



Course Specifications

Institution:	College of Education at Zulfi
Academic Department :	Department of Physics
Programme :	Physics Program (B.Sc.)
Course :	Nanotechnology
Course Coordinator :	Dr. Ismat Ali
Programme Coordinator :	Dr. Fatema Alzahraa Mohamed
Course Specification Approved Date :	1/ 1 / 1438 H



A. Course Identification and General Information

1 - Course title :	Nanotechnology	Course Code:	PHYS. 387
2. Credit hours :	2		
3 - Program(s) in which the course is offered:	Physics Program (B.Sc.)		
4 – Course Language :	Arabic		
5 - Name of faculty member responsible for the course:	Dr. Ismat Ali		
6 - Level/year at which this course is offered :	Fourth Year / Seventh Level		
7 - Pre-requisites for this course (if any) :	•		
8 - Co-requisites for this course (if any) :	•		
9 - Location if not on main campus :	(.....)		
10 - Mode of Instruction (mark all that apply)			
A - Traditional classroom	<input type="checkbox"/>	What percentage?	80 %
B - Blended (traditional and online)	<input type="checkbox"/>	What percentage?	0 %
D - e-learning	<input type="checkbox"/>	What percentage?	5 %
E - Correspondence	<input type="checkbox"/>	What percentage?	0 %
F - Other	<input type="checkbox"/>	What percentage?	15 %
Comments :	.....	

B Objectives

What is the main purpose for this course?

The study of nanotechnology has played a major role in the development of physics and the other science to understanding the structures of materials and modification materia structure to good properties. The course of Nano is covering as:

1. Nature, importance, principles of nanotechnology
2. Properties of nano particles and forms of of nano materials
3. Microscopes in nanotechnology
4. Developments of nanotechnology in different science

Briefly describe any plans for developing and improving the course that are



- being implemented** (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)
5. Giving class lectures to summarize course content.
 6. Solving problems and examples.
 7. Outlining important applications and significance of topics covered. Solving the monthly tests and discussion to take advantage of mistakes.
 8. Update the content periodically.
 9. Using new references.
 10. Using web references.
 11. increase use of IT
 12. increase use of video material
 13. exploring the possibility of introducing students to a specialized software
 14. Increased use of power-point and projector in class

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Essential expressions in nanotechnology	1	2
Important stages in nanotechnology-development	1	2
Different principles of nanotechnology	1	2
Properties of material at nano scale	1	2
Forms of nano materials	1	2
Problems	1	2
Mid Exam	1	2
General importance of nanotechnology	1	2
Methods to reach the nano volume	1	2
Basic requirements to construct the material	1	2
Microscopes in nanotechnology	1	2
Uses of nanotechnology	1	2
Creations in nanotechnology	1	2
Nanotechnology-situation in the world	1	2
Nanotechnology-situation in Arab countries, i.e.: in KSA	1	2
Final Exam	1	2



2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	30		.....	.....	.....	30
Credit	30		.....	.....	.....	30

3. Additional private study/learning hours expected for students per week.

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4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	To know the importance of nanotechnology	Developing basic communicative • Ability through short and varied situated discourse. • Lecturing • Team work • Exercises	• Homework. • Group Discussion • Presentation • Mid-term exam • Final test
1.2	To know some applications of nanotechnology		
1.3	To know some researches in the fields of nanotechnology		
2.0	Cognitive Skills		
2.1	Collect general information to the related	• Problem	• Class





	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
	topics.	solving	Participation
2.2	Use the mathematical equations and related work to be use for the universe understanding.	<ul style="list-style-type: none"> • Class discussion • presentation • Individual meeting with the instructor (encouraging students to discuss different topics outside the classroom) 	<ul style="list-style-type: none"> • Presentation • Essay Question • Research
2.3	Apply the gained mathematical and experimental knowledge in any physical related topic.		
3.0	Interpersonal Skills & Responsibility		
3.1	Work in a group and learn time management.	<ul style="list-style-type: none"> • Discussion with students 	<ul style="list-style-type: none"> • Respecting dead lines.
3.2	Learn how to search for information through library and internet	<ul style="list-style-type: none"> • Making students aware about time management in completing their assignments and projects. 	<ul style="list-style-type: none"> • Showing active class participation. • Helping other students to understand tasks in the class.
3.3	Present a short report in a written form and orally using appropriate scientific language	<ul style="list-style-type: none"> • Counsel students how to make a good presentation in French. • Encourage students to help each other • Group presentation • Group assignments 	<ul style="list-style-type: none"> • Giving clear and logical arguments • Performing seriously on midterms and final exams
4.0	Communication, Information Technology, Numerical		
4.1	Communicate with teacher, ask questions, solve problems, and use computers.	<ul style="list-style-type: none"> • Exercises • Problem solving • oral quizzes 	<ul style="list-style-type: none"> • Write reports • Exercises related to specific topics
4.2	Illustrate deal with confidence with		





	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
	differential equations, integrations, and differentials.	<ul style="list-style-type: none"> • Essay questions • Encourage students to use program software 	
4.3	Operate questions during the lecture, work in groups, and communicate with each other and with me electronically, and periodically visit the sites I recommended		
4.4	Students use information technology in the classroom		
5.0	Psychomotor		
5.1	.....	.....	.....
5.2	.....	.....	.....
5.3	.....	.....	.....
5.4	.....	.....	.....
5.5	.....	.....	.....
5.6	.....	.....	.....

5. Schedule of Assessment Tasks for Students During the Semester:

	Assessment task	Week Due	Proportion of Total Assessment
1	Midterm Exam	8	20
2	Homework, Quizzes, Discussions, Team Group, Projects,	14	20
3	Final Exam	16	60





D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

Two office hour per week

E. Learning Resources

1. List Required Textbooks :

2. List Essential References Materials (Journals, Reports, etc.)

1-Nanotechnology, 1st edition, Mohammad Ali Mohammad, 2012.

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)

Software are available with the lecturer

5. Other learning material such as computer based programs/CD, professional standards or Regulations and Software.

Microsoft Office

F. Facilities Required

1. Accommodation

Lecture room, a smart board to write on and computer

2. Computing resources

Computer Lab. and internet lab.

3. Other resources

Library, and Seminar Room , Wi-Fi internet connections

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching:

Student evaluation electronically organized by the University

2 Other Strategies for Evaluation of Teaching by the Program/Department

Instructor :

There is a department committee





3 Processes for Improvement of Teaching :

1. Course report.
2. Program report

4. Processes for Verifying Standards of Student Achievement

Efficiency of course will be reflected on the results of the class, which reviewed by members of the teaching staff in addition to other duties such as discussing ideas and ways of teaching and learning. The course should be developed periodically to ensure that it contains the latest developments in the field of study. Development could be put as an objective in the report of the course to be achieved each semester

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement :

- 1- Course Evaluation
- 2- Exam Evaluation
- 3- Improvement plan
- 4- Program Outlearning with course outlearning
- 5- Outlearning from the pre-requisite course

Course Specification Approved
Department Official Meeting Date 1 / 1 / 1438 H

Course's Coordinator

Dr. Ismat Ali

Department Head

Dr. Fatema Alzahraa Mohamed

