


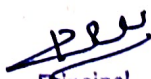
The HNSB. Ltd. Science College Himatnagar.

NAAC Accredited B Grade, GSIRF:4 Star Rank

**Certificate Course for
B.Sc. Sem-4 on Astrophysics
Academic Year:2025-26**

Organized By:
Physics Department,
The HNSB. Ltd. Science College


Head
Department of Physics
The HNSB. Ltd. Science College
Himatnagar-383001


Principal
The HNSB. Ltd. Science College
Himatnagar-383001



Certificate Course Syllabus

Subject : Astrophysics

1. INTRODUCTION

1. Background
2. Distance Units
3. The Solar System
4. Galaxies
5. Our Galaxy
6. The Local Group
7. The Scale of the Universe

2. THE HELIOCENTRIC UNIVERSE

1. The Ptolemaic Model
2. The Copernican Model
3. Kepler's Laws
4. Galileo Galilei
5. Newton's Law of Universal Gravitation $m m$
6. To Show that Kepler's Third Law is Consistent with $F = G \frac{m_1 m_2}{r^2}$
7. Newton's Test of the Law of Gravitation r
8. The Masses of the Sun and its Planets
9. The Masses of Galaxies
10. The Masses of Binary Stars
11. The Discovery of Uranus, Neptune and Pluto

3. CLASSIFICATION OF STARS

1. Black-body Radiation
2. Stars as Black-body Radiators
3. Apparent Magnitude (m)
4. The Inverse Square Law
5. Estimating Distances Using the Inverse Square Law
6. Absolute Magnitude (M)
7. The Spectral Classification of Stars
8. The Hertzsprung-Russell Diagram (H-R Diagram)

The HNSB. Ltd. Science College, Himatnagar
B.Sc. Sem-4 (CP-Group) Certificate Course – Year-2025-26
Physics Department - Course Name: Astrophysics
Timetable Schedule



Sr. No.	Date	Time	Expert Name	Topic
1	11/12/2025	10:00 to 11:00	Dr. M. N. Parmar	Introduction to Certificate course
2	15/12/2025	10:00 to 11:00	Mr. A. R. Saradva	Subject background
3	16/12/2025	10:00 to 11:00	Dr. M. N. Parmar	do
4	18/12/2025	10:00 to 11:00	Dr. M. N. Parmar	The Solar System
5	22/12/2025	10:00 to 11:00	Dr. M. N. Parmar	do
6	23/12/2025	10:00 to 11:00	Dr. M. N. Parmar	Galaxies
7	23/12/2025	3:30 to 4:30	Mr. A. R. Saradva	do
8	29/12/2025	10:00 to 11:00	Mr. A. R. Saradva	do
9	30/12/2025	10:00 to 11:00	Mr. A. R. Saradva	do
10	30/12/2025	3:30 to 4:30	Mr. A. R. Saradva	The Scale of the Universe
11	01/01/2026	10:00 to 11:00	Mr. A. R. Saradva	do
12	05/01/2026	10:00 to 11:00	Mr. A. R. Saradva	The Heliocentric Universe
13	06/01/2026	10:00 to 11:00	Mr. A. R. Saradva	Different Model
14	06/01/2026	3:30 to 4:30	Mr. A. R. Saradva	do
15	08/01/2026	10:00 to 11:00	Dr. M. N. Parmar	Kepler's laws
16	12/01/2026	10:00 to 11:00	Dr. M. N. Parmar	do
17	13/01/2026	10:00 to 11:00	Dr. M. N. Parmar	Newton's Laws
18	15/01/2026	10:00 to 11:00	Dr. M. N. Parmar	do
19	22/01/2026	10:00 to 11:00	Dr. M. N. Parmar	Masses of Galaxies
20	27/01/2026	10:00 to 11:00	Dr. M. N. Parmar	do
21	29/01/2026	10:00 to 11:00	Dr. M. N. Parmar	do
22	02/02/2026	10:00 to 11:00	Dr. M. N. Parmar	do
23	03/02/2026	10:00 to 11:00	Dr. M. N. Parmar	Classification of Stars
24	05/02/2026	10:00 to 11:00	Mr. A. R. Saradva	do
25	16/02/2026	10:00 to 11:00	Mr. A. R. Saradva	do
26	17/02/2026	10:00 to 11:00	Mr. A. R. Saradva	do
27	19/02/2026	10:00 to 11:00	Mr. A. R. Saradva	do
28	23/02/2026	10:00 to 11:00	Mr. A. R. Saradva	do
29	24/02/2026	10:00 to 11:00	Mr. A. R. Saradva	do
30	26/02/2026	10:00 to 11:00	Dr. M. N. Parmar	End of the Programme

Head
 Department of Physics
 The HNSB. Ltd. Science College
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Principal
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The HNSB.Ltd. Science College, Himatnagar
 Certificate Course - Year 2025-26
 Physics Department
 B.Sc.Sem-4(CPM) Course Name: Astrophysics

Sr. No.	Student Full Name			Gender	Roll No.	Dt. 11/12/25	Dt. 15/12/25	Dt. 16/12/25	Dt. 14/12/25	Dt. 22/12/25	Dt. 23/12/25	Dt. 29/12/25	Dt. 30/12/25	Dt. 31/12/25	Dt. 11/1/26
1	BHADORIYA	AJAYSINH	KAMALSINH	M	201	Atty	Atty	Atty	Atty	Atty	Atty	Atty	Atty	Atty	Atty
2	OD	ANKIT	ANDABHAI	M	202			Absent							
3	DESAI	ARSHNABEN	AMRUTBHAI	F	203	Prsh	Prsh	Prsh	Prsh	Prsh	Prsh	Prsh	Prsh	Prsh	Prsh
4	RATHOD	BHAGIRATHSINH	BHARATSINH	M	204	Atty	Atty	Atty	Atty	Atty	Atty	Atty	Atty	Atty	Atty
5	PATEL	DEETKUMAR	GHANSHYAMBHAI	M	205	Atty	Atty	Atty	Atty	Atty	Atty	Atty	Atty	Atty	Atty
6	RABARI	HAPPY	VIRAMBHAI	F	206	H.V.R	H.V.R	H.V.R	H.V.R	H.V.R	H.V.R	H.V.R	H.V.R	H.V.R	H.V.R
7	VAGHELA	KARTIK KUMAR	MAHENDRA BHAI	M	207	Atty	Atty	Atty	Atty	Atty	Atty	Atty	Atty	Atty	Atty
8	KHARADI	KASHISHBEN	CHANDRESHBHAI	F	208	K.K.C	K.K.C	K.K.C	K.K.C	K.K.C	K.K.C	K.K.C	K.K.C	K.K.C	K.K.C
9	PATEL	KRISHNA	AMITKUMAR	F	209	R	R	R	R	R	R	R	R	R	R
10	PATEL	MEETKUMAR	PRAVINBHAI	M	210	Atty	Atty	Atty	Atty	Atty	Atty	Atty	Atty	Atty	Atty
11	SINDHIYA	MIHIR	ASHOKKUMAR	M	211	Atty	Atty	Atty	Atty	Atty	Atty	Atty	Atty	Atty	Atty
12	CHAUHAN	PAYALBA	PRAVINSINH	F	212	P.P	P.P	P.P	P.P	P.P	P.P	P.P	P.P	P.P	P.P
13	PATEL	PRACHIBEN	JITUBHAI	F	213	P	P	P	P	P	P	P	P	P	P
14	RABARI	PRIYANSHEE	RAJUBHAI	F	214	R.P.R	R.P.R	R.P.R	R.P.R	R.P.R	R.P.R	R.P.R	R.P.R	R.P.R	R.P.R
15	NAYI	SAGARKUMAR	SANJAYKUMAR	M	215	Atty	Atty	Atty	Atty	Atty	Atty	Atty	Atty	Atty	Atty
16	PARMAR	SUMITSINH	BHIKHUSINH	M	216	P.S.B	P.S.B	P.S.B	P.S.B	P.S.B	P.S.B	P.S.B	P.S.B	P.S.B	P.S.B
17	VANKAR	UMANGKUMAR	GANPATBHAI	M	217	Atty	Atty	Atty	Atty	Atty	Atty	Atty	Atty	Atty	Atty

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The HNSB.Ltd. Science College, Himatnagar
 Certificate Course - Year 2025-26
 Physics Department

B.Sc.Sem-4(CPM) Course Name: Astrophysics



Sr. No.	Student Full Name			Gender	Roll No.	Dt. 5/1/26	Dt. 6/1/26	Dt. 6/1/26	Dt. 21/1/26	Dt. 21/1/26	Dt. 13/1/26	Dt. 15/1/26	Dt. 22/1/26	Dt. 22/1/26	Dt. 29/1/26
1	BHADORIYA	AJAYSINH	KAMALSINH	M	201	Aty	Aty	Aty	Aty	Aty	Aty	Aty	Aty	Aty	Aty
2	OD	ANKIT	ANDABHAI	M	202	Absent									
3	DESAI	ARSHNABEN	AMRUTBHAI	F	203	P.P. P.P.	P.P. P.P.	P.P. P.P.	P.P. P.P.	P.P. P.P.	P.P. P.P.	P.P. P.P.	P.P. P.P.	P.P. P.P.	P.P. P.P.
4	RATHOD	BHAGIRATHSINH	BHARATSINH	M	204	Aty	Aty	Aty	Aty	Aty	Aty	Aty	Aty	Aty	Aty
5	PATEL	DEETKUMAR	GHANSHYAMBHAI	M	205	Aty	Aty	Aty	Aty	Aty	Aty	Aty	Aty	Aty	Aty
6	RABARI	HAPPY	VIRAMBHAI	F	206	H.V.R	H.V.R	H.V.R	H.V.R	H.V.R	H.V.R	H.V.R	H.V.R	H.V.R	H.V.R
7	VAGHELA	KARTIK KUMAR	MAHENDRA BHAI	M	207	Aty	Aty	Aty	Aty	Aty	Aty	Aty	Aty	Aty	Aty
8	KHARADI	KASHISHBEN	CHANDRESHBHAI	F	208	k.k.c	k.k.c	k.k.c	k.k.c	k.k.c	k.k.c	k.k.c	k.k.c	k.k.c	k.k.c
9	PATEL	KRISHNA	AMITKUMAR	F	209	P	P	P	P	P	P	P	P	P	P
10	PATEL	MEETKUMAR	PRAVINBHAI	M	210	Aty	Aty	Aty	Aty	Aty	Aty	Aty	Aty	Aty	Aty
11	SINDHIYA	MIHIR	ASHOKKUMAR	M	211	Aty	Aty	Aty	Aty	Aty	Aty	Aty	Aty	Aty	Aty
12	CHAUHAN	PAYALBA	PRAVINSINH	F	212	P.P	P.P	P.P	P.P	P.P	P.P	P.P	P.P	P.P	P.P
13	PATEL	PRACHIBEN	JITUBHAI	F	213	P	P	P	P	P	P	P	P	P	P
14	RABARI	PRIYANSHEE	RAJUBHAI	F	214	R.P.P	R.P.P	R.P.P	R.P.P	R.P.P	R.P.P	R.P.P	R.P.P	R.P.P	R.P.P
15	NAYI	SAGARKUMAR	SANJAYKUMAR	M	215	P.S.B	P.S.B	P.S.B	P.S.B	P.S.B	P.S.B	P.S.B	P.S.B	P.S.B	P.S.B
16	PARMAR	SUMITSINH	BHIKHUSINH	M	216	P.S.B	P.S.B	P.S.B	P.S.B	P.S.B	P.S.B	P.S.B	P.S.B	P.S.B	P.S.B
17	VANKAR	UMANGKUMAR	GANPATBHAI	M	217	Aty	Aty	Aty	Aty	Aty	Aty	Aty	Aty	Aty	Aty

Department of Physics
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 Himatnagar-393 001

The HNSB.Ltd. Science College, Himatnagar
Certificate Course - Year 2025-26

Physics Department

B.Sc.Sem-4(CPM) Course Name: Astrophysics

Sr. No.	Student Full Name			Gender	Roll No.	Dt. 4/12/25	Dt. 3/12/25	Dt. 5/12/25	Dt. 16/12/25	Dt. 17/12/25	Dt. 19/12/25	Dt. 23/12/25	Dt. 24/12/25	Dt. 26/12/25	Dt. 26/12/25
1	BHADORIYA	AJAYSINH	KAMALSINH	M	201	Aty	Aty	Aty	Aty	Aty	Aty	Aty	Aty	Aty	Aty
2	OD	ANKIT	ANDABHAI	M	202	Absen									
3	DESAI	ARSHNABEN	AMRUTBHAI	F	203	Desai	Desai	Desai	Desai	Desai	Desai	Desai	Desai	Desai	Desai
4	RATHOD	BHAGIRATHSINH	BHARATSINH	M	204	Rathod	Rathod	Rathod	Rathod	Rathod	Rathod	Rathod	Rathod	Rathod	Rathod
5	PATEL	DEETKUMAR	GHANSHYAMBHAI	M	205	Patel	Patel	Patel	Patel	Patel	Patel	Patel	Patel	Patel	Patel
6	RABARI	HAPPY	VIRAMBHAI	F	206	H.V.R	H.V.R	H.V.R	H.V.R	H.V.R	H.V.R	H.V.R	H.V.R	H.V.R	H.V.R
7	VAGHELA	KARTIK KUMAR	MAHENDRA BHAI	M	207	V.V.R	V.V.R	V.V.R	V.V.R	V.V.R	V.V.R	V.V.R	V.V.R	V.V.R	V.V.R
8	KHARADI	KASHISHBEN	CHANDRESHBHAI	F	208	K.K.C	K.K.C	K.K.C	K.K.C	K.K.C	K.K.C	K.K.C	K.K.C	K.K.C	K.K.C
9	PATEL	KRISHNA	AMITKUMAR	F	209	P	P	P	P	P	P	P	P	P	P
10	PATEL	MEETKUMAR	PRAVINBHAI	M	210	P	P	P	P	P	P	P	P	P	P
11	SINDHIYA	MIHIR	ASHOKKUMAR	M	211	S	S	S	S	S	S	S	S	S	S
12	CHAUHAN	PAYALBA	PRAVINSINH	F	212	P.P	P.P	P.P	P.P	P.P	P.P	P.P	P.P	P.P	P.P
13	PATEL	PRACHIBEN	JITUBHAI	F	213	P	P	P	P	P	P	P	P	P	P
14	RABARI	PRIYANSHEE	RAJUBHAI	F	214	R.P.R	R.P.R	R.P.R	R.P.R	R.P.R	R.P.R	R.P.R	R.P.R	R.P.R	R.P.R
15	NAYI	SAGARKUMAR	SANJAYKUMAR	M	215	S.N	S.N	S.N	S.N	S.N	S.N	S.N	S.N	S.N	S.N
16	PARMAR	SUMITSINH	BHIKHUSINH	M	216	P.S.B	P.S.B	P.S.B	P.S.B	P.S.B	P.S.B	P.S.B	P.S.B	P.S.B	P.S.B
17	VANKAR	UMANGKUMAR	GANPATBHAI	M	217	Omny	Omny	Omny	Omny	Omny	Omny	Omny	Omny	Omny	Omny

Head
Department of Physics
The HNSB. Ltd. Science College
Himatnagar-383001

Princip
The HNSB. Ltd. S
Himatnaga



Report on
Certificate Course in Astrophysics
(During 11th December 2025 to 26th February 2026)

The Department of Physics successfully organized a **Certificate Course in Astrophysics** from **11th December 2025 to 26th February 2026** with the objective of enhancing students' knowledge beyond the prescribed curriculum and promoting scientific temperament in the field of astronomy and space science.

Objectives of the Course

- To introduce fundamental concepts of astrophysics and cosmology
- To create awareness about recent developments in space science
- To encourage observational and analytical skills among students
- To provide interdisciplinary exposure related to physics and astronomy

Course Structure and Content

The course was carefully designed to include both **theoretical aspects**. The major topics covered were:

- Introduction to Astrophysics and Celestial Mechanics
- Structure and Evolution of Stars
- Galaxies and Cosmology
- Solar System and Planetary Science
- Black Holes and Dark Matter
- Basics of Telescope Handling and Sky Observation

Participation


A total of 17 students (10- Male & 7-Female) from undergraduate classes actively participated in the course. The participants showed keen interest and enthusiasm throughout the program.

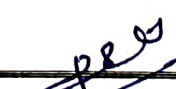
Teaching Methodology

The course included:

- Classroom lectures and presentations
- Audio-visual demonstrations
- Sky observation sessions (if conducted)
- Assignments and interactive discussions

Certification


Head
Department of Physics
The HNSB, Ltd. Science College
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Certificates were awarded to students who successfully completed the course as per the prescribed criteria.

Outcomes

- Students developed a deeper understanding of astrophysical concepts
- Enhanced interest in research and higher studies in physics and space science
- Improved analytical and observational skills
- Encouraged scientific curiosity and critical thinking

Conclusion

The Certificate Course in Astrophysics was successfully conducted and received a positive response from students. Such initiatives contribute significantly to **quality enhancement and value-added education**, aligning with NAAC criteria for curricular enrichment and student development.

Department of Physics
The HNSB, Ltd. Science College
Himatnagar-383001

Principal
The HNSB, Ltd. Science College
Himatnagar-383001



The HNSB. Ltd. Science College Himatnagar

College Campus, Motipura, Himatnagar-383001



Event Name: Certificate Course B.Sc. Sem-4

Date:05/02/2026



**The HNSB Ltd. Science College
Himatnagar**

Sahkari Jin, City, Himatnagar, Gujarat
Lat 23.578233° Long 72.967451°

Thursday, 05/02/2026 10:29 PM GMT +05:30




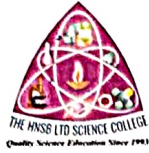
**The HNSB Ltd. Science College
Himatnagar**

Sahkari Jin, City, Himatnagar, Gujarat
Lat 23.578233° Long 72.967451°

Thursday, 05/02/2026 10:29 PM GMT +05:30


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Department of Physics
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Himatnagar-383001


Principal
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Himatnagar-383001



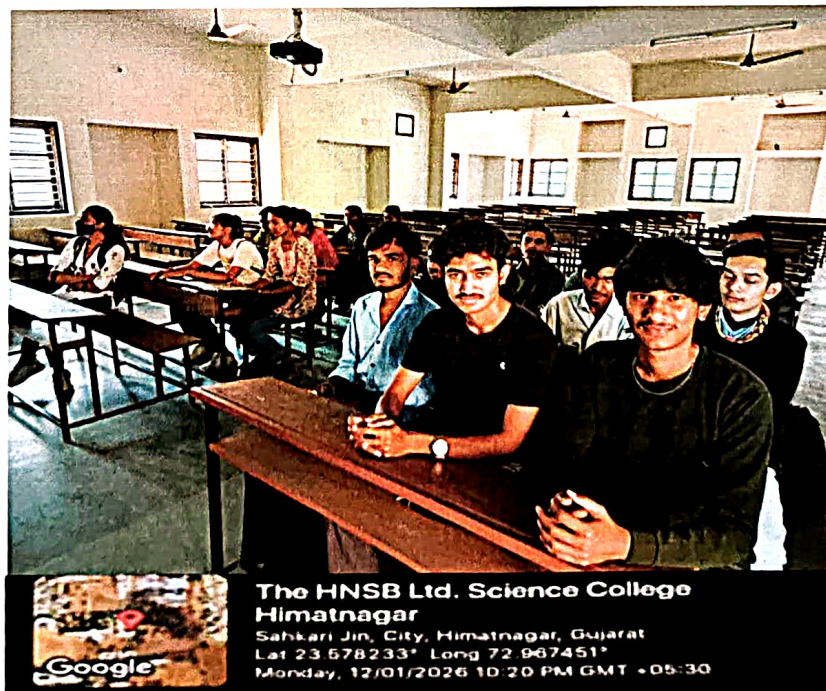
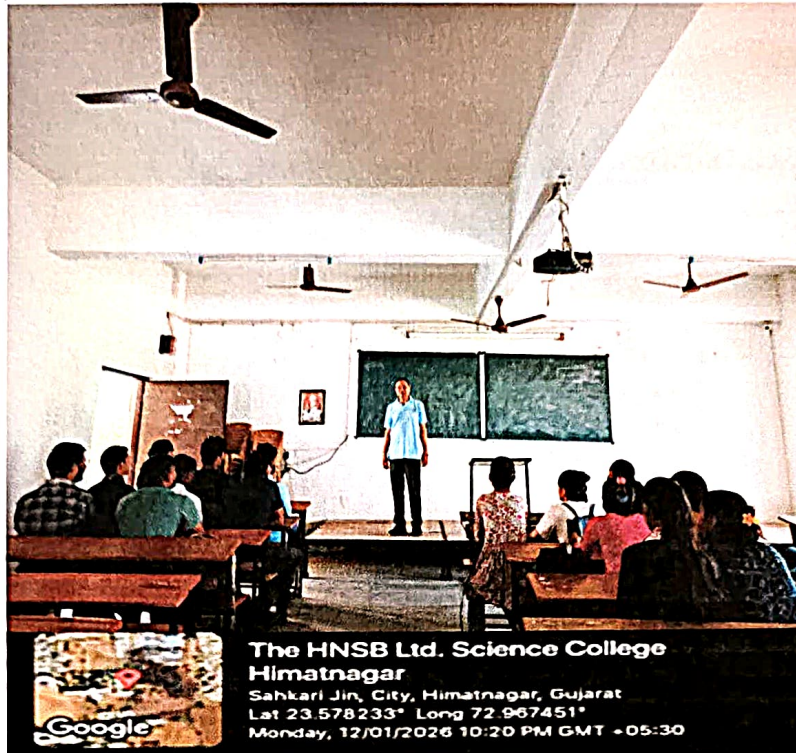
The HNSB. Ltd. Science College Himatnagar


College Campus, Motipura, Himatnagar-383001



Event Name: Certificate Course B.Sc. Sem-4

Date:12/01/2026



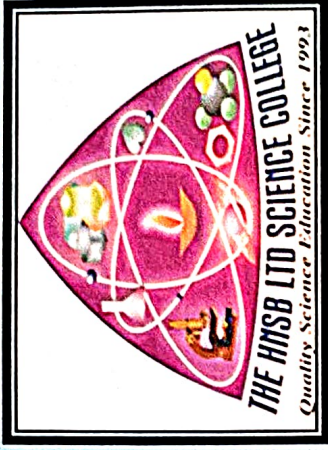

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THE HNSB. LTD. SCIENCE COLLEGE, HIMATNAGAR

N.H.-8, MOTIPURA, HIMATNAGAR (S.K.-GUJARAT)-Pin-383001



CERTIFICATE OF PARTICIPATION

This is to certify that **Mr./Ms. BHADORIYA AJAYSINH KAMALSINH Roll No. 201 Sem.- 4(CP Group)** has actively participated in the certificate course on **"AstroPhysics"** organized by Department of Physics, The HNSB. Ltd. Science College, Himatnagar during 11th Decemember 2025 to 26th February, 2026.

Certificate ID:

[Signature]

21.01.2026

[Signature]

Course Coordinator

HOD, Physics Department

Principal

The HNSB. Ltd. Science College, Himatnagar

[Signature]

Head

Department of Physics
The HNSB. Ltd. Science College
Himatnagar-383001

[Signature]

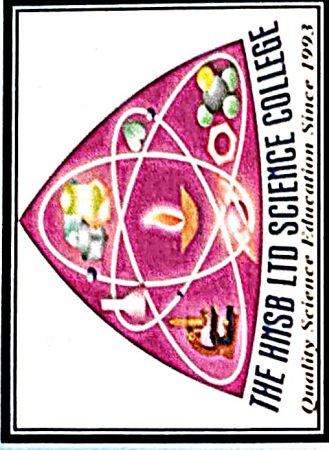
Principal

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THE HNSB. LTD. SCIENCE COLLEGE, HIMATNAGAR

N.H.-8, MOTIPURA, HIMATNAGAR (S.K-GUJARAT)-Pin-383001



CERTIFICATE OF PARTICIPATION

This is to certify that Mr./Ms. DESAI ARSHNABEN AMRUTBHAI Roll No. 203 Sem.- 4(CP Group) has actively participated in the certificate course on "AstroPhysics" organized by Department of Physics, The HNSB. Ltd. Science College, Himatnagar during 11th Decemember 2025 to 26th February, 2026.

Certificate ID:

Course Coordinator

HOD, Physics Department

Principal

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