

**Arab Academy for Science and Technology and Maritime Transport
Computer Science Curriculum
Course Syllabus**

Course Code: BA216	Course Title: Advanced Physics	Classification: R	Coordinator's Name: Dr. Adel Elrfaay	Credit: 3
Pre-requisites: None	Co-requisites: None	Schedule: Lecture 2 hrs. Tutorial/Lab 2 hrs.		

Course Description:

The course is an advanced level physics course that gives the student the chance to absorb waves with its various properties of reflection, refraction, diffraction, attenuation, resonance, superposition and standing waves. It also allows a hand-on experience with the nature of light through experiments that would help students realize concepts such as blackbody radiation, X-rays and LASERs.

Textbook:

[John D. Cutnell](#), [Kenneth W. Johnson](#), [David Young](#), [Shane Stadler](#), *Introduction to Physics*, 10th Edition, Wiley.

References:

- Fundamentals of College Physics – Peter J. Nolan.
- Physics for Scientists and Engineers with Modern Physics- Serway

Course Objective/Course Learning Outcome:

Contribution to Program Student Outcomes:

1. Understand the essential background of wave motion.
2. Make several experiments to absorb the nature of light.
3. Write technical reports and results.
4. Realize the concepts of relativity.

(SO1) Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

(SO3) Communicate effectively in a variety of professional contexts.

Course Outline:

- Wave motion; Sound waves, reflection, refraction & diffraction, attenuation, resonance, superposition and standing waves.
- The Nature of light and the principles of Ray Optics; Image Formation, Physical Optics; Interference and Diffraction;
- Relativity; Blackbody Radiation; the Photoelectric Effect; atomic spectra, X-ray and LASERs

