

## **Module Catalogues**

### **Double Degree Master Program** **“Environment and Resources Management”** Focus Latin American

*Offered at*

Multidisciplinary Postgraduate Program for Environmental Sciences (PMPCA),  
Autonomous University of San Luis Potosí and  
MSc “Maestria en Ciencias Ambientales”

and

Institute for Technology and Resources Management in the Tropics and Subtropics (ITT),  
Cologne University of Applied Sciences  
MSc “Natural Resources Management and Development”

*at Winter 2014*

**1. Module Catalogues Double-Degree Master Program ENREM at PMPCA and ITT**

**1.1. Mandatory Modules Catalogue**

**Table 1.** Mandatory Modules

<b>Mandatory Modules + Thesis</b>											
<b>Semester PMPCA</b>				<b>NAME OF MODULE</b>				<b>Semester ITT</b>			
1	2	3	4	<i>PMPCA</i>	<i>ITT</i>	1	2	3	4		
X				Problemática y Gestión Ambiental	<i>Project: System and Problem Analysis</i>						
X				Desarrollo Sustentable	<i>International Cooperation and Development</i>						
X				Ecología	<i>Management of Natural Resources Systems</i> <i>Ecology (elective for ENREM)</i>						
X				Estadística	<i>Applied Statistics (elective of Methods &amp; Tools)</i>						
	X			Economía Ecológica	<i>Natural Resources Economics and Governance</i>						
	X			Seminario Multidisciplinario	<i>Project: Solutions</i>						
	X			Seminario Propuesta de Tesis	-----						
	X			Trabajo de Tesis 1	-----						
				-----	<i>Project and Business Management</i>				X		
				-----	<i>Project: Implementation</i>				X		
				Seminario Avance de Tesis	<i>Master Thesis Preparation</i>				X		
		X		Trabajo de Tesis 2	-----						
			X	Trabajo de Tesis 3	-----						
			X	Presentación y Defensa de Tesis	<i>Master Thesis and Colloquium (Defense)</i>				X		

**1.2. Elective Modules Catalogue**

**1.2.1. Module Catalogue “Electives for the double degree master program ENREM”**

**Table 2.** Module Catalogue “Electives for the double degree master program ENREM”

<b>Electives for the double degree master program ENREM:</b>											
Between 2 <sup>nd</sup> and 3 <sup>rd</sup> semester need to take a minimum of 4 modules from this catalogue											
<b>Semester PMPCA</b>				<b>NAME OF MODULE</b>				<b>Semester ITT</b>			
1	2 <sup>1</sup>	3	4	<b>Programas Multidisciplinario de Posgrados en Ciencias Ambientales PMPCA</b>	<b>Natural Resources Management and Development NRM at ITT</b>	1 <sup>2</sup>	2	3 <sup>3</sup>	4		
	X			Biología de la Conservación	-----						
	X			Biotecnología Ambiental II	-----						
	X			Cambio Ambiental Global	-----						
	X			Climatología Aplicada	-----						
	X			Comunicación de Riesgos y Salud Ambiental	-----						
	X			Dendroecología y cambio climático	-----						
	X			Evaluación de Impacto Ambiental y Restauración Ecológica	-----						
	X			Eco-DRR: Desastres, Medioambiente y Reducción del Riesgo	<i>Ecological and Social Risks and their management</i>		X				

<sup>1</sup> See schedule for the 2<sup>nd</sup> semester at PMPCA in December every year. All electives are not offered every year

<sup>2</sup> Elective course of the first semester is possible to take in the third semester

<sup>3</sup> See schedule for the 3<sup>rd</sup> semester at ITT in June every year

X			Ecología Cuantitativa	-----				
X			Ecología de la Producción de Cosechas	-----				
X			Ecología y Cambio Ambiental Global	-----				
X			Ecología y Restauración Forestal	-----				
X			Ecotoxicología	-----				
X			Educación Ambiental	-----				
X			Etnobiología	-----				
X			Farmacognosia Química y Farmacología de Plantas y Medicinas	-----				
X			Fisiología Ambiental Animal	-----				
X			Genética y Biodiversidad	-----				
X			Gestión Ambiental de Operaciones Minerometalúrgicas	-----				
X			Hidrosfera y Medio Ambiente Terrestre	-----				
X			Historia Ambiental : Teoría y Praxis	-----				
X			Ingeniería Ambiental	-----				
X			Manejo de Recursos Naturales en Zonas Secas					
X			Modelos Animales para la Investigación de Compuestos Naturales	-----				
X			Naturaleza y Sociedad una Introducción a las Posiciones Teóricas Recientes	-----				
X			Participación Social	-----				
X			Planeación y Ordenamiento	-----				
X			Relación Agua-Suelo-Planta-Atmósfera	-----				
X			Remediación de Sitios Contaminados	-----				
X			Sistemas de Manejo y Calidad Ambiental	-----				
X			Toxicología Ambiental	-----				
			-----	<i>Land Use Systems and the Environment</i>	X			
			-----	<i>Soil Management</i>		X		
			-----	<i>Farming System Economics</i>		X		
			-----	<i>Ecosystems Services and Conservation</i>		X		
			-----	<i>Public Services and Housing Provision</i>		X		
			-----	<i>Ecological and Social Risks</i>				
			-----	<i>Food Security</i>			X	
			-----	<i>Resources Efficient Buildings and Quarters</i>		X		
			-----	<i>Urban, Regional and Community Based Management</i>			X	
			-----	<i>Water-Energy- Food Security Nexus</i>			X	

**1.2.2. Module Catalogue “Methods and Tools”**

**Table 3.** Module Catalogue “Methods and Tools”

<b>Methods and Tools:</b>											
Between 2 <sup>nd</sup> and 3 <sup>rd</sup> semester need to take a minimum one (1) module from this catalogue											
<b>Semester PMPCA</b>				<b>NAME OF MODULE</b>				<b>Semester ITT</b>			
<b>1</b>	<b>2<sup>4</sup></b>	<b>3</b>	<b>4</b>	<b>PMPCA</b>	<b>ITT</b>	<b>1<sup>5</sup></b>	<b>2</b>	<b>3<sup>6</sup></b>	<b>4</b>		
	X			Evaluación Ambiental y Análisis Espacial Apoyados en PR y SIG	<i>Geographic Information Systems and Remote Sensing</i>	X					
	X			Ecología del Paisaje y Sistemas de Información Geográfica							
					<i>Scientific Work and Research Methods</i>	X					
	X			Metodología de la Investigación en Ciencias Sociales	<i>Empirical Social Research Methods</i>		X				
				-----	<i>Environmental Monitoring</i>		X				
				-----	<i>Economic Evaluation Methods</i>			X			
	X			Evaluación de Riesgo Ecológico	<i>Environmental Assessment</i>				X		
				Impacto y Riesgo Ambiental							
	X			-----	<i>Eco-balancing and decision-support systems</i>		X				
	X			Diseño y Evaluación de Proyectos de Investigación	-----						
	X			Métodos Estadísticos para Investigadores	-----						
	X			Evaluación de Riesgo en Comunidades Vulnerables	-----						
	X			Evaluación de Riesgos en Salud	-----						
	X			Evaluación y Manejo de Recursos Naturales Renovables	-----						
	X			Análisis Probabilístico de Riesgos	-----						

<sup>4</sup> See schedule for the 2<sup>nd</sup> semester at PMPCA in December every year. All electives are not offered every year

<sup>5</sup> Elective course of the first semester is possible to take in the third semester

<sup>6</sup> See schedule for the 3<sup>rd</sup> semester at ITT in June every year

### 1.2.3. Other Module Catalogue “Electives of the adjoining master programs”

**Table 4.** Module Catalogue of the adjoining Integrated Water Resources Management Master Program

<b>Integrated Water Resources Management IWRM</b>											
<b>Semester PMPCA</b>				<b>NAME OF MODULE</b>				<b>Semester ITT</b>			
<b>1</b>	<b>2<sup>4</sup></b>	<b>3</b>	<b>4</b>	<b>PMPCA</b>	<b>ITT</b>	<b>1<sup>5</sup></b>	<b>2</b>	<b>3<sup>6</sup></b>	<b>4</b>		
	X			Fisicoquímica de Aguas Naturales	-----						
	X			Hidrogeología Ambiental	-----						
	X			Hidrogeoquímica	-----						
	X			Procesos fisicoquímicos para el tratamiento de agua	-----						
	X			Tratamiento de Aguas Residuales	-----						
				-----	Water Resources Management	X					
				-----	Hydrology		X				
				-----	Hydraulic Structures		X				
				-----	Water and Agriculture		X				
				-----	Water Economics and Governance		X				
	X			Ecología y Manejo de Cuencas	Watershed Management		X				
				-----	Sanitation and Public Health			X			
				-----	Flood Management			X			
				-----	Water Scarcity and Drought			X			
				-----	Water Supply			X			
				-----	Water System Analysis		X				

**Table 5.** Module Catalogue of the adjoining Renewable Energy Management Master Program

<b>Renewable Energy Management REM</b>											
<b>Semester PMPCA</b>				<b>NAME OF MODULE</b>				<b>Semester ITT</b>			
<b>1</b>	<b>2<sup>4</sup></b>	<b>3</b>	<b>4</b>	<b>PMPCA</b>	<b>ITT</b>	<b>1<sup>5</sup></b>	<b>2</b>	<b>3<sup>6</sup></b>	<b>4</b>		
	X			Tipos de Energía	Energy Resources and Energy Systems	X					
				-----	Bioenergy and Geothermal Energy	X					
				-----	Energy Economics and Markets		X				
				-----	Energy Efficiency and Environment		X				
				-----	Photovoltaics and Solar Thermal Systems		X				
				-----	Decentralized Energy Systems Planning			X			
				-----	Energy Policy, Legislation and Management			X			
				-----	Wind Energy and Hydropower			X			

<sup>4</sup> See schedule for the 2<sup>nd</sup> semester at PMPCA in December every year. All electives are not offered every year

<sup>5</sup> Elective course of the first semester is possible to take in the third semester

<sup>6</sup> See schedule for the 3<sup>rd</sup> semester at ITT in June every year

**2. Sample Study Plans**

Three examples of an possible study plans in the ENREM program

**Table 6.** Exemplary study plans for ENREM student, specializing in natural resources management

Semester	1	2	3	4
Core	Problemática y Gestión Ambiental	Seminario Multidisciplinario	ProjectIII: Implementation	Master Thesis and Defense (Colloquium)
	Desarrollo Sustentable	Seminario Propuesta de Tesis	Preparation of Master Thesis	
	Ecología	Trabajo de Tesis	Trabajo de Tesis 2	Trabajo de Tesis 3
	Estadística	Economía Ecológica	Project and Business Management	
Methods & Tools		Ecología del Paisaje y SIG	Environmental Assessment	
		Diseño y Evaluación de Proyectos de Investigación	Economic Evaluation Methods	
		Evaluación de Riesgo Ecológico		
		Ecología y Cambio Ambiental Global	Food Security	
Electives for the double degree master program ENREM		Educación Ambiental	Urban, Regional and Community Based Management	
		Participación Social	Water-Energy- Food Security Nexus	
		Gestión Ambiental de Operaciones Minerometalúrgicas	Ecological and Social Risks	
		Ecología de la Producción de Cosechas		
		Eco-DRR: Desastres, Medioambiente y Reducción del Riesgo		
		....		
		Fisicoquímica de Aguas Naturales	Sanitation and Public Health	
Electives of the adjoining master programs IWRM		Ecología y Manejo de Cuencas	Flood Management	
			Water System Analysis	
			Water Scarcity and Drought	
			Water Supply	
Electives of the adjoining master programs REM		Tipos de Energía	Energy Policy, Legislation and Management	
			Wind Energy and Hydropower	
			Decentralized Energy Systems Planning	

- Mandatory Modules
- Mandatory module with choice from offered topics and of supervisor(s) (Practice-oriented)
- Elective module from the module catalogue Electives for the double degree master program ENREM (minimum of 4) and the module Methods and Tools (minimum of 1)
- Remaining 3 modules from “Electives of the adjoining master programs” or “Methods&Tools” or “Electives for the double degree master program ENREM” catalogues

**Table 7.** Exemplary study plans for ENREM student, specializing on natural resources management with focus in water management

Semester	1	2	3	4
Core	Problemática y Gestión Ambiental Desarrollo Sustentable Ecología Estadística	Seminario Multidisciplinario Seminario Propuesta de Tesis Trabajo de Tesis Economía Ecológica	ProjectIII: Implementation Preparation of Master Thesis Trabajo de Tesis 2 Project and Business Management	Master Thesis and Defense (Colloquium) Trabajo de Tesis 3
Methods & Tools		Ecología del Paisaje y SIG Diseño y Evaluación de Proyectos de Investigación Evaluación de Riesgo Ecológico	Environmental Assessment Economic Evaluation Methods	
Electives for the double degree master program ENREM		Ecología y Cambio Ambiental Global Educación Ambiental Ingeniería Ambiental Etnobiología Toxicología Ambiental Planeación y Ordenamiento ...	Food Security Urban, Regional and Community Based Management Water-Energy- Food Security Nexus Ecological and Social Risks	
Elective of the adjoining master programs IWRM		Físicoquímica de Aguas Naturales Ecología y Manejo de Cuencas Hidrogeología Ambiental	Sanitation and Public Health Flood Management Water System Analysis Water Scarcity and Drought Water Supply	
Elective of the adjoining master programs REM		Tipos de Energía	Energy Policy, Legislation and Management Wind Energy and Hydropower Decentralized Energy Systems Planning	

  

	Mandatory Modules
	Mandatory module with choice from offered topics and of supervisor(s) (Practice-oriented )
	Elective module from the module catalogue Electives for the double degree master program ENREM (minimum of 4) and the module Methods and Tools (minimum of 1)
	Remaining 3 modules from “Electives of the adjoining master programs” or “Methods&Tools” or “Electives for the double degree master program ENREM” catalogues

**Table 8.** Exemplary study plans for ENREM student, specializing on natural resources management with focus in renewable energy

Semester	1	2	3	4
Core	Problemática y Gestión Ambiental	Seminario Multidisciplinario	ProjectIII: Implementation	Master Thesis and Defense (Colloquium)
	Desarrollo Sustentable	Seminario Propuesta de Tesis	Preparation of Master Thesis	
	Ecología	Trabajo de Tesis	Trabajo de Tesis 2	Trabajo de Tesis 3
	Estadística	Economía Ecológica	Project and Business Management	
Methods & Tools		Ecología del Paisaje y SIG	Environmental Assessment	
		Diseño y Evaluación de Proyectos de Investigación	Economic Evaluation Methods	
		Evaluación de Riesgo Ecológico		
Electives for the double degree master program ENREM		Ecología y Cambio Ambiental Global	Food Security	
		Educación Ambiental	Urban, Regional and Community Based Management	
		Ingeniería Ambiental	Water-Energy- Food Security Nexus	
		Gestión Ambiental de Operaciones Minerometalúrgicas	Ecological and Social Risks	
		Participación Social		
		Sistemas de Manejo y Calidad Ambiental		
		...		
Electives of the adjoining master programs IWRM		Fisicoquímica de Aguas Naturales	Sanitation and Public Health	
		Ecología y Manejo de Cuencas	Flood Management	
			Water System Analysis	
			Water Scarcity and Drought	
			Water Supply	
Electives of the adjoining master programs REM		Tipos de Energía	Energy Policy, Legislation and Management	
			Wind Energy and Hydropower	
			Decentralized Energy Systems Planning	

  

	Mandatory Modules
	Mandatory module with choice from offered topics and of supervisor(s) (Practice-oriented)
	Elective module from the module catalogue Electives for the double degree master program ENREM (minimum of 4) and the module Methods and Tools (minimum of 1)
	Remaining 3 modules from “Electives of the adjoining master programs” or “Methods&Tools” or “Electives for the double degree master program ENREM” catalogues