

University: Benha

Faculty of Science

Course Specifications:

Programme(s) on which the course is given: **Biology**

Major or Minor element of program: Minor

Department offering the program: Biology

Department offering the course: Physics

Academic year/level: 2nd year / 2nd semester

Date of specification approval: 2008

A- Basic Information:

Title: Biophysics

Code: Phy 282

Credit Hours:

Lecture: 2 hrs/week

Tutorial: 0 hr/week

Practical: 2 hrs/week

Total: 4 hrs/week

B- Professional Information:

1. Overall Aims of Course: At the end of this course the student able to:

By Finishing of this course the graduate will be able to understand the fundamentals of applications of physics in biological systems. Also, Developing a clear understanding of the basic concepts of human and organs physics.

2. Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

To make the graduate able to:

a1- Understand electrical and mechanical properties of living cells.

a2- Understand the component of biological systems.

a3- Learn the technique of electrodes.

b- Intellectual Skills:

To make the graduate able to:

b1- Differentiate between electrical and mechanical properties of living cells.

b2- Collect, summarize and analyze the practical data.

b3- Reason in a human body by a logic way.

c- Professional and Practical Skills:

To make the graduate able to:

c1 - Analyze the different body electrical signals.

c2- Design the biological devices.

d- General and Transferable Skills:

d1- Use the computer

d2- Communicate with topics and internet

d3- Community linked thinking

3. Contents

Topics	No. of hours	Lecture	Practical
General introduction	8	4	4
Biological and engineering systems.	12	6	6
Intra and extra fluids.	12	6	6
Transfer of ions and materials through living cells membrane	8	4	4
Interaction of ionizing radiation with biological materials.	8	4	4
Total	48	24	24

4. Teaching and Learning Methods

- 4.1- Lectures
- 4.2- Practical training
- 4.3- Class activities

5. Student Assessment Methods

- 5.1 Discussions to assess applying and evaluating the information
- 5.2 Practical to assess the acquired profession skills
- 5.3 Mid term exam to assess understanding **intellectual** skills
- 5.4 End of term exam to assess knowledge with understanding

2-Assessment Schedule

Assessment 1: Discussions	Week 1-12
Assessment 2: Essay	Week 3
Assessment 3: Mid term	Week 7
Assessment 4: Final exam	Week 14

Weighting of Assessments

Mid-Term Examination	10 %
Final-term Examination	53 %
Oral Examination	4 %
Practical Examination	20 %
Semester Work	10 %
Other types of assessment	3 %
Total	100%

6. List of References:

6.1- Course Notes: Lecture materials

6.2- Essential Books (Text Books):

- Principles of biophysics (Fadel M. Ali 2003)
- Biophysics, An Introduction. (Rodney Cottenill, 2003)
- Biomedical engineering principle, David O. Cooney (1976).

6.3- Recommended Books:

- Principles of biophysics (Fadel M. Ali 2003)
- Biophysics, An Introduction. (Rodney Cottenill, 2003)
- Biomedical engineering principle, David O. Cooney (1976).

6.4- Periodicals, Web Sites:

<http://www.hep.com>

<http://www.Physics2000.com>

<http://www.Physicstoday.org>

7. Facilities Required for Teaching and Learning

- 1- Blackboard
- 2- Projectors
- 3- Personal computer
- 5- Data show and power point application.
- 4- Experimental laboratories

Course Coordinator: Dr. \Samira Salam

Head of Department: Prof. Dr.\ L.I. Abou-Salem

Date: 1/6 /2007