



*Learning Unit Modules*  
*Focused in Integral Professional Competences*

**I. GENERAL LEARNING UNIT**

1. Identification	2. Code	3. Semester	4. Training area
<b>Digital Cartography</b>	DCD23	Fourth	Discipline

5. Mode				
<b>Compulsory</b>	X	<b>Elective</b>		
<b>Classroom</b>	X	<b>Non-Attendance</b>		<b>Mixed</b>
<b>Laboratory</b>		<b>Field practices</b>	X	<b>Guided tours</b>

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

7. Person responsible for the subject.
Carlos Gandarilla Morales

**II. DATA SPECIFIC LEARNING UNIT**

8. Objectives
<ul style="list-style-type: none"> <li>Providing students with the basic elements required for the study of geographical systems.</li> <li>Making mapping operations on topographic maps.</li> <li>Using GPS navigators.</li> <li>Splitting into forest land stands.</li> </ul>

9. Presentation.
<p>The Course of Digital Cartography, was designed with the purpose of developing skills and techniques in the study of it, through knowledge and understanding of the basic concepts for processing.</p> <p>This course is structured to achieve learning of basic concepts, general aspects, definitions, characteristics and applications of the various topics, involving the most important aspects in the development of digital mapping, using the Arc-Gis software application.</p> <p>Today it is essential for students in the process of academic training in the field of forestry, environmental management and use and management of natural resources in general in the region and the country, meet the specialized tools in data collection georreferidos, and analog and digital map processing and exploitation of data in GIS environment.</p> <p>As the concepts of Geodetic Reference Frames, Datum, Coordinate Systems and Projections Mapping, are essential for the development, study and application of the mapping of biotic and physical resources of forest ecosystems.</p>



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<b>10. Professional competences to develop in students.</b>			
Knowledge	Skills	Attitudes	Values
<p>Information Geographic Systems as tools of the present technology for supporting in decision making that carry a sustainable management of forest resources.</p> <p>Forest use techniques that carry a sustainable management of forest resource.</p>	<p>Applying GIS as present technology tools for supporting decision making that carry a sustainable management of forest resources.</p> <p>Designing and adapting forest use techniques that carry a sustainable management of forest resources.</p> <p>Implement techniques for modifying, innovating and applying modern technology for increasing the sustainable production of forest ecosystems.</p>	<p>Interest in preserving nature.</p> <p>Collaboration and participation in team works</p> <p>Interest in self learning and continuous learning.</p> <p>Open to criticism and with availability to accept them</p>	<p>Respect.</p> <p>Honesty.</p> <p>Responsibility.</p> <p>Commitment.</p> <p>Ethics.</p>

<b>11. Course topics</b>
<p>Unit I: Introduction to Cartography basics</p> <p>Unit II: Aerial Photography, Topographic Map</p> <p>Unit III: GPS Navigator</p> <p>Unit IV: Digital Cartography and GIS.</p>

<b>12. Evaluation criteria</b>
<p>Formative evaluation</p> <p>Summative evaluation</p> <p>Self assessment</p> <p>Co-evaluation</p>



### 13. Information sources

#### Basic

“Manual de Conceptos Básicos”, INEGI, 2002.

“Cartografía Básica para estudiantes y técnicos”, volumen 1, Asociación Cartográfica Internacional, 1984.

“Curso de Cartografía Básica”, INEGI, Septiembre 1995.

“GPS 12 Garmin Manual del usuario y referencia”, 1999.

Franco S., Valdez M. Principios Básicos de Cartografía y Cartografía Automatizada. Universidad Autónoma del Estado de México (2002)

ESRI. Map Projections. Georeferencing spatial data. Redlands, CA. USA (1994)

#### Complementary

GPS World Magazine [www.gpsworld.com/resources/glossary.htm](http://www.gpsworld.com/resources/glossary.htm)

Canadá Centre for Remote Sensing [www.ccrs.nrcan.gc.ca/ccrs/eduref/ref/glosndx.html](http://www.ccrs.nrcan.gc.ca/ccrs/eduref/ref/glosndx.html)

Cartografía. Arte y ciencia de trazar mapas <http://cartografia.supaw.com/observaciones.htm>

Cartografía Urbana <http://www.inegi.org.mx/geo/contenidos/urbana/>

<http://mapserver.inegi.gob.mx/geografia/espanol/prodyserv/marcoteo/carmex/carmex.cfm>