COURSE CONTENT

Date : 1 Dec 2013
Academic Year : 2013/14
Study Year (if applicable) : Year 3 and 4
Course Code & Title : CM4013 Current Topics in Analytical Chemistry
Academic Units : 3 AU
Pre-requisites : CM2011, CM2062 and CM3062 or by permission

Course Description

CM4013 Current Topics in Analytical Chemistry
[Lectures 39; Pre-requisite CM2011, CM2062 and CM3062 or by permission; Academic Units: 3]

Content
The course is considered as the expansion of CM4011 (Analytical Chemistry) and is intended for students to get in-depth knowledge on bioanalytical chemistry. This module will cover the topics, including bioanalysis, biomaterials, electroanalytical methods, with focus on point-of-care diagnosis and food quality control.

Learning Objectives
Students will understand the methodologies behind a selection of key bioanalytical methods.

Course Outline

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<thead>
<tr>
<th>S/N</th>
<th>Topic</th>
<th>Lecture Hours</th>
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<tbody>
<tr>
<td>1</td>
<td>Introduction to analytical methods</td>
<td>3</td>
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<tr>
<td>2</td>
<td>Chemical sensors and biosensors: recognition and transduction methods</td>
<td>6</td>
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<tr>
<td>3</td>
<td>Advanced techniques for point of care diagnosis: Enzymatic, DNA and immunosensors</td>
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<td>4</td>
<td>Current techniques for protein detection: ELISA immunoassays</td>
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<td>5</td>
<td>Current methods for DNA analysis: from classical techniques to Next Generation Sequencing (NGS)</td>
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<td>6</td>
<td>Novel analytical tools for food quality control</td>
<td>5</td>
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<tr>
<td>7</td>
<td>Advanced materials used in analytical chemistry</td>
<td>6</td>
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Learning Outcomes
Students will have a deeper understanding of the major current methodologies and biomaterials used in analytical chemistry.

Student Assessment:
Students will be assessed by
a. Continuous assessment (40%)
b. Final Exam (60%)

Textbooks: