechanical assemblies;   - represent toothed gears and gearing;   - represent bearings and shafts.
Seminar / Laboratory / Project description:
The primary goal is to learn the techniques and standard practices of engineering graphics, so that design ideas can be adequately communicated and produced. The applications focus on the concepts and skills necessary for realize technical drawings. The students must demonstrate the ability to produce formal working drawings which comply with the appropriate ISO Standards Specifications.
Intended learning outcomes:
To develop spatial thinking and the ability to translate two-dimensional representation into 3D images and vice versa.

To develop graphical skills including freehand sketching and drawings to scale.
To develop the ability to apply the basic principles of both plane and spatial geometry in the solution of practical problems.
The association of knowledge, principles and methods of the technical sciences in the field with graphical representations for solving specific tasks.

Assessment method:	% of the final grade	Minimal requirements for award of credits
Written exam	20%	For 5– must prove the ability to represent in projection mechanical parts and assemblies. For 10-must prove the ability to representinprojection complex mechanical parts andassembly; must demonstrate the ability to achieve the intersections of technicalsurface.
Seminar	30%	For 5-Achievea minimum of 50% of seminarscore(averagescoresof seminar work). Ability torepresent in projection technical parts andassembliesof average complexity. For 10-Achievea minimum of 95% of the laboratory score.Ability to representinprojection complex geometry, complex technical parts andassemblies.
Homework	10%	Achievement homework.
Laboratory	40%	For 5-Achieve a minimum of 50% of laboratory score(averagescoresof laboratory work). Ability torepresent in projection technical parts andassembliesof average complexity. For 10-Achievea minimum of 95% of the laboratory score.Ability to representinprojection complex geometry, complex technical parts andassemblies.
Other		

References:

1. Simion I - ENGINEERING DESIGN GRAPHICS - editura BREN, Bucureşti, 2014, ISBN 978-606-610-118-9.
2. Simion I. – DESEN TEHNIC – vol. 1, vol.2 – editura BREN, Bucureşti, ISBN 978-973-648-910-5, ISBN 978-973-648-911-5, 2010.
3. Simion I. – GRAFICĂ INGINEREASCĂ – APLICAŢII - editura BREN, Bucureşti, ISBN 978-973-648-640-1, 2007
4. Simion I. – DESCRIPTIVE GEOMETRY – British-Romanian University Publishing House, Bucharest, ISBN 978-606-8163-01-7, 2010.
5. Simion I. – AUTOCAD 2005 for Engineers –TEORA USA LLC Publishing House, Wisconsin, USA, ISBN 1-59496-033-X, ISBN 881920000154, ISBN 9781594960338, 2005. (*see Library of Congress Online Catalog), 2005.*
6. Madsen, D. - ENGINEERING DRAWING AND DESIGN, Delmar-Thomson Learning, London, 2000.
7. Giesecke F. - MODERN GRAPHICS COMMUNICATION – Prentice-hall, Inc., 2000.

Prerequisites:	Co-requisites

	(courses to be taken in parallel as a condition for enrolment):
Good knowledge of Euclidean geometry. Spatial visualization skills are recommended.	
Additional relevant information:	

Date: 29.08.2022

Professional degree, Surname, Name:
Lecturer.univ.dr.ing. Catalina ENACHE