Course specification

University/Academy: Damanhour
Faculty/Institute: Science
Department: Botany

1. course Data:

<table>
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<tbody>
<tr>
<td>Specialization: Chemistry/Botany</td>
<td>No. of instructional units: lecture 2 practical 3</td>
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2. course Aim
By the end of the course, students will be able to:
Realize the principles of plant metabolism.
- Understand of Carbohydrates, Fat and Nitrogen metabolism.
- .Realize the principles of mineral nutrition and realize the industrial importance of plant hormones

3. Intended learning outcome

a) Knowledge and understanding
By the end of the course, students will be able to:
A1: List the significant differences between Carbohydrates, Fat and Nitrogen metabolism.
A2: Describe the different pathways of metabolism.
A3: Write the benefits of plant hormones and growth regulators.

b) Intellectual skills
By the end of the course, the students are expected to develop higher order skills that are reflected in their ability to:
B1: Differentiate between Carbohydrates, Fat and Nitrogen metabolism.
B2: Compare between the structural and functional specialization of plant hormones.
B3: Conclude the principles of plant metabolism.
B4: Differentiate between plant hormones and growth regulators.
B5: Analyze the relations of pathways of metabolism.
B6: Conclude the basic knowledge of mineral nutrition.

c) Professional skills
By the end of the course, students will be able to:
C1: Demonstrate the main features of plant
### 4. course content

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<table>
<thead>
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<tbody>
<tr>
<td>1.</td>
<td>Introduction in Plant metabolism</td>
</tr>
<tr>
<td>2.</td>
<td>Carbohydrates metabolism</td>
</tr>
<tr>
<td>3.</td>
<td>Fat metabolism</td>
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<td>4.</td>
<td>Nitrogen metabolism</td>
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<td>5.</td>
<td>Plant hormones</td>
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<td>6.</td>
<td>Growth regulators</td>
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<td>7.</td>
<td>Mineral nutrition</td>
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### Teaching and learning methods

- Lectures and seminars.
- Lab work.
- Problems.
- Short reports

### 5. teaching and learning methods for students with special needs

N/A

### 6. Student Assessment

#### a) Procedures used:

- Assessment 1: Quizzes.
- Assessment 2: Mid term exam.
- Assessment 3: Practical exam.
- Assessment 4: Final term exam.
### Schedule:

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Week</th>
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<tbody>
<tr>
<td>1: Quizzes.</td>
<td>4-7</td>
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<tr>
<td>2: Mid term exam.</td>
<td>8</td>
</tr>
<tr>
<td>3: Practical exam.</td>
<td>15</td>
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<tr>
<td>4: Final term exam.</td>
<td>16</td>
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### Weighing of Assessment:

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Semester work</td>
<td>10</td>
</tr>
<tr>
<td>Mid term exam</td>
<td>10</td>
</tr>
<tr>
<td>Practical examination</td>
<td>30</td>
</tr>
<tr>
<td>Final term exam</td>
<td>100</td>
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<td><strong>Total</strong></td>
<td><strong>150</strong></td>
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### List of Textbooks and References:

#### a) Course Notes
- Lecture notes on Plant physiology

#### b) Required Books (Textbooks)
- Control of Primary Metabolism in Plants by Michael T. McManus (Editor), William C. Plaxton
- Carbohydrate Reserves in Plants: Synthesis and Regulation by Anil Kumar Gupta (Editor), Narinder Kaur (Editor)
- Plant hormone protocols By Gregory A. Tucker, Jeremy A. Roberts

#### c) Recommended Books
- Plant physiology; a textbook for colleges and universities (1939)
- Plant secondary metabolites
- Natural products from plants

#### d) Periodicals, web sites, etc
- [www.Plant physiology.com](http://www.Plant physiology.com)

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**Course Instructor:** Dr. [Name]

**Head of Department:** Dr. [Name]

**Date:** 17/8/2009