UNIVERSITATEA DE ŞTIINŢE AGRICOLE ŞI MEDICINĂ VETERINARĂ CLUJ-NAPOCA
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Nr._____din _____ **Form code USAMV 0701010223**

SUBJECT OUTLINE

1. General data

1.1. Higher Education Institution	University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca
1.2. Facultaty	Agriculture
1.3. Departament	Technical Science and Soil Science
1.4.Domain of study	Food engineering
1.5.level of study[1)]	Bachelor
1.6.Specialization/ Program of study	Technology of agricultural products processing
1.7. Form of teaching	IF

2. Characteristics of the course

2.1. Name of the course	Computer aided graphics							
2.2. Course leader				Prof. phd. eng Sorin Stănilă				
2.3. Coordinator of the laboratory/seminars activity				Assoc. prof. phd. eng Adrian Molnar assist. PhD. Valentin Crișan				
2.4. Year of study	I	2.5. Semester	**II**	2.6. Type of Evaluation	Continuous	2.7. Course regime	Content[2]	DF
							Level of complulsory[3]	DO

3. Total estimated time (hours/semester for the teaching activities)

3.1. Number of hours/week– frequency form	1	of which care: 3.2. course	1	3.3. seminar/ laboratory/ project	1
3.4.Total hours in the teaching curricula	28	Of which: 3.5.course	14	3.6.seminar/laboratory	14
Distribution of time					hours
3.4.1.Study based on hand book, notes, bibliography					10
3.4.2. Extra documentation in the library, on specific electronic platforms and on field					10
3.4.3. Prepare the seminars / laboratories / projects, theme, essays,reports, portofolio					10
3.4.4.Tutorial					10
3.4.5.Examination					7
3.4.6. Other activities					
3.7. Total hours of individual study	47				
3.8. Total hours on semester	75				
3.9. Number of ECTS [4]	3				

4. Pre-conditions (where is the case)

4.1. of curriculum	Mathematics, informatics
4.2. of competences	The student must have knowledge of plane and space geometry

5. Conditions (where is the case)

5.1. of course development	The course is interactive, students can ask questions regarding the content of the exposure. Academic discipline imposes compliance for start and end of course. We do not allow any other activities during the lecture, mobile phones are closed.
5.2. of seminar/laboratory/project development	At practical laboratories it is compulsory to advise the supervisor, virtually every student will develop an individual activity with available laboratory materials described in the practical laboratories guide. Academic discipline is imposed during practices.

6. Specific competences gained

Proffesional competences	C 2.1. Description and use of concepts, theories and methods based on the processes and operation of installations in the food chain. C 2.2. Developing projects related to food industry processes and equipment production. C 2.3. Development of a specific process or a food industry machine using domain's basic concepts, theories and methods.
Transversal competences	CT 1. Applying perseverance for strategies, rigor, efficiency and responsibility in work, punctuality and personal accountability for business results, creativity, common sense, analytical and critical thinking, problem solving and so on, based on principles, norms and values code of ethics in food industry. CT 2. Applying interrelationship techniques within a team; amplifying and refining the empathic capacities of interpersonal communication and assuming specific attributions in carrying out the group activity in order to treat / resolve individual / group conflicts, as well as the optimal time management

7. Subject Objectives (as a result of the specific competences gained)

7.1. Subject general objective	Knowledge and acquisition of the basic notions of computer aided design using the AutoCAD software package with the ultimate goal of representing technical drawings through assisted design.
7.2.Specific objective	It can make a drawing of an installation in the Food Industry. It can make a drawing on a part of a plant. Be able to interpret and understand a drawing of an installation in the Food Industry. Be able to interpret and understand a drawing of a part.

8. Content

8.1.CURS Number of hours - 14	Methods of teaching	Observations
1. NOTIONS OF TECHNICAL DRAWING. Types of lines used in graphical representations. Representation and notation of views. Determining the number of projections.	Lectures	1 lecture
2. NOTIONS OF TECHNICAL DRAWING. Representation of sections. Sectioning route and section classification. Representation of hatches. Representation of ruptures.	Lectures	1 lecture
3. NOTIONS OF TECHNICAL DRAWING. Quotation in the technical drawing. Definition and classification. Dimensioning elements. Quotation methods. Arrangement and registration of quotas.	Lectures	1 lecture
4. INTRODUCTORY NOTIONS OF ASSISTED GRAPHICS. Software packages used for drawing. Presentation of the AutoCAD program. Launch in execution. Graphic interface. Toolbars. Graphic aids. Absolute, relative, polar coordinates. Drawing visualization and regeneration commands. Creating a new drawing. Save the drawing in various formats.	Lectures	1 lecture
5. AutoCAD DRAWING COMMANDS: LINE, CIRCLE. Drawing commands: ARC, RECTANGLE, POLYGON, ELLIPSE, POLYLINE, DONUT.	Lectures	1 lecture
6. AUTOAD EDIT COMMANDS: ERASE, TRIM, EXTEND, MOVE, CHAMFER, FILLET, ROTATE. Multiplication commands: ARRAY, OFFSET, MIRROR, COPY.	Lectures	1 lecture
7. ORDERING ORDERING, ORDERS FOR QUOTATION AND TOLERANCES AutoCAD, DIMENSION toolbar, Linear dimensioning, Quotation	Lectures	1 lecture

compared to the same quotation base, Quotation diameters, Radius dimensioning, Arrow drawing indicators, Inscription tolerances on the drawing. Drawing display, PAN command, Command ZOOM, creation, insertion and management Blocks.		

8.2. PRACTICAL WORK Number of hours - 14		
1. Representation of views. Representation in 6 views of a piece of wood - Hand sketch. Individual work.	Practical work	2 hours
2. Representation of views and sections. Representation and rating of a piece in view and section. Hand sketch. Individual work.	Practical work	2 hours
3. Create the indicator and predefined formats in AutoCad. . Drawing command applications in AutoCad.	Practical work	2 hours
4. Applications of editing commands in AutoCad.	Practical work	2 hours
5. Realization in AutoCad of a drawing in 6 views of an object. The dimensioning operation is also performed. The board is executed on a 2: 1 scale on A3 format.	Practical work	2 hours
6. Making in AutoCad a drawing in 3 views of an object. Main view in section. The dimensioning operation is also performed. The board is executed on a 2: 1 scale on A3 format.	Practical work	2 hours
7. Realization in AutoCad of a drawing in 3 views of an object. One of the views is represented in the section. The dimensioning operation is also performed. The board is executed on a 2: 1 scale on A3 format.	Practical work	2 hours

Compulsory bibliography:

1. *Materialul predat în timpul orelor de curs;*
2. *SORIN STANILA, (2020), Geometrie Descriptivă ş Desen Tehnic, Ed. Academicpres Cluj Napoca;*
3. *SORIN STĂNILĂ, (2013), Curs de Geometrie Descriptivă ş Desen Tehnic, Ed. Risoprint Cluj Napoca;*
4. *SORIN STĂNILĂ, (2009), Geometrie Descriptivă ş Desen Tehnic, Ed. Risoprint Cluj Napoca;*
5. *SOPA, S., MIHAIU, I.,STĂNILĂ, S. (1998), Geometrie Descriptivă Si Desen Tehnic, Tipo Agronomia, Cluj-Napoca;*

Facultative bibliography:

1. *HULPE, GH., şi colab., (1980), Desen industrial, Institutul Politehnic Cluj-Napoca,;*
2. *HUSEIN, GH., şi colab., 1974, .Desen Tehnic, ED. G.A.P., BUCUREŞTI,*
3. *IANCU, V., şi colab., (1982), Reprezentări Geometrice Şi Desen Tehnic, ED. Tehnică Şi Pedagogică, Bucureşti,.*
4. *PRECUPEŢIU, P., şi colab., (1982), Desen Tehnic Industrial pentru Construcţii de Maşini, Ed. Tehnică, Bucureşti..*

9. Corroboration of the subject content with teh expectations of the epistemic communities` representatives,of the proffesional associations and representatives employers in the domain

In order to identify ways of modernization and continuous improvement of teaching and course content with the current issues and practical problems, teachers attend meetings and SIAR conferences where they meet with teachers from other universities and representatives from production.

10. Evaluation

Type of activity	10.1. Evaluation criteria	10.2. Evaluation methods	10.3. Percent of the final grade
10.4. Course	Normal disposition of projections. Representation of sections. Quotation in the technical drawing. Learning the basics of design assisted by computer using the AutoCAD software package.	Written exams during the lectures	80%
10.5. Seminar/Laboratory	Representation of technological bodies and schemes through technical	Drawings are made on A4, A3 formats based on the topics	20%

	drawings made with the AutoCAD program. Interpretation of technical drawings of the part or installation	received individually with the AutoCAD program. Each board is taught and graded by the teacher	

10.6.Minimal standard of performance

Mastering scientific information conveyed through lectures and practical work at an acceptable level. Drawings delivery and obtain the pass mark on each board is a condition for graduation. . Nota finală, reprezintă media ponderată a verificărilor pe parcurs, lucrări practice și proiect și trebuie să fie egală sau mai mare de 5.
The final grade is a weighted average of written exams during the lectures, practical and project and must be equal to or greater than 5.

[1] level of study – to be chosen one of the following – Bachelor /Post graduate/Doctoral
[2] Course regime (content)- for bachelor level it will be chosen one of the following - **DF** (fundamental subject), **DD** (subject in teh domain), **DS** (specific subject), **DC** (complementary subject).
[3] Course regime (compulsory level)- to be chosen one of the following – **DI** (compulsory subject) **DO** (Optional subject) **DFac** (Facultative subject).
[4] One ECTS is equivalent with 25-30 de hours of study (didactical and individual study).

Laboratory work/seminar coordinator
assoc. prof. PhD. Adrian Molnar

Course coordinator
Prof. phd. eng Sorin Stănilă.

Filled in on
07.09.2021

assist. PhD. Valentin Crișan

Subject coordinator
Prof. phd. eng Sorin Stănilă

Approved by the
Department on
22.09.2021

Head of the Department
Prof. phd. Sevastita Muste

Approved by the Faculty
Council on
28.09.2021

Dean
Prof. phd. Elena Mudura