City University of Hong Kong

Information on a Course
offered by Department of System Engineering and Engineering Management
with effect from Semester B in 2011/2012

Part I

Course Title: Macroergonomics

Course Code: SEEM4065

Course Duration: One semester

No. of Credit Units: 3

Level: B4

Medium of Instruction: English

Prerequisites: MEEM3024 (offered until Semester A 2011/12) / SEEM3024 Ergonomics in Workplace Design

Precursors: MEEM3023 (offered until Semester A 2011/12) / SEEM3023 Ergonomics in Man Machine Systems

Equivalent Courses: MEEM4065 Macroergonomics

Exclusive Courses: Nil

Note: Students may repeat a course, or an equivalent course, to improve course grade only if the previous course grade obtained is D or below.

Part II

1. Course Aims:

This macroergonomic course is concerned with the application of macroergonomic and sociotechnical theories, principles, and methods to organization’s work system design in order to optimize interactions and fit among the system elements, such as human, technology, and the organization. The course emphasizes human-organization interaction and interface design, which is primarily related to organization development techniques that involve the restructuring of work methods, rearrangements of technology, or the redesign of organizations’ social structures. The ultimate goal of macroergonomics is to achieve safety, human performance, productivity, and satisfaction. The course covers the following macroergonomic topics: 1) background, concepts, definitions, and applications of macroergonomics; 2) sociotechnical system models and theories; 3) macroergonomic methods; 4) work system and process analysis and design; 5) impact of macroergonomics; and 6) future directions of macroergonomics.
2. Course Intended Learning Outcomes (CILOs)

*Upon successful completion of this course, students should be able to:*

<table>
<thead>
<tr>
<th>No.</th>
<th>CILOs</th>
<th>Weighting* (if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>recognize the significance and potential benefits of macroergonomics in work system design, such as the improvement of safety, quality, and performance</td>
<td>2</td>
</tr>
<tr>
<td>2.</td>
<td>describe the concepts, principles, and theories of macroergonomics</td>
<td>3</td>
</tr>
<tr>
<td>3.</td>
<td>analyze organizational structures, policies, and processes for ergonomic deficiencies</td>
<td>3</td>
</tr>
<tr>
<td>4.</td>
<td>apply macroergonomic theories, principles, tools to address and solve problems and issues of a work system</td>
<td>3</td>
</tr>
<tr>
<td>5.</td>
<td>recognize the future direction of macroergonomics</td>
<td>1</td>
</tr>
</tbody>
</table>

*Weighting ranging from 1,2,3 to indicate the relative level of importance in an ascending order.

3. Teaching and Learning Activities (TLAs)

<table>
<thead>
<tr>
<th>Activity Type</th>
<th>Timetabled Activity (Hours per week)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture/Tutorial/Laboratory Mix</td>
<td>Lecture (3)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TLAs</th>
<th>CILO 1</th>
<th>CILO 2</th>
<th>CILO 3</th>
<th>CILO 4</th>
<th>CILO 5</th>
<th>Total (hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Class Activities*</td>
<td>6</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>2</td>
<td>32</td>
</tr>
<tr>
<td>Case Study†</td>
<td>-</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Hours/week (if applicable)</td>
<td>6</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>3</td>
<td>39</td>
</tr>
</tbody>
</table>

*Office hours will be set aside to allow students to discuss with the teaching staff regarding their learning progress, course materials, and issues related to the course

†Approximate four to six case studies will be given throughout the semester

4. Assessment Tasks/Activities (ATs)

<table>
<thead>
<tr>
<th>ATs</th>
<th>Case study</th>
<th>Midterm exam</th>
<th>Final exam (2 hours)</th>
<th>Total(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CILO 1</td>
<td>-</td>
<td>7</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>CILO 2</td>
<td>7</td>
<td>9</td>
<td>9</td>
<td>25</td>
</tr>
<tr>
<td>CILO 3</td>
<td>7</td>
<td>9</td>
<td>9</td>
<td>25</td>
</tr>
<tr>
<td>CILO 4</td>
<td>7</td>
<td>9</td>
<td>9</td>
<td>25</td>
</tr>
<tr>
<td>CILO 5</td>
<td>9</td>
<td>1</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>Total (%)</td>
<td>30</td>
<td>35</td>
<td>35</td>
<td>100</td>
</tr>
</tbody>
</table>

Assessment will be in the form of case studies and examinations to assess the five course intended learning outcomes.
5. **Grading of Student Achievement:**

Percentage distribution of marks is as follows:

1. Case study assignments: 30%
   - Assignments are to be done individually, unless otherwise specified.
2. Midterm exam: 35%
   a. Midterm exam will be given during lecture.
3. Final exam: 35%
   - Final exam will take 2 hours. The exam questions are primarily multiple-choice and short essays.

For a student to pass the course, at least 30% of the maximum mark for the examination should be obtained.

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Grade Point</th>
<th>Grade Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.3</td>
<td>Excellent</td>
</tr>
<tr>
<td>A</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>A-</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>B+</td>
<td>3.3</td>
<td>Good</td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>B-</td>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td>C+</td>
<td>2.3</td>
<td>Adequate</td>
</tr>
<tr>
<td>C</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>C-</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>1.0</td>
<td>Marginal</td>
</tr>
<tr>
<td>F</td>
<td>0.0</td>
<td>Failure</td>
</tr>
<tr>
<td>P</td>
<td>-</td>
<td>Pass</td>
</tr>
</tbody>
</table>

Please refer to the ARRO’s website for details.

**Part III**

**Keyword Syllabus**

Macroergonomics; Sociotechnical systems; Human-organization interaction and design; Organization design; Technology and management; Joint design and optimization; Work system and process analysis and design; Similarities and differences between microergonomics and macroergonomics; Technology implementation and diffusion; Work system structural dimensions: Complexity, formalization, and centralization; Change implementation
Recommended Reading
Text(s)

Additional texts on fundamentals of macroergonomics and sociotechnical systems

Online Resources:
Students are able to access other learning materials via the University computer network.