

Josip Juraj Strossmayer University of Osijek  
FACULTY OF AGROBIOTECHNICAL SCIENCES OSIJEK

# **CURRICULUM**

Agriculture (University Undergraduate Study Programme)

Major in **MECHANISATION**

Academic Year 2022 - 23

June, 2022

# List of Teachers and Courses

Academic Year 2022 - 23

Agriculture (University Undergraduate Study Programme)

Major in **MECHANIZATION**

A full-time Study Programme

Agriculture (University Undergraduate Study Programme), Major in MECHANIZATION  
Academic Year 2022 - 23  
**A List of Teachers and Courses**

**I.semester**

COORDINATOR	COURSE NAME	TEACHERS ON THE COURSE AND TYPE OF CLASSES						ECTS
		NAME AND SURNAME	LECTURES	SEMINARES	EXERCISES			
					FE	AE	LE	
Tihomir Živić	German Language I	Tihomir Živić	30			45		5
Maja Novoselec	English Language I	Tihomir Živić	30			45		5
Vesna Rastija	Chemistry	Vesna Rastija	45					6
		Maja Karnaš				9	6	
		Domagoj Šubarić				9	6	
Maja Petrač	Mathematics	Maja Petrač	45			30		6
Edita Štefanić	General Botany and Zoology	Edita Štefanić	25					6
		Siniša Ozimec	20					
		Denis Deže					5	
		Sanda Rašić					15	
		Tihomir Florijančić					5	
		Ivica Bošković				5		
Tihana Sudarić	Basics of Agricultural Economics	Krunoslav Zmaić	30					6
		Tihana Sudarić	30					
		David Kranjac			15			
Mario Keškić	Physical education and sports	Mario Keškić				30		1

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**II. semester**

COORDINATOR	COURSE NAME	TEACHERS ON THE COURSE AND TYPE OF CLASSES						ECTS
		NAME AND SURNAME	LECTURES	SEMINARES	EXERCISES			
					FE	AE	LE	
Tihomir Živić	German Language II	Tihomir Živić	30			45		5
Maja Novoselec	English Language II	Tihomir Živić	30			45		5
Vesna Gantner	Principles of Animal Breeding	Vesna Gantner Mirna Gavran	45			30		6
Goran Heffer	Fundamentals of Engineering	Goran Heffer Ivan Plaščak Željko Barač	55 5 15					6
Goran Heffer	Engineering graphics	Goran Heffer Ivan Vidaković Goran Pačarek	45			20 10		6
Irena Jug	Basics of agriculture	Irena Jug Vesna Vukadinović Danijel Jug	30 15 15	5 5 5				6
Mario Keškić	Physical education and sports	Mario Keškić				30		1

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**III. semester**

COORDINATOR	COURSE NAME	TEACHERS ON THE COURSE AND TYPE OF CLASSES						ECTS
		NAME AND SURNAME	LECTURES	SEMINARES	EXERCISES			
					FE	AE	LE	
Goran Heffer	Materials of Agricultural Machines	Goran Heffer Ivan Vidaković Goran Pačarek	55	10 10				5
Goran Heffer	Engineering mechanics I	Goran Heffer Ivan Vidaković Goran Pačarek	45			20 10		6
Ivan Plaščak	Internal combustion engines	Ivan Plaščak Tomislav Jurić Željko Barač	25 10 10				30	5
Danijela Samac	Animal Husbandry	Zvonko Antunović Pero Mijić Josip Novoselec Danijela Samac Tina Bobić Željka Klir Šalavardić	10 15 8 20			10 6		5
Mladen Jurišić	Plant Production	Mladen Jurišić Irena Rapčan	40 20			10 5		6
Mladen Jurišić	Geoinformation systems in agricultural technology	Mladen Jurišić Dorijan Radočaj	45	5		25		5
Mario Keškić	Physical education and sports	Mario Keškić				30		1

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**IV. semester**

COORDINATOR	COURSE NAME	TEACHERS ON THE COURSE AND TYPE OF CLASSES						ECTS
		NAME AND SURNAME	LECTURES	SEMINARES	EXERCISES			
					FE	AE	LE	
Goran Heffer	Elements of Agricultural Machines	Goran Heffer Ivan Vidaković Goran Pačarek	45				20 10	5
Željko Barač	Agricultural tractor	Željko Barač Tomislav Jurić Ivan Plaščak	15 10 10	20				5
Davor Kralik	Machines and Devices in Animal Husbandry	Davor Kralik	65			10		5
Luka Šumanovac	Machines and Devices in Crop production and Gardening I	Luka Šumanovac Tomislav Jurić Domagoj Zimmer	35 5 5		10		20	6
Vjekoslav Tadić	Machines and Devices in Fruit growing and Viticulture	Tadić Vjekoslav Anamarija Banaj	60			15		5
Mario Keškić	Physical education and sports	Mario Keškić					30	1

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**V. semester**

COORDINATOR	COURSE NAME	TEACHERS ON THE COURSE AND TYPE OF CLASSES						ECTS
		NAME AND SURNAME	LECTURES	SEMINARES	EXERCISES			
					FE	AE	LE	
Tomislav Jurić	Exploitation of Agricultural Machines I	Tomislav Jurić Ivan Plaščak Željko Barač Đurđica Kovačić	45	5  5	10	10		6
Darko Kiš	Techniques of Processing and Storage I	Darko Kiš Zvonimir Zdunić	40 5			25 5		6
Tomislav Jurić	Maintenance and repair of agricultural machines I	Tomislav Jurić Željko Barač Đurđica Kovačić	45	8 7			15	6
Luka Šumanovac	Machines and Devices in Crop production and Gardening II	Luka Šumanovac Mladen Jurišić Domagoj Zimmer	30 10 5		10		20	6
	FINAL THESIS							6

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**VI. semester**

COORDINATOR	COURSE NAME	TEACHERS ON THE COURSE AND TYPE OF CLASSES						ECTS
		NAME AND SURNAME	LECTURES	SEMINARES	EXERCISES			
					FE	AE	LE	
Andrijana Rebekić	Practical work I	Andrijana Rebekić			75			6
	Elective course							6
	Elective course							6
	Elective course							6
	Elective course							6



Agriculture (University Undergraduate Study Programme)

Major in **MECHANIZATION**

Academic Year 2022 - 23

<b>English Language I</b>		
<b>Coordinator</b>	Tihomir Živić	
<b>Collaborators</b>	-	
<b>Study year and semester</b>	1st year, 1st semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	5
	Contact hours (L+E+S)	75 (30 L + 45 E)
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	The development of listening, speaking, reading, and writing skills, as well as the correct use of grammatical and vocabulary structures in (American) English, within the field of agrobiotechnical studies.	
<b>Course enrolment requirements</b>	No preconditions	
<b>Intended course learning outcomes</b>		
Upon successful completion of the module, students will be able to:		
<ol style="list-style-type: none"> <li>1. Recognize and independently explain key Anglo-American terminology related to their respective fields in authentic (didacticized) Anglo-American scientific and professional texts;</li> <li>2. Utilize prescribed specialist literature and multimedia sources at all levels (business promotional texts, product labels, work instructions, and scientific articles);</li> <li>3. Comprehend and translate technical texts in (American) English;</li> <li>4. Communicate accurately in (American) English within the field of agrobiotechnology;</li> <li>5. Present agrobiotechnical content accurately in (American) English.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
The right to take the final oral exam is earned by accumulating a minimum number of assessment points. Assessment points are awarded through attendance of at least 70% of classes (i.e., lectures and listening exercises), active participation in class, and grades from partial written exams. During the semester, students will take two partial written exams (in the 7th and 15th weeks of instruction). The final exam is mandatory, and a passing grade on the final exam is a prerequisite for achieving a final positive course grade.		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. Bratulić, Mirna. <i>Found in Translation: Handbook with Exercises</i>. Hrvatska sveučilišna naklada, 2010.</li> <li>2. Gačić, Milica. <i>Gramatika engleskoga jezika struke</i>. Školska knjiga, 2009.</li> <li>3. Murphy, Raymond, i dr. <i>Basic Grammar in Use Student's Book with Answers and Interactive eBook: Self-study Reference and Practice for Students of American English</i>. 4. izd., Cambridge UP, 2017.</li> <li>4. Perković, Anica. <i>English in Agriculture</i>. Poljoprivredni fakultet Osijek, 2011.</li> <li>5. Vujčić, Jasna, i Anica Perković. <i>English for Horticulturists</i>. Veleučilište u Slavonskome Brodu / Poljoprivredni fakultet Osijek, 2011.</li> </ol>		
<b>Additional literature</b>		
<ol style="list-style-type: none"> <li>1. Filipović, Rudolf. <i>Veliki englesko-hrvatski rječnik</i>. Školska knjiga, 2017.</li> <li>2. Hlavac, Jim, i dr. <i>Translating from Croatian into English: A Handbook with Annotated Translations</i>. Hrvatska sveučilišna naklada, 2019.</li> <li>3. Matas, Đurđa. <i>Četverojezični rječnik iz poljoprivrede, šumarstva, veterine i primijenjene biologije: hrvatsko-njemačko-englesko-latinski</i>. Profil, 1999.</li> <li>4. Murphy, Raymond. <i>English Grammar in Use</i>. 5. izd., e-knjiga, Cambridge UP, 2019.</li> <li>5. Ritz, Josip. <i>Hrvatsko-engleski i englesko-hrvatski agronomski rječnik</i>. Školska knjiga, 1996.</li> </ol>		

<b>GERMAN LANGUAGE I</b>		
<b>Coordinator</b>	Tihomir Živić	
<b>Collaborators</b>	–	
<b>Course status</b>	mandatory	
<b>Study year and semester</b>	1st year, 1st semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	5
	Number of class hours (L + E)	75 (30 L + 45 E)
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	The development of listening, speaking, reading, and writing skills, as well as the correct use of (grammatical and vocabulary) structures in the German language for the agrobiotechnical field.	
<b>Course enrollment requirements</b>	no preconditions	
<b>Intended course learning outcomes</b>		
Upon successfully completing the module, students will be able to:		
<ol style="list-style-type: none"> <li>1. conduct oral discussions based on a read text or a listened-to conversation in a foreign language;</li> <li>2. create a written summary with a precisely defined word count;</li> <li>3. interpret texts;</li> <li>4. apply learned words and constructions in a new context;</li> <li>5. use IT skills to gather information in a foreign language related to a specific topic;</li> <li>6. analyze graphical data (tables, graphs, maps, etc.) ; and</li> <li>7. write an essay or create a presentation on a related topic.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
The right to take the final oral exam is earned by accumulating the minimum required number of assessment points. Assessment points are gained through attendance of at least 70% of classes (lectures and auditory exercises), active participation in class, and grades from partial written examinations. During the semester, students take two partial written examinations (in the 7th and 15th weeks of classes). The Final Examination is mandatory, and a passing grade on the Final Examination is a prerequisite for a positive final course grade.		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. Ertl, Josef, et al. <i>Tausend Fragen für den jungen Landwirt</i>. 16th ed, Verlag Eugen Ulmer, 1996.</li> <li>2. Glovacki-Bernardi, Zrinka. <i>Gramatika njemačkog jezika—osnove</i>. Školska knjiga, 2017.</li> <li>3. Haensch, Günther, and Gisela Haberkamp de Anton. <i>Wörterbuch der Landwirtschaft</i>. Verlag Eugen Ulmer, 1996.</li> <li>4. Kljaić, Jasenka. <i>Hrvatsko-njemački praktični rječnik</i>. Školska knjiga, 2017.</li> <li>5. ———. <i>Njemačko-hrvatski praktični rječnik</i>. Školska knjiga, 1998.</li> <li>6. Leitner, Hans. <i>Njemačko-hrvatski rječnik glagola u kontekstu</i>. Školska knjiga, 1998.</li> <li>7. Marčetić, Tamara. <i>Njemački za odrasle</i>. Školska knjiga, 1997.</li> <li>8. Matas, Đurđa. <i>Četverojezični rječnik hrvatsko-njemačko-englesko-latinski: oko 60.000 leksičkih jedinica iz poljoprivrede, šumarstva, veterine, primijenjene biologije</i>. Profil International, 1999.</li> </ol>		
<b>Additional literature</b>		
<ol style="list-style-type: none"> <li>1. Bašić, Zlatko. <i>Veliki hrvatsko-njemački rječnik gospodarskog, pravnog, političkog i svakodnevnog stručnog nazivlja</i>. Bašić, 2000.</li> <li>2. Marčetić, Tamara. <i>Njemački u komunikaciji</i>. Školska knjiga, 2005.</li> <li>3. Matas, Đurđa. <i>Zoološki rječnik hrvatsko-njemačko-englesko-latinski</i>. Školska knjiga, 2009.</li> </ol>		

<b>CHEMISTRY</b>		
<b>Coordinator</b>	Vesna Rastija	
<b>Collaborators</b>	Maja Karnaš Domagoj Šubarić	
<b>Study year and semester</b>	1st year, 1st semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	6
	Number of class hours (L+E+S)	75 (45L + 30E)
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	Introducing students to the basics of general, inorganic, and organic chemistry, chemical calculations, and practical work in a chemistry laboratory.	
<b>Course enrollment requirements</b>	no preconditions	
<b>Intended course learning outcomes</b>		
<p>After successfully completing the module, the student will be able to:</p> <ol style="list-style-type: none"> <li>1. distinguish between different types of substances;</li> <li>2. relate the electronic structure of an atom to the chemical and physical properties of an element;</li> <li>3. illustrate the formation and geometry of chemical bonds;</li> <li>4. explain chemical equilibrium and energy changes during chemical reactions;</li> <li>5. represent the fundamental reactions involving electron and proton transfer;</li> <li>6. evaluate the acid-base properties of chemical compounds;</li> <li>7. describe the structure, reactivity, and properties of basic inorganic chemical compounds important in agronomy;</li> <li>8. differentiate between the structures, properties, and reactivity of fundamental types of organic compounds;</li> <li>9. solve basic stoichiometric problems; and</li> <li>10. apply principles of safe laboratory practices in performing basic qualitative and quantitative chemical analysis techniques.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
<p>The right to take the Final Examination is earned by accumulating the minimum required number of assessment points. Assessment points are obtained based on class attendance (minimum 70%), participation in class activities, and grades from partial examinations. During the semester, students take five partial examinations (two from exercises in the 6th and 13th weeks of classes, and three from lectures in the 8th, 11th, and 15th weeks of classes). The Final Examination is mandatory, and a passing grade on the Final Examination is a prerequisite for a positive final grade. The Final Examination is oral.</p>		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. Rastija, V. (2022): <i>Odabrana predavanja iz opće i anorganske kemije</i> (internal course materials) Fakultet agrobiotehničkih znanosti Osijek</li> <li>2. Amić, D. (2008): <i>Organska kemija za studente agronomske struke</i>, Školska knjiga, Zagreb</li> <li>3. Rastija, V. (2016): <i>Zbirka zadataka iz kemije</i>, Fakultet agrobiotehničkih znanosti Osijek</li> <li>4. Rastija, V.; Karnaš, M. (2020): <i>Uvod u kemijsku analizu, priručnik za laboratorijske vježbe</i>. Fakultet agrobiotehničkih znanosti Osijek</li> </ol>		
<b>Additional literature</b>		
<ol style="list-style-type: none"> <li>1. Filipović, I. Lipanović, S. (1995): <i>Opća i anorganska kemija I. i II. dio</i>, Školska knjiga, Zagreb</li> <li>2. Sikirica, M. (2001): <i>Stehiometrija</i>, Školska knjiga, Zagreb, 2001.</li> </ol>		

<b>MATHEMATICS</b>		
<b>Coordinator</b>	Maja Petrač	
<b>Collaborators</b>	–	
<b>Study year and semester</b>	1st year, 1st semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	6
	Number of class hours (L + E + S)	75 (45L + 30E)
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	Introduce students to the fundamental knowledge of functions and the methods of differential and integral calculus. Lectures will cover basic concepts and illustrate their applications. During exercises, students are expected to master the appropriate techniques and develop the skills needed to solve specific problems.	
<b>Course enrollment requirements</b>	no preconditions	
<b>Intended course learning outcomes</b>		
<ol style="list-style-type: none"> <li>1. Apply knowledge of functions to specific professional problems.</li> <li>2. Explain the concept of a string and the concept of string convergence. Distinguish between certain special strings.</li> <li>3. Explain the concepts of a function's limit and continuity, and apply this knowledge to practical problems.</li> <li>4. Apply differential calculus to specific problems (tangent and normal lines, monotonicity, local extrema, convexity, inflection points).</li> <li>5. Interpret the concept and properties of definite and indefinite integrals, as well as improper integrals.</li> <li>6. Apply new knowledge to specific problems, such as calculating the arc length of a curve, the area of a pseudo-trapezoid, the volume of a solid of revolution, etc.</li> <li>7. Distinguish between types of differential equations and their solutions, and apply this knowledge to specific problems in the field.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
The right to take the Final Examination is earned by accumulating the minimum required number of assessment points. Assessment points are obtained based on class attendance (minimum 70%), participation in class activities, submission of homework assignments on Merlin (the e-learning system), and partial examinations. During the semester, students take two partial examinations. The Final Examination is mandatory, consisting of a written and/or oral component, and a passing grade on the Final Examination is a prerequisite for a positive final grade.		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. D. Jukić, R. Scitovski, <i>Matematika I</i>, Prehrambeno tehnološki fakultet, Odjel za matematiku, Osijek 2000.</li> <li>2. B. P. Demidović, <i>Zadaci i riješeni primjeri iz više matematike s primjenom na tehničke nauke</i>, Tehnička knjiga, Zagreb, 1986.</li> </ol>		
<b>Additional literature</b>		
<ol style="list-style-type: none"> <li>1. M. Crnjac, D. Jukić, R. Scitovski, <i>Matematika</i>, Osijek, 1994.</li> <li>2. J. Pečarić et al., <i>Matematika za tehnološke fakultete</i>, Zagreb, 1994.</li> <li>3. S. Kurepa, <i>Matematička analiza 1 i 2</i>, Tehnička knjiga, Zagreb, 1972.</li> <li>4. V. Devide et al., <i>Riješeni zadaci iz više matematike</i>, Školska knjiga, Zagreb, 1979.</li> </ol>		

<b>GENERAL BOTANY AND ZOOLOGY</b>		
<b>Coordinator</b>	Edita Štefanić	
<b>Collaborators</b>	Tihomir Florijančić Siniša Ozimec Ivica Bošković Sanda Rašić	
<b>Study year and semester</b>	1st year, 1st semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	6
	Number of class hours (L + E)	75 (45L + 30E)
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	Introduce students to the fundamental knowledge of cell structure and the functions of tissues and plant organs (vegetative and generative). Familiarize and prepare students to independently interpret the structural and functional characteristics of members of the animal kingdom, with an emphasis on the structure, function, and ecology of animal organisms.	
<b>Course enrollment requirements</b>	no preconditions	
<b>Intended course learning outcomes</b>		
<p>Upon successfully completing the module, the student will be able to:</p> <ol style="list-style-type: none"> <li>1. describe the chemical basis of plant cells (biogenic elements and chemical compounds in plant cells);</li> <li>2. research, identify, and describe the structure of plant cells;</li> <li>3. explain and analyze the cell cycle (mitosis and meiosis);</li> <li>4. differentiate and analyze plant tissues and organs;</li> <li>5. explain plant reproduction and dispersal;</li> <li>6. list the characteristics and organization of animal organisms;</li> <li>7. use scientific nomenclature in zoological taxonomy;</li> <li>8. correlate evolutionary processes with the phylogenetic relationships among groups within the animal kingdom;</li> <li>9. distinguish specific structural and functional differences among groups in the animal kingdom; and</li> <li>10. identify animal species and groups that are beneficial or harmful to agriculture.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
<p>The right to take the Final Examination is earned by accumulating the minimum required number of assessment points. Assessment points are obtained based on class attendance (minimum 70%), participation in class activities, and grades from partial examinations. During the semester, students take two partial examinations (in the 9th and 15th weeks of classes). The Final Examination is mandatory, and a passing grade on the Final Examination is a prerequisite for a positive final grade. The Final Examination is written.</p>		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. Bačić, T. (2003): <i>Morfologija i anatomija bilja</i>. Sveučilište J. J. Strossmayera u Osijeku, Pedagoški fakultet.</li> <li>2. Denffer, D., Ziegler, H. (1988): <i>Botanika, morfologija i fiziologija</i>. Školska knjiga, Zagreb</li> <li>3. Dubravec, K. (1996): <i>Botanika</i>. Agronomski fakultet Sveučilišta u Zagrebu.</li> <li>4. Štefanić, E. (2005): <i>Priručnik za vježbe iz agrobotanike</i>. Sveučilište J.J. Strossmayera u Osijeku, Poljoprivredni fakultet.</li> <li>5. Treer, T., Tucak, Z. (2004): <i>Agrarna zoologija</i>, 2nd rev. ed. Školska knjiga, Zagreb.</li> <li>6. Habdija, I., Primc Habdija, B., Radanović, I., Špoljar, M., Matoničkin Kepčija, R., Vujčić Karlo, S., Miliša, M., Ostojić, A., Sertić Perić, M. (2011): <i>Protista – Protozoa i Metazoa – Invertebrata strukture i funkcije</i>. Alfa d.d., Zagreb.</li> <li>7. Bogut, I., Grbavac, J., Križek, I. (2013): <i>Morfofiziologija probavnog sustava domaćih životinja i riba</i>. Poljoprivredni fakultet, Osijek, Agronomski i prehrambeno-tehnološki fakultet, Mostar.</li> </ol>		
<b>Additional literature</b>		
<ol style="list-style-type: none"> <li>1. Lepeduš, H., Cesar, V. (2010): <i>Osnove biljne histologije i anatomije vegetativnih organa</i>. Odjel za biologiju, Sveučilište J.J. Strossmayer u Osijeku</li> <li>2. Matoničkin, I., Klobučar, G., Kučinić, M. (2010): <i>Opća zoologija</i>. Školska knjiga, Zagreb</li> <li>3. Burnie, D. (2014): <i>Životinje, velika ilustrirana enciklopedija</i>, 3rd ed. Mozaik knjiga, Zagreb</li> </ol>		

<b>BASICS OF AGRICULTURAL ECONOMICS</b>		
<b>Coordinator</b>	Tihana Sudarić	
<b>Collaborators</b>	Krunoslav Zmaić David Kranjac	
<b>Study year and semester</b>	1st year, 1st semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	6
	Number of class hours (L + E + S)	75 (60L +15S)
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	introduce participants to the impact of economic laws on the behavior of economic phenomena through social reproduction and the role of agriculture in overall economic development.	
<b>Course enrollment requirements</b>	no preconditions	
<b>Intended course learning outcomes</b>		
<p>Upon successfully completing the module, the student will be able to:</p> <ol style="list-style-type: none"> <li>1. explain the significance and functions of agriculture in economic development;</li> <li>2. interpret the specific characteristics of agriculture and the principles governing production, distribution, exchange, and consumption;</li> <li>3. compare total, average, and marginal relationships in production functions;</li> <li>4. relate production isoquants and isocost curves, as well as the marginal rate of technical substitution, perfect substitutes, and complementary factors;</li> <li>5. calculate economic performance indicators; and</li> <li>6. propose and compare selected thematic units from various areas of agricultural economics.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
<p>The right to take the Final Examination is earned by accumulating the minimum required number of assessment points. Assessment points are obtained based on class attendance (minimum 70%), participation in class activities, tasks during lectures and seminars, seminar evaluations, and grades from partial examinations. During the semester, students are required to complete an independent seminar paper, which is mandatory. Students present their seminar paper orally, lasting 10 to 15 minutes, accompanied by a <i>PowerPoint</i> presentation. The schedule for presentations will be agreed upon in advance. Additionally, students take two partial examinations (in the 7th and 15th weeks of classes). The Final Examination is mandatory, and a passing grade on the Final Examination is a prerequisite for a positive final course grade. The Final Examination may be written or oral.</p>		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. Zmaić, K. (2008): <i>Osnove agroekonomike</i>, Poljoprivredni fakultet u Osijeku. Osijek. (textbook)</li> <li>2. Baban Lj. (1999): <i>Ogledi iz agrarne ekonomije</i>. Ekonomski fakultet u Osijeku. Osijek. (textbook)</li> <li>3. Karić, M., Štefanić I. (1999): <i>Troškovi i kalkulacije</i>. Ekonomski fakultet u Osijeku. Osijek. (textbook)</li> </ol>		
<b>Additional literature</b>		
<ol style="list-style-type: none"> <li>1. Gail L. Cramer and Clarence W. Jensen (1982): <i>Agricultural Economics &amp; Agribusiness</i>. 2nd ed. Montana State University. New York. (textbook)</li> <li>2. Grgić, I., Franić, R., Cerjak, M., Mikuš, O., Hadelan, L., Mesić, Ž., Zrakić, M., Bokan, N. (2017.): <i>Priručnik iz agrarne ekonomike. Pojmovnik i osnovne metode</i>. Zagreb: Sveučilište u Zagrebu, Agronomski fakultet.</li> <li>3. Žaja, M. (1991): <i>Ekonomika proizvodnje</i>, Školska knjiga, Zagreb.</li> </ol>		

<b>PHYSICAL EDUCATION AND SPORTS</b>		
<b>Coordinator</b>	Mario Keškić	
<b>Collaborators</b>	-	
<b>Study year and semester</b>	First year, I. semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	1
	Number of hours (L+E+S)	30 (30E)
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	The aim of Physical and Health Education is to train students to implement theoretical and motor skills that enable independent physical exercise for an improved quality of life.	
<b>Course enrolment requirements</b>		
<b>Intended course learning outcomes</b>		
After successfully completing the module, the student will be able to:		
1. Independently perform physical exercises for an improved quality of life.		
<b>Assessment and evaluation of student work during classes</b>		
Attendance in classes, active participation during the teaching process, and participation in practical exercises with a minimum attendance of at least 70% of the total hours grants the right to receive positive descriptive grade.		
<b>Obligatory literature</b>		
<b>Additional literature</b>		



<b>GERMAN LANGUAGE II</b>		
<b>Coordinator</b>	Tihomir Živić	
<b>Collaborators</b>	–	
<b>Study year and semester</b>	1st year, 2nd semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	5
	Number of class hours (L + E)	75 (30 L + 45 E)
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	The development of listening, speaking, reading, and writing skills, as well as the correct use of (grammatical and vocabulary) structures in the German language for the agrobiotechnical field.	
<b>Course enrollment requirements</b>	no preconditions	
<b>Intended course learning outcomes</b>		
<p>Upon successfully completing the module, students will be able to:</p> <ol style="list-style-type: none"> <li>1. conduct an oral discussion based on a read text or a listened-to conversation in a foreign language;</li> <li>2. create a written summary with a precise word count;</li> <li>3. interpret texts;</li> <li>4. apply learned words and structures in a new context;</li> <li>5. use IT skills to gather information in a foreign language related to a specific topic;</li> <li>6. analyze graphical data (tables, graphs, maps, etc.); and</li> <li>7. write an essay or create a presentation on a related topic.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
<p>The right to take the final oral exam is earned by accumulating the minimum required number of assessment points. Assessment points are obtained through attendance of at least 70% of classes (lectures and auditory exercises), active participation in class, and grades from partial written examinations. During the semester, students take two partial written examinations (in the 7th and 15th weeks of classes). The Final Examination is mandatory, and a passing grade on the Final Examination is a prerequisite for a positive final course grade.</p>		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. Ertl, Josef, et al. <i>Tausend Fragen für den jungen Landwirt</i>. 16th ed., Verlag Eugen Ulmer, 1996.</li> <li>2. Glovacki-Bernardi, Zrinka. <i>Gramatika njemačkog jezika—osnove</i>. Školska knjiga, 2017.</li> <li>3. Haensch, Günther, and Gisela Haberkamp de Anton. <i>Wörterbuch der Landwirtschaft</i>. Verlag Eugen Ulmer, 1996.</li> <li>4. Kljaić, Jasenka. <i>Hrvatsko-njemački praktični rječnik</i>. Školska knjiga, 2017.</li> <li>5. ———. <i>Njemačko-hrvatski praktični rječnik</i>. Školska knjiga, 1998.</li> <li>6. Leitner, Hans. <i>Njemačko-hrvatski rječnik glagola u kontekstu</i>. Školska knjiga, 1998.</li> <li>7. Marčetić, Tamara. <i>Njemački za odrasle</i>. Školska knjiga, 1997.</li> <li>8. Matas, Đurđa. <i>Četverojezični rječnik hrvatsko-njemačko-englesko-latinski: oko 60.000 leksičkih jedinica iz poljoprivrede, šumarstva, veterine, primijenjene biologije</i>. Profil International, 1999.</li> </ol>		
<b>Additional literature</b>		
<ol style="list-style-type: none"> <li>1. Bašić, Zlatko. <i>Veliki hrvatsko-njemački rječnik gospodarskog, pravnog, političkog i svakodnevnog stručnog nazivlja</i>. Bašić, 2000.</li> <li>2. Marčetić, Tamara. <i>Njemački u komunikaciji</i>. Školska knjiga, 2005.</li> <li>3. Matas, Đurđa. <i>Zoološki rječnik hrvatsko-njemačko-englesko-latinski</i>. Školska knjiga, 2009.</li> </ol>		

<b>ENGLISH LANGUAGE II</b>		
<b>Coordinator</b>	Tihomir Živić	
<b>Collaborators</b>	-	
<b>Study year and semester</b>	1st year, 2nd semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	5
	Contact hours (L+E+S)	75 (30 L + 45 E)
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	The development of listening, speaking, reading, and writing skills, as well as the correct use of grammatical and vocabulary structures in American English within the context of agrobiotechnical studies.	
<b>Course enrolment requirements</b>	No preconditions	
<b>Intended course learning outcomes</b>		
<p>Upon successful completion of the module, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Recognize and independently explain key Anglo-American terms relevant to their specific fields in authentic (didactic) Anglo-American scientific and professional texts.</li> <li>2. Utilize prescribed specialist literature and multimedia sources at all levels (business promotional texts, product labels, instructions, and scientific articles).</li> <li>3. Understand and translate technical texts in American English.</li> <li>4. Communicate accurately in American English within the context of agrobiotechnical studies.</li> <li>5. Present agrobiotechnical content accurately in American English.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
<p>Eligibility to take the final oral exam is granted by accumulating a minimum number of assessment points. These points are earned through attending at least 70% of classes (i.e., lectures and auditory exercises), active participation in class, and grades from partial written exams. During the semester, students will take two partial written exams (in the 7th and 15th weeks of the course). The final exam is mandatory, and a passing grade on the final exam is a prerequisite for a positive final course grade.</p>		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. Bratulić, Mirna. <i>Found in Translation: Handbook with Exercises</i>. Hrvatska sveučilišna naklada, 2010.</li> <li>2. Gačić, Milica. <i>Gramatika engleskoga jezika struke</i>. Školska knjiga, 2009.</li> <li>3. Murphy, Raymond, i dr. <i>Basic Grammar in Use Student's Book with Answers and Interactive eBook: Self-study Reference and Practice for Students of American English</i>. 4. izd., Cambridge UP, 2017.</li> <li>4. Perković, Anica. <i>English in Agriculture</i>. Poljoprivredni fakultet Osijek, 2011.</li> <li>5. Vujčić, Jasna, i Anica Perković. <i>English for Horticulturists</i>. Veleučilište u Slavonskome Brodu / Poljoprivredni fakultet Osijek, 2011.</li> </ol>		
<b>Additional literature</b>		
<ol style="list-style-type: none"> <li>1. Filipović, Rudolf. <i>Veliki englesko-hrvatski rječnik</i>. Školska knjiga, 2017.</li> <li>2. Hlavac, Jim, i dr. <i>Translating from Croatian into English: A Handbook with Annotated Translations</i>. Hrvatska sveučilišna naklada, 2019.</li> <li>3. Matas, Đurđa. <i>Četverojezični rječnik iz poljoprivrede, šumarstva, veterine i primijenjene biologije: hrvatsko-njemačko-englesko-latinski</i>. Profil, 1999</li> </ol>		

<b>PRINCIPLES OF ANIMAL BREEDING</b>		
<b>Coordinator</b>	Vesna Gantner	
<b>Collaborators</b>	Mirna Gavran	
<b>Study year and semester</b>	1st year, 2nd semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	6
	Number of class hours (L + E + S)	75 (L 45 + E 30)
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	Introduce undergraduate students to the fundamentals of domestic animal breeding, including the origin of domestic animals and breeds, the causes and significance of hereditary and non-hereditary variability in general and productive traits, to facilitate understanding of breeding and selection methods.	
<b>Course enrollment requirements</b>	no preconditions	
<b>Intended course learning outcomes</b>		
<p>Upon successfully completing the module, the student will be able to:</p> <ol style="list-style-type: none"> <li>1. explain the importance and role of animal husbandry as an agricultural and scientific discipline;</li> <li>2. describe the domestication process and the concept of domestic animals;</li> <li>3. recognize the concept of breed, traits, phenotype, and genotype;</li> <li>4. distinguish between the causes of hereditary and non-hereditary variability in traits of domestic animals;</li> <li>5. explain the significance of fertility and the capacity for growth and development from both biological and economic perspectives;</li> <li>6. apply basic statistical methods to describe variability and correlations of quantitative traits;</li> <li>7. differentiate between general and productive traits of domestic animals;</li> <li>8. describe methods of breeding domestic animals; and</li> <li>9. distinguish the general principles of breeding programs.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
<p>Attendance at lectures and exercises, as well as active participation in classes are required. During the semester, two partial written examinations (theory + exercises) will be held. During the first class, students will be introduced to the course content (list of thematic units), the schedule for the partial examinations, and the list of mandatory and recommended literature. On the Final Examination, assessment points are given for the partial examinations passed during the course. Final Examination is mandatory. Only students who have attended at least 70% of the lectures and exercises may take the partial and final written examinations.</p>		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. Kralik, Gordana; Adámek, Zdeněk; Baban, Mirjana; Bogut, Ivan; Gantner, Vesna; Ivanković, Stanko; Katavić, Ivan; Kralik, Davor; Kralik, Igor; Margeta, Vladimir; Pavličević, Jerko. 2011. <i>Zootehnika</i>. Poljoprivredni fakultet u Osijeku, Sveučilište Josipa Jurja Strossmayera u Osijeku. Osijek: Grafika Osijek. University textbook. ISBN: 978–953–6331–95–6</li> <li>2. Gantner, Vesna; Barać Zdravko. 2014. <i>Uzgojno-selekcijski rad u stočarstvu</i>. Poljoprivredni fakultet u Osijeku, Sveučilište Josipa Jurja Strossmayera u Osijeku. University textbook. ISBN: 978–953–7871–35–2</li> <li>3. Gantner, Vesna; Steiner, Zvonimir; Gregić Maja. 2021. <i>Principles of Animal Breeding and Feeding</i>. Josip Juraj Strossmayer University of Osijek, Faculty of Agrobiotechnical Sciences Osijek. University textbook. ISBN: 978–953–7871–97–0</li> </ol>		
<b>Additional literature</b>		
<ol style="list-style-type: none"> <li>1. Brinzej i sur. 1991. <i>Stočarstvo</i> - ch 1. University textbook. Školska knjiga. Zagreb.</li> <li>2. Jovanovac, S. 2013. <i>Principi uzgoja životinja</i>. University textbook, Osijek, 2013.</li> <li>3. Recent scientific and professional papers in the field of animal production, selection, and breeding of domestic animals</li> <li>4. PPT presentations for lectures and exercises available on the Faculty's website and in the <i>Merlin</i> system</li> </ol>		

<b>BASICS OF AGRICULTURAL MECHANICAL ENGINEERING</b>		
<b>Coordinator</b>	Goran Heffer	
<b>Collaborators</b>	Ivan Plaščak Željko Barač	
<b>Study year and semester</b>	1st year, 2nd semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	6
	Number of class hours (L + E + S)	75L
<b>COURSE DESCRIPTION</b>		
<b>Course aim</b>	Introduce students to the basic mechanical engineering knowledge in the fields of technical materials, mechanics, machine elements, and surface protection of materials. This knowledge will serve as a foundation for following other courses in mechanical engineering in higher years of major in Mechanization and for later application in the operation of agricultural machinery.	
<b>Course enrollment requirements</b>	no preconditions	
<b>Intended course learning outcomes</b>		
<p>Upon successfully completing the module, the student will be able to:</p> <ol style="list-style-type: none"> <li>1. categorize the basic types of technical materials;</li> <li>2. understand and describe the relationship between the structure and properties of technical materials;</li> <li>3. define the basic principles of mechanics and their practical applications;</li> <li>4. analyze the relationship between loads, stresses, and deformations;</li> <li>5. describe the basic types of machine elements and their applications;</li> <li>6. identify machine elements used in agricultural machinery;</li> <li>7. define basic concepts in the field of internal combustion engines; and</li> <li>8. identify and describe the main devices of tractors and explain their functions.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
Students are expected to attend classes regularly and actively participate during lectures. Four partial written exams will be held during the semester. Students will be informed of the exact dates of the partial exams at the beginning of the semester. After the lectures, students will take a final exam. The final exam is written and covers the material that was not passed through the partial exams. Students are recommended to take notes during lectures and to prepare for the exam using the recommended literature.		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. Vujčić, M.; Emert, R.; Jurić, T.; Heffer, G.; Baličević, P.; Pandurović, T.; Plaščak, I. (2011): <i>Osnove poljoprivrednog strojarstva</i>, Poljoprivredni fakultet Osijek</li> </ol>		
<b>Additional literature</b>		
<ol style="list-style-type: none"> <li>1. Filetin, T.; Kovačiček, F.; Indof, J. (2002): <i>Svojstva i primjena materijala</i>, FSB, Zagreb</li> <li>2. Franz, M. (1998): <i>Mehanička svojstva materijala</i>, FSB, Zagreb</li> <li>3. Vujčić, M. (1989): <i>Tehnička mehanika I</i>, Poljoprivredni fakultet Vinkovci</li> <li>4. Vujčić, M. (1994): <i>Tehnička mehanika II</i>, Iskra, Vinkovci</li> <li>5. Hercigonja, E. (1995): <i>Elementi strojeva</i>, Školska knjiga, Zagreb</li> <li>6. Čevra, A. (1994): <i>Motori i motorna vozila</i>, 1 and 2, Školska knjiga, Zagreb</li> </ol>		

<b>ENGINEERING GRAPHICS</b>		
<b>Coordinator</b>	Goran Heffer	
<b>Collaborators</b>	Ivan Vidaković Goran Pačarek	
<b>Study year and semester</b>	1st year, 2nd semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	6
	Number of class hours (L + E + S)	75 (45L + 30E)
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	To develop the ability to understand and the skill to create and use technical drawings—that is, graphical representations of elements and assemblies of agricultural machinery.	
<b>Course enrollment requirements</b>	no preconditions	
<b>Intended course learning outcomes</b>		
<p>After successfully completing the module, the student will be able to:</p> <ol style="list-style-type: none"> <li>1. represent the spatial relationships between geometric shapes and bodies using technical drawings.</li> <li>2. draw spatial representations of geometric bodies;</li> <li>3. create orthogonal projections of machine elements;</li> <li>4. develop spatial representations of the shapes and dimensions of machine elements based on orthogonal projections and depict them using axonometric projections;</li> <li>5. draw sections of models and machine elements according to the rules and standards of technical drawing;</li> <li>6. determine dimensions of machine parts on a technical drawing;</li> <li>7. select tolerances and surface quality;</li> <li>8. sketch machine elements and assemblies by hand following the rules and standards of technical drawing; and</li> <li>9. create technical drawings of machine elements and assemblies using drawing tools and CAD systems.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
In determining the final grade for students, continuous monitoring of class participation (activity in class, preparation for the lesson, reflective consideration of the teaching content), continuous assessment (partial exams), and the final written exam are considered. The final exam is mandatory.		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. Opalić, M., Kljajin, M., Sebastijanović, S. (2003): <i>Tehničko crtanje</i>, Zrinski-Čakovec, FSB, Zagreb.</li> <li>2. Kljajin, M., Opalić, M. (2010): <i>Inženjerska grafika</i>, SFSB, Slavonski Brod.</li> <li>3. Horvatić-Baldasar, K., Babić, I. (1997): <i>Nacrtna geometrija</i>, Sand, Zagreb.</li> <li>4. Koludrović, Č., Koludrović, I., Koludrović, R., (1990): <i>Osnovne vježbe iz tehničkog crtanja s kompjutorskim aplikacijama</i>, Autorska naklada, Rijeka.</li> <li>5. Omura George (2010): <i>AutoCad 2010</i>, Stega tisak, Zagreb.</li> </ol>		
<b>Additional literature</b>		
<ol style="list-style-type: none"> <li>1. Padovan, L. (1999): <i>Inženjerska grafika i dokumentiranje</i>, Graphis, Zagreb.</li> <li>2. Simmons, C.H., Maquire, D.E., Phelps, N. (2012): <i>Manual of Engineering Drawing</i>, Butherworth-Heinemann LTD.</li> <li>3. Lučić, M. (2014): <i>Tehničko crtanje s autoCad-om</i>, Naklada Lučić, Osijek.</li> <li>4. Justinijanović, J. (1986): <i>Nacrtna geometrija</i>, FSB, Zagreb.</li> <li>5. Earle, J.H. (1999): <i>Graphics for Engineers</i>, Addison-Wesley Publishing Co., New York.</li> </ol>		

<b>BASICS OF AGRICULTURE</b>		
<b>Coordinator</b>	Irena Jug	
<b>Collaborators</b>	Danijel Jug Vesna Vukadinović	
<b>Study year and semester</b>	1st year, 2nd semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	6
	Number of class hours (L + S)	75 (60 L + 15 S)
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	Introduce students to the fundamentals of agriculture through the physical, chemical, and biological properties of soil, soil fertility, plant productivity within the soil-plant-atmosphere system, agrometeorology, and the principles of soil cultivation.	
<b>Course enrollment requirements</b>	no preconditions	
<b>Intended course learning outcomes</b>		
<p>After successfully completing the module, the student will be able to:</p> <ol style="list-style-type: none"> <li>1. explain the role of soil and the impact of harmful substances, as well as measures for soil conditioning;</li> <li>2. define the physical, chemical, and biological properties of soil and explain their influence on enhancing the fertility of agricultural production areas;</li> <li>3. identify and describe the fundamental factors of agricultural production (climate, soil, and plants) and express their interconnections;</li> <li>4. explain and interpret the importance of soil fertility, plant nutrition elements, and fertilization principles;</li> <li>5. explain the processes in soil and plants that, through plant-substrate interaction, affect the absorption, movement, and distribution of nutrients;</li> <li>6. explain the significance of soil cultivation, the importance of selecting appropriate soil cultivation systems in the agroecosystem, and predict potential harmful or beneficial deformations that may occur during soil cultivation;</li> <li>7. define and describe the importance of agrotechnical measures and practices in relation to plant production systems; and</li> <li>8. comment on, argue, and critically evaluate a given topic from the fundamentals of agriculture.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
<p>Eligibility to take the Final Examination is achieved by accumulating the minimum required number of grade points. Grade points are earned based on class attendance (minimum 70%), participation in class activities, grades from seminar paper, and grades from partial examinations. During the semester, students take three partial examinations (in the 4th, 10th, and 13th weeks of classes). The Final Examination is mandatory, and a passing grade on the Final Examination is a prerequisite for a positive overall grade. The Final Examination is oral.</p>		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. Jug I., Jug D., Brozović B., Vukadinović V., Đurđević B. (2022): <i>Osnove tloznanstva i biljne proizvodnje</i>. University textbook. Sveučilište Josipa Jurja Strossmayera u Osijeku, Fakultet agrobiotehničkih znanosti Osijek (FAZOS), Osijek, Hrvatska, pp. 527. ISBN: 978-953-8421-00-6.</li> <li>2. Jug D., Birkás M., Kisić I. (2015): <i>Obrada tla u agroekološkim okvirima</i>. University textbook. Hrvatsko društvo za proučavanje obrade tala (HDPOT), Osijek, Hrvatska, pp. 275. ISBN: 978-953-7871-48-2.</li> <li>3. Kisić, I. (2012): <i>Sanacija onečišćenog tla</i>. Textbook of the University of Zagreb.</li> <li>4. Jug, D., Stipešević, B., Jug, I., Mesić, M. (2011): <i>Agroklimatološki pojmovnik</i>, Poljoprivredni fakultet Osijek.</li> </ol>		
<b>Additional literature</b>		
<ol style="list-style-type: none"> <li>1. Jug D., Jug I., Vukadinović V., Đurđević B., Stipešević B., Brozović B. (2017): <i>Konzervacijska obrada tla kao mjera ublažavanja klimatskih promjena</i>. University textbook. Hrvatsko društvo za proučavanje obrade tala (HDPOT), Osijek, Hrvatska, pp. 176. ISBN: 978-953-7871-61-1.</li> <li>2. Bašić, F., Herceg, N. (2010): <i>Temelji uzgoja bilja</i>. Synopsis, Zagreb.</li> <li>3. Vukadinović, V., Vukadinović, V. (2011): <i>Ishrana bilja</i>. Poljoprivredni fakultet Osijek</li> </ol>		

<b>PHYSICAL EDUCATION AND SPORTS</b>		
<b>Coordinator</b>	Mario Keškić	
<b>Collaborators</b>	-	
<b>Study year and semester</b>	First year, II. semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	1
	Number of hours (L+E+S)	30 (30E)
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	The aim of Physical and Health Education is to train students to implement theoretical and motor skills that enable independent physical exercise for an improved quality of life.	
<b>Course enrolment requirements</b>		
<b>Intended course learning outcomes</b>		
After successfully completing the module, the student will be able to:		
1. Independently perform physical exercises for an improved quality of life.		
<b>Assessment and evaluation of student work during classes</b>		
Attendance in classes, active participation during the teaching process, and participation in practical exercises with a minimum attendance of at least 70% of the total hours grants the right to receive positive descriptive grade.		
<b>Obligatory literature</b>		
<b>Additional literature</b>		

<b>MATERIALS OF AGRICULTURAL MACHINES</b>		
<b>Coordinator</b>	Goran Heffer	
<b>Collaborators</b>	Ivan Vidaković Goran Pačarek	
<b>Study year and semester</b>	2nd year, 3rd semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	6
	Number of class hours (L + E + S)	75 (55L + 20S)
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	Introduce students to the fundamental concepts in the field of materials engineering and material processing technologies, as well as their application in agricultural engineering.	
<b>Course enrollment requirements</b>	no preconditions	
<b>Intended course learning outcomes</b>		
<p>After successfully completing the module, the student will be able to:</p> <ol style="list-style-type: none"> <li>1. define fundamental concepts in the basics of engineering materials;</li> <li>2. understand the importance of sustainable material management;</li> <li>3. comprehend and describe the relationship between the structure and properties of basic material groups;</li> <li>4. categorize the basic types of materials and their properties;</li> <li>5. analyze criteria for selecting appropriate types of materials for specific applications;</li> <li>6. define fundamental concepts in the field of material processing technologies;</li> <li>7. describe the basic types of material processing;</li> <li>8. analyze the materials used in the manufacturing of specific types of agricultural machinery and equipment; and</li> <li>9. independently determine the appropriate type of material for applications in agricultural engineering.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
<p>Students are expected to attend classes regularly and actively participate during lectures. As part of the course, student needs to prepare seminar paper, which they present orally in a 10- to 15-minute presentation using <i>PowerPoint</i>. The presentation schedule will be agreed upon in advance. During the semester, two partial written examinations will be held. Students will be informed of the exact dates of the partial examinations at the beginning of the semester. After the lectures are completed, students will take a Final Examination, which is mandatory. The Final Examination is written and covers material not passed in the partial examinations. Students are encouraged to take notes during lectures and prepare for examinations using the required literature.</p>		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. Vujčić, M.; Emert, R.; Jurić, T.; Heffer, G.; Baličević, P.; Pandurović, T.; Plaščak, I. (2011): <i>Osnove poljoprivrednog strojarstva</i>, Poljoprivredni fakultet, Osijek</li> <li>2. Novosel, M; Krumes, D. (1997): <i>Željezni materijali I and II</i>, Strojarski fakultet, Slavonski Brod</li> <li>3. Cebalo, R. (1996): <i>Obrada odvajanjem čestica</i>, Fakultet strojarstva i brodogradnje, Zagreb</li> <li>4. Math, M. (2010): <i>Uvod u tehnologiju oblikovanja deformiranjem</i>, Fakultet strojarstva i brodogradnje, Zagreb</li> <li>5. Lukačević, Z. (1998): <i>Zavarivanje</i>, Strojarski fakultet, Slavonski Brod</li> <li>6. Esih, I. (2003): <i>Osnove površinske zaštite</i>, Fakultet strojarstva i brodogradnje, Zagreb</li> </ol>		
<b>Additional literature</b>		
<ol style="list-style-type: none"> <li>1. Filetin, T. (2000): <i>Pregled razvoja i primjene suvremenih materijala</i>, HDMT, Zagreb</li> <li>2. Selected papers from referenced international journals – <i>Landtechnik, Journal of Agricultural Engineering Research, Advanced Materials &amp; Processes, Ingenieur Werkstoffe</i></li> </ol>		



<b>ENGINEERING MECHANICS I</b>		
<b>Coordinator</b>	Goran Heffer	
<b>Collaborators</b>	Ivan Vidaković Goran Pačarek	
<b>Study year and semester</b>	2nd year, 3rd semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	6
	Number of class hours (L+ E + S)	75 (45L +30E)
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	Introduce students to mechanical quantities and the laws of statics for rigid and solid deformable bodies, as well as the dynamics of a particle. Develop in students the engineering foundations for a scientific approach to studying agricultural mechanization.	
<b>Course enrollment requirements</b>	Mathematics	
<b>Intended course learning outcomes</b>		
<p>After successfully completing the module, the student will be able to:</p> <ol style="list-style-type: none"> <li>1. explain the concept of force, force components, the resultant of a concurrent set of forces, the momentum of a force about a point and an axis, force couple, and the reduction of a system of forces to a simpler form in both plane and space;</li> <li>2. free a body from constraints, write equilibrium equations, and determine reaction forces and other required quantities for planar and spatial force systems, with or without friction, by solving these equations;</li> <li>3. calculate the centroid of lines, areas, and bodies, as well as the geometric moments of inertia of beam cross-sections;</li> <li>4. explain the concepts of stress and strain. Determine the extreme values of normal and shear stress in axial and planar stress states. Explain Hooke's law, allowable stress, theories of strength, and types of internal forces in a bar cross-section;</li> <li>5. determine internal forces, stress, and deformation under axial loading, torsion, bending, shear, and combined loading. Design bar cross-sections for strength and deformation and calculate the load-bearing capacity of bars. Calculate critical force and stress during buckling;</li> <li>6. calculate velocity and acceleration in linear and curvilinear motion of a particle; and</li> <li>7. explain Newton's laws, the work of a force and a couple of forces, power, potential and kinetic energy, momentum, and impulse of a force.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
Attendance and participation in lectures and exercises, homework assignments, three partial examinations, and one final written examination. In addition to the time spent in class (75 hours), students are required to dedicate at least 75 hours for studying the material and completing homework assignments.		
<b>Obligatory literature</b>		
1. Vujčić, M.: <i>Inženjerska mehanika I</i> , Poljoprivredni fakultet Osijek 2012/2013. (internal course materials)		
<b>Additional literature</b>		
<ol style="list-style-type: none"> <li>1. Muftić, O: <i>Mehanika I</i>, Tehnička knjiga, Zagreb, 1991.</li> <li>2. Alfirević, I: <i>Nauka o čvrstoći I</i>, Tehnička knjiga, Zagreb, 1995.</li> <li>3. Hibbeler, R. C.: <i>Engineering Mechanics – Statics &amp; Dynamics</i>, Prentice-Hall, Upper Saddle River, NJ, 2007.</li> <li>4. Mott, L. R.: <i>Applied Strength of Materials</i>, Upper Saddle River, NJ, 2008.</li> </ol>		

<b>INTERNAL COMBUSTION ENGINES</b>		
<b>Coordinator</b>	Ivan Plaščak	
<b>Collaborators</b>	Tomislav Jurić Željko Barač	
<b>Study year and semester</b>	2nd year, 3rd semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	5
	Number of class hours (L+ E + S)	75 (45L + 30E)
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	Introduce students to the working principles of internal combustion engines (ICE), the materials and manufacturing methods of engine components, and the devices used in ICEs.	
<b>Course enrollment requirements</b>	no preconditions	
<b>Intended course learning outcomes</b>		
<p>After successfully completing the module, the student will be able to:</p> <ol style="list-style-type: none"> <li>1. sketch and present the working principles of various internal combustion engine (ICE) designs;</li> <li>2. sketch and present the theoretical and actual processes in ICEs;</li> <li>3. compare the technical characteristics of different ICEs;</li> <li>4. sketch and present the components of ICEs; and</li> <li>5. sketch and present the operation of various systems and devices in ICEs.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
<p>Eligibility to take the Final Examination is achieved by accumulating the minimum required number of grade points. Grade points are earned based on class attendance (minimum 70%), participation in class activities, and grades from partial examinations. During the semester, students take three partial examinations (in the 5th, 9th, and 15th weeks of classes). The Final Examination is mandatory, and a passing grade on the Final Examination is a prerequisite for a positive overall grade. The Final Examination is oral.</p>		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. Popović, G. (2013): <i>Tehnika motornih vozila</i>, 30th ed. Pučko otvoreno učilište Zagreb, Hrvatska obrtnička komora.</li> <li>2. Popović, G. (2008): <i>Tehnika motornih vozila</i>, 27th ed. Pučko otvoreno učilište Zagreb, Hrvatska obrtnička komora.</li> <li>3. Vujčić, M., Emert, R., Jurić, T., Heffer, G., Baličević, P., Pandurović, T., Plaščak, I. (2011): <i>Osnove poljoprivrednog strojarstva</i>. University textbook, Sveučilište u Osijeku.</li> <li>4. Vojvodić, M. M. (2008): <i>Pogonski motori i traktori</i>.</li> </ol>		
<b>Additional literature</b>		
The latest publications in the field of applying internal combustion engines (ICE) in agricultural engineering.		

<b>ANIMAL HUSBANDRY</b>		
<b>Coordinator</b>	Danijela Samac	
<b>Collaborators</b>	Zvonko Antunović Pero Mijić Josip Novoselec Tina Bobić Željka Klir Šalavardić	
<b>Study year and semester</b>	2nd year, 3rd semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	6
	Number of class hours (L + E + S)	75 (53L + 22E)
<b>OPIS PREDMETA</b>		
<b>Course aims</b>	Introduce students to the fundamentals of livestock production for domestic animals.	
<b>Course enrollment requirements</b>	Principles of Animal Breeding	
<b>Intended course learning outcomes</b>		
<p>After successfully completing the module, the student will be able to:</p> <ol style="list-style-type: none"> <li>1. explain the specific anatomical, physiological, and metabolic characteristics of poultry. Describe poultry breeding methods and the technology for rearing chickens, turkeys, geese, and ducks. List and describe breeds, breeding methods, inheritance, and selection in pigs. Describe piglet and gilt production, as well as fattening pig production;</li> <li>2. describe feeding plans for meat and egg production, production records in poultry farming, and facilities and equipment used in poultry farming. Explain feeding plans and production processes for various pig categories, as well as facilities and equipment in pig farming;</li> <li>3. explain the importance of breeds, breeding systems, biological foundations, reproduction, and feeding in sheep, along with the technology of lamb production. Describe the significance of breeds, reproduction, breeding techniques, and feeding for various goat categories;</li> <li>4. identify and describe the importance of cattle farming, including cattle origins and breeds, reproduction, lactation, calf and heifer rearing, and cattle fattening;</li> <li>5. interpret herd numbers, breeding records, selection indices, and the physical properties of wool; and</li> <li>6. describe record-keeping on a cattle farm, such as milk yield control for cows, calculating maximum production capacity, and preparing livestock movement reports.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
<p>Eligibility to take the Final Examination is achieved by accumulating the minimum required number of grade points. Grade points are earned based on class attendance, participation in class activities, and grades from partial examinations. During the semester, students take two written and three oral partial exams. The Final Examination is mandatory, and a passing grade on the Final Examination is a prerequisite for a positive overall grade. The Final Examination is oral.</p>		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. Senčić, Đ., Antunović, Z., Novoselec, J., Samac, D., Prakatur, I., Bobić, T., Klir, Ž. (2021): <i>Tehnologija animalne proizvodnje</i>. Sveučilište J. J. Strossmayera u Osijeku, Fakultet agrobiotehničkih znanosti Osijek.</li> <li>2. Senčić, Đ. (2011): <i>Tehnologija peradarske proizvodnje</i>. Poljoprivredni fakultet Osijek, Osijek.</li> <li>3. Senčić, Đ., Pavičić, Ž., Bukvić, Ž. (1996): <i>Intenzivno svinjogojstvo</i>. Nova Zemlja, Osijek.</li> <li>4. Mioč, P., Pavić, V. (2002): <i>Kozarstvo</i>. Hrvatska mljekarska udruga, Zagreb.</li> <li>5. Senčić, Đ., Antunović, Z., Kralik, Z., Mijić, P., Šperanda, M., Zmaić, K., Antunović, B., Steiner, Z., Samac, D., Đidara, M., Novoselec, J. (2010.): <i>Proizvodnja mesa</i>. Osječko-baranjska županija and Poljoprivredni fakultet Osijek.</li> <li>6. Mioč, P., Pavić, V., Sušić, V. (2002): <i>Ovčarstvo</i>. Hrvatska mljekarska udruga, Osijek.</li> <li>7. Uremović, Z. (2004): <i>Govedarstvo</i>. Hrvatska mljekarska udruga, Osijek.</li> </ol>		
<b>Additional literature</b>		
<ol style="list-style-type: none"> <li>1. Senčić, Đ. (1994): <i>Peradarstvo</i>. Gospodarski list, Zagreb.</li> <li>2. Uremović Z. i sur. (2002): <i>Stočarstvo</i>. Agronomski fakultet Zagreb.</li> <li>3. Caput, P. (1996): <i>Govedarstvo</i>. Celeber, Zagreb.</li> </ol>		

<b>PLANT PRODUCTION</b>		
<b>Coordinator</b>	Mladen Jurišić	
<b>Collaborators</b>	Irena Rapčan	
<b>Study year and semester</b>	2nd year, 3rd semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	6
	Number of class hours (L + E + S)	L- 60, E - 15
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	Introduce students to the key technological factors of modern crop cultivation (field crops and vegetables) and train them to independently utilize all available scientific and professional advancements in plant production, particularly through the application of expert systems in cultivation.	
<b>Course enrollment requirements</b>	no preconditions	
<b>Intended course learning outcomes</b>		
<p>After successfully completing the module, the student will be able to:</p> <ol style="list-style-type: none"> <li>1. describe the significance of plant cultivation, its history and forms, botanical characteristics, the general and economic importance of crops, basic plant taxonomy, and agroecological factors for plant cultivation (specific crop requirements for climate and soil). Explain the key features of integrated, biodynamic, and organic farming methods;</li> <li>2. describe cereals, their types and importance, as well as agroclimatic factors influencing their growth and development. Identify and explain the significance, classification, varieties, and agronomic practices (technology) for wheat, barley, maize, and sorghum;</li> <li>3. present industrial crops (sugar beet, soybean, potato) and forage crops (alfalfa, clover), their types and importance, and the agroclimatic factors affecting their growth and development. List varieties and describe agronomic practices—technology (crop rotation, sowing, soil preparation for specific crops, cultivation systems, fertilization, crop protection against diseases, pests, and weeds, as well as harvesting and technological quality). Describe methods of storage (green forage sequence, haylage, silage);</li> <li>4. describe and list the fundamentals of vegetable farming, forms, classifications, significance, and the effects of climatic and edaphic factors on vegetable growth and development. Explain seedling cultivation and vegetable farming in protected environments. Present integrated plant production methods and the basics of organic/ecological farming. Describe and interpret the application of expert systems in vegetable cultivation; and</li> <li>5. describe and interpret the Brassicaceae (cabbage family) and Alliaceae (onion family) as well as the Solanaceae (tomato, pepper) and Cucurbitaceae (cucumber) families—their significance and the influence of climatic and edaphic factors on growth and development. Discuss crop rotation, sowing, soil preparation, pest and disease control, weed management, fertilization, harvesting, yield, and technological quality. Explain integrated and organic farming methods.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
Eligibility to take the Final Examination is achieved by accumulating the minimum required number of grade points. Grade points are earned based on class attendance (minimum 70%), participation in class activities, and grades from partial examinations. During the semester, students take partial examinations. The Final Examination is mandatory, and a passing grade on the Final Examination is a prerequisite for a positive overall grade. The Final Examination is oral.		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. Jurišić, M. (2009): <i>AgBase – Priručnik za uzgoj bilja, I. Tehnologija (agrotehnika) važnijih ratarskih kultura</i>, MPŠVG RH - VIP projekt VII-5-16/07, Poljoprivredni fakultete, Osijek.</li> <li>2. Jurišić, M. (2009): <i>AgBase – Priručnik za uzgoj bilja, II. Tehnologija (agrotehnika) važnijih povrćarskih kultura</i>, MPŠVG RH - VIP projekt VII-5-16/07, Poljoprivredni fakultete, Osijek.</li> <li>3. Jurišić, M. (2015): <i>AgBase – Priručnik za uzgoj bilja IV. Opća načela i agrotehnika (tehnologija) organskog uzgoja bilja – povrća</i>, Poljoprivredni fakultet Osijek.</li> <li>4. Rapčan, I. (2014): <i>Priručnik za modul Bilinogojstvo, preddiplomski sveučilišni i stručni studij Mehanizacija</i>, Poljoprivredni fakultet Osijek.</li> </ol>		
<b>Additional literature</b>		

1. Lešić, R., Borošić, J., Buturac, I., Herak-Ćustić, M., Poljak, M., Romić, D. (2004): *Povrčarstvo*, Zrinski d. d.
2. Todorović, J., Lazić, B., Komljenović, I. (2003): *Ratarsko – povrtarski priručnik*, Laktaši, 2003.
3. Lazić, B., Ilić, Z., Đurovka, M. (2013): *Organska proizvodnja povrća*, Centar za organsku proizvodnju, Selenča – Novi Sad.

<b>GEOINFORMATION SYSTEMS IN AGRICULTURAL TECHNOLOGY</b>		
<b>Coordinator</b>	Mladen Jurišić	
<b>Collaborators</b>	Dorijan Radočaj	
<b>Study year and semester</b>	2nd year, 3rd semester	
<b>Number of credits</b>	ECTS credits	5
	Number of class hours (L + E + S)	L- 45, E - 25, S – 5
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	Introduce students to regulatory devices and the fundamentals of mechatronics, essential segments for understanding technical processes in GIS systems and their functioning in theory and practice. Familiarize participants with the basics of applying geoinformation technologies in crop production, with an emphasis on precision agriculture—agrotechnics in the precision agriculture system (satellite imagery, application maps, yield maps, nutrient maps, and GPS). Furthermore, teach participants about modern trends in agricultural engineering, specifically Agricultural Information Technology (AIT).	
<b>Course enrollment requirements</b>	no preconditions	
<b>Intended course learning outcomes</b>		
<p>After successfully completing the module, the student will be able to:</p> <ol style="list-style-type: none"> <li>1. describe and sketch a regulatory device in agriculture and PID regulation;</li> <li>2. identify electronic components of mechatronic systems;</li> <li>3. describe and sketch a measuring transducer and explain sensors used in agricultural engineering;</li> <li>4. describe GIS (historical overview and future, define its classifications, and interpret how GIS functions) and land information systems;</li> <li>5. describe advanced systems for global positioning and agricultural information technology (GPS and AIT);</li> <li>6. interpret and practically apply LPIS – ARKOD, explain the basics of remote sensing in agriculture and engineering, and list applications of digital cartography in agriculture (thematic maps);</li> <li>7. describe agrotechnical practices in the precision agriculture system (navigation, fertilization, and crop protection from pests); and</li> <li>8. interpret automatic guidance systems for tractors and machines in precision agriculture – Farmnavigator.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
Eligibility to take the Final Examination is achieved by accumulating the minimum required number of grade points. Grade points are earned based on class attendance (minimum 70%), participation in class activities, and grades from partial examinations. During the semester, students take partial examinations. The Final Examination is mandatory, and a passing grade on the Final Examination is a prerequisite for a positive overall grade. The Final Examination is oral.		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. Jurišić M., Plaščak I. (2009): <i>Geoinformacijski sustavi GIS u poljoprivredi i zaštiti okoliša</i>, Poljoprivredni fakultet Osijek.</li> <li>2. Jurišić M., Glavaš J., Plaščak I., Antonić O., Radočaj D. (2021): <i>Geoinformacijske tehnologije: GIS u ekonomiji</i>, Fakultet agrobiotehničkih znanosti Osijek.</li> <li>3. Radočaj D., Jurišić M., Plaščak I. (2021): <i>Geoinformacijske tehnologije: GIS u poljoprivredi i zaštiti okoliša – Praktikum</i>, Fakultet agrobiotehničkih znanosti Osijek.</li> </ol>		
<b>Additional literature</b>		
<ol style="list-style-type: none"> <li>1. Burrough P. A., McDonnell R. A. (2006): <i>Principles of Geographical Information Systems – Spatial Information Systems and Geostatistics</i>, Oxford University Press., UK.</li> </ol>		

<b>PHYSICAL EDUCATION AND SPORTS</b>		
<b>Coordinator</b>	Mario Keškić	
<b>Collaborators</b>	-	
<b>Study year and semester</b>	Second year, IV. semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	1
	Number of hours (L+E+S)	30 (30E)
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	The aim of Physical and Health Education is to train students to implement theoretical and motor skills that enable independent physical exercise for an improved quality of life.	
<b>Course enrolment requirements</b>		
<b>Intended course learning outcomes</b>		
After successfully completing the module, the student will be able to:		
1. Independently perform physical exercises for an improved quality of life.		
<b>Assessment and evaluation of student work during classes</b>		
Attendance in classes, active participation during the teaching process, and participation in practical exercises with a minimum attendance of at least 70% of the total hours grants the right to receive positive descriptive grade.		
<b>Obligatory literature</b>		
<b>Additional literature</b>		

<b>ELEMENTS OF AGRICULTURAL MACHINES</b>		
<b>Coordinator</b>	Goran Heffer	
<b>Collaborators</b>	Ivan Vidaković Goran Pačarek	
<b>Study year and semester</b>	2nd year, 4th semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	6
	Number of class hours (L + E +S)	75 (45P+30E)
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	Introduce students to the basic rules and methods of presenting and documenting elements and assemblies of agricultural machinery in technical drawings, as well as to the basic designs and principles of operation of machine elements in agricultural machinery.	
<b>Course enrolment requirements</b>	Engineering Mechanics I	
<b>Intended course learning outcomes</b>		
<p>Upon successfully completing the module, the student will be able to:</p> <ol style="list-style-type: none"> <li>1. draw axonometric projections of geometric models;</li> <li>2. create technical drawings of simple elements;</li> <li>3. develop spatial representations of machine elements using orthogonal projections;</li> <li>4. determine the exact shape, dimensions, and technical parameters of agricultural machinery elements;</li> <li>5. design and represent welded joints in drawings and determine the load-bearing capacity of welded structures;</li> <li>6. design and represent detachable joints in drawings and calculate their load-bearing capacity;</li> <li>7. calculate the load-bearing capacity and efficiency of threaded spindles;</li> <li>8. design and represent elastic joint elements in drawings and calculate their characteristics;</li> <li>9. design (construct) shafts and axles and determine their load-bearing capacity;</li> <li>10. determine the technical parameters of elements in circular motion.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
Students are expected to attend classes regularly and actively engage in the coursework, including creating graphical representations and applying computational methods to solve tasks during exercises. Each student is required to independently complete a seminar in the form of a design project. After lectures and exercises on thematically related instructional units, knowledge is assessed through partial examinations. Three partial written-oral examinations will be held during the semester. Final Examination is mandatory.		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. Opalić, M., Kljajin, M., Sebastijanović, S. (2003): <i>Tehničko crtanje</i>, Zrinski-Čakovec, Fakultet strojarstva i brodogradnje, Zagreb.</li> <li>2. Vujčić, M., Emert, R., Jurić, T., Heffer, G., Baličević, P. (2011): <i>Osnove poljoprivrednog strojarstva</i>, Poljoprivredni fakultet, Osijek.</li> <li>3. Decker, K-H. (1987, 2006): <i>Elementi strojeva</i>, Tehnička knjiga, Zagreb.</li> </ol>		
<b>Additional literature</b>		
<ol style="list-style-type: none"> <li>1. Križan, B. (1998): <i>Osnove proračuna i oblikovanja konstrukcijskih elemenata</i>, TF, Rijeka.</li> <li>2. Jelaska, B. (2005): <i>Elementi strojeva</i>, FESB, Split.</li> <li>3. Cvirn, Ž., Herold, Z. (2000): <i>Rastavljivi spojevi</i>, FSB, Zagreb.</li> <li>4. Kljajin, M., Opalić, M. (2010): <i>Inženjerska grafika</i>, SFSB, Slavonski Brod</li> <li>5. Mott, R.L. (2003): <i>Machine Elements in Mechanical Design</i>, Prentice Hall.</li> </ol>		



<b>AGRICULTURAL TRACTOR</b>		
<b>Coordinator</b>	Željko Barač	
<b>Collaborators</b>	Ivan Plaščak Tomislav Jurić	
<b>Study year and semester</b>	2nd year, 4th semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	5
	Number of class hours (L + E + S)	75 (35L + 20E + 20S)
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	Introduce participants to the operating principles and assemblies of an agricultural tractor.	
<b>Course enrollment requirements</b>	no preconditions	
<b>Intended course learning outcomes</b>		
<p>Upon successfully completing the module, the student will be able to:</p> <ol style="list-style-type: none"> <li>1. describe the most important assemblies and systems of a tractor;</li> <li>2. explain the power balance and transmission in tractors;</li> <li>3. understand the role of individual components in the power transmission of tractors;</li> <li>4. grasp the operating principles of tractor systems;</li> <li>5. explain the importance of tractor fuels and lubricants; and</li> <li>6. prepare and present a given topic.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
<p>The right to take the Final Examination is granted by achieving the minimum required number of assessment points. Assessment points are earned based on class attendance (minimum 70%), class participation, seminar grades, and partial exam grades. During the semester, students take two partial examinations (in the 7th and 15th weeks of classes). The Final Examination is mandatory, and a passing grade on the Final Examination is a prerequisite for a positive overall grade. The Final Examination is oral.</p>		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. Popović, G. (2013): <i>Tehnika motornih vozila</i>, 30th ed. Pučko otvoreno učilište Zagreb, Hrvatska obrtnička komora.</li> <li>2. Popović, G. (2008): <i>Tehnika motornih vozila</i>, 27th ed. Pučko otvoreno učilište Zagreb, Hrvatska obrtnička komora.</li> <li>3. Vujčić, M., Emert, R., Jurić, T., Heffer, G., Baličević, P., Pandurović, T., Plaščak, I. (2011): <i>Osnove poljoprivrednog strojarstva</i>. University textbook, Sveučilište u Osijeku.</li> <li>4. Vojvodić, M. M. (2008.): <i>Pogonski motori i traktori</i>.</li> <li>5. Jagar, N., Filipović, D. (1997): <i>Traktor na poljoprivrednim obiteljskim gospodarstvima</i>. Biblioteka Poljoprivredni savjetnik Zagreb.</li> </ol>		
<b>Additional literature</b>		
<ol style="list-style-type: none"> <li>1. Čevra, A. (2002): <i>Motori i motorna vozila 1</i>, Školska knjiga, Zagreb (textbook) for thematic units 1, 2,3, and 4</li> <li>2. Čevra, A. (2002): <i>Motori i motorna vozila 2</i>, Školska knjiga, Zagreb (textbook) for thematic units 1, 2,3, and 4</li> <li>3. Tanevski, D. (2001): <i>Praktikum po motori i traktori</i>, Tipografika, Skopje (textbook) for thematic units 1, 2,3, and 4</li> <li>4. Tanevski, D. (2003): <i>Motori i traktori, Prosvetno delo</i>, Skopje (textbook) for thematic units 1, 2,3, and 4</li> </ol>		

<b>EQUIPMENT AND DEVICES IN ANIMAL HUSBANDRY</b>		
<b>Coordinator</b>	Davor Kralik	
<b>Collaborators</b>	–	
<b>Study year and semester</b>	2nd year, 4th semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	6
	Number of class hours (L + E +S)	75 (65L + 10E)
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	Enable students to become familiar with the role of mechanization in modern livestock production.	
<b>Course enrollment requirements</b>	no preconditions	
<b>Intended course learning outcomes</b>		
Upon successfully completing the module, the student will be able to: <ol style="list-style-type: none"> <li>1. become familiar with various technical systems used in livestock production processes;</li> <li>2. design milking systems;</li> <li>3. design systems for manure management and processing; and</li> <li>4. define water requirements.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
Student performance is regularly assessed during teaching activities: attendance, participation in lectures, and exercises are monitored. During the semester, students take three partial examinations. Final Examination is mandatory.		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. Gordana Kralik (2011) <i>Zootehnika</i></li> <li>2. Gordana Kralik (2009) <i>Peradarstvo - biološki i zootehnički principi</i></li> <li>3. Gordana Kralik (2007) <i>Svinjogojstvo - biološki i zootehnički principi</i></li> </ol>		
<b>Additional literature</b>		
<ol style="list-style-type: none"> <li>1. Senčić, Đ., Pavičić Ž., Bukvić Ž.(1996): <i>Intenzivno svinjogojstvo</i>, Osijek</li> <li>2. Biglbauer, M.(1997): <i>Poljoprivredni objekti</i>, Osijek</li> <li>3. Šikić, D. (1980): <i>Elementi projektiranja građevinskih firmi</i>. Poljoprivredno graditeljstvo, Zagreb</li> <li>4. Emert R., Bukvić Ž., Jurić T., Filipović D.(1997): <i>Popravak poljoprivrednih strojeva</i></li> </ol>		

<b>MACHINES AND DEVICES IN CROP PRODUCTION AND GARDENING I</b>		
<b>Coordinator</b>	Luka Šumanovac	
<b>Collaborators</b>	Tomislav Jurić Domagoj Zimmer	
<b>Study year and semester</b>	2nd year, 4th semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	6
	Number of class hours (L + E + S)	75 (45L + 20E+10S)
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	Introduce participants to the operation of machines and devices used in primary and secondary soil cultivation as well as in fertilizer distribution. The content provides participants with a detailed understanding of the machines and devices, including their design, components, operating theory, adjustments, and applications.	
<b>Course enrollment requirements</b>	no preconditions	
<b>Intended course learning outcomes</b>		
<p>Upon successfully completing the module, the student will be able to:</p> <ol style="list-style-type: none"> <li>1. explain in detail the operating principles of tools for primary and pre-sowing soil cultivation and fertilization used in arable and horticultural production;</li> <li>2. perform key practical adjustments for plows, disc harrows, harrows, rollers, combined implements, manure loaders, manure spreader trailers, and mineral fertilizer spreaders;</li> <li>3. develop and present a given topic related to machines and devices in crop and horticultural production; and</li> <li>4. calculate important operational parameters of agricultural machinery in arable farming.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
<p>The right to take the Final Examination is granted by achieving the minimum required number of assessment points. Assessment points are earned based on class attendance (minimum 70%), class participation, and grades from partial examinations. During the semester, students take three partial examinations (in the 6th, 10th, and 13th weeks of classes). Students are required to prepare and present one seminar paper in the 14th week of classes. The Final Examination is mandatory, and a passing grade on the Final Examination is a prerequisite for a positive overall grade. The Final Examination can be oral or written.</p>		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. Lukač, P., Šumanovac, L.: <i>Zbirka riješenih zadataka iz mehanizacije biljne proizvodnje</i> (internal course materials), Vinkovci, 2001.</li> <li>2. Zimmer, R. et al: <i>Mehanizacija u ratarstvu</i>, Poljoprivredni fakultet u Osijeku, Osijek, 1997.</li> <li>3. Zimmer, R. et al: <i>Poljoprivredna tehnika u ratarstvu</i>, Poljoprivredni fakultet u Osijeku, Osijek, 2009.</li> <li>4. Vojvodić, M., Brkić, D., Lukač, P.: <i>Mehanizacija poljoprivredne proizvodnje I. (Mehanizacija u biljnoj proizvodnji)</i>, Pro-Agrar Zemun-Vinkovci, 1992.</li> <li>5. scientific and professional papers published in peer-reviewed international journals that will be used for seminar preparation.</li> </ol>		
<b>Additional literature</b>		
<ol style="list-style-type: none"> <li>1. Brčić, J.: <i>Mehanizacija u biljnoj proizvodnji</i>, „Školska knjiga“, Zagreb, 1987.</li> <li>2. Brčić, J.: <i>Mehanizacija u povrćarstvu</i>, Fakultet poljoprivrednih znanosti, Zagreb, 1991.</li> <li>3. Zimmer, R., Košutić, S., Kovačev, I., Zimmer, D.: <i>Integralna tehnika obrade tla i sjetve</i>, Poljoprivredni fakultet u Osijeku, web ed. (university manual), Osijek, 2014.</li> </ol>		

<b>MECHANIZATION IN FRUIT GROWING, VITICULTURE, AND WINE PRODUCTION</b>		
<b>Coordinator</b>	Vjekoslav Tadić	
<b>Collaborators</b>	Anamarija Banaj	
<b>Study year and semester</b>	2nd year, 4th semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	5
	Number of class hours (L + E + S)	75 (60L + 15E)
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	Introduce students to the operation of machines and devices used for land systematization, revitalization, primary and secondary soil cultivation, fertilizer distribution, planting fruit seedlings and vine grafts, orchard maintenance, pest control with pesticides, fruit and grape harvesting, and grape processing into wine. The content provides participants with a detailed understanding of the machines and devices, including their design, components, operating theory, adjustments, and applications.	
<b>Course enrollment requirements</b>	no preconditions	
<b>Intended course learning outcomes</b>		
<p>Upon successfully completing the module, the student will be able to:</p> <ol style="list-style-type: none"> <li>1. Explain in detail the operating principles of machines for land preparation and planting fruit trees and grapevines, as well as methods for terracing. Select appropriate tractors for fruit and vineyard production. Cover primary soil cultivation, planting of fruit trees and grapevines, fertilization, orchard maintenance, methods, and devices for pesticide application in orchards and vineyards. Understand machines and devices for fruit and grape harvesting and grape processing into wine.</li> <li>2. Perform key practical adjustments for plows, disc harrows, harrows, cultivators, mineral fertilizer spreaders, planters, sprayers, atomizers, dusters, foggers, shakers, grape harvesters, and machines for harvesting blackberries, currants, raspberries, and strawberries.</li> <li>3. Develop and present a given topic related to machines and devices in fruit and vineyard production.</li> <li>4. Calculate important operational parameters of agricultural machinery in fruit and vineyard production.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
The right to take the Final Examination is granted by achieving the minimum required number of assessment points. Assessment points are earned based on class attendance (minimum 70%), participation in class activities, and grades from partial examinations. During the semester, students take three partial examinations. The Final Examination is mandatory, and a passing grade on the Final Examination is a prerequisite for a positive overall grade. The Final Examination is written.		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. Đuro Banaj, Vjekoslav Tadić, Željka Banaj, Petar Lukač (2013): <i>Unapređenje tehnike aplikacije pesticida</i>. University textbook. Poljoprivredni fakultet u Osijeku. Sveučilište Josipa Jurja Strossmayera u Osijeku.</li> <li>2. Petar Lukač, Tomislav Pandurević (2011): <i>Strojevi za berbu voća i grožđa</i>. University textbook. Poljoprivredni fakultet u Osijeku. Sveučilište Josipa Jurja Strossmayera u Osijeku.</li> <li>3. Petar Lukač, Đuro Banaj, Dario Knežević, Domagoj Zimmer (2017): <i>Strojevi za sistematizaciju zemljišta, obradu i gnojidbu tla</i>. University textbook. Sveučilište u Mostaru.</li> <li>4. Josip Brčić (1995): <i>Mehanizacija u voćarstvu i vinogradarstvu</i>. University course materials. Agronomski fakultet. Sveučilište u Zagrebu.</li> </ol>		
<b>Additional literature</b>		
<ol style="list-style-type: none"> <li>1. Vlado Kušec, Stjepan Sito (2014): <i>Uređaji i oprema za navodnjavanje</i>. Manual. Visoko gospodarsko učilište u Križevcima.</li> <li>2. Vlado Kušec, Stjepan Sito (2019): <i>Strojevi i oruđa za kultiviranje i obradu tla</i>. Manual. Visoko gospodarsko učilište u Križevcima.</li> <li>3. Rajko Bugarin, Aleksandar Bošnjaković, Aleksandar Sedlar (2014): <i>Mašine u voćarstvu i vinogradarstvu</i>. University textbook. Sveučilište Novi Sad.</li> </ol>		

4. Robert Zimmer, Silvio Košutić, Domagoj Zimmer (2009): *Poljoprivredna tehnika u ratarstvu*. University textbook. Poljoprivredni fakultet u Osijeku. Sveučilište Josipa Jurja Strossmayera u Osijeku.

<b>PHYSICAL EDUCATION AND SPORTS</b>		
<b>Coordinator</b>	Mario Keškić	
<b>Collaborators</b>	-	
<b>Study year and semester</b>	Second year, IV. semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	1
	Number of hours (L+E+S)	30 (30E)
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	The aim of Physical and Health Education is to train students to implement theoretical and motor skills that enable independent physical exercise for an improved quality of life.	
<b>Course enrolment requirements</b>		
<b>Intended course learning outcomes</b>		
After successfully completing the module, the student will be able to:		
1. Independently perform physical exercises for an improved quality of life.		
<b>Assessment and evaluation of student work during classes</b>		
Attendance in classes, active participation during the teaching process, and participation in practical exercises with a minimum attendance of at least 70% of the total hours grants the right to receive positive descriptive grade.		
<b>Obligatory literature</b>		
<b>Additional literature</b>		

<b>EXPLOITATION OF AGRICULTURAL MACHINES I</b>		
<b>Coordinator</b>	Tomislav Jurić	
<b>Collaborators</b>	Ivan Plaščak Željko Barač Đurđica Kovačić	
<b>Study year and semester</b>	3rd year, 5th semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	6
	Number of class hours (L + E + S)	75 (45L + 20E + 10S)
<b>OPIS PREDMETA</b>		
<b>Course aims</b>	Introduce students to the factors influencing the rational use of agricultural machinery.	
<b>Course enrollment requirements</b>	no preconditions	
<b>Intended course learning outcomes</b>		
<p>Upon successfully completing the module, the student will be able to:</p> <ol style="list-style-type: none"> <li>1. describe production processes in agriculture;</li> <li>2. explain tractor-machine aggregates and their working conditions;</li> <li>3. explain the evaluation of the performance of tractor-machine aggregates;</li> <li>4. differentiate between various agrotechnical, technical-industrial, and operational indicators;</li> <li>5. explain resistance and the resistance balance of agricultural machinery;</li> <li>6. distinguish between operating modes and speeds of agricultural aggregates;</li> <li>7. demonstrate how to assemble tractor-machine aggregates and explain their performance and the factors influencing it; and</li> <li>8. discuss, argue, and critically analyze a given topic related to the operation of agricultural machinery.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
<p>The right to take the Final Examination is granted by achieving the minimum required number of assessment points. Assessment points are earned based on class attendance (minimum 70%), participation in class activities, seminar grades, and partial exam grades. During the semester, students take two partial examinations (in the 7th and 15th weeks of classes). The Final Examination is mandatory, and a passing grade on the Final Examination is a prerequisite for a positive overall grade. The Final Examination is written.</p>		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. Brkić, D., Vujčić, M., Šumanovac, L., Lukač, P., Kiš, D., Jurić, T., Knežević, D. (2005): <i>Eksploatacija poljoprivrednih strojeva</i>, university textbook, Osijek;</li> <li>2. Beštak, T. (1986): <i>Eksploatacija poljoprivrednih oruđa</i>, FPZ, Zagreb;</li> <li>3. Lazić, V. (1983): <i>Teorijske osnove eksploatacije poljoprivredne tehnike</i>, Poljoprivredni fakultet Novi Sad; and</li> </ol> <p>The latest published papers in the field of agricultural machinery operation.</p>		
<b>Additional literature</b>		
<ol style="list-style-type: none"> <li>1. Mičić, J. (1981): <i>Poljoprivredne mašine i uređaji</i>, Poljoprivredni fakultet Zemun.</li> </ol>		

<b>TECHNIQUES OF PROCESSING AND STORAGE I</b>		
<b>Coordinator</b>	Darko Kiš	
<b>Collaborators</b>	Zvonimir Zdunić	
<b>Study year and semester</b>	3rd year, 5th semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	6
	Number of class hours (L + E + S)	75 (45L + 30E)
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	Enable undergraduate students to master the material and acquire knowledge to achieve optimal results in the processing and storage of agricultural products in practice.	
<b>Course enrollment requirements</b>	no preconditions	
<b>Intended course learning outcomes</b>		
<p>Upon successfully completing the module, the student will be able to:</p> <ol style="list-style-type: none"> <li>1. list the basic tasks of storage;</li> <li>2. describe the factors that affect the viability of agricultural products;</li> <li>3. identify the physical properties of agricultural products;</li> <li>4. distinguish between types of storage facilities and their equipment;</li> <li>5. differentiate the basic properties of humid air; and</li> <li>6. recognize the basic types of dryers.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
<p>The right to take the Final Examination is granted by achieving the minimum required number of assessment points. Assessment points are earned based on class attendance (minimum 70%) and participation in class activities. The Final Examination is mandatory, and a passing grade on the Final Examination is a prerequisite for a positive overall grade. The Final Examination is oral.</p>		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. Ritz, Josip (1997): <i>Uskladištavanje ratarskih proizvoda</i>. PBI d.o.o. Zagreb.</li> <li>2. Babić, Ljiljana; Babić Mirko (2000): <i>Sušenje i skladištenje</i>. Poljoprivredni fakultet, Novi Sad</li> <li>3. Šumanovac, Luka, Slavko Sebastijanović, Darko, Kiš (2011): <i>Transport u poljoprivredi</i>, Poljoprivredni fakultet u Osijeku, Osijek</li> </ol>		
<b>Additional literature</b>		
<ol style="list-style-type: none"> <li>1. Zvonko Katić (1997): <i>Sušenje i sušare u poljoprivredi</i>, Multigraf, Zagreb</li> </ol>		



<b>MAINTENANCE AND REPAIR OF AGRICULTURAL MACHINES I</b>		
<b>Coordinator</b>	Tomislav Jurić	
<b>Collaborators</b>	Željko Barač, PhD Đurđica Kovačić	
<b>Study year and semester</b>	3rd year, 5th semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	6
	Number of class hours (L+ E + S)	75 (45L + 15E + 15S)
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	Introduce students to the importance of service and preventive maintenance measures for agricultural machinery in modern agricultural production.	
<b>Course enrollment requirements</b>	no preconditions	
<b>Intended course learning outcomes</b>		
<p>Upon successfully completing the module, the student will be able to:</p> <ol style="list-style-type: none"> <li>1. explain the concept and significance of service and preventive maintenance for agricultural machinery;</li> <li>2. describe the function and maintenance of specific tractor systems;</li> <li>3. detail the maintenance of various agricultural machinery;</li> <li>4. explain technical protection and storage (garage) practices for agricultural machinery;</li> <li>5. identify irregularities in regular maintenance measures, technical protection, and storage of agricultural machinery;</li> <li>6. propose measures to improve service and preventive maintenance, technical protection, and storage of agricultural machinery;</li> <li>7. develop a maintenance model for agricultural machinery on a farm; and</li> <li>8. apply legal regulations on environmental protection regarding used motor oils and other hazardous waste.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
<p>The right to take the Final Examination is granted by achieving the minimum required number of assessment points. Assessment points are earned based on class attendance (minimum 70%), participation in class activities, seminar grade, and partial exam grades. During the semester, students take two partial examinations (in the 7th and 15th weeks of classes). The Final Examination is mandatory, and a positive passing grade on the Final Examination is a prerequisite for a positive overall grade. The Final Examination is written.</p>		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. Emert, R., Jurić, T., Štefanek, E., Filipović, D. (1995): <i>Održavanje traktora i poljoprivrednih strojeva</i>, university textbook, Osijek.</li> <li>2. Sebastijanović, S. (2002): <i>Osnove održavanja strojarских konstrukcija</i>, university textbook, Slavonski Brod.</li> <li>3. Brkić, D., Vujčić, M., Šumanovac, L., Lukač, P., Kiš, D., Jurić, T., Knežević, D. (2005): <i>Eksploatacija poljoprivrednih strojeva</i>, university textbook, Osijek.</li> <li>4. Bekčić, M. (1981): <i>Održavanje i remont mehanizacije</i>, textbook, Beograd;</li> <li>5. Zakon o otpadu, <i>Official Gazette</i> 178/04.</li> </ol> <p>The latest published papers in the field of agricultural machinery maintenance.</p>		
<b>Additional literature</b>		
<ol style="list-style-type: none"> <li>1. Auer, S., Kletzl, W. (1993): <i>Handbuch für Reparaturen an Landmaschinen und Traktoren</i>, Munich.</li> <li>2. Jeras, D. (1992): <i>Klipni motori i uređaji</i>, Školska knjiga, Zagreb</li> </ol>		

<b>MACHINES AND DEVICES IN CROP PRODUCTION AND GARDENING II</b>		
<b>Coordinator</b>	Luka Šumanovac	
<b>Collaborators</b>	Mladen Jurišić Domagoj Zimmer	
<b>Study year and semester</b>	3rd year, 5th semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	6
	Number of class hours (L+ E + S)	75 (45L + 20E+10S)
<b>OPIS PREDMETA</b>		
<b>Course aims</b>	Introduce participants to the operation of machines and devices used in sowing and planting, crop care and protection, hay and silage preparation, harvesting of grain crops, sugar beet harvesting, and the application of geoinformation systems and global positioning systems (GPS).	
<b>Course enrollment requirements</b>	no preconditions	
<b>Intended course learning outcomes</b>		
<p>Upon successfully completing the module, the student will be able to:</p> <ol style="list-style-type: none"> <li>1. explain in detail the operating principles of machines and devices for sowing and planting, crop care and protection, hay and silage preparation, harvesting of grain crops, and machines and devices for harvesting sugar beet roots;</li> <li>2. perform key practical adjustments for seeders, planters, inter-row cultivators, sprayers, mowers, conditioners, rakes, high-pressure presses, hay dryers, forage and universal harvesters, and sugar beet root harvesters;</li> <li>3. explain how global positioning systems (GPS) function on machines and devices in agriculture;</li> <li>4. develop and present a given topic related to machines and devices in crop and horticultural production; and</li> <li>5. calculate important operational parameters of agricultural machinery in crop and horticultural production.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
<p>The right to take the Final Examination is granted by achieving the minimum required number of assessment points. Assessment points are earned based on class attendance (minimum 70%), participation in class activities, and grades from partial examinations. During the semester, students take three partial examinations (in the 5th, 9th, and 13th weeks of classes). Students are required to prepare and present one seminar paper in the 14th week of classes. The Final Examination is mandatory, and a passing grade on the Final Examination is a prerequisite for a positive overall grade. The Final Examination can be oral or written.</p>		
<b>Obligatory literature</b>		
<ol style="list-style-type: none"> <li>1. Bajkin, A.: <i>Mehanizacija u povrtarstvu</i>, Poljoprivredni fakultet u Novom Sadu, Novi Sad, 1994;</li> <li>2. Brkić, D., Vujčić, M., Šumanovac, L., Jurišić, M.: <i>Strojevi i uređaji za spremanje silaže</i>, Poljoprivredni fakultet u Osijeku, Vinkovci, 2000;</li> <li>3. Brkić, D., Jurišić, M.: <i>Strojevi i uređaji za vađenje šećerne repe</i>, Poljoprivredni fakultet u Osijeku, Vinkovci, 2001;</li> <li>4. Brkić, D., Vujčić, M., Šumanovac L.: <i>Strojevi za žetvu i berbu zrnatih plodina</i>, Poljoprivredni fakultet u Osijeku, Vinkovci, 2002;</li> <li>5. Jurišić, M., Plaščak, I.: <i>Geoinformacijski sustavi – GIS u poljoprivredi i zaštiti okoliša</i>, Poljoprivredni fakultet u Osijeku, Osijek, 2009;</li> <li>6. Lukač, P., Šumanovac, L.: Zbirka rješениh zadataka iz mehanizacije biljne proizvodnje (internal course materials), Vinkovci, 2001;</li> <li>7. Zimmer, R. et al: <i>Mehanizacija u ratarstvu</i>, Poljoprivredni fakultet u Osijeku, Osijek, 1997;</li> <li>8. Vojvodić, M., Brkić, D., Lukač, P.: <i>Mehanizacija poljoprivredne proizvodnje I. (Mehanizacija u biljnoj proizvodnji)</i>, Pro-Agrar Zemun-Vinkovci, 1992; and</li> <li>9. scientific and professional papers published in peer-reviewed international journals that will be used for seminar preparation.</li> </ol>		
<b>Additional literature</b>		
<ol style="list-style-type: none"> <li>1. Brčić, J.: <i>Mehanizacija u biljnoj proizvodnji</i>, Školska knjiga, Zagreb, 1987;</li> </ol>		

2. Brčić, J.: *Mehanizacija u povrćarstvu*, Fakultet poljoprivrednih znanosti, Zagreb, 1991;
3. Maceljski, M.: *Metode i aparati za primjenu pesticida*, Agronomski fakultet, Zagreb, 1992;
4. Zimmer, R. et al.: *Poljoprivredna tehnika u ratarstvu*, Poljoprivredni fakultet u Osijeku, Osijek, 2009;
5. Zimmer, R., Košutić, S., Kovačev, I., Zimmer, D.: *Integralna tehnika obrade tla i sjetve*, Poljoprivredni fakultet u Osijeku, web ed. (university manual), Osijek, 2014.

<b>PRACTICAL WORK I</b>		
<b>Coordinator</b>	Andrijana Rebekić	
<b>Collaborators</b>	-	
<b>Study year and semester</b>	3rd year, 6th semester	
<b>Number of credits and mode of delivery</b>	ECTS credits	6
	Number of class hours (L + E + S)	E - 75
<b>COURSE DESCRIPTION</b>		
<b>Course aims</b>	Introduce students to the adjustment of simple and combined implements in pre-sowing soil preparation. Align the traction line and resistance line on disc harrows, harrows, and rollers. Optimize the use of power-driven and combined implements in secondary soil cultivation. The content provides participants with a detailed understanding of the machines and devices, including their design, components, work adjustments, and applications.	
<b>Course enrollment requirements</b>	no preconditions	
<b>Intended course learning outcomes</b>		
Upon successfully completing the module, the student will be able to:		
<ol style="list-style-type: none"> <li>1. perform key practical adjustments in the field according to the agrotechnical operation and operate machinery for primary and secondary soil cultivation, fertilization, sowing, planting, crop care and protection, hay preparation, silage preparation, grain harvesting, corn harvesting and husking, and sugar beet harvesting;</li> <li>2. select the optimal type of storage facility and farmyard layout according to the quantity and type of produced goods;</li> <li>3. use various methods to test power-driven and attached implements;</li> <li>4. organize and manage the operation of agricultural machinery on farms.</li> </ol>		
<b>Assessment and evaluation of student work during classes</b>		
Students are expected to attend classes regularly and actively participate in tasks during exercises and practical work. During the semester, in accordance with the schedule and agrotechnical operations, students will complete professional practice on family farms and other business entities in the Republic of Croatia. During the professional practice, students are required to maintain a practice journal.		
<b>Obligatory literature</b>		
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<b>Additional literature</b>		
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