

مواصفات مقرر فيزياء (جوامد 1)

- البرنامج الذي يقدم المقرر من خلاله (إعداد معلم الفيزياء)
- يمثل المقرر عنصرا (رئيسيا) بالنسبة للبرنامج
- القسم العلمي المسئول عن البرنامج (متعدد)
- القسم العلمي المسئول عن تدريس المقرر (قسم الفيزياء)
- السنة الدراسية / المستوى (الفرقة الثالثة عام. شعبة الطبيعة / الفصل الدراسي الثاني)
- تاريخ اعتماد توصيف البرنامج ()

بيانات أساسية

(1) العنوان : فيزياء (جوامد 1)

(2) الكود : 322 Ph

(3) عدد الساعات:

• المحاضرات : 2

• الدروس العملية : 2

• المجموع : 4

بيانات مهنية

(1) الأهداف العامة للمقرر:

- The course is designed to help student-teachers achieve the following goals:
 - Developing the student's ability to deal with the concepts of crystal structure, thermal properties and magnetic properties of materials .
 - Building solid foundation forthcoming developments in the domain of solid state.

(2) الأهداف الإجرائية للمقرر Operational learning objectives of the course

By the end of this course, student teachers are expected to achieve the following objectives:

A) Knowledge and Comprehension:

أ- المعرفة والفهم:

The student have to recognize the following:

- a.1 Lattice vibration and thermal properties of materials.
- a.2 Band theory of solids.
- a.3 Types of junctions.
- a.4 Dielectrics and their types.
- a.5 Radiation detection and detectors.
- a.6 Radiation doses and dosemetry.

B) Cognitive Skills:

ب- المهارات العقلية:

- b.1 Electrical properties of solids.
- b.2 Interaction of radiation with matter.
- b.3 External and internal hazards of radiation sources.

C) Practical Skills:

ج- المهارات العملية:

- c.1 Structure of solids and applications of X-ray crystallography.
- c.2 Types of Crystal imperfections
- c.3 Magnetic properties of materials and types of magnetism.
- c.4 Optical properties of solids.

D) Enabling Skills:

د- المهارات العامة والمنقولة:

- d.1 The students have to recognize the role of external and internal hazards of radiation sources and radiation protection..
- d.2 Create and maintain an educational environment in which conceptual understanding will occur for all science students.

المحتويات:

عدد الساعات					الأسبوع
مجموع	شفوي	عملي	محاضرة		
4	-	2	2	- Structure of solids: Crystalline and amorphous. - X-ray diffraction.	الأول
4	-	2	2	Applications of X-ray crystallography phase identification, crystallite size, residual internal strain and crystallographic texture.	الثاني
4	-	2	2	Types of crystal imperfections.	الثالث
8	-	4	4	- Lattice vibration - Interatomic forces and classification of solids.	الرابع
8	-	4	4	Thermal properties: classical Einstein and Debby theories of heat capacity.	الخامس
8	-	4	4	Thermal conductivity and thermal expansion.	السادس
8	-	4	4	Magnetic properties and classical theory.	السابع
8	-	4	4	Types of magnetism: Dia-, para- and ferro magnetism.	الثامن
8	-	4	4		التاسع
8	-	4	4		العاشر
8	-	4	4		الحادي عشر
8	-	4	4		الثاني عشر
8	-	4	4		الثالث عشر

أساليب التعليم والتعلم

- Solves and discusses problem sets.
- Submission and class presentation of term papers.
- Computer aided and web based assignments and assessment.
- Visits to industrial and medical institutions and submission of subsequent reports.
- Laboratory work, group discussions, and reports on: volumetric analysis, precipitation, complexometric and redox titrations
- Lectures.
- Laboratory experiments.
- Problems and essay assignments.

أساليب التقويم

- Semester activities including classroom interactions and Quizzes.
- Mid-term exam
- Lab performance evaluation.
- Final exam.

Summative Evaluation table

جدول التقييم

Assessment	Final exam	Fifteenth Week	الأسبوع الخامس عشر	نهاية الفصل الدراسي	التقييم
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النسبة المئوية لكل تقييم

Assessment	Score وزن الدرجة Weight	التقييم
1. Midterm exam	-	1. امتحان نصف الفصل الدراسي
2. Final written exam	%70	2. امتحان نهاية الفصل الدراسي
3. Final practical exam	%20	3. الامتحان العملي
4. assignments	%10	4. أعمال السنة
Total	%100	المجموع

قائمة المراجع

- Fundamentals of physics by D-Halliday & R.Resnik.
- " Physics Principles with applications ",D.C Giancoli, USA..
- " University physics", F.W. Sears,M.W. Zemasky and H.D. Young, Wesley series in physics, USA
- Physics by Joseph W.Kane, Morton M. Sternhein. John wiley and sons.
- Atoms, Radiation and Radiation protection, James
- E.Turner. 1985, Interscience publication, John Wiley & Sons, Inc.
- "Elements of X-ray diffraction", B.D. Cullity, Addison- Wesley pub. Company.Inc.
- " Introduction to solid state physics", C.Kittel, John Wiley& son,Inc.
- " Introduction to solids", L.V Azaroff, McGrew- Hill
- " Structure of Metals", C.S Barrett, McGraw Hill.
- " Solid state physics ", A.J. Dekker, MacMillan Press Ltd.
- " An Introduction to solid state Physics", R.J Elliot and A.F. Gibson.
- " Theoretical structure Metallurgy", A.H. Cottrell, E.L.B.S.& Edward Arnold pub.Ltd.
- "Introduction to solid state physics", C.Kittel, John Wiley & Sons, Inc.
- "Introduction to Solids", L.V. Azaroff, McGrew – Hill.

- "An Introduction to solid state physics", R.J.Elliot and A.F.Gibson, Macmillan Press, LTD.
- Elementary Solid State Physics. By M.Ali Omar Revised Printing Addison Wesley Longman 1993.
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الإمكانات المطلوبة للتعليم والتعلم

- References
- Textbooks
- Handouts and problem sets.
- Electronic, web, and multimedia based resources.
- Lab work.

• منسق المقرر:

• رئيس القسم:

• التاريخ: