THE HONG KONG INSTITUTE OF EDUCATION

Course Outline

Part I

Course Title: Solid Waste Management in Cities
Course Code: GED2037
Department: SES
Credit Point: 3
Contact Hours: 39
Pre-requisite(s): Nil

Part II

1. Synopsis
Municipal solid waste has been recognized as an eyesore, a potential hazard, a long-term concern for urban managers and environmentalists. Sustainable management of municipal waste has been a multi-faceted arena requiring knowledge not only in engineering and science, but also social sciences, e.g. urban management, environmental economic and consumer behavior. This course provides an introduction to municipal solid waste management with particular reference to a multidisciplinary perspective. Stresses will be given to help students to better understand key issues in the solid waste management, especially in a global city as Hong Kong, in both local and international context, and also the significance of public engagement for the successful reduction of solid waste, by applying socio-economic and scientific knowledge and inquiry skills. Apart from lectures and case studies, learning activities (visits and scientific investigations) blended with discussion will help students to acquire necessary daily skills and knowledge for reducing, reusing, recycling and upcycling of various kinds of solid wastes (food, paper, can, plastics, glass and e-waste) will be covered.

2. Course Intended Learning Outcomes (CILOs)
Upon successful completion of this course, students should be able to:

CILO1: Demonstrate an understanding of the concepts and knowledge required to interpret and comment on the issues on solid waste management from an integrated and holistic perspective, as well as in the local and international context.

CILO2: Apply a range of skills necessary to investigate and comprehend solid waste management issues.

CILO3: Demonstrate an informed and responsible attitude relating to the care of the environment and resources conservation.
### 3. Content, CILOs and Teaching & Learning Activities

<table>
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<tr>
<th>Course Content</th>
<th>CILOs</th>
<th>Suggested Teaching &amp; Learning Activities</th>
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<tbody>
<tr>
<td>Historical origin of municipal solid waste (MSW), their evolution and their influence on the health, urban living and urban image / landscape; the significance of proper management of MSW.</td>
<td>CILO_{1,3}</td>
<td>• Lecture, discussion and case studies</td>
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| Introduction to the major types of municipal solid waste, their lifecycles and environmental hazards:  
  1) Non-recyclable general waste  
  2) Construction waste  
  3) Organic (food) waste  
  4) Paper recycling  
  5) Electronic waste  
  Plastics and other co-mingled solid wastes (aluminum cans and glass…etc). | CILO_{1,2,3} | • Lecture, discussion and case studies  
  • Scientific activity for plastic classification and food-waste composting |
| Fundamental concepts in solid waste management (SWM):  
  1) Materials balance model  
  2) 3Rs principle and waste management hierarchy  
  3) Life-cycle analysis  
  4) Material flow accounting  
  Significance of an integrated waste management in relation to sustainability issues, e.g. resources conservation (waste as a material inventory stock) and greenhouse gas (GHGs) emission.  
  1) Low-carbon growth, green economy, green design, change in urban living style and consumption behavior.  
  2) Material recovery and waste-to-energy technologies and their industrial applications and how these will contribute to the enhanced sustainability.  
  Application of the above scientific and social concepts in analyzing and understanding SWM at the municipal and national levels. | CILO_{1,2,3} | • Lecture, discussion and case studies  
  • Visit to governmental waste recycling and management facilities (EPD food-waste recycling facility and landfill)  
  • Case studies of municipal SWM facilities in other countries |
| Commonly adopted municipal solid waste management measures (waste classification, collection & transport), technology (landfill and incineration) and policy instruments (waste fee charges), as well as their relationship with the waste management hierarchy and how these measures are now implemented in Hong Kong. | CILO_{1,2,3} | • Lecture, discussion and case studies.  
  • Case studies of recycling industries and visit to social enterprise participating in waste recycling (Yan Oi Tong) |
Significance of stakeholder (citizen and industry) engagement in the 3Rs processes and SWM hierarchy and also in the sustainable development (SD) perspective; how stakeholder engagement is interpreted at various nations/cities (Hong Kong, Taipei, Japan … etc.) worldwide, in their respective SWM schemes.

### 4. Assessment

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<tr>
<th>Assessment Tasks</th>
<th>Weighting (%)</th>
<th>CILO</th>
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<tbody>
<tr>
<td>a. Mid-term quiz (60 min, MC and short questions)</td>
<td>40</td>
<td>CILO₂,₃</td>
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<tr>
<td>b. Group representation for discussing important issue(s) in the environmental and socio-economic dimensions of solid waste management</td>
<td>30</td>
<td>CILO₁</td>
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<tr>
<td>c. Poster on topic selected for group presentation</td>
<td>30</td>
<td>CILO₂,₃</td>
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### 5. Required Text(s)

Nil

### 6. Recommended Readings


10.) Environment Bureau (2013). *Hong Kong Blueprint for Sustainable Use of Resources*. Hong Kong.


### 7. Related Web Resources

http://www.epa.gov/statelocalclimate/state/topics/waste-mgmt.html