

<b>Module code</b>	SC-4311		
<b>Module Title</b>	Semiconductors as Photocatalysts		
<b>Degree/Diploma</b>	Bachelor of Science (Chemistry)		
<b>Type of Module</b>	Major Option		
<b>Modular Credits</b>	2	<b>Total student workload</b>	5 hours/week
		<b>Contact hours</b>	2 hours/week
<b>Prerequisite</b>	SC-1211 Fundamentals of Inorganic Chemistry		
<b>Anti-requisite</b>	None		
<b>Aims</b>			
To understand the chemistry of semiconductors such as metal oxides and chalcogenides in terms of photocatalysis involving synthesis and various applications related with energy and environment.			
<b>Learning Outcomes:</b>			
<i>On successful completion of this module, a student will be expected to be able to:</i>			
Lower order:	40%	<ul style="list-style-type: none"> <li>- understand the basic chemistry of semiconductors such as metal oxides and chalcogenides.</li> <li>- understand the basics of catalysis.</li> <li>- understand the basics of photocatalysis involving semiconductors and its nanocomposites.</li> <li>- identify the different types of light active semiconductors and its nanocomposites.</li> </ul>	
Middle order:	40%	<ul style="list-style-type: none"> <li>- synthesis of photocatalytic semiconductors and its nanocomposites.</li> <li>- characterization of the synthesized photocatalytic semiconductors and its nanocomposites.</li> <li>- interpretation of the results of the analyses.</li> </ul>	
Higher order:	20%	<ul style="list-style-type: none"> <li>- apply the concepts of photocatalysis in real applications related with energy and environment.</li> <li>- utilize the synthesized photocatalytic semiconductors and its nanocomposites for various applications such as air and water pollution control, water splitting etc.</li> </ul>	
<b>Module Contents</b>			
<ul style="list-style-type: none"> <li>- Chemistry of semiconductors,</li> <li>- Chemistry of metal oxides and chalcogenides as semiconductor,</li> <li>- Potentials of metal oxides and chalcogenides as catalysts,</li> <li>- Promises of metal oxides and chalcogenides as photocatalysts,</li> <li>- Different types (doped and undoped) of light (UV and Visible) active semiconductors,</li> <li>- Syntheses of photocatalytic semiconductors and its nanocomposites,</li> <li>- Characterization of the synthesized photocatalytic semiconductors, and</li> <li>- Applications of the synthesized photocatalytic semiconductors for various purposes.</li> </ul>			
<b>Assessment</b>	Formative assessment	Tutorial and feedback	
	Summative assessment	Examination: 60% Coursework: 40% <ul style="list-style-type: none"> <li>- 2 class test: 20%</li> <li>- 2 oral presentation: 20%</li> </ul>	