جامعة المجمعة
Majmaah University

Course Specifications

Institution:	College of Education at Zulfi
Academic Department :	Department of Physics
Programme :	B.Edu. Degree in Physics
Course :	Statistical physics
Course Coordinator :	Dr. Emad Alhami
Programme Coordinator :	Dr. Fatema Alzaraa'
Course Specification Approved Date :	1/ 1 / 1438 H

A. Course Identification and General Information

1 - Course title : Statistical physics	Course Code: PHYS. 321
2. Credit hours : 3	
3 - Program(s) in which the course is offered: B.Edu. Degree in Physics	
4 – Course Language : Arabic	
5 - Name of faculty member responsible for the course: Dr. Emad Alhami	
6 - Level/year at which this course is offered : Third Year / 6th 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	√	What percentage?	80 %
B - Blended (traditional and online)	----	What percentage?	
D - e-learning	√	What percentage?	10 %
E - Correspondence	----	What percentage?	
F - Other	√	What percentage?	10 %

Comments :

....

B Objectives

What is the main purpose for this course?

A microscopic study of materials

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

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Relation between statistical physics and thermodynamics	1	3
Microscopic and macroscopic states	1	3
Sterling approximation, uncertainty principle	2	6
Quantum states	1	3
Statistics of microstates and the entropy	2	6
Maxwell-Boltzmann statistics	2	6
Partition function	2	6
Velocity-distribution function for Maxwell-Boltzmann	2	6
Statistics of magnetic materials	1	3
Problems	1	3

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

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	45		....	....	....	45
Credit	3		....	....	....	3

3. Learning hours expected for students per week.

3

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 define the system with thermodynamics properties	• 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 the relation between statistical physics & thermodynamics		
1.3	To define the basics of statistical physics		
2.0	**Cognitive Skills**		
2.1	To conclude the importance of statistical physics		• Class Participation • Presentation • Essay Question • Research
2.2	To differentiate between distinguishable particles and indistinguishable particles		
2.3	To distinguish between: microscopic and macroscopic properties of a system		
2.4	To compare between: v_{ave}, v_{rms}, v_{mp}		
2.5	To solve problems that related to statistical physics		
3.0	**Interpersonal Skills & Responsibility**		
3.1	Work in a group and learn time management.	• Discussion with students • Making students aware about time management in completing their assignments and projects. • Counsel students how to make a good presentation in French. • Encourage students to help each other • Group presentation • Group assignments	• Respecting deadlines. • Showing active class participation. • Helping other students to understand tasks in the class. • Giving clear and logical arguments • Performing seriously on midterms and final exams
3.2	Learn how to search for information through library and internet		
3.3	Present a short report in a written form and orally using appropriate scientific language		
4.0	**Communication, Information Technology, Numerical**		
4.1	Communicate with teacher, ask questions, solve problems, and use computers.	• Exercises • Problem solving • oral quizzes • Essay questions • Encourage students to use program soft	• Write reports • Exercises related to specific topics
4.2	Illustrate deal with confidence with differential equations, integrations, and differentials.		
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		

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
4.4	Students use information technology in the classroom		
5.0	**Psychomotor**		

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

	Assessment task	Week Due	Proportion of Total Assessment
1	**attendance**	All weeks	10 %
2	**Homework, Quizzes, Discussions, Team Group, Projects, …..**	All weeks	10 %
3	**Midterm Exam**	8	20%
4	**Final Exam**	17	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)

Four office hour per week

E. Learning Resources

1. List Required Textbooks :
   Fundamentals of Statistical physics, Ibrahim Nasser

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

1- "Statistical Physics', F. Mandl, 2d *ed,* John Wiley and Sons, Ltd. U.K.
2- "Fundamentals of Statistical & Thermal physics', . Reif (Mc Grow Hill) .

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 Softw are. 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 le
arning. 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 No (2) Date 1 / 1 / 1438 *H*

Course's Coordinator
Name :   Dr. Emad Alhami
Signature :   Dr. Emad Alhami
Date :   1/ 1 / 1438 H

Department Head
Name :   Dr. Fatema Alzaraa'
Signature :   Dr. Fatema Alzaraa'
Date :   1/ 1 / 1438 H