



**Jordan University of Science and Technology**  
**Faculty of Science & Arts**  
**Physics Department**

PHY493A Special Topics (A)
First Semester 2020-2021

Course Catalog
<p>3 Credit Hours. The course focuses on selecting various new emerging topics in physics such as nanotechnology, renewable energy, condensed matter and material science. Students are supposed to choose one of these topics to present their latest applications. The presentations will be in the form ppt or videos or any other multimedia forms. The course will be divided in several groups each is composed of three or two students. The evaluation will be conducted by the faculty members and the audience.</p>

Text Book	
<b>Title</b>	Introduction to nanotechnology
<b>Author(s)</b>	Dr Borhan Albiss
<b>Edition</b>	1st Edition
<b>Short Name</b>	Edrak nano Mooc
<b>Other Information</b>	<a href="https://www.edraak.org/en/course/course-v1:JUST+NanoTech+T1_2018/">https://www.edraak.org/en/course/course-v1:JUST+NanoTech+T1_2018/</a>

**Course References**

Short name	Book name	Author(s)	Edition	Other Information
nano intro	1) Introduction to Nanotechnology	by Charles P. Poole Jr. Frank J. Owens	1st Edition	-
nano-basics	Fundamentals of Microfabrication: The Science of Miniaturization	by Marc J. Madou	2nd Edition	-
nano-synthesis	Nanotechnology : Synthesis to Applications	Sunipa Roy, Chandan Kumar Ghosh, Chandan Kumar Sarkar	1st Edition	-

Instructor	
Name	Prof. Borhan Aldeen Albiss
Office Location	NA

Office Hours	
Email	baalbiss@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Mon, Wed : 11:30 - 13:00 Room: منصة الكترونية

Prerequisites		
Line Number	Course Name	Prerequisite Type
923511	PHY351 Quantum Mechanics(1)	Prerequisite / Pass

Tentative List of Topics Covered		
Weeks	Topic	References
Weeks 1, 2, 3, 4	Introduction to nanotechnology	
Weeks 5, 6, 7, 8	Nanotechnology preparation and characterization techniques	
Weeks 9, 10	Nanotechnology in energy	
Weeks 11, 12	Nanotechnology in medicine	
Weeks 13, 14	Nanotechnology in industry	
Weeks 15, 16	Nanotechnology in environment	

Mapping of Course Outcomes to Program Student Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
general knowledge of materials [1001]	25%	Midterm, final evaluation of the final presentations for all groups

Relationship to Program Student Outcomes (Out of 100%)					
1	2	3	4	5	6
25					

Evaluation	
Assessment Tool	Weight
Midterm	50%
final evaluation of the final presentations for all groups	50%

Policy

special topics in physics	The course topics focus on the new emerging fields related physics such as : Nanotechnology, renewable energy. Materials science, condensed matter physics. The content and assessment will be customized individually between the student/s and the lecturer, overseen by the course coordinator, and approved by the Head of Physics before the teaching semester commences. The schedule, course materials, and assessment timetable will be specified on based on the selected topics and delivered during the first meeting. A custom timetable will be developed by the instructor in conjunction with the student/s.
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