國立臺北大學自然資源與環境管理研究所

108 學年度第二學期『清潔生產與工業生態』

課程進度(14~15)：公民工程師、企業公民、企業社會責任
Citizen Engineering, Corporate Citizenship, Corporate Social Responsibility

- CORPORATE SOCIAL RESPONSIBILITY AND CORPORATE CITIZENSHIP
  - □ Corporate Social Responsibility (CSR) https://sites.hks.harvard.edu/m-rcbg/CSRI/init_define.html
    - ⇨ We define corporate social responsibility strategically. Corporate social responsibility encompasses not only what companies do with their profits, but also how they make them. It goes beyond philanthropy and compliance and addresses how companies manage their economic, social, and environmental impacts, as well as their relationships in all key spheres of influence: the workplace, the marketplace, the supply chain, the community, and the public policy realm.
    - ⇨ The term "corporate social responsibility" is often used interchangeably with corporate responsibility, corporate citizenship, social enterprise, sustainability, sustainable development, triple-bottom line, corporate ethics, and in some cases corporate governance.
  - □ Aspects of Corporate Social Responsibility (CSR): Carroll's CSR Pyramid
    https://www.business.uzh.ch/dam/jcr:ffffffff-8e67-00b1-0000-00003638158e/Corporate_Citizenship.pdf
    - ⇨ Economic Responsibility => To be profitable
    - ⇨ Legal Responsibility => Respect laws
    - ⇨ Ethical Responsibility => Do what is right
    - ⇨ Philanthropic Responsibility => Contribute to various kinds of social, cultural purposes etc.

The CSR Pyramid (Source: own work based on Carroll, 1979, 1991, 2004)
(Raczkowski et al., 2016)

  - □ Differences between CSR and Corporate Citizenship (CC)
    - ⇨ CC as the philanthropic part of CSR, especially in terms of a positive influence on society. (Corporate Giving, Corporate Volunteering, Corporate Community Investment)
    - ⇨ CC: "A company's responsibilities toward society" "The social role of business"
    - ⇨ "Corporate citizenship involves the social responsibility of businesses and the extent to which they meet legal, ethical, and economic responsibilities, as established by shareholders. Corporate citizenship is growing increasingly important as both individual and institutional investors begin to seek out companies that have socially responsible orientations such as their environmental, social, and governance (ESG) practices." https://www.investopedia.com/terms/c/corporatecitizenship.asp
  - □ Corporate Citizenship => Citizen Engineer

- CITIZEN ENGINEER (Douglas et al., 2009)
  - □ Citizen Engineers are the connection point between science and society -- between pure knowledge and how it is used.
  - □ Citizen Engineers are techno-responsible, environmentally responsible, economically responsible, socially responsible participants in the engineering community.
    - ⇨ **Environmental responsibility**: ...consider the total environmental impact of the products and services they design -- over the entire lifecycle...
    - ⇨ **Techno responsibility**: …the responsible use of intellectual property, adherence to the terms of licenses, ethical handling of data about others, and honoring the terms and the intent of nondisclosure agreements and other contracts relating to use of ideas.
    - ⇨ **Customer/stakeholder responsibility**: …responsible for ensuring the safety, security, and privacy of the people who buy and use the products they design. …work closely with customers to ensure that they are partners in minimizing the environmental impact of products and services.
  - □ Environmental goals
    - ⇨ Eliminate waste Benign emissions Renewable energy
    - ⇨ Closing the loop Resource-efficient transportation
    - ⇨ Sensitizing stakeholders: Creating a culture that integrates sustainability principles and improves people's lives and livelihoods
    - ⇨ Redesigning commerce: Creating a new business model that demonstrates and supports the value of sustainability
  - □ Carbon Neutrality
  - □ Greenwashing and Green Noise
  - □ Lifecycle Phase Checklists => The *"Make," "Use," and "Renew"* Phases

- CORPORATE SUSTAINABILITY
  - □ UN Global Compact => Corporate Sustainable Development
  - □ The integration of Environmental, Social and Governance (ESG)
  - □ Principles for Responsible Investing
  - □ Sustainable Development Goals
  - □ Principles / Standards / Codes related to Corporate Sustainability
    - ⇨ ISO 26000, Equator Principle
    - ⇨ Responsible Business Alliance (RBA) Code of Conduct

- SUSTAINABLE ENVIRONMENTAL ENGINEERING (Tang, 2019)
  - □ Green Engineering
    Green Chemistry
  - □ 12 Design Principles of SEE
  - □ Related concepts to green chemistry for environmental management
    - ⇨ Eco-efficiency
    - ⇨ Industrial ecology
    - ⇨ Cleaner production
    - ⇨ Ecodesign
    - ⇨ Green engineering
    - ⇨ Life cycle thinking

Principle	Green engineering	Green chemistry
1	Inherent rather than circumstantial	Prevention
2	Prevention instead of treatment	Atom economy
3	Design for separation	Less hazardous chemical use
4	Maximize efficiency	Design for safer chemicals
5	Output pulled versus input pushed	Safer solvents and auxiliaries
6	Conserve complexity	Design for energy efficiency
7	Durability rather than immortality	Use renewable feedstock
8	Meet need, minimize excess	Reduce use of derivatives
9	Minimize material diversity	Catalytic reagents rather than stoichiometric reagents
10	Integrate material and energy flows	Design for degradation
11	Design for commercial afterlife	Use real-time analysis for pollution prevention
12	Renewable rather than depleting	Use safer chemistry to prevent accidents