UNIVERSIDAD JUÁREZ DEL ESTADO DE DURANGO

FACULTY OF FORESTRY SCIENCES

Forestry Sciences Engineering

Learning Unit Modules

Focused in Integral Professional Competences

I. GENERAL LEARNING UNIT

1. Identification	2. Code	3. Semester	4. Training area
Geographic Information Systems	DCDF023	Fifth	Discipline

5. Mode					
Compulsory	X	**Elective**			
Classroom	X	**Non-Attendance**		**Mixed**	
Laboratory	X	**Field practices**		**Guided tours**	

6. Class schedule (hours per week)				
Theory	**Practice**	**Independent study**	**Total hours**	**Credits**
2	2	1	5	6

7. Person responsible for the subject.
Marín Pompa-García

II. DATA SPECIFIC LEARNING UNIT

8. Objectives

To provide to students experience in the concepts, technology, and applications related to computer-based mapping, spatial databases, and geographic analysis focused on natural resources management.

To explore the efficiency and analytical power of traditional cartography using GIS technology.

To examine the range of information sources that can be combined to build a GIS database (raw data, scanned maps, GPS positions and other geographic data)

9. Presentation.

Geographic Information Systems (GIS) is a powerful tool for identifying spatial and temporal patterns, trends and relationships on maps and in large databases. Analytical applications of GIS are able to predict and simulate changes on terrestrial phenomena. This program helps prepare students with the technical and analytical skills for problem solving, thinking about all the dimensions of GIS and spatial modeling.

Geographic information systems are special and important, because:

-Is especial, because almost every natural phenomenon and process has a geographic dimension (it occurs somewhere on earth)
-Almost all human activities and decisions involve a geographic component
-The areal distribution and spatial interactions of natural and man-made phenomena and process have a fundamental impact in all aspects of both of them.
-It most often be projected into a flat surface.

10. Professional competences to develop in students.			
Knowledge	Skills	Attitudes	Values
Geographic Information Systems as tools of the present technology for supporting in decision making that carry a sustainable management of forest resources.	Applying GIS as present technology tools for supporting decision making that carry a sustainable management of forest resources.	Collaboration and participation in team works. Interest in self learning and continuous learning. Open to criticism and with availability to accept them. Being objective in the handling of information. Participating in multidisciplinary scientific and technical teams aimed to the solution of problems that the forest sector has.	Respect. Honesty. Responsibility. Commitment. Ethics. Integrity.

11. Course topics

Chapter I. Concepts and fundamentals of GIS
Chapter II. GIS data
Chapter III. Getting data into GIS
Chapter IV. Modelling data in GIS
Chapter V. Designing layout

12. Evaluation criteria
Formative evaluation Summative evaluation Self assessment Co-evaluation Evaluation hetero

13. Information sources
Basic
Pompa-García, M. 2010. Apuntes De SIG Enfocados En ArcGis. Editorial UJED. 135 p. (ISBN: 978-607-0031-83-0).
Complementary
Chang, K T. 2007. Introdcution to geographic information systems. 3rd MacGraw-Hill Science. Price M. H. 2007. Mastering ArcGis. 3rd edition. McGraw_Hill Science