Course Specifications

General Information

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

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

Knowledge and Understanding	* Apply scientific reasoning to future astronomical discoveries to understand their validity as well as to everyday situations. * 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. * Discuss how gravity is related to the formation, interaction, and evolution of the solar system. * Discuss how empirical observations have served to change scientific ideas regarding cosmology.

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

Assessment Method	TIME	MARKS
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. aLQUDS 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