Course Specifications

University	Beni-Suef
Faculty	Pharmacy
Dept.	**Pharmacognosy**

1-Course Info.	**Course Name:** Natural Product and Quality Control
Code No. 209	**Academic year/ Level:** 5th year, second semester
Credit hours: Lecture (3) hour + Practical (2) hour	

2-Overall Aim of the Course	To ensure students have necessary knowledge and skills to develop professional competence in all aspects of natural products isolation, identification, and analysis and structure identification. Students will also gain knowledge and skills in quality control of herbs and herbal products.
3-Intended Learning Outcomes of the course (ILOs)	
a. Knowledge and understa	Upon successful completion of this course, students will be able to: a.1. demonstrate clear knowledge and full understanding in production of useful secondary metabolites by plant tissue culture. a.2. demonstrate clear knowledge and full understanding in quality control methods of herbs and herbal products. a.3. demonstrate clear knowledge and full understanding in chromatographic analysis of natural products by HPLC, GC and IE. a.4. demonstrate clear knowledge and full understanding n structure identification of natural products.
b. Intellectual Skills	At the end of this course, the student must be able to: b.1. Demonstrate professional competence in analysis of natural products using chromatographic methods. b.2. Carry out simple laboratory techniques of plant tissue culture b.3. Elucidate structure of natural products using different spectroscopic methods. b.4. Demonstrate different standards for quality control of herbs and herbal products.
c. Professional and	At the end of this course, the student must be able to:

<table>
<tr><td>Practical Skills</td><td>c.1. Identify natural drugs using histological and chemical methods
c.2. Assay different classes of natural products
c.3. Perform micro chemical test for analysis of alkaloids
c.4. Recognize characters of different plant tissue culture</td></tr>
<tr><td>d. General and
Transferable Skills</td><td>At the end of this course, the student must be able to:
d.1. To effectively engage in oral and written communication in a confident and professional manner.
d.2. To work as a part of a team.
d.3. To perfectly use available IT facilities.</td></tr>
<tr><td>4-Course Contents</td><td>
<table>
<tr><th>Topics</th><th>No. of Hours</th><th>Lecture</th><th>Practical</th></tr>
<tr><td>Production of Useful Secondary Metabolites by Plant Tissue Culture</td><td>9</td><td>9</td><td>-</td></tr>
<tr><td>Quality Control Methods of Natural Products</td><td>9</td><td>9</td><td>-</td></tr>
<tr><td>Chromatographic Analysis of Natural Products</td><td>9</td><td>9</td><td>-</td></tr>
<tr><td>Structure Elucidation of Natural Products</td><td>9</td><td>9</td><td>-</td></tr>
<tr><td>Quality Control of Natural Product</td><td>18</td><td>-</td><td>18</td></tr>
<tr><td>Chromatographic Analysis of Natural Products</td><td>10</td><td>-</td><td>10</td></tr>
<tr><td>Structure Elucidation of Natural Product</td><td>8</td><td>-</td><td>8</td></tr>
<tr><td>Total</td><td></td><td>36</td><td>36</td></tr>
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</td></tr>
<tr><td>5- Teaching and
learning Strategies</td><td>4.1. Lectures
4.2. Production of reports, essays and other coursework elements
4.3. Research projects
4.4. Practical laboratory work</td></tr>
<tr><td>6- Teaching and learning Methods for Special Needs Students</td><td>N/A</td></tr>
</table>

7- Student Assessment Methods

a-Methods

b- Assessment Schedule

c- Weighting of Assessment Marks

Assessment methods		ILOs	Week	Weight
Semester Work	To assess	a1-a4 d1-d3	1st week – 13th week	5%
Practical exam		C1-c4	13th week	30%
Final written exam		A1-a4, b1-b4	16th week	50%
Oral exam		a1-a4, b1-b8	16th week	15%
Total				100%

8-List of References

a. Notes

Course Notes, prepared by staff members of the teaching department.

b. Mandatory Books

Medicinal Natural Products: A Biosynthetic Approach, By P. Dewick, 2001.

c. Suggested Books

- Bioactive compounds from natural resources, By C. Tringali, 2001.
- Naturally occurring glycosides, I. Paphael, 1999.

d. Journals

Journal of Natural Products

Planta medica

Natural Product Research

Phytochemical Analysis

Course Coordinators: Dr. Sameh AbouZid

Head of department: Dr. Sameh AbouZid

Date: 10/2/2016

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