Course Specifications

Programme(s) on which the course is given: Physics & Laser
Major or Minor element of program Physics
Department offering the program Physics
Academic year / Level fourth
2012 Date of specification approval

A- Basic Information

Title	**Laser diagnosis & spectroscopy**	**Code: L436**
Credit Hours	**3 h**	**Lecture: 3h**
Tutorial: 00	**Practical: 00**	**Total: 3h**

B- Professional Information

1 – Overall Aims of Course

How to diagnose laser beam
Use different techniques of spectrometers
Analyze systems of laser characterization

2 – Intended Learning Outcomes of Course (ILOs)

a Knowledge and Understanding:

a1- general parameters of laser light
a2- Know the different parameters of spectrometers and monochromators
a3- Know the different mounts of spectrometers

b-Intellectual Skills

b1- designing and testing of equipments
b2- scientific reports about some points in laser physics
b3- analysis of detector systems

c-Professional and Practical Skills

C1-how to build a detector system
c2-how to measure and optimize the laser parameters

d-General and Transferable Skills

d1- using computer and internet
d2- team work and discussion

3- Contents

Topic	No. of hours	Lecture	Tutorial/Practical
Characteristics of laser beam to be measured	9	3	0
General parameters of spectrometers and monochromators	9	3	0
Prism and grating spectrometers	9	3	0
Interferograms	9	3	0
Different mounts of spectrometers and origins of stray light	9	3	0

4– Teaching and Learning Methods

4.1-lecture

5- Student Assessment Methods

5.1 oral to assess understanding
5.2-written exams to assess investigation, and derivations.
5.3 report to assess scientific review.

Assessment Schedule

Assessment 1 class activity in (mid &final term).	week 8&16
Assessment 2 oral exams	Week every week
Assessment 4 reaserch projects and final exam	in week 16

Weighting of Assessments

% 20	Mid-Term Examination	
%	Final-term Examination	60
%	Oral Examination.	5
%	Semester Work	5
%	Other types of assessment	10
100 %	Total	

6- List of References

6.1- Photonics and Lasers An Introduction, Richard S. Quimby. 2006 by John Wiley & Sons,

6.2-Laser Spectroscopy Basic Concepts and Instrumentation 3rd ed.Demtroder.W.2003

6.3- ^ Herrera, G.; Tomás, R.; Vicente, F.; Lopez-Sanchez, J.M.; Mallorquí, J.J.; Mulas, J. (October 2010). "Mapping ground movements in open pit mining areas using differential SAR interferometry". *International Journal of Rock Mechanics and Mining Sciences* 47 (7): 1114–1125. doi:10.1016/j.ijrmms.2010.07.006. (subscription required (Help)).

6.4- Jump up ^ Goldstein, R.M.; Engelhardt, H.; Kamb, B.; Frolich, R. M. (1993), "Satellite radar interferometry for monitoring ice sheet motion: application to an Antarctic ice streamy", *Science* 262 (5139): 1525–1530,

Bibcode:1993Sci...262.1525G,
doi:10.1126/science.262.5139.1525.

7- Facilities Required for Teaching and Learning.

Data show – lab top computer - pens – blackboard - ...etc.

Course Coordinator: Dr. Hosam Ahmed Awad **Head of Department: Prof.Dr. Sana Maize** **Date: / /**