



Universidad Juárez del Estado de Durango
Facultad de Ciencias Forestales



Learning Unit Programme

With an integral professional competences approach

I. LEARNING UNIT GENERAL DATA

1. learning Unit Name		2. Code	
Environmental education		6643	
3. Academic Unit			
<i>FORESTRY SCIENCES FACULTY</i>			
4. Academic programme		5. Level	
Environmental Management Engineering		Higher Bachelor's degree	
6. Training Area			
Basic			
7. Academy			
Academy of Basic and Methodological Sciences			
8. Modality			
Mandatory	X	Course	X
Elective		Course-workshop	
		Workshop	
		Seminar	
		Laboratory, field practice, etc.	
		Professional Practice	
		Academic Stay	
9. Pre-requirements			
Be enrolled in the Environmental Management Engineer Educational Program			

10. Theory hours	Practice hours	Independent study hours	Total hours	Credits
3	3	0	6	6
11. Names of the teachers who participated in the development and/or modification of the programme				
Juan Carlos Herrera Cárdenas				
12. Date of development		Date of modification	Date of approval	
10/July /2008		12/08/2013	11/10/2017	

II. LEARNING UNIT SPECIFIC DATA	
13. Presentation	
<p>The Educational Model of the UJED contemplates that a distinctive seal would be the humanistic and environmental training, that is, all the academic programs of the university must consider this subject in the first semester. This is centred in its way of educating the human being more than in the technique and in the products, the benefit of his work and it is based on the premise that the education of the human being and the acquisition of knowledge, in any area, cannot be done on the margin of a clear conscience for appreciation and respect for human dignity; likewise, for the care of the environment in which he lives. The Environmental Education program takes in to account the most relevant issues of the environmental crisis, for which it is proposed that the student knows what is affected in the environment and the different causes of it , and how to act to solve such problems from the practical point of view</p>	
14. Integral professional competences to develop in the student	
Generic competences	<p>Instrumental</p> <ul style="list-style-type: none"> • Capability for analysis and synthesis • Oral and written communication skills • Ability to manage information • Problem resolution-Decision making <p>Personal</p> <ul style="list-style-type: none"> • Teamwork • Ethical and quality commitment <p>Systemic</p> <ul style="list-style-type: none"> • Motivation for quality
Professional competences	<ul style="list-style-type: none"> • Distinguish the different types of natural resources and the components of ecosystems, as well as the causes of their destruction

	<ul style="list-style-type: none"> • It locates the different factors that make up the environment and its different perspectives of study. • Identify the different types and causes of environmental pollution and the factors that determine the impact of the human being on the environment 			
General purpose of the course	Promotes interest and increased sensitivity in order to take them, successively and simultaneously, to be able to accept, observe, understand, love, protect and transform the environment, so they must defend, preserve and improve it, as a better way of life quality and harmony with nature for the development of the human being in fullness. This implies the development of new habits and promotion of values oriented to the prevention and solution of the problems derived from the environmental crisis			
15. Joint of axes				
The learning unit, professional ethics, values, human rights, and respect for the environment, are defined in the curricular map, and are closely related to the generic competences defined in the educational program.				
16. development of the course				
Module 1	The Study of Nature			
Intended learning	Learning contents	Learning product(s)	Strategies	Teaching resources and materials

<p>Know the importance of man-nature relationship</p>	<ul style="list-style-type: none"> • The concept of nature • Relationship of man with nature. • Historical development of the study of nature conservation. 	<p>Learning Activity 1.- Questionnaire about the Study of nature</p>	<ul style="list-style-type: none"> • Discussion forum 1.- The Nature Study. • Learning Based on Task Resolution 	<p>Virtual Platform of the Virtual University System. Virtual.ujed.mx. Virtual classroom of environmental education.</p> <ul style="list-style-type: none"> • Computer centre • Anthology • Videos • Reinforcement Exercises
<p>Module 2</p>	<p>Natural resources</p>			
<p>Intended learning</p>	<p>Learning contents</p>	<p>Learning product(s)</p>	<p>Strategies</p>	<p>Teaching resources and materials</p>

Distinguish the different natural resources and the causes that provoke their destruction	<ul style="list-style-type: none"> • Concept of conservation. • Classification of natural resources. • Causes of the destruction of natural resources. 	Development of a mental map about natural resources.	<ul style="list-style-type: none"> • Discussion forum 2.- Natural resources. • Learning Based on Task Resolution 	Virtual Platform of the Virtual University System. Virtual.ujed.mx. Virtual classroom of environmental education. <ul style="list-style-type: none"> • Computer centre • Anthology • Videos <ul style="list-style-type: none"> • Reinforcement Exercises
Module 3	Ecological Scienc			
Intended learning	Learning contents	Learning product(s)	Strategies	Teaching resources and materials
Defines the principles and importance of ecology and its relationship with other sciences.	<ul style="list-style-type: none"> •The concept of ecology. •Branches of ecology. •Environmentalism 	<ul style="list-style-type: none"> • Learning Activity 3.-. Preparation of a poster on ecology and environmentalism 	Discussion forum 3.- Ecology and Ecology <ul style="list-style-type: none"> • Learning Based on Task Resolution 	Virtual Platform of the Virtual University System. Virtual.ujed.mx. Virtual classroom of environmental education. <ul style="list-style-type: none"> • Computer centre • Anthology • Videos • Reinforcement Exercises

Module 4				
The ecosystem				
Intended learning	Learning contents	Learning product(s)	Strategies	Teaching resources and materials
Recognizes the different components and types of ecosystems	<ul style="list-style-type: none"> •Components of the ecosystem. •Examples of ecosystems •Ecological balance • Biodiversity •Biogeochemical cycles 	Learning Activity 4.- Biodiversity (Biodiversity and Ecosystem).	<ul style="list-style-type: none"> • Discussion forum 4.- The Ecosystem • Learning Based on Task Resolution. 	Virtual Platform of the Virtual University System. Virtual.ujed.mx. Virtual classroom of environmental education. <ul style="list-style-type: none"> • Computer centre • Anthology • Videos • Reinforcement Exercises
Module 5				
Environment				
Intended learning	Learning contents	Learning product(s)	Strategies	Teaching resources and materials
Locate the different components and factors of the environment.	<ul style="list-style-type: none"> •Concept of the environment •Environmental factors 	<ul style="list-style-type: none"> • Learning activity. 5.- • Development of a conceptual map about Environmental factors 	<ul style="list-style-type: none"> • Discussion forum 5.- The Environment Learning Based on Task Resolution 	Virtual Platform of the Virtual University System. Virtual.ujed.mx. Virtual classroom of environmental education. <ul style="list-style-type: none"> • Computer centre • Anthology • Videos

				• Reinforcement Exercises
Module 6	The Earth a Complex System			
Intended learning	Learning contents	Learning product(s)	Strategies	Teaching resources and materials
Conceptualize the term system and describe the subsystems of the earth.	<ul style="list-style-type: none"> • System concept. • Components of a system. • The subsystems of the earth 	<ul style="list-style-type: none"> • Learning Activity 6.- Preparation of an essay on the Earth System and the Gaia Hypothesis 	<ul style="list-style-type: none"> • Discussion forum 6.- The Earth a Complex System • Learning Based on Task Resolution 	
Module 7	Environmental science			
Intended learning	Learning contents	Learning product(s)	Strategies	Teaching resources and materials
Explain the differences between ecology and environmental science and their different perspectives of study	<ul style="list-style-type: none"> • Environmental science • Ecology and Environment. • The study of the environment: interdisciplinary and environmental sciences 	<ul style="list-style-type: none"> • Learning Activity Activity 7 on the contribution of the discipline to solve environmental problems 	<ul style="list-style-type: none"> • Discussion forum 7 Different perspectives of study of the environment. • Learning Based on Task Resolution. 	Virtual Platform of the Virtual University System. Virtual.ujed.mx. Virtual classroom of environmental education. <ul style="list-style-type: none"> • Computer centre • Anthology • Videos • Reinforcement Exercises
Module 8	The four environmental principles			

Intended learning	Learning contents	Learning product(s)	Strategies	Teaching resources and materials
It locates the components of the environment and the four environmental principles in the environment.	<ul style="list-style-type: none"> • Think globally and act locally. • Principle 1.- Everything is related to the rest. • Principle 2.- Everything will go somewhere. • Principle 3.- Nothing is free. • Principle 4.- Nature is wiser. 	Learning Activity 8.- Collaborative Learning Group work on the solution of an environmental problem	Discussion forum 8.- Think Globally and act locally <ul style="list-style-type: none"> • Collaborative learning 	Virtual Platform of the Virtual University System. Virtual.ujed.mx. Virtual classroom of environmental education. <ul style="list-style-type: none"> • Computer centre • Anthology • Videos • Reinforcement Exercises
Module 9	The precautionary principle			
Intended learning	Learning contents	Learning product(s)	Strategies	Teaching resources and materials
Describes the precautionary principle, identifying situations of environmental risk in the environment	<ul style="list-style-type: none"> •The Principle of prevention. •Principle of Caution •Uncertainty and Caution •Environmental Risk 	• Learning Activity 9.- Questionnaire on the Precautionary Principle	<ul style="list-style-type: none"> • Discussion forum 9.- On ethical dilemmas • Learning Based on Task Resolution 	Virtual Platform of the Virtual University System. Virtual.ujed.mx. Virtual classroom of environmental education. <ul style="list-style-type: none"> • Computer centre

	<ul style="list-style-type: none"> Ethical dilemmas 			<ul style="list-style-type: none"> Anthology Videos Reinforcement Exercises
Module 10	Environmental pollution			
Intended learning	Learning contents	Learning product(s)	Strategies	Teaching resources and materials
Identify the different types and causes of environmental pollution	<ul style="list-style-type: none"> How is pollution generated? Types of environmental pollution. Different types of contaminants. Environmental pollution according to the pollution Effects of pollution 	<ul style="list-style-type: none"> Learning Activity 10.- Preparation of a poster about environmental pollution. 	<ul style="list-style-type: none"> Discussion forum 10.- What is pollution? Learning Based on Task Resolution 	Virtual Platform of the Virtual University System. Virtual.ujed.mx. Virtual classroom of environmental education. <ul style="list-style-type: none"> Computer centre Anthology Videos Reinforcement Exercises
Module 11	The environmental crisis			
Intended learning	Learning contents	Learning product(s)	Strategies	Teaching resources and materials
Interpret the different causes of the environmental crisis.	<ul style="list-style-type: none"> Causes of the environmental crisis. The anthropic environment. The network of 	<ul style="list-style-type: none"> Learning Activity 11.- Questionnaire about the causes and consequences of the environmental crisis. 	Discussion forum 11.- What is climate change? <ul style="list-style-type: none"> Learning Based on Task Resolution 	Virtual Platform of the Virtual University System. Virtual.ujed.mx. Virtual classroom of environmental

	global problems. • Global environmental problems.			education. • Computer centre • Anthology • Videos • Reinforcement Exercises
Module 12	Environmental management			
Intended learning	Learning contents	Learning product(s)	Strategies	Teaching resources and materials
Discuss the different components of environmental manageme	What is Environmental management? • Where and how to start environmental management? • Basic actions for environmental management.	• Learning Activity 12.- Activity on actions to improve the environment	Discussion forum 12.- What is environmental management? • Learning Based on Task Resolution	
Module 13	Sustainability and sustainable development			
Intended learning	Learning contents	Learning product(s)	Strategies	Teaching resources and materials

<p>It examines an overview of sustainability and its approaches (environmental, economic and social).</p>	<ul style="list-style-type: none"> • Concept of sustainable development • Approaches to sustainability. • Live in a sustainable way. • Human impact on the environment. <p>Ecological footprint.</p>	<ul style="list-style-type: none"> • Learning Activity 13.- Calculation of the Ecological Footprint 	<ul style="list-style-type: none"> • Discussion forum 13.- How to live in a sustainable way? • Problem-Based Learning 	<p>Virtual Platform of the Virtual University System. Virtual.ujed.mx. Virtual classroom of environmental education.</p> <ul style="list-style-type: none"> • Computer centre • Anthology • Videos <ul style="list-style-type: none"> • Reinforcement Exercises
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17. Performance assessment:

Performance evidence(s)	Performance criteria	Application scopes	percentage
<p>Participation in forums and reinforcement exercises in the virtual classroom</p> <p>Learning activities :</p> <ul style="list-style-type: none"> • Essays • Mental maps • Comparative tables 	<p>Activities in time and form established in the virtual classroom, complying with the quality requirements and adhering to the requirements of each activity whether they are forums or learning activities</p>	<p>- institutional</p>	<p>Formative evaluation 70%</p> <p>Summative evaluation 20%</p> <p>Self-evaluation 5%</p> <p>Co-evaluation 0%</p> <p>Heteroevaluation</p>

<ul style="list-style-type: none"> • Conceptual maps • Questionnaires • Case Studies • Participation in Campaigns 			5%
18. Evaluation criteria:			
Criterion	Value		
Formative Evaluation	In this evaluation, students will have 70% of their grade which becomes a systematic and continuous activity, that aims to provide the necessary information about the educational process, to readjust their objectives, critically review the plans, programs, methods and resources, guiding students and feedback on the process.		
Summative evaluation	In this evaluation, the results obtained from each unit will be measured, taking as a value 20% to be applied in its final unit score.		
Self-evaluation	5% The percentage will be gotten through the participation of the student in the virtual classroom.		
Co-evaluation	0% because it is a virtual course, students do not perform peer evaluation		
Heteroevaluation	5% It will be taken through the participation of the student in the virtual classroom		
Criteria summation	100%		
19. accreditation			
"To accredit this learning unit the student must present all their evidence of performance, and reach a final average of 60 or more. To exempt the student must obtain a minimum grade of 8.5, which is obtained by the sum of the evaluations. "			
20. Information sources			
Basic	<ul style="list-style-type: none"> - HERRERA J.C. (2006). Introduction to the Study of the Environment. - HERRERA J.C. (2014). The Economic and Ecological Value of Natural Ecosystems 		

Complementary	<p>MEDELLIN M. P. (1998). The Precautionary Principle. Published in Pulso, Diario de San Luis Potosí, Ideas section August 20, 1998. San Luis Potosí, Mexico. URL: http://ambiental.uaslp.mx/docs/PMM-AP981112.pdf.</p> <p>MEDELLIN M. P. (1998). The 4 Environmental Principles of Barry Compose. Published in Pulso, Diario de San Luis Potosí, Ideas section, page 4a of Thursday, November 12, 1998. San Luis Potosi, Mexico. URL: http://ambiental.uaslp.mx/docs/PMM-AP981112.pdf.</p> <p>ODUM, E.; GARY, W. (2006) Fundamentals of Ecology. Thompson Publishers. S.A. of C.V.</p> <p>SECRETARY OF THE ENVIRONMENT AND NATURAL RESOURCES (2007). And the environment?. Problems in Mexico and the World.-</p>
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21. Profile for the teacher who imparts this learning unit

- Have a Bachelor's degree, preferably a Master's or Doctorate
- Basic knowledge about the discipline: Forestry Science Engineering, Agronomist Forest Specialist
- CONOCER certificate
- Professional university experience as a teacher
- Experience in virtual classrooms
- Experience in Environmental Education
- Ability to work in team.
- Knowledge about the Educational Program of Engineer in Forest Sciences with focus on Competencies.
- Knowledge of the Educational Model of the UJED.
- Have completed the Diploma in Competences for the New Educational Model of the UJED.
- Have completed the Diploma in Tutorials.
- Have completed the Learning Strategies.