Course specification

University/Academy: Damanhour

Faculty/Institute: Science

Department: Botany

Course Data:

<table>
<thead>
<tr>
<th>Course code: mic 323</th>
<th>Course title: Phycology and Physiology of Algae</th>
<th>Academic year/level: 2009\2010</th>
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<tbody>
<tr>
<td></td>
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<td>3rd year students 1st term --</td>
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</table>

Specialization: Chemistry/microbiology

No. of instructional units:

lecture 2  practical  3

Course Aim

By the end of the course, students will be able to:

- Realize the principles of phycology, know of the role of algae in nature.
- Understand photosystem 1 and photosystem 2 and recognize the effects of light and temperature in photosynthesis.
- Understand the relation of the light reaction.
- Provide some physiological aspects of algae
- Illustrate the important role of algae in nature

1. Intended learning outcome

a. Knowledge and understanding

By the end of the course, students will be able to:
| A1 | List the divisions of algae. |
| A2 | Identify the importance of algae used as food |
| A3 | Describe the mechanism of photosynthesis and respiration. |
| A4 | Identify the photosynthetic pigments, accumulation and storage of photosynthetic products in algae. |
| A5 | Describe in algae the carbon and nitrogen metabolism, chemical structure and distribution of pheromones |

<table>
<thead>
<tr>
<th>Intellectual skills</th>
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<tbody>
<tr>
<td>By the end of the course, the students are expected to develop higher order skills that are reflected in their ability to:</td>
</tr>
<tr>
<td>B1</td>
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<td>B2</td>
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<td>B7-</td>
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<td>B8-</td>
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<td>Professional skills</td>
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| C1: After practical investigation, draw the life cycle of some represented examples. By the end of the course, students will be able to:  
C2: Experimental demonstration for factor affecting algal activity  
C3 Practical  

*proven of the equation for photosynthesis* and describe the components  
C4: Demonstrate why algae need this light.  
C5: Record the growth rate of algae in different media, the chlorophylls, carotenoids and protein contents of algae and the ability of algae to produce antibiotics |
| General skills | the end of the course, students will be able to:  
D1: Exchange ideas, principles and information by oral, written and visual means.  
D2: Work effectively both in a team and independently.  
D3: Use the information technology to gather information and right reports.  
D4: Apply the basic knowledge of in handling and interpreting information |
| course content | • introduction in nature of algae  
• role of algae in nature and their economic uses  
• Systematic position of algae  
• Divisions, classes, orders of algae  
• life cycle of some represented examples  
• evolution and affinities of different algal divisions  
• photosynthesis and respiration  
• Characteristics of algal growth in cultures of limited volume  
• Assimilation of carbon and nitrogen in algae  
• Nitrogen fixation in algae  
• Assimilation of inorganic nitrogen  
• Assimilation of organic nitrogen  
• Photosynthetic pigments in algae  
• The growth of algae in continuous and synchronous cultures  
• Accumulation and storage of photosynthetic products  
• Metabolic pattern and growth  
• The storage products in algae  
• Inorganic nutrients of algae  
• Inorganic nutrients  
• Distribution of pheromones in algae |
| --- | --- |
| 1. Teaching and learning methods | • 4.1. Lectures and seminars.  
• 4.2. Lab work.  
• 4.3. Problems.  
• 4.4. Short reports. |
| teaching and learning methods for students with special needs |  |
| Student Assessment | • 5.1. Quizzes.  
• 5.2. Mid term exam.  
• 5.3. Practical exam.  
• 5.4. Final term exam |
| Procedures used: |  |
# Schedule:

- Assessment 1: Quizzes Week: 4-7
- Assessment 2: Mid term exam Week: 8
- Assessment 3: Practical exam Week: 15
- Assessment 4: Final term exam Week: 16

# Weighing of Assessment:

- Mid-Term Examination: 10
- Final-Term Examination: 150
- Practical Examination: 30
- Semester Work: 10
- Total 200

# List of Textbooks and References:

<table>
<thead>
<tr>
<th>Type</th>
<th>Texts</th>
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</thead>
<tbody>
<tr>
<td>a. Course Notes</td>
<td>- Course Note in phycology -</td>
</tr>
<tr>
<td>Required Books (Textbooks)</td>
<td></td>
</tr>
<tr>
<td>Recommended Books</td>
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<tr>
<td>Periodicals, web sites,...,etc</td>
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</tbody>
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**Course Instructor:**

**Head of Department:**

**Date:** 11 / 10 / 2008