Semester Lecture Plan

Name of the college: Government College of Arts, Science & Commerce, Sanquelim, Goa - 403505

Name of Faculty: Ms. Madhavi Gauns	**Academic year:** 2024- 2025	**Semester:** I	**Program:** FYBCOM
Division:	**Subject:** Geography		**Total Lectures:** 12
Paper code: GOG-131	**Paper Name:** Astronomical Geography		

Course Objectives:

- Astronomical Geography is an introductory course that provides a comprehensive overview of the science of astronomy in relation to Geography.
- The course covers the historical development of astronomy, celestial coordinates and time, the electromagnetic spectrum, imaging and spectroscopy, the Solar System, stars and stellar evolution, galaxies and cosmology, as well as special topics such as exoplanets, dark matter, dark energy and gravitational waves.
- Throughout the course, students will have opportunities to engage in hands-on activities and observations of the night sky.

Expected Course Outcome:

By the end of the course, students will be able to:

CO1: Analyze and evaluate the interconnections between astronomy and geography, recognizing how astronomical knowledge informs geographic understanding and vice versa.

CO2: Compare and contrast the planets based on their properties, categorizing them into terrestrial (inner) planets and gas giants (outer) planets.

CO3: Define and classify galaxies, and discuss their formation and evolution.

CO4: Create and maintain a detailed field diary documenting observations of the night sky, including celestial events, object sightings, and personal reflections, to enhance understanding and analysis of astronomical observations.

Student Learning Outcome:

LO1: Students will be able to analyze the interconnections between astronomy and geography.

LO2: They will able to compare and contrast the properties of planets.

LO3: Also able to define, classify, and discuss the formation and evolution of galaxies.

LO4: Students will be able to create and maintain a detailed field diary to document and analyze astronomical observations.

Month	Lecture From	Lecture To	No. of lectures allotted	Topic, Subtopic to be covered	Exercise / Assignment	ICT Tools	Reference books
July & August	29/07/2024	03/08/2024	01	Unit 2: Stars and Stellar Evolution • Introduction to Galaxies and Cosmology		Power Point presentation, Smart Board	Eric Chaisson, Steve McMillan. Astronomy, 2017

August	05/08/2024	10/08/2024	01	Galaxies and Cosmology • Galaxies: Definition, meaning, characteristics • Cosmology: Definition, characteristics, components		Power Point presentation, Smart Board	Eric Chaisson, Steve McMillan. Astronomy, 2017
August	12/08/2024	17/08/2024	01	Types of galaxies • Spiral, elliptical & Irregular • Their structure & characteristics		Power Point presentation, Smart Board	Eric Chaisson, Steve McMillan. Astronomy, 2017
August	19/08/2024	24/08/2024	01	Formation of galaxies • Theories of galaxy formation • Galaxy mergers and interactions		Power Point presentation, Smart Board	Eric Chaisson, Steve McMillan. Astronomy, 2017
August	26/08/2024	31/08/2024	01	Evolution of galaxies • Galaxy evolution over cosmic time • Formation of stars and stellar populations in galaxies		Power Point presentation, Smart Board	Eric Chaisson, Steve McMillan. Astronomy, 2017
September	02/09/2024	07/09/2024	01	The Big Bang and the expanding universe • Evidence for the Big Bang • The early universe		Power Point presentation, Smart Board	Eric Chaisson, Steve McMillan. Astronomy, 2017
September	09/09/2024	14/09/2024	------	**Chaturthi Break**	------	------	------
September	16/09/2024	21/09/2024	01	The Big Bang and the expanding universe • Fate of the universe		Power Point presentation, Smart Board	Eric Chaisson, Steve McMillan. Astronomy, 2017
September	23/09/2024	28/09/2024	01	Exoplanets and the search for life • Methods of exoplanet detection • Characteristics of exoplanets		Power Point presentation, Smart Board	Eric Chaisson, Steve McMillan. Astronomy, 2017

September & October	30/09/2024	05/10/2024	01	Exoplanets and the search for life • Habitability zones and the search for life • Future missions and prospects for exoplanet exploration		Power Point presentation, Smart Board	Eric Chaisson, Steve McMillan. Astronomy, 2017
October	07/10/2024	12/10/2024	01	Dark matter and dark energy • Evidence for dark matter, Properties of dark matter		Power Point presentation, Smart Board	Eric Chaisson, Steve McMillan. Astronomy, 2017
October	14/10/2024	19/10/2024	01	Dark matter and dark energy • Nature of dark matter • Dark energy: evidence, properties • Implications for the universe's fate		Power Point presentation, Smart Board	Eric Chaisson, Steve McMillan. Astronomy, 2017
October	21/10/2024	26/10/2024	01	Revision		Power Point presentation, Smart Board	Eric Chaisson, Steve McMillan. Astronomy, 2017

*** Assessment Rubrics**

Component	Max Marks
ISA 1	7.5
ISA 2	7.5
Practical	NIL
Project	NIL
Semester End Exam	60