



AgriTech Solutions: Innovating VET for Sustainable Agriculture
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 2024-1-RS01-KA210-VET-000244168

MINUTES

From the implementation of an activity for the needs of the project

Review of existing qualifications

Overview of the prevalence of sustainable agricultural practices, precision agriculture, organic farming, renewable energy sources and the use of technology in agriculture in the qualification curricula.

Teacher Sonja Slavkovic

Place Skopje

Qualification **Phytomedicine Technician**

Curriculum	Agrometeorology with climatology	
Year	I (first) year	
Module/modular unit Meteorological elements and phenomena	Representation	Description
	Precision farming	Teaching is being carried out instrument content for measuring various meteorological phenomena

Proposal for improving the curriculum in terms of the representation of sustainable agricultural practices, precision agriculture, organic agriculture, renewable energy sources and the use of technology in agriculture in the curricula of the qualification	
Module/modular unit Meteorological elements and phenomena	Proposal
	To provide practical examples of the use of instruments in agriculture



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Subject	Pedology and agrochemistry	
Year	II (second) year	
Module/modular unit	Representation	Description
Agrochemistry	Use of technology in agriculture Organic farming	The task is a result of learning the selection and use of mineral and organic fertilizers for conventional and organic agriculture production

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Module/modular unit	Proposal
Agrochemistry	To develop more types of organic fertilizers and their use in organic production.

Subject	Environmental protection	
Year	II (second) year	
Module/modular unit	Representation	Description
Ecology	Sustainable agriculture practices	It is represented as a result of learning structural elements of ecosystems and circular movement of matter and





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		energy flow in the ecosystem
Pollution and protection the environment	Use of technology in agriculture Precision farming Sustainable agriculture practices Renewable energy sources Organic farming	It is represented as a result of learning structural elements of ecosystems and the circular movement of matter and energy flow in the ecosystem

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Module/modular unit	Proposal
Ecology	To provide practical programs and examples for sustainable development in agriculture
Pollution and protection the environment	To develop more measures for environmental protection environment

Subject	Agricultural machinery	
Year	II (second) year	
Module/modular unit All modular units	Representation	Description
Machines and implements for soil cultivation Machines for fertilizing, sowing, planting and transplanting	Use of technology in agriculture Precision farming Sustainable agriculture practices Renewable energy sources	All areas are underrepresented.





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Machines for protection plants and machinery and irrigation devices Machinery, devices and equipment for making hay, green fodder and silage Harvesting machines and performance, grain harvesters and harvesters corn Machines for extracting sugar beets, potatoes, cotton harvesting and rolling tobacco Harvesting machines and fruit grading in viticulture and fruit growing Machinery in livestock farming	Organic farming	
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Proposal for improving the curriculum in terms of the representation of sustainable agricultural practices, precision agriculture, organic agriculture, renewable energy sources and the use of technology in agriculture in the curricula of the qualification	
Module/modular unit All modular units	Proposal
Machines and implements for soil cultivation Machines for fertilizing, sowing, planting and transplanting	All areas should be processed through all modular units, because agricultural mechanization is part of all production technologies in agriculture.





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Machines for protection plants and machinery and irrigation devices Machinery, devices and equipment for making hay, green fodder and silage Harvesting machines and performance, grain harvesters and harvesters corn Machines for extracting sugar beets, potatoes, cotton harvesting and harvesting and rolling tobacco Harvesting machines and fruit grading in viticulture and fruit growing Machinery in livestock farming	
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Subject	Viticulture and fruit production	
Year	III (third) year	
Module/modular unit Lot production	Representation	Description
and	Use of technology in agriculture	The learning outcomes are given as lifting and agrotechnical measures for cultivation of grapevine and fruit planting material
fruit and vegetable	Precision farming	
material	Sustainable agricultural practices	
	Renewable energy sources	
	Organic farming	





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Agrotechnical, ampelotechnical and more technical measures the vine and the fruit trees	Use of technology in agriculture Precision farming Sustainable agricultural practices Renewable energy sources Organic farming	The learning result is given as lifting and the care of young plantations to childbirth. The learning outcomes are given in the pruning of ripe and green As a result of learning the type, methods and time of fertilization are given and watering the vineyards and the fruit orchards.
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Module/modular unit Lot production	Proposal
and fruit and vegetable material	All 5 areas can be represented in this modular unit, especially the use of technology in agriculture, precision agriculture, and sustainable agricultural practices.
Agrotechnical, ampelotechnical and more technical measures the vine and the fruit trees	All 5 areas can be represented in this modular unit, with special emphasis on the application of each area.

Subject	Agricultural, horticultural and floricultural production	
Year	III (third) year	
Module/modular unit	Representation	Description





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Agroecology and agricultural machinery	Use of technology in agriculture Precision farming Sustainable agricultural practices Renewable energy sources Organic farming	The learning outcome provides measures for adaptation of agriculture, horticulture and floriculture production. towards climate change. As a result of learning the principles and measures in organic farming are given production The learning outcomes are given in the corresponding measures, methods and systems for tillage. The learning outcomes are given as garbage and composting. As a result of learning time is given the methods and norms for sowing various agricultural, horticultural and flower crops As a result of learning measures for the care of agricultural, horticultural and floral plants are given cultures. The learning outcomes are given as collection, the transportation and storage of agricultural products, vegetables and flowers.
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Agricultural production	Use of technology in agriculture Precision farming Sustainable agricultural practices Renewable energy sources Organic farming	Technologies in agriculture are represented production: grain and tuber crops, industrial crops, fodder crops.
Horticultural technologies production	Use of technology in agriculture Precision farming Sustainable agriculture practices Renewable energy sources Organic farming	Technologies are represented in the garden production.
Technologies in floriculture production	Use of technology in agriculture Precision farming Sustainable agriculture practices Renewable energy sources Organic farming	Technologies in floriculture production are represented.

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Module/modular unit Agroecology and	Proposal
agricultural machinery	All areas with multiple curricular content can be represented in this modular unit, especially the use of technology in agriculture, precision agriculture, and sustainable agricultural practices.



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Agricultural production	To provide practical programs for the application of agrotechnical and other measures in agricultural production.
Horticultural technologies production	To provide practical programs for the application of agrotechnical and other measures in horticultural production.
Technologies in floriculture production	To provide practical programs for the application of agrotechnical and other measures in floriculture production.

Subject	Diseases and pests of field crops	
Year	III (third) year	
Module/modular unit Diseases in	Representation	Description
agricultural crops cultures	Sustainable agricultural practices	The learning outcomes include the most important diseases in field crops, their development, ecological conditions for the occurrence of diseases, as well as measures to suppress them
Pests of field plants	Sustainable agriculture practices	The learning outcome includes polyphagous pests of field crops, describes them and knows their biology, harmfulness and control measures.

Proposal for improving the curriculum in terms of the representation of sustainable agricultural practices, precision agriculture, organic agriculture,



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renewable energy sources and the use of technology in agriculture in the curricula of the qualification	
Module/modular unit Diseases in	Proposal
agricultural crops	To provide practical experiences in applying the principles and measures for disease protection.
cultures	
Pests of field plants	To provide practical experiences for the application of principles and measures for pest protection.

Subject	Phytopharmacy	
Year	III (third) year	
Module/modular unit Methods of	Representation	Description
combating diseases, pests and weeds in cultivated plants	Use of technology in agriculture Sustainable agriculture practices	The learning outcomes include methods for combating diseases, pests and weeds in cultivated plants. As a result of learning pesticides are given to protect plants from diseases;. The learning outcome includes zoocides for plant protection from pests As a result of learning protection of plants from weeds is provided
Plant protection products	Use of technology in agriculture Sustainable agriculture practices	As a result of learning the application of plant protection products is given





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Module/modular unit Methods of	Proposal
combating diseases, pests and weeds in cultivated plants	To provide practical experiences in applying methods for combating diseases, pests and weeds in cultivated plants.
Plant protection products	To provide practical experiences in the application of plant protection products.

Subject	Integral protection in gardening and floriculture - elective program	
Year	III (third) year	
Module/modular unit Procedures and	Representation	Description
measures in integral protection	Use of technology in agriculture Sustainable agriculture practices	As a result of learning methods are provided for establishing biological monitoring harmful organisms. As a result of learning given economically thresholds and knows economic and ecological meaning of the category economic threshold As a result of learning preventive measures have been taken and he knows about them role and importance in integrated plant protection.





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		Curative measures are given as a learning outcome. and knows about their role and importance in integrated plant protection
Integral protection in gardening and floriculture	Use of technology in agriculture Sustainable agriculture practices	As a result of learning integral protection against biological harmful organisms is provided in horticultural crops (insects, spiders, nematodes, snails, rodents, birds, pathogenic microorganisms, weeds)

Proposal for improving the curriculum in terms of the representation of sustainable agricultural practices, precision agriculture, organic agriculture, renewable energy sources and the use of technology in agriculture in the curricula of the qualification

Module/modular unit Procedures and	Proposal
measures in integral protection	To provide practical experiences in applying procedures and measures for integrated protection against diseases, pests and weeds in cultivated plants.
Integral protection in gardening and floriculture	To provide practical experiences in the application of integrated protection in gardening and floriculture

Subject	Integral protection in viticulture and fruit growing - elective program	
Year	III (third) year	
Module/modular unit	Representation	Description



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Basic principles in integral protection against economic harmful insects in the vine and the fruit trees species	Use of technology in agriculture Sustainable agriculture practices	The learning outcomes include the basic principles of the integral protection during control economic harm insects in viticulture and fruit growing.
Monitoring of the most important economic harmful insects in fruit growing	Use of technology in agriculture Sustainable agriculture practices	As a learning result, different integral measures for fruit protection cultures
Monitoring of the gray grape moth (<i>Polychrosis botrana</i>) in viticulture	Use of technology in agriculture Sustainable agricultural practices	As a result of learning practical ones are given integral measures for protection against gray mold grapevine moth with reduced use of chemicals.

Proposal for improving the curriculum in terms of the representation of sustainable agricultural practices, precision agriculture, organic agriculture, renewable energy sources and the use of technology in agriculture in the curricula of the qualification	
Module/modular unit Basic principles	Proposal
in integral protection against economically harmful insects in the vine and the fruit trees species	To provide practical experiences for applying principles in the integral protection against economically harmful insects in grapevines and fruit species.
Monitoring of the most important economic harmful insects in fruit growing	To provide practical experiences in the application of integral protection against the most significant economically harmful insects in fruit growing





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Monitoring of the gray grape moth (<i>Polychrosis botrana</i>) in viticulture	To provide practical experiences in the application of integrated protection against the gray grape moth (<i>Polychrosis botrana</i>) in viticulture
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Subject	Integrated protection in agriculture - elective program	
Year	III (third) year	
Module/modular unit Procedures and	Representation	Description
measures in integral protection	Use of technology in agriculture Sustainable agriculture practices	As a result of learning methods are provided for establishing biological monitoring harmful organisms. As a result of learning given economic thresholds and knows economic and ecological meaning of the economic threshold category As a result of learning preventive measures have been taken and he knows about them role and importance in integrated plant protection. As a result of learning curative measures are given and knows about their role and importance in integrated plant protection
Integral protection in agriculture	Use of technology in agriculture Sustainable agriculture practices	As a result of learning integral protection against biological harmful organisms in agricultural crops is provided



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		(insects, spiders, nematodes, snails, rodents, birds, pathogenic microorganisms, weeds)
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Proposal for improving the curriculum in terms of the representation of sustainable agricultural practices, precision agriculture, organic agriculture, renewable energy sources and the use of technology in agriculture in the curricula of the qualification	
Module/modular unit Procedures and measures in integral protection	Proposal
	To provide practical experiences in applying procedures and measures for integrated protection against diseases, pests and weeds in cultivated plants.
Integral protection in agriculture	To provide practical experiences in the application of integrated pest management in agriculture

Subject	Organic vegetable farming technologies - elective program	
Year	III (third) year	
Module/modular unit Fundamentals of organic agricultural production	Representation	Description
	Sustainable agriculture practices Renewable energy sources Organic farming Use of technology in agriculture	In learning outcomes methods are given and principles of organic production and the impact of organic production on the environment





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Measures in the vegetable garden organic production	Sustainable agricultural practices Renewable energy sources Organic farming	The learning outcomes provide measures in organic vegetable production.
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Module/modular unit Fundamentals	Proposal
of organic agricultural production	This modular unit should also emphasize sustainable agricultural practices, renewable energy sources, and the use of technology in agriculture.
Measures in the vegetable garden organic production	In this modular unit, in addition to measures in organic production, emphasis should also be placed on sustainable agricultural practices, renewable energy sources and the use of technology in agriculture.

Subject	Diseases and pests in horticultural and floricultural crops cultures	
Year	IV (fourth)	
Module/modular unit Diseases in	Representation	Description
horticultural and floricultural crops	Use of technology in agriculture Sustainable agriculture practices	Agrotechnical products are represented measures to reduce the potential for disease and protection measures





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Pests in horticultural and floricultural crops	Use of technology in agriculture Sustainable agriculture practices	Significant polyphagous pests are present for gardening and floriculture, their importance, biology and control.
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Module/modular unit Diseases in horticultural and floricultural crops	Proposal
	To provide practical programs for the use of new technology in the application of agrotechnical measures to reduce the potential for disease and measures for protection
Pests in horticultural and floricultural crops	To provide practical programs for the use of new technology for protection against more significant polyphagous pests in gardening and floriculture

Subject	Diseases and pests in grape and fruit crops	
Year	IV (fourth)	
Module/modular unit Diseases and pests in fruit crops	Representation	Description
	Use of technology in agriculture Sustainable agriculture practices	Measures for protection against phytopathogenic prokaryotic diseases in fruit crops are provided. Measures for protection against phytopathogens are in place.





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		viruses in fruit crops. Measures are advocated for pest control insects.
Diseases and pests in the grapevine	Use of technology in agriculture Sustainable agricultural practices	Measures are advocated for protection of vineyards from various diseases caused by phytopathogenic fungi. Measures are advocated for protection of vineyards from phytopathogenic prokaryotic diseases. Measures are advocated for protection of vineyards from phytopathogenic viruses. Harmful substances are present Insects and measures for their control in plantations.

Proposal for improving the curriculum in terms of the representation of sustainable agricultural practices, precision agriculture, organic agriculture, renewable energy sources and the use of technology in agriculture in the curricula of the qualification

Module/modular unit Diseases and	Proposal
pests in fruit crops	To provide practical programs for the application of new technology for the protection against diseases and pests in the fruits
Diseases and pests in the grapevine	To provide practical programs for the application of new technology for the protection against diseases and pests in the vine



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Subject	Integral protection in gardening and floriculture - elective program	
Year	IV (fourth)	
Module/modular unit Integrated	Representation	Description
protection in horticultural crops	Use of technology in agriculture Sustainable agriculture practices	Measures for integral protection are in place for horticultural crops
Integral protection of flower crops	Use of technology in agriculture Sustainable agriculture practices	Measures for integral protection of flower crops are used.

Proposal for improving the curriculum in terms of the representation of sustainable agricultural practices, precision agriculture, organic agriculture, renewable energy sources and the use of technology in agriculture in the curricula of the qualification	
Module/modular unit Integrated	Proposal
protection in horticultural crops	To provide practical programs for the application of integrated pest management in horticultural crops
Integral protection of flower crops	To provide practical programs for the application of integrated pest management in floriculture crops

Subject	Integral protection in viticulture and fruit growing - elective program	
Year	IV (fourth)	
Module/modular unit	Representation	Description





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Integral protection as production system based on correct ecological principles	Use of technology in agriculture Sustainable agriculture practices	The fundamentals are represented principles of the integral environmental protection sense
Monitoring and prognosis of major diseases in the vine and the fruit trees species	Use of technology in agriculture Sustainable agricultural practices	Practical ones are represented methods of disease prognosis and determination of treatment deadlines

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Module/modular unit Integral protection	Proposal
as production system based on correct ecological principles	To provide practical programs for the application of integrated pest management in viticulture and fruit growing
Monitoring and prognosis of major diseases in the vine and the fruit trees species	To provide practical programs for monitoring and forecasting the most important diseases in viticulture and fruit growing

Subject	Integrated protection in agriculture - elective program	
Year	IV (fourth)	
Module/modular unit Integrated crop protection	Representation	Description
	Use of technology in agriculture Sustainable agricultural practices	Measures for the integral protection of agricultural crops are advocated.



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Module/modular unit Integral	Proposal
protection as production system based on correct ecological principles	To provide practical programs for the application of integrated pest management in agriculture

Subject	Organic vegetable farming technologies - elective program	
Year	IV (fourth)	
Module/modular unit Technologies in	Representation	Description
organic vegetable production	Use of technology in agriculture Sustainable agriculture practices	Appropriate ones are represented technologies in organic agricultural production, horticultural crops, vegetables, fruits, grapes, aromatic, medicinal and wild plants.

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Module/modular unit	Proposal
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Organic technologies vegetable production	To provide practical programs for the application of appropriate technologies in the organic production of agricultural, horticultural crops, vegetables, fruits, grapes, aromatic, medicinal and wild plants.
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In Skopje

Teachers

Date 05/31/2025

Sonja Slavkovic, Efremcho Nikolov



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