Course Syllabus

Code - Course Title	**TRM216U -**
Course Type	II. SEMESTER
Laboratory + Practice	0+0
ECTS	**6.0**
Language of Instruction	Türkçe
Course Type	Required Courses
Course Instructor(s)	PROF. DR. EVRİM GENÇ KUMTEPE

Mode of Delivery	Distance Education
Prerequisites	There is no prerequisite or co-requisite for this course.
Courses Recomended	N/A
Recommended Resources	Genç, E & Kumtepe, E. (Eds) (2024). Agriculture 4.0. T.C. Anadolu Universtiy Press No:4463, Open Education Faculty Pub. No: 3198.
Work Placement	N/A

Course Syllabus

Weeks	Learning Outcomes	Topics	Teaching Methods
Week - 1		Introduction to Agriculture 4.0: Definition, historical background, transformation stages, and significance of the era	
Week - 2		Core Components of Agriculture 4.0: IoT, Big Data, Artificial Intelligence, Robotic Systems	
Week - 3		Introduction to Digital Technologies: Precision, Smart, and Digital Agriculture Concepts	
Week - 4		AI, Cloud Computing, and Blockchain in Agriculture: Data analytics and examples of digital applications	
Week - 5		IoT, Big Data, and Digital Transformation: Information processing technologies, architectures, and application examples	
Week - 6		Smart Agriculture Applications: Greenhouse, fish farm, livestock, drone, cloud applications	
Week - 7		Midterm Exam	
Week - 8		Robotics and Automation in Agriculture: Classification and advantages of robotic systems	
Week - 9		Agriculture 4.0 and Supply Chain Management: Planning, production, distribution, customer relations	
Week - 10		Sustainability Concept and Nexus Approach: Water, energy, and food interrelations	
Week - 11		Sustainable Agriculture and Circular Economy: EU policies, renewable energy	
Week - 12		Soilless Agriculture and Food Security: Hydroponic and aquaponic techniques, automation	
Week - 13		Future of Agriculture 4.0 and New Trends: Transition to Agriculture 5.0, ethical and social aspects	

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Weeks	Learning Outcomes	Topics	Teaching Methods
Week - 14		Final Exam	

Learning Outcomes

#	Learning Outcome
1	The student will be able to explain the concept of Agriculture 4.0, its historical development, and its core components.
2	The student will be able to express the role of digital technologies (IoT, AI, big data, robotic systems) in agricultural production processes.
3	The student will be able to identify smart farming practices, sustainability approaches, and soilless agriculture systems, and compare their fundamental characteristics.
4	The student will be able to evaluate the impacts of Agriculture 4.0 on supply chain management, food security, and ethical-social dimensions.
5	The student will be able to identify emerging technological trends in the transition from Agriculture 4.0 to Agriculture 5.0.

Sustainable Development Goals

No content has been provided.

Course Theme

No content has been provided.

AKTS Workload

Activity	Duration (Hour)	Count	Workload
Teorik Derse Katılım	0	0	0
Sınıf Dışı Çalışma (Ön Hazırlık & Pekiştirme Amaçlı)	0	0	0
Ödevler	0	0	0
Proje - Rapor - Sunum Hazırlama	0	0	0
Ara Sınav Hazırlığı (sınav süresi dahil)	0	0	0
Final Sınavı Hazırlığı (sınav süresi dahil)	0	0	0
Uygulama (Laboratuvar, Müzik/Enstrüman Uygulaması, Atölye/Saha Çalışması vb.)	0	0	0
Staj Uygulaması	0	0	0
		Calculated ECTS	**0**

Assessment Method and Passing Requirements

No content has been provided.

Assessment Method and Passing Requirements	Quamtity	Percentage (%)

Assessment Method and Passing Requirements	Quamtity	Percentage (%)
1.Midterm Exam	1	30
Final Exam	1	70
	Sum (%)	**100**