

<b>Course Code</b>	CP311			
<b>Course Title</b>	Energy and Environmental Management in Process Industry			
<b>No. of Credits</b>	3			
<b>Pre-requisites</b>	None			
<b>Compulsory/Optional</b>	Compulsory			
<b>Aim(s):</b> To build the capacity of learner to identify energy and environmental issues in industry and propose feasible solutions.				
<b>Intended Learning Outcomes:</b> On successful completion of the course, the students should be able to; ILO1: Describe industry related environmental issues, cleaner production (CP) and green productivity (GP) methodologies, components of the ISO14001/ISO50001 and their implementation. ILO2: Conduct materials, energy and water audits in a selected industry and propose feasible solutions to improve material and energy use. ILO3: Effectively communicate technical information via oral presentation and technical reports.				
Topics	Time Allocation/Hours			
	L	T	P	A
<ul style="list-style-type: none"> <li><b>Introduction</b> Environmental issues and importance of energy and environmental management in industry.</li> </ul>	04			02
<ul style="list-style-type: none"> <li><b>Resource efficiency and cleaner production (RECP)</b> Introduction to RECP, RECP methodologies. Material and energy audits, RECP tools and techniques, evaluation of RECP options.</li> </ul>	16		24	
<ul style="list-style-type: none"> <li><b>Environmental and energy management systems</b> Components of ISO 14001- Environmental Management Systems and ISO 50001- Energy Management Systems, Practical aspects of implementation of ISO 14001 and ISO 50001.</li> </ul>	10			04
<b>Total equivalent hours</b>	<b>30</b>		<b>12</b>	<b>03</b>
<b>Recommended Texts:</b> <ul style="list-style-type: none"> <li>ISO14001 and ISO50001.</li> <li>Asian Productivity organization, Green Productivity Training Manual, 2002 (<a href="http://www.apo-tokyo.org/publications/ebooks/green-productivity-training-manual-pdf-2-8mb/">http://www.apo-tokyo.org/publications/ebooks/green-productivity-training-manual-pdf-2-8mb/</a>).</li> <li>Asian Productivity organization, Training Manual on Energy Efficiency for Small and Medium Enterprises, 2010, (<a href="http://www.apo-tokyo.org/publications/ebooks/training-manual-on-energy-efficiency-for-small-and-medium-enterprises-pdf-4mb/">http://www.apo-tokyo.org/publications/ebooks/training-manual-on-energy-efficiency-for-small-and-medium-enterprises-pdf-4mb/</a>).</li> </ul>				
Assessment	Percentage Mark			
<b>In-course</b>				60
Assignments/Field work	20			
Presentation and Viva-voce examination	30			
Report	10			

<b>End-semester</b>		40
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