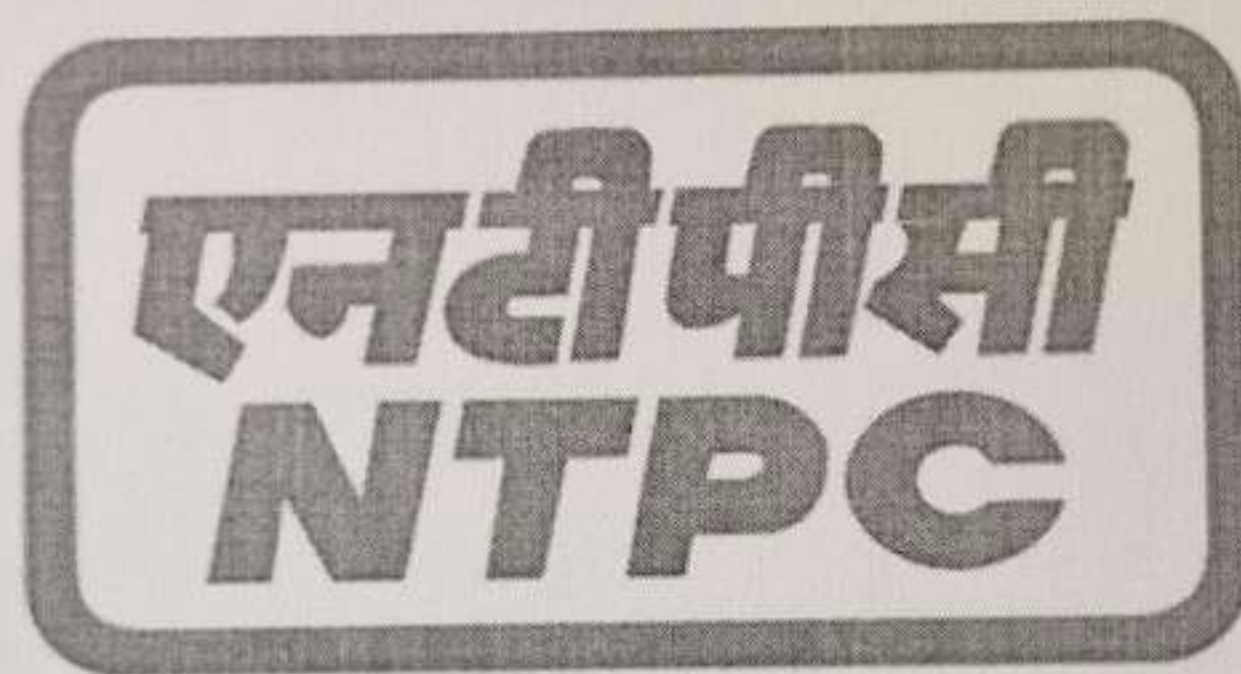


GURU GHASIDAS VISHWAVIDYALAYA
BILASPUR - 495009



Summer Internship Report
Internship From NTPC Sipat



On

Demineralization of water in power plants.

Submitted by

Ujjawal Maravi (22021159)

Guided by

Mr. Nakka Ramesh

DEPARTMENT OF CHEMICAL ENGINEERING

School Of Studies Engineering & Technology

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

(A Central University Established By The Central University Act 2009 No. 25 of 2009)

July 2025

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 - Common Raw Water Sources
 - Initial Water Pre-treatment
4. Demineralization Plant Process Flow Diagram (PFD)
5. Detailed Explanation of Plant Components
 - Raw Water Storage and Pumps
 - Filtration Units (Multimedia and Activated Carbon)
 - Cation and Anion Exchangers
 - Degasser Tower and Sump
 - Mixed Bed Polishing Unit
6. Important Operating Parameters and Water Quality Control
 - Conductivity
 - pH Value
 - Total Dissolved Solids (TDS)
 - Flow Rate and Pressure Drop
 - Silica Content and Temperature
 - Feed Water Quality Requirements
7. Safety Precautions and Emergency Protocols
 - Chemical Handling and Personal Protective Equipment (PPE)
 - General Best Practices and Ventilation
 - Emergency Measures and Response
8. Future Scope and Technological Innovations
 - AI-Based Smart Monitoring
 - IoT and Mobile App Control

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CERTIFICATE OF VOCATIONAL TRAINING - 2025

व्यावसायिक प्रशिक्षण प्रमाण पत्र - 2025

THE CERTIFICATE IS AWARDED TO

UJJAWAL MARAVI

VT RollNo - VT25CHEM039

Branch - CHEMICAL ENGINEERING

Name of College/Institute - GURUGHASIDASVISHWAVIDYALAYA, BILASPUR

For satisfactorily completing Vocational Training at NTPC, Sipat, Bilaspur for a period of four weeks from 16/06/2025 to 15/07/2025. The participant has successfully completed the course and has also completed the project assigned to him/her as part of this course. We wish him/her a bright and successful future.



Ref No. RLI/SIPAT/VT/CERT/2025/VT25CHEM039


Nakka Ramesh
Sr. Manager (RLI)


K V Prasad
GM&Head (RLI-Simulator)

A Project Report
on
COAL ANALYSIS AND IT'S
EFFECT ON COMBUSTION

*Submitted in partial fulfilment of the requirement for award of degree of
Bachelor of Technology in Chemical Engineering*

Submitted by

Vedant Soni

22021160



Guide

Nakka Ramesh

Sr. Manager (RLI)

REGIONAL LEARNING INSTITUTE,
NTPC, SIPAT

DEPARTMENT OF CHEMICAL ENGINEERING
School of Studies of Engineering & Technology
GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)
(A Central University Established by the Central University Act 2009 No. 25 of 2009)



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CERTIFICATE OF VOCATIONAL TRAINING - 2025
व्यावसायिक प्रशिक्षण प्रमाण पत्र - 2025

THE CERTIFICATE IS AWARDED TO
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Branch - CHEMICAL ENGINEERING

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For satisfactorily completing **Vocational Training** at NTPC, Sipat, Bilaspur for a period of four weeks from 16/06/2025 to 15/07/2025. The participant has successfully completed the course and has also completed the project assigned to him/her as part of this course. We wish him/her a bright and successful future.



DATE -19/07/2025

Ref No. RLI/SIPAT/VT/CERT/2025/VT25CHEM011

Nakka Ramesh
Sr. Manager (RLI)

KV Prasad
GM & Head (RLI-Simulator)

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SUMMER INTERNSHIP REPORT

AT

NATIONAL THERMAL POWER CORPORATION(SIPAT)



ON

TRANSFORMER OIL ANALYSIS AND ITS SIGNIFICANCE.

In Partial Fulfilment of the Requirement for Award of Degree of
Bachelor of Technology of the 4th Year in Chemical Engineering

Submitted By: -

Tejavath Veeranna (22021161)

Under the Guidance of: -

Mr. Nakka Ramesh



DEPARTMENT OF CHEMICAL ENGINEERING

GURU GHASIDAS VISHWADIYALAYA

BILASPUR(C.G).495009

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CERTIFICATE OF VOCATIONAL TRAINING - 2025
व्यावसायिक प्रशिक्षण प्रमाण पत्र – 2025

THE CERTIFICATE IS AWARDED TO
TEJAVATH VEERANNA

VT Roll No - VT25CHEM046

Branch – CHEMICAL ENGINEERING

Name of College/Institute - GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

For satisfactorily completing Vocational Training at NTPC, Sipat, Bilaspur for a period of four weeks from 16/06/2025 to 15/07/2025. The participant has successfully completed the course and has also completed the project assigned to him/her as part of this course. We wish him/her a bright and successful future.



Ref No. RLI/SIPAT/VT/CERT/2025/VT25CHEM046

Nakka Ramesh
Sr. Manager (RLI)

KV Prasad
GM & Head (RLI-Simulator)

GURU GHASIDAS VISHWAVIDYALAYA
BILASPUR - 495009



Internship From NTPC Sipat



On

Demineralization of water in power plants

Submitted by
Vikash Kumar (22021162)

Guided by
Mr. Nakka Ramesh

DEPARTMENT OF CHEMICAL ENGINEERING
School Of Studies Engineering & Technology
GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)
(A Central University Established By The Central University Act 2009 No. 25 of 2009)
July 2025

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REGIONAL LEARNING INSTITUTE, NTPC, SIPAT
क्षेत्रीय सीगर्लिंग संस्थान, एनटीपीसी, सीपट

CERTIFICATE OF VOCATIONAL TRAINING - 2025
व्यावसायिक प्रशिक्षण प्रमाण पत्र - 2025

THE CERTIFICATE IS AWARDED TO

VIKASH KUMAR

VT Roll No - VT25CHEM051

Branch - CHEMICAL ENGINEERING

Name of College/Institute - GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

For satisfactorily completing Vocational Training at NTPC, Sipat, Bilaspur for a period of four weeks from 16/06/2025 to 15/07/2025. The participant has successfully completed the course and has also completed the project assigned to him/her as part of this course. We wish him/her a bright and successful future.



Ref No. RL/SIPAT/VT/CERT/2025/VT25CHEM051

Nakka Ramesh
Sr. Manager (RLI)

KV Prasad

GM & Head (RLI-Simulator)



PATNA DIARY PROJECT, PATNA

Summer Industrial Training Report on
**“ Dairy Processing and Chemical & Microbial
Analysis of Milk and Milk Products ”**

(15.05.2025-15.06.2025)

VIKASH RAJ
GGV/22/015063
CHEMICAL ENGINEERING



SCHOOL OF STUDIES OF ENGINEERING AND TECHNOLOGY
GURU GHASIDAS VISHWAVIDYALYA, BILSAPUR (C.G), 495009



पटना डायरी प्रोजेक्ट
PATNA DAIRY PROJECT

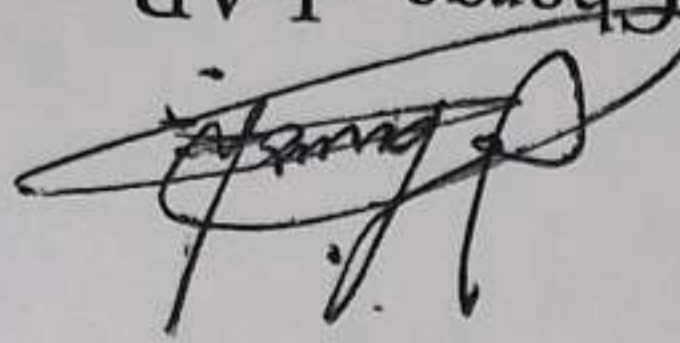
PDP: LAB: TRNG:3101

Date:03.07.2025

To Whom It May Concern

This is to certify that Mr. VIKASH RAJ, (Reg.No.-GGV/22/01563) student of B-Tech. VI Semester of Department of Chemical Engineering, School of Engineering & Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur (c.g.), has successfully completed the Internship in our organization from 15th MAY - 2025 to 15th JUNE- 2025 on the topic "CHEMICAL AND MICROBIAL ANALYSIS OF MILK AND MILK PRODUCTS" towards Patna Dairy Project, Phulwarisharif, Patna.

The above student evinced keen interest in the training and was regular in attendance. His conduct was very good during the training period. We wish him all success in future career.


In-Charge - LAB

VAISHAL PATLIPUTRA DUGDH UTPADAK SAHKARI SANGH LTD.
Feeder Balancing Dairy Complex, Phulwarisharif, Patna - 801505
(An ISO 22000 : 2005 Certified Organization)
Phone : 2252553, 2252542, 2251622
E-Mail : vpmunin@gmail.com

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GURU GHASIDAS VISHWAVIDYALAYA
BILASPUR - 495009



Summer Internship Report
Internship From NIT Rourkela
On
Fuel from the Waste Plastic

Submitted by

Vineet Yadav(22021164)

Guided by

Dr. Prateek Khatri

DEPARTMENT OF CHEMICAL ENGINEERING
School Of Studies Engineering & Technology
GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)
(A Central University Established By The Central University Act 2009 No. 25 of 2009)

1. Abstract

The global increase in plastic waste and the environmental challenges posed by its nonbiodegradable nature have made efficient waste management and valorization critical. Recent years have seen rapid advances in converting waste plastic into valuable fuels, primarily through processes such as thermal and catalytic pyrolysis, liquefaction, and gasification. These methods systematically reduce environmental pollution while addressing the demand for alternative fuels, providing significant prospects for a sustainable circular economy. The concept of converting plastic waste to fuel has emerged as a promising solution that addresses both waste management and energy production simultaneously. This approach, known as "waste-to-energy" or "chemical recycling," transforms plastic waste into valuable fuel products through various thermochemical processes. Plastic production and consumption have soared globally since the mid-20th century, resulting in plastic wastes that are resistant to natural degradation. Non-biodegradable plastics accumulate in landfills and oceans, raising serious environmental concerns, including greenhouse gas emissions and ecological harm. Given constrained fossil fuel reserves and growing energy needs, converting plastic waste into fuel presents a sustainable solution that minimizes waste and offers a renewable energy source. This report explores the science and technology underpinning these transformations, with a focus on recent breakthroughs.[1]



NATIONAL INSTITUTE OF TECHNOLOGY ROURKELA
CERTIFICATE

OF COMPLETION

This Certificate is Awarded to

Vineta Yadav

Guru Ghasidas Vishwavidyalaya

has successfully completed summer internship program in
Chemical Engineering

Conducted from 16th May to 16th June 2025
at Department of Chemical Engineering, NIT Rourkela

Date: 16/06/2025


Dr. Prateek Khatri
Assistant Professor
Department of Chemical Engineering
National Institute of Technology Rourkela
Prof. Prateek Khatri
Supervisor

Summer Project Report on

Treatment of nitrate contaminated water through electrocoagulation-electroreduction



Internship at:

Department of Chemical Engineering,

Indian Institute of Technology (IIT) Roorkee

Internship Duration: 21st may 2025 – 30th June 2025

Submitted on: 30/06/2025

Under the guidance of:

Dr. Prasenjit Mondal

HOD, Chemical Engineering

IIT Roorkee

Submitted by: **Vishal Pratap**



B.Tech Chemical Engineering,
GURU GHASIDAS UNIVERSITY, BILASPUR
A CENTRAL UNIVERSITY OF INDIA

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डॉ० पी० मण्डल
प्राध्यापक
Dr. P. Mondal
Professor

भारतीय प्रौद्योगिकी संस्थान रुड़की

रासायनिक अभियांत्रिकी विभाग

रुड़की-247 667, उत्तराखण्ड, भारत

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DEPARTMENT OF CHEMICAL ENGINEERING

ROORKEE - 247 667, UTTARAKHAND, INDIA

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e-mail : mondai2001@gmail.com; pmondch@iitr.ac.in

Date: 30.06.25

Certificate of Internship

This is to certify that Mr. Vishal Pratap has successfully completed his internship at Sustainable Processing and Water Treatment Lab in the Department of Chemical Engineering, Indian Institute of Technology (IIT) Roorkee. The internship was conducted from 21st May 2025 to 30th June 2025.

During the internship, Mr. Vishal Pratap worked on the "Treatment of nitrate contaminated water through electro-coagulation-electro-reduction process". His efforts and contributions were commendable, and he demonstrated a keen understanding of the subject matter, along with excellent research and analytical skills. We wish him all the best for his future endeavours.

P. Mondal

Guru Ghasidas Vishwavidyalaya, Bilaspur (495009)

Summer Internship Report (NTPC Sipat)



Transformer Oil And Its Significance



Submitted by

Alok Sangam

Roll No.22021166

Enrollment No. GGV/22/01566

Guided by

Mr. Nakka Ramesh

(Additional General Manager

and Head at NTPC RLI)

DEPARTMENT OF CHEMICAL ENGINEERING

School Of Studies Engineering & Technology

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

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CERTIFICATE OF VOCATIONAL TRAINING - 2025
व्यावसायिक प्रशिक्षण प्रमाण पत्र - 2025

THE CERTIFICATE IS AWARDED TO
ALOK SANGAM

VT Roll No - VT25CHEM045

Branch - CHEMICAL ENGINEERING

Name of College/Institute - GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

For satisfactorily completing Vocational Training at NTPC, Sipat, Bilaspur for a period of four weeks from 16/06/2025 to 15/07/2025. The participant has successfully completed the course and has also completed the project assigned to him/her as part of this course. We wish him/her a bright and successful future.



Ref No. RLI/SIPAT/VT/CERT/2025/VT25CHEM045

Nakka Ramesh
Sr. Manager (RLI)

KV Prasad
GM & Head (RLI-Simulator)

+SUMMERINTERNSHIPREPORT

AT

NATIONALTHERMALPOWERCORPORATION(SIPAT)



ON

TRANSFORMEROILANALYSISANDITSSIGNIFICANCE.

InPartialFulfilmentoftheRequirementforAwardofDegreeof
BachelorofTechnologyofthe4thYearinChemicalEngineering

SubmittedBy:-

Dheeraj kumar (22021167)

UndertheGuidanceof:-

Mr.NakkaRamesh



DEPARTMENT OF CHEMICAL ENGINEERING

GURU GHASIDAS VISHWADIYALAYA

BILASPUR(C.G).495009

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व्यावसायिक प्रशिक्षण प्रमाण पत्र - 2025

THE CERTIFICATE IS AWARDED TO

DHEERAJ KUMAR

VT Roll No - VT25CHEM048

Branch - CHEMICAL ENGINEERING

Name of College/Institute - GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

For satisfactorily completing Vocational Training at NTPC, Sipat, Bilaspur for a period of four weeks from 16/06/2025 to 15/07/2025. The participant has successfully completed the course and has also completed the project assigned to him/her as part of this course. We wish him/her a bright and successful future.



Nakka Ramesh
Sr. Manager (RLI)

KV Prasad
GM & Head (RLI-Simulator)

Ref No. RLI/SIPAT/VT/CERT/2025/VT25CHEM048

SUMMER TRAINING REPORT
AT
NATIONAL THERMAL POWER CORPORATION (SIPAT)
ON
WATER CHEMISTRY FOR POWER PLANT WITH SPECIFIC REFERENCE TO
SUPERCRITICAL BOILER
(June 2025-July 2025)



(SUBMITTED BY)
NITISH KUMAR ROY
(ROLL NUMBER: 22021170)
(ENROLLMENT NUMBER: GGV/22/01570)
(2025-26)



Department of Chemical engineering
GURU GHASIDAS VISHWAVIDYALAYA
BILASPUR (C.G.) 495009

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4. Description of Supercritical Boiler
5. All Volatile Treatment (AVT)
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9. Conclusion

Training and certificate



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व्यावसायिक प्रशिक्षण प्रमाण पत्र - 2025

THE CERTIFICATE IS AWARDED TO
NITISH KUMAR ROY

VT Roll No - VT25CHEM008

Branch - CHEMICAL ENGINEERING

Name of College/Institute - GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

For satisfactorily completing **Vocational Training at NTPC, Sipat, Bilaspur** for a period of four weeks from 16/06/2025 to 15/07/2025. The participant has successfully completed the course and has also completed the project assigned to him/her as part of this course. We wish him/her a bright and successful future.



DATE - 19/07/2025

Ref No. RLI/SIPAT/VT/CERT/2025/VT25CHEM008

Nakka Ramesh
Sr. Manager (RLI)

KV Prasad
GM & Head (RLI-Simulator)

GURU GHASIDAS VISHWAVIDYALAYA
BILASPUR - 495009



Internship From NTPC Sipat



On

Demineralization of water in power plants

Submitted by
Sagar Kumar (22021171)

Guided by
Mr.Nakka Ramesh

DEPARTMENT OF CHEMICAL ENGINEERING
School Of Studies Engineering & Technology
GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)
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July 2025

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CERTIFICATE OF VOCATIONAL TRAINING - 2025
व्यावसायिक प्रशिक्षण प्रमाण पत्र - 2025

THE CERTIFICATE IS AWARDED TO

SAGAR KUMAR

VT Roll No - VT25CHEM056

Branch - CHEMICAL ENGINEERING

Name of College/Institute - GURU GHASIDAS VISHWA VIDYALAYA, BILASPUR

For satisfactorily completing Vocational Training at NTPC, Sipat, Bilaspur for a period of four weeks from 16/06/2025 to 15/07/2025. The participant has successfully completed the course and has also completed the project assigned to him/her as part of this course. We wish him/her a bright and successful future.



Ref No. RLI/SIPAT/VT/CERT/2025/VT25CHEM056

Nakka Ramesh
Sr. Manager (RLI)

KV Prasad
GM & Head (RLI-Simulator)

SUMMER INTERNSHIP REPORT

AT

India Space Academy



ON

Astronomy and Astrophysics Internship.

**In Partial Fulfilment of the Requirement for Award of Degree of
Bachelor of Technology of the 4th Year in Chemical Engineering**

Submitted By: -

Matcha Swathi (21021127)

Under the Guidance of: -

Mr. Nakka Ramesh



**DEPARTMENT OF CHEMICAL ENGINEERING
GURU GHASIDAS VISHWADIYALAYA
BILASPUR(C.G).495009**

ABSTRACT

Astronomy and Astrophysics represent the frontier of scientific inquiry, seeking to unravel the origin, structure, dynamics, and eventual fate of the universe. This internship, conducted in collaboration with the Inter-University Center for Astronomy and Astrophysics (IUCAA), offered a comprehensive blend of theoretical knowledge and practical experience, spanning fundamental celestial mechanics to advanced cosmological concepts.

The internship was structured into a series of in-depth lectures and hands-on sessions, providing exposure to core astronomical techniques such as celestial coordinate mapping, parallax-based distance measurement, redshift interpretation, and the study of galaxy morphology and dynamics. The lectures elaborated on critical phenomena including dark matter, dark energy, and cosmic expansion, providing a scientific foundation rooted in observational and theoretical astrophysics.

A significant component of the internship involved computational astrophysics. Participants engaged with FITS (Flexible Image Transport System) data, extracted celestial features using Python, and performed spectral analysis via Integral Field Units (IFUs). These practical sessions bridged theoretical models with data-driven methodologies, enabling the extraction of physical properties such as galaxy mass, luminosity, and star formation rates.

In addition to guided sessions, two research-driven projects were undertaken. The first estimated the **dynamical mass of a galaxy cluster** using spectroscopic data from SDSS DR16, affirming the presence of dark matter through a comparison with luminous mass. The second project employed Type Ia supernovae data from the Pantheon+SH0ES catalog to estimate the **Hubble constant (H_0)** and analyze the universe's expansion rate.

Through a synthesis of observational data, computational analysis, and cosmological modelling, this Internship deepened scientific curiosity and provided a robust platform for future exploration in astrophysics. The experience exemplified the interdisciplinary nature of modern astronomy, integrating physics, statistics, data science, and high-performance computing to interpret the cosmos.



Admission No.: 205104

India Space Academy

THIS IS TO CERTIFY THAT

Malcha Swathi

FROM

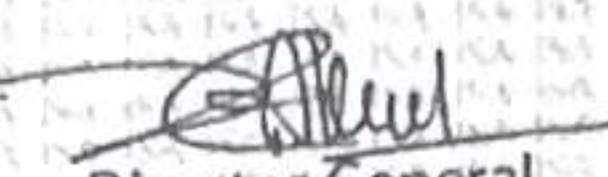
Guru ghasidas viswa vidyalaya bilaspur chhattisgarh

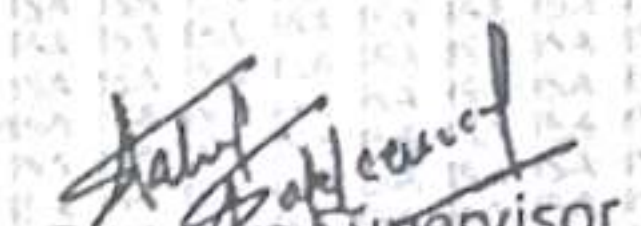
has successfully participated in the Astronomy and Astrophysics Summer School – 2025, organised by the India Space Academy, held from 2nd June to 2nd July 2025.

During this four-week program, the participant completed 120 hours of intensive training and project work over a period of four weeks, focusing on Data-Driven Astronomy. Their dedication to exploring the cosmos through computational methods reflects a commendable commitment to scientific inquiry and innovation.

We congratulate them on their achievement and encourage them to continue their journey in astronomy and astrophysics.


Director
India Space Academy


Director General
India Space Academy


Program Supervisor
India Space Academy

GURU GHASIDAS VISHWAVIDYALAYA
BILASPUR - 495009



Summer Internship Report

Internship From NTPC Sipat



On

How To Achieve Zero Liquid Discharge In Power Plant

Submitted by
Omprakash meena (21021133)

Guided by
Mr. Nakka Ramesh

DEPARTMENT OF CHEMICAL ENGINEERING
School Of Studies Engineering & Technology
GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)
(A Central University Established By The Central University Act 2009 No. 25 of 2009)
July 2025

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CERTIFICATE OF VOCATIONAL TRAINING - 2025
व्यावसायिक प्रशिक्षण प्रमाण पत्र - 2025

THE CERTIFICATE IS AWARDED TO
OMPRAKASH MEENA
VT Roll No - VT25CHEM023
Branch - CHEMICAL ENGINEERING
Name of College/Institute - GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

For satisfactorily completing Vocational Training at NTPC, Sipat, Bilaspur for a period of four weeks from 16/06/2025 to 15/07/2025. The participant has successfully completed the course and has also completed the project assigned to him/her as part of this course. We wish him/her a bright and successful future.



Ref No. RLI/SIPAT/VT/CERT/2025/VT25CHEM023

Nakka Ramesh
Sr. Manager (RLI)

KV Prasad
GM & Head (RLI-Simulator)

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Summer Project Report on
Reduction in start up time by initial heating of Boiler



Internship at:
Training Centre,
Koradi Thermal Power Plant (MSEB) Mahagenco
Internship Duration: 16th May 2025 – 26th June 2025

Submitted on: 14/10/2025

Under the guidance of:

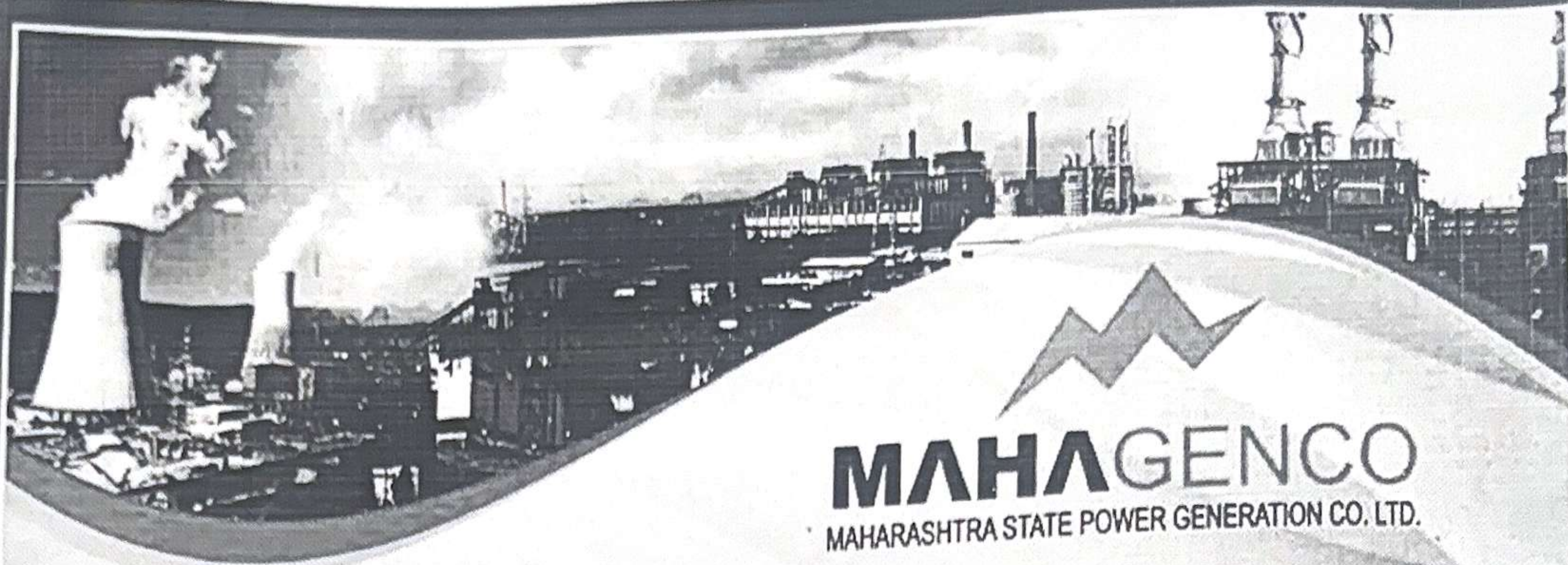
Prashant D. Nagapure
Executive Engineer

Varsha Chavan
Executive Engineer

Submitted by: **Prathamesh P Nagapure**



B. Tech Chemical Engineering,
GURU GHASIDAS UNIVERSITY, BILASPUR
A CENTRAL UNIVERSITY OF INDIA



MAHAGENCO

MAHARASHTRA STATE POWER GENERATION CO. LTD.

KORADI THERMAL POWER STATION

(AN INTEGRATED MANAGEMENT SYSTEM CERTIFIED UNIT, QMS, EnMS, EMS & OH & SMS)

TRAINING SUB CENTRE

Certificate

This is to certify that

Mr./Ms. Prathamesh Prashant Nagapure

has Successfully Completed Internship Program
in Chemical Engineering

from dt. 16/05/2025 to dt. 26/06/2025

at Koradi Thermal Power Station (3x660MW)

Date :

Siy

COURSE COORDINATOR
KTPS, KORADI

Q

CHIEF ENGINEER (O&M)
KTPS, KORADI

Generating for Generations

SUMMER INTERNSHIP REPORT

AT

India Space Academy



ON

Astronomy and Astrophysics Internship.

In Partial Fulfilment of the Requirement for Award of Degree of
Bachelor of Technology of the 4th Year in Chemical Engineering

Submitted By: -

K Dhikshith kumar (21021156)

Under the Guidance of: -

Mr. Nakka Ramesh



DEPARTMENT OF CHEMICAL ENGINEERING

GURU GHASIDAS VISHWADIYALAYA

BILASPUR(C.G).495009



Admission No.: 020830

India Space Academy

THIS IS TO CERTIFY THAT

Kuda.Dhikshith kumar

FROM

Guru ghasidas vishwavidyalaya Central University

has successfully participated in the **Astronomy and Astrophysics Summer School – 2025**, organised by the India Space Academy, held from 2nd June to 2nd July 2025.

During this four-week program, the participant completed **120 hours of intensive training and project work over a period of four weeks**, focusing on **Data-Driven Astronomy**. Their dedication to exploring the cosmos through computational methods reflects a commendable commitment to scientific inquiry and innovation.

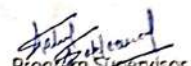
We congratulate them on their achievement and encourage them to continue their journey in astronomy and astrophysics.


Director

India Space Academy



Director General
India Space Academy


Program Supervisor
India Space Academy

ABSTRACT

Astronomy and Astrophysics represent the frontier of scientific inquiry, seeking to unravel the origin, structure, dynamics, and eventual fate of the universe. This internship, conducted in collaboration with the Inter-University Center for Astronomy and Astrophysics (IUCAA), offered a comprehensive blend of theoretical knowledge and practical experience, spanning fundamental celestial mechanics to advanced cosmological concepts.

The internship was structured into a series of in-depth lectures and hands-on sessions, providing exposure to core astronomical techniques such as celestial coordinate mapping, parallax-based distance measurement, redshift interpretation, and the study of galaxy morphology and dynamics. The lectures elaborated on critical phenomena including dark matter, dark energy, and cosmic expansion, providing a scientific foundation rooted in observational and theoretical astrophysics.

A significant component of the internship involved computational astrophysics. Participants engaged with FITS (Flexible Image Transport System) data, extracted celestial features using Python, and performed spectral analysis via Integral Field Units (IFUs). These practical sessions bridged theoretical models with data-driven methodologies, enabling the extraction of physical properties such as galaxy mass, luminosity, and star formation rates.

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Through a synthesis of observational data, computational analysis, and cosmological modeling, this internship deepened scientific curiosity and provided a robust platform for future exploration in astrophysics. The experience exemplified the interdisciplinary nature of modern astronomy, integrating physics, statistics, data science, and high-performance computing to interpret the cosmos.

GURU GHASIDAS VISHWAVIDYALAYA
BILASPUR - 495009



Summer Training Report
On
“ COAL ANALYSIS AND IT'S EFFECT ON COMBUSTION”
At



NATIONAL THERMAL POWER CORPORATION LIMITED SIPAT

Submitted by

Harshit Malang (21021120)

Guided by

Mr. Nakka Ramesh

DEPARTMENT OF CHEMICAL ENGINEERING
School Of Studies Engineering & Technology
GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)
(A Central University Established By The Central University Act 2009 No. 25 of 2009)

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CERTIFICATE OF VOCATIONAL TRAINING - 2025
व्यावसायिक प्रशिक्षण प्रमाण पत्र - 2025

THE CERTIFICATE IS AWARDED TO

HARSHIT MALANG

VT Roll No - VT25CHEM032

Branch - CHEMICAL ENGINEERING

Name of College/Institute - GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

For satisfactorily completing Vocational Training at NTPC, Sipat, Bilaspur for a period of four weeks from 16/06/2025 to 15/07/2025. The participant has successfully completed the course and has also completed the project assigned to him/her as part of this course. We wish him/her a bright and successful future.



DATE -19/07/2025

Ref No. RLI/SIPAT/VT/CERT/2025/VT25CHEM032

Nakka Ramesh
Sr. Manager (RLI)

KV Prasad
GM & Head (RLI-Simulator)

GURU GHASIDAS VISHWAVIDYALAYA

BILASPUR - 495009



Summer Internship Report

Internship From NTPC Sipat



On

How To Achieve Zero Liquid Discharge In Power Plant

Submitted by

Devesh Tripathi

(20101018)

Guided by

Mr. Nakka Ramesh

DEPARTMENT OF CHEMICAL ENGINEERING

School Of Studies Engineering & Technology

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

(A Central University Established By The Central University Act 2009 No. 25 of 2009)

July 2025



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CERTIFICATE OF VOCATIONAL TRAINING - 2025
व्यावसायिक प्रशिक्षण प्रमाण पत्र - 2025

THE CERTIFICATE IS AWARDED TO
DEVESH TRIPATHI

VT Roll No -VT25CHEM017

Branch - CHEMICAL ENGINEERING

Name of College/Institute - GURU GHASIDAS VISHVAVIDHYALAY BILASPUR

For satisfactorily completing **Vocational Training at NTPC, Sipat, Bilaspur** for a period of four weeks from 16/06/2025 to 15/07/2025. The participant has successfully completed the course and has also completed the project assigned to him/her as part of this course. We wish him/her a bright and successful future.



DATE -19/07/2025

Ref No. RLI/SIPAT/VT/CERT/2025/VT25CHEM017

Nakka Ramesh
Sr. Manager (RLI)

KV Prasad
GM & Head (RLI-Simulator)

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VOCATIONAL TRAINING REPORT



IndianOil

[BARAUNI REFINERY, INDIAN OIL CORPORATION LTD]

Duration: 26/05/2025-21/06/2025

Submitted To:

(Manager Learning &
Development IOCL Barauni)

Submitted By:

Nicky Kumari (21021157)



Department of Chemical Engineering

Institute of Technology, Guru Ghasidas University,

Bilaspur, C.G - 495009

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