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## SECOND YEAR OPEN ELCTIVE REVISED SYLLABUS ACCORDING TO CBCS NEP2020

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COURSE TITLE: ASTRONOMY-II BEYOND SOLAR SYSTEM  
SEMESTER-IV  
W.E.F. 2024-2025

Recommended by the Board of Studies in PHYSICS  
And

Approved by the Academic Council

Devrukh Shikshan Prasarak Mandal's

Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce, and  
Vid. Dadasaheb Pitre Science College (Autonomous), Devrukh.  
Tal. Sangmeshwar Dist. Ratnagiri-415001 Maharashtra India

Academic Council Item No: \_\_\_\_\_

Name of the Implementing Institute	:	Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce, and Vid. Dadasaheb Pitre Science College (Autonomous), Devrukh. Tal. Sangmeshwar, Dist. Ratnagiri-415804,
Name of the Parent University	:	University of Mumbai
Name of the Programme	:	Bachelor of Arts and commerce
Name of the Department	:	Physics
Name of the Class	:	Second Year
Semester	:	Fourth
Paper	:	Open Elective
No. of Credits	:	02
Title of the Course	:	Astronomy-II (Beyond Solar System)
Course Code	:	PHOE202
Name of the Vertical in adherence to NEP 2020	:	Open Elective
Eligibility for Admission	:	For students in second year of graduation of arts and commerce.
Passing Marks	:	40%
Mode of Assessment	:	Formative and Summative
Level	:	UG
Pattern of Marks Distribution for TE and CIA	:	60:40
Status	:	NEP-CBCS
To be implemented from Academic Year	:	2024-2025
Ordinances /Regulations (if any)		

*Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce and Vid. Dadasaheb Pitre Science College, Devrukh (An Autonomous College Affiliated with University of Mumbai)*

## Syllabus for Second Year of Bachelor of Arts and Commerce

(With effect from the academic year 2024-2025)

**SEMESTER - IV**

**Paper No.– OE**

**Course Title: Astronomy-II (Beyond Solar System)**

**No. of Credits - 02**

**Type of Vertical: Open Elective**

**COURSE CODE: PHOE202**

**Learning Outcomes Based on BLOOM’s Taxonomy:**

After completing the course, the learner will be able to...

Course Learning Outcome No.	Blooms Taxonomy	Course Learning Outcome
CLO-01	Remember	Remember the basic concepts related to stars, galaxies
CLO-02	Understand	Understand the co-direction of celestial bodies and the significance of the Polar Star in navigation and astronomy.
CLO-03	Understand	Explain the birth of stars, their classification, and the formation of binary stars, and comprehend the process of star formation
CLO-04	Apply	Differentiate between Zodiac Signs and Constellations, and understand their roles in observational astronomy.
CLO-05	Apply	Utilize star trackers and Stellarium software effectively to enhance sky observation, accurately locating and identifying celestial objects
CLO-06	Apply	Demonstrate perfectibility in sky observation with the naked eye, identifying prominent celestial objects such as stars, planets, constellations, and the Moon.

<b>COURSE CONTENT</b>			
<b>Module</b>	<b>Content</b>	<b>Credits</b>	<b>No. of Lectures</b>
<b>1</b>	<p><b>Basic concepts</b> Co-direction of celestial bodies, Polar star, Spring break, Rising and setting of stars, Why Makarsankranti falls on January 14? Zodiac Sign and Constellation, Constellation period, Kalsutra <b>मउह :- 10 to 13,32,33,35,36</b></p> <p><b>Stars</b> Birth of Stars, Classification of stars, Binary stars, lightning cloud, Copy of stars and their nomenclature, The closest star to the Sun, Journey of the Stars- Birth to Death. <b>मउह :- 90 to 115</b></p> <p><b>Galaxy</b> Birth of galaxies and their types, constellation, A quasar, Milky way, Position of Sun in Milky way <b>मउह :- 116 to 128</b></p>	<b>01</b>	<b>15</b>
<b>2</b>	<p><b>Sky Observation</b> Sky observation with the naked eye Use of startracker and stellarium for sky observation Sky Observation through a telescope (Software startracker and stellarium) <b>अअं</b></p>	<b>01</b>	<b>30</b>
	Total	<b>02</b>	<b>45</b>

**REFERENCE BOOKS:**

- 1) Fundamental of Astronomy H Karttuen P kroger, H Oja etc (FA)
- 2) कालाचा महिमा (काम )
- 3) अन्तरिक्षच्या अंतरंगात- जयंत नारळीकर (अअं )
- 4) मला उत्तर हवंय (खगोलशास्त्र) - ह. ना. आपटे (मउह )

**Access to the Course**

The course is available for all the students admitted for Second Year Bachelor of Arts and Commerce.