Sustainable Engineering and Management
永續工程與管理

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Course Objective

Carbon neutrality and sustainability have become a global trend and had a great impact on design, manufacturing, service, supply chains, corporate governance, etc. This course provides students the basic knowledge about these issues and enables them to develop preliminary skills of applications for industries.

永續環保理念已成國際趨勢，在設計、生產、服務、供應鏈、公司治理等多方面的永續議題也受到重視。本課程目標為使學生對這些永續內容具備基礎知識，在管理面與工程面介紹現今重要議題與未來發展趨勢，並提供相關實踐作法(Best Practice)，協學生進而發展初步的應用技能與產業接軌能力。

Textbook

永續工程與管理, 中國工業工程學會, 2022, 前程文化

Grade Construction:

You will be evaluated based on a broad spectrum of assignments. Your grade will be determined in the following fashion:

- Final Projects – 25%
- Examinations – 40%
  - Midterm 20%
  - Final Exam 20%
- Assignments/Homework – 35%

Grading Policy:

The major lesson to be learned in this course is that it is ok to make mistakes. If you feel frustrated that something isn't working out, don't worry! Design projects will be evaluated on the basis of effort and how well you followed the design process, and not whether the "correct" result was obtained. When it comes time to put together final grade, the following grade cutoffs will be applied.

%Range	100 – 90	89 – 85	84 – 80	79 – 77	76 – 73	72 – 70	69 – 60	59 – 50	49 – 1
Letter	A+	A	A-	B+	B	B-	C	D	E

Class Policies

The following are some ground rules to help us progress steadily through the semester:

1. **Attendance is mandatory for all class periods.** Because this class meets for 1.5~2 hours each session, significant material is covered each class session. You need to be present to learn and contribute to your team's success. Course grade will be dropped to the next lower grade (such as from A - to B+) for every three classes missed Also, the course grade will be dropped to the next lower grade if there is a pattern of tardiness. Missing class due to family vacation is not an excused absence. *If possible, send the e-mail to me (mcchiu@ie.nthu.edu.tw) before class if you are sick or injured and will not be attending class.*

2. If you have an excused absence that results in missing a quiz or other major assignment, you must discuss this with me *prior* to the quiz.

3. Late assignments (*i.e.*, those not turned in at the **beginning** of the class period they are due) are graded out of 80%. Assignments turned in late will be graded, but with a 20% grade reduction for every week beyond the due date.

4. The instructor will discuss any exam or assignment grade within 48 hours (excluding weekends and holidays) of its return, after which time the discussion is closed.

5. The Design and Computer labs cannot be made up if they are unique and involve team work.

6. Students are responsible for any missed handout and homework assignment for any unexcused missed class.

7. Changes to assignments will be announced in class and supersede what is on the syllabus (the syllabus may be updated periodically without prior notice, please check iLMS weekly for updates). If you miss a class for an excused absence, it is your responsibility to ensure that you have the proper assignment.

8. Teams are expected to address team member problems (such as missed meetings or not completing work). However, do not let a small team issue or problem develop into a major conflict. Contact the class instructor to help address and correct the problem early!

9. Excellent team work can improve your project grade by as much as 2% per design project. Poor teamwork can lower your course grade by the same amount. A project grade is determined for each project, and team

peer evaluations will be used to determine your final score for that project. Students earning high peer evaluation scores will see a project grade boost, and students earning a low peer evaluation scores will see a grade decrease.

10. Cell phones are to be *turned off* or *in silent mode* when in class. No IM and newspaper during the class.

Tentative Class Schedule

Week #	**Content**
1	Introduction 課程說明
2	Sustainable Development 企業永續發展
3	Climate Change and Investment Risk Management 氣候變遷風險管理
4	Carbon Neutrality, Emission Trading and Carbon Pricing 碳中和浪潮排放權交易與碳定價
5	Green Supply Chain Management 綠色供應鏈管理
6	Green Finance and TCFD 永續金融與氣候相關財務揭露
7	Resource Sustainability and Industrial Symbiosis 資源永續與產業共生
8	**Midterm 期中考試**
9	Green/Sustainable Supply Chain Design and Assessment 綠色永續供應鏈設計與評估
10	Sustainability and Energy Policy 永續與能源政策
11	Green Logistics and Green Cold Chain 綠色物流與綠色冷鏈
12	Product Service System and Circular Economy 產品服務系統與循環經濟
13	Smart & Cleaner Production Decision Analysis 智慧&清潔生產決策分析
14	Guest Speaker 外賓演講
15	**Final Exam 期末考試**
16	**Final Project presentations 專題報告**

Ethics Statement on Generative Artificial Intelligence 禁止使用生成式人工智慧倫理聲明

After careful consideration, the instructor of this course deems it inappropriate to use generative artificial intelligence in this class. This is because the content within generative AI contains numerous errors and may adversely affect students' understanding of foundational knowledge. In accordance with the published Guidelines for Collaboration, Co-learning, and Cultivation of Artificial Intelligence Competencies in University Education, this course adopts the following policy: **Prohibited use**