

Syllabus Format	Learning Objectives-Oriented
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Course Syllabus
Sustainable Development in Industry and Business

A. General Information

1. Academic Unit	SCHOOL OF ENGINEERING				
2. Degree	INDUSTRIAL ENGINEERING				
3. Code	RIC150				
4. Number of classes per week	2				
5. Location in Curriculum	5TH YEAR				
6. Credits	10				
7. Classes by Professor	Theory	1		Practice	1
8. Classes by Teaching Assistant	None				
9. Course Type	Mandatory		Elective	X	Optional
10. Prerequisite					

B. Contribution to the Graduate’s Profile

This course takes the students from an introduction to current global/local environmental and social problems through to specific issues related to important industries and businesses with a focus on sustainable solutions.

The course introduces the students to the use of “Life Cycle Assessment”, the calculation of environmental impacts resulting from products and processes, and its application to various industries to understand impacts and how sustainability can be implemented within these industries. The course is very interactive, students are encouraged to debate the topics covered, work within groups to research the topics, carry out sustainability studies and present their results to the class. The communication of the students’ work is a strong focus of the course to improve presentation and English skills, the students are regularly asked to express and present their own ideas for the topics covered in the classes and also for demonstrating the progress of their group project.

The purpose of the group project is for the students to design and develop a sustainable product with a clear business model. This project brings a strong practical aspect to the course and aids the students in developing their skills related to business planning whilst ensuring sustainability is a driving factor.

C. General Learning Objective of the Course

Understand the importance of sustainable development in local and global decision making within industry and learn how it can be effectively implemented.

D. Units, Unit Content and Learning Objectives

Unit Content/Units	Learning Objectives
<p>Indicate each of the units and the contents of each that will be addressed in the course.</p>	<p>A description of what the student can do (and does) with what he/she “knows.” The learning objectives are included by unit and not necessarily by content.</p> <p>Note: Be sure that the generic skills described for the degree are included in the learning objectives.</p>

Content of Units/Units	Learning Objective
<p>Unit I: Global and local environmental and social problems</p> <ol style="list-style-type: none"> 1. Global industrial development 2. Population growth 3. Climate change 4. Food production 5. Water availability 	<p>Understanding how the current global situation has arisen and what the key problems are facing humanity.</p>
<p>Unit II: Sustainable development and its measurement</p> <ol style="list-style-type: none"> 1. Concept of sustainable development 2. Measuring sustainable development and indicators 	<p>Understanding what sustainable development means at various levels: global, national and local. Investigation of how nations can measure their level of sustainable development and presentation of results.</p>
<p>Unit III: Life cycle assessment</p> <ol style="list-style-type: none"> 1. Introduction to LCA 2. Methodology of LCA 3. Applications of LCA 	<p>Learning what the purpose of life cycle assessment is and where it can be used. Development of an LCA for specific products and presentation of results.</p>

<p>Unit IV: Sustainable development in industries</p> <ol style="list-style-type: none"> 1. Energy generation 2. Water management 3. Waste management 4. Food production 5. Sustainable cities 	<p>Investigation of environmental issues related to societies largest industries and how sustainable development can be implemented.</p>
<p>Unit V: Group project</p> <ol style="list-style-type: none"> 1. Product idea development 2. Initial business plan 3. Plan for product development 4. Laboratory work 5. Presentation 	<p>Development of a sustainable production and business plan within groups to understand and develop knowledge related to product development and the implementation of sustainability.</p>

E. Teaching Strategies

This course uses a variety of teaching methods. Generally the class begins with a lecture about the topic being introduced, after which the class is split into groups to conduct research on specific areas of the topic or a class debate is managed. The students are asked to present their findings and opinions to determine whether the objectives have been met. The entire class is interactive with participation being encouraged during the lecture.

F. Evaluation

There will be 1 midterm test and one final exam accounting for 20% and 40% of the final mark respectively.

The remaining 40% is comprised of the group project with 10% being attributed to the initial product design and business plan and 30% attributed to the final report and developed product.

Attendance Requirement: Students must attend 75% of theoretical classes and 100% of practical classes.

G. Class Resources

Reading: Texts, magazines, articles and notes, sites supporting the main subjects in the course. A basic and supplemental bibliography may be provided.

Internet: Web sites, web platforms, etc.

Other resources.