

Planning and Quality Assurance Affairs

Form (A)

**Course Specifications**

**General Information**

<b>Course name</b>	Astrophysics
<b>Course number</b>	PHYS3245
<b>Faculty</b>	
<b>Department</b>	
<b>Course type</b>	College Needs
<b>Course level</b>	3
<b>Credit hours (theoretical)</b>	2
<b>Credit hours (practical)</b>	0
<b>Course Prerequisites</b>	

**Course Objectives**

- 1 - Describe the celestial sphere and use it to locate objects in the sky.
- 2 - Describe the scientific developments that led to the modern view of the solar system, and identify the main contributions of Copernicus, Tycho Brahe, Galileo and Kepler.
- 3 - State Kekplers Laws of Planetary Motion.
- 4 - State Newtons Law of Universal Gravitation.
- 5 - Explain how black body radiation can be used to determine the temperature of a distant object.
- 6 - Apply the Doppler Effect to the determination of the relative motion of an object.
- 7 - Explain the different properties of comets, asteroids and meteors.
- 8 - Discuss the properties of black holes. Discuss the evidence for the existence of black holes.
- 9 - Explain the differences between luminosity and apparent brightness.

**Intended Learning Outcomes**

<b>Knowledge and Understanding</b>	<ul style="list-style-type: none"> <li>* Apply scientific reasoning to future astronomical discoveries to understand their validity as well as to everyday situations.</li> <li>* Demonstrate an understanding that science is based upon observations of the universe and how that is used to understand some basic phenomenon of our world.</li> <li>* Discuss how gravity is related to the formation, interaction, and evolution of the solar system.</li> <li>* Discuss how empirical observations have served to change scientific ideas regarding cosmology.</li> </ul>
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## Course Contents

- 1 - Exploring the Cosmos
- 2 - Stars, Galaxies, and the Universe
- 3 - Exploration of the Solar System
- 4 - Observing the Night Sky
- 5 - Exploring the Sun-Earth Connection
- 6 - Introduction to astrophysics-stars
- 7 - Introductions to Astrophysics-Galaxies and Cosmology

## Teaching and Learning Methods

- 1 - lecturing and homeworks

## Students Assessment

<u>Assessment Method</u>	<u>TIME</u>	<u>MARKS</u>
two Midterms	60 minute each	40
quiz		10

## Books and References

Essential books	Astrophysics, D. Abd Esalam Ghath, D. Abd Elkader Abed &D. yousef Mahmod -1996. aLQUDES open University
Recommended books	Life in the Universe, Jeffrey Bennett & Seth Shostak, 3rd Edition, Addison-Wesley, 2012.  The Cosmic Perspective: Stars, Galaxies and Cosmology (7th edition); by Bennett, Donahue, Schneider and Voit;  , Frank H. Shu, The Physical Universe: An Introduction to Astronomy