

# CONSTRUCTION OF A.N.M MEDICAL CENTER, JODA, KENDUJHAR

A PROJECT REPORT

*Submitted by*

**CHANDAN KUMAR: 180301110014**

**ABHISEK MISHRA: 180301110003**

**KAUSTUVA PRASAD DAS: 180301110001**

**DILLIP NAYAK: 180301111021**

**ASHISH PATEL: 180301110002**

*in partial fulfilment for the award of the degree*

*of*

**BACHELOR OF TECHNOLOGY**

*in*

**CIVIL ENGINEERING**



**Centurion  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities!*

**DEPARTMENT OF CIVIL ENGINEERING**

**CENTURION INSTITUTE OF TECHNOLOGY: BHUBANESWAR**

**CENTURION UNIVERSITY OF TECHNOLOGY&MANAGEMENT: ODISHA**

**JANUARY 2022 / MAY 2022**

**DEPARTMENT OF CIVIL ENGINEERING**

*Anita Pali*  
REGISTRAR  
Centurion University of  
Management

**SCHOOL OF ENGINEERING AND TECHNOLOGY  
BHUBANESWAR -752050**

**BONAFIDE CERTIFICATE**

Certified that this project report “CONSTRUCTION OF A.N.M MEDICAL CENTER, JODA, KENDUJHAR” is the bonafide work of ABHISEK MISHRA, CHANDAN KUMAR, KAUSTUVA PRASAD DAS, DILLIP NAYAK & ASHISH PATEL who carried out the project work under my supervision. This is to further certify to the best of my knowledge, that this project has not been carried out earlier in this institute and the university.

*Deepak Kumar Sahu*

**SIGNATURE**

**MR. DEEPAK SAHU**

(Assistant Professor, Dept. of CE)

*Certified that the above mentioned project has been duly carried out as per the norms of the college and statues of the university*

*Deepak Kumar Sahu*



*Siba Prasad Mishra*

**SIGNATURE**

**INTERNAL EXAMINER (DR. KAMAL KUMAR BARIK)**

**SIGNATURE**

**HEAD OF THE DEPARTMENT**

**SIGNATURE**

**EXTERNAL EXAMINER**

DEPARTMENT SEAL

## **ACKNOWLEDGEMENT**

I wish to express my profound and sincere gratitude to Asst. Prof. Deepak Sahu, Department of Civil Engineering, CUTM Bhubaneswar, who guided me into the intricacies of this project non-chalantly with matchless magnanimity.

I thank Dr. Kamal Kumar Barik, Head of the Dept. of Civil Engineering, CUTM Bhubaneswar and Prof. Prashant Mohanty, DEAN, SOET CUTM for extending their support during Course of this investigation.

I am indebted to Asst. Prof. Deepak Sahu for their constant encouragement, co-operation and help. Words of gratitude are not enough to describe the accommodation and fortitude which they have shown throughout my endeavour.

CHANDAN KUMAR: 180301110014

ABHISEK MISHRA: 180301110003

KAUSTUVA PRASAD DAS: 180301110001

DILLIP NAYAK: 180301111021

ASHISH PATEL: 180301110002

## TABLE OF CONTENTS

CHAPTER NO.	TITLE	PAGE NO.
	<b>LIST OF TABLES</b>	<b>vi</b>
	<b>LIST OF FIGURES</b>	<b>vii</b>
	<b>ABSTRACT</b>	<b>viii</b>
<b>1.</b>	<b><i>CHAPTER – 1 INTRODUCTION</i></b>	<b><i>01</i></b>
1.1.	Project background	01
1.2.	Objective	01
1.3.	Scope of Work	02
1.4.	Samples of Materials	02
1.5.	Standard of Work	02
1.6.	Measurement of Works	03
1.7.	List of Approved Makes	03
1.8.	Codes of Practice for the Works	03
1.9.	Shop Drawings	04
1.10.	Equipment Supply, Installation, Testing, Commissioning and Hand over	04
1.11.	Compliance to Regulations for Site Working	05
<b>2.</b>	<b><i>CHAPTER – 2 PROJECT DETAILS</i></b>	<b><i>06</i></b>
2.1.	Objective	06
2.2.	Approach	06
2.3.	Site selection	06
	1. Accessibility	07
	2. Competitors	07
	3. Parking	07
	4. Costs	07
<b>3.</b>	<b><i>CHAPTER – 3 EXECUTION OF WORK</i></b>	<b><i>09</i></b>
3.1.	Site Development	09
3.2.	Masterplan Development	10
3.3.	Master planning	11

3.4. Local Design Regulations	12
3.5. Floor Area Measurement Methodology, Definitions and Diagrams	13
<b>4. CHAPTER – 4 SALIENT FEATURES AND EIA</b>	<b>15</b>
4.1. Salient Features of Some Major Labour Laws Applicable to Establishments Engaged in Building and Other Construction Work	15
4.2. Salient Features of Some of The Major Laws That Are Applicable for Protection of Environment.	17
<b>5. CHAPTER – 5 COST ESTIMATION ANALYSIS</b>	<b>21</b>
<b>6. CHAPTER – 6 PLANNING AND SITE VISIT</b>	<b>27</b>
6.1. Drawings and Plans	27
6.2. Site Visit	28
<b>7. CHAPTER – 7 CONCLUSION</b>	<b>34</b>
<b>8. CHAPTER – 8 REFERENCES</b>	<b>35</b>

**PLANNING, DESIGNING, ESTIMATION AND  
SIMULATION of G+40 MULTISTORY HIGH  
RISE BUILDING, PARALAKHEMUNDI**

A project report submitted towards partial  
Fulfilment of the requirement for award of the degree of

Bachelor of Technology

In

CIVIL ENGINEERING

By

**ADARSH KUMAR MISHRA (170101111015)**

**MATHIYAS THATAL (170101111017)**

**INDRA MAN LIMBU (170101111018)**

**ADITAYT RAJ PRADHAN (170101130019)**

Under the Guidance of

**Prof. M. Vignesh**

Assistant Professor, Dept. of Civil Engineering

CUTM, Paralakhemundi



**Centurion  
UNIVERSITY**

DEPARTMENT OF CIVIL ENGINEERING

SCHOOL OF ENGINEERING & TECHNOLOGY PARLAKHEMUNDI ODISHA

(2020 – 2021)

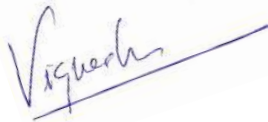
CENTURION UNIVERSITY OF TECHNOLOGY &  
MANAGEMENT Paralakhemundi, Odisha 761211. Department  
of Civil Engineering

---

CERTIFICATE

This is to certify that the project work titled “**PLANNING, DESIGNING, ESTIMATION AND SIMULATION of G+40 MULTISTORY HIGH RISE BUILDING, PARALAKHEMUNDI**” is a bonafied work of **ADARSH KUMAR MISHRA (170101111015), MATHIYAS THATAL (170101111017), INDRA MAN LIMBU (170101111018), ADITAYT RAJ PRADHAN (170101130019)** submitted in partial fulfilment of the requirements for the award of Bachelor of Technology in "CIVIL ENGINEERING" during the academic year 2020-21.

Certified that the above-mentioned project was completed in accordance with the college's and university's rules and regulations.



Prof. M. Vignesh  
Dept. of Civil Engineering  
CUTM, Paralakhemundi  
(Guide)



Head of the Department  
Dept. of Civil Engineering  
CUTM, Paralakhemundi.



Rajib Kumar Majhi  
External

## ACKNOWLEDGEMENT

We would want to use this occasion to convey our heartfelt gratitude to all of the people who served as lighthouses for us during this project, guiding us to a successful and satisfactory conclusion. We would like to convey our heartfelt gratitude to Prof. M. Vignesh, Department of Civil Engineering, CUTM, Paralakhemundi, who patiently guided us through the complexities of this project with unmatched magnanimity. We would also like to express our gratitude to all of our department's faculty members, particularly Dr. Prafulla Kumar Panda. We express our gratitude and respect to the laboratory personnel for explaining the lab equipment and its operation, for completing the project, and for all of the college's resources. We express our heartfelt gratitude to all members of the Civil Engineering Department's teaching and non-teaching personnel for their support and encouragement. Last but not least, we'd want to express our gratitude to all of the people whose names I couldn't reveal but who were kind enough to assist me with my endeavour.

Adarsh K. Mishra

ADARSH KUMAR MISHRA (170101111015)

M. Thatal

MATHIYAS THATAL (170101111017)

Indra Mani Limbu

INDRA MANI LIMBU (170101111018)

Aditya Raj Pradhan

ADITAYT RAJ PRADHAN (170101130019)



**PLANNING, DESIGNING, ESTIMATION AND  
3D MODELLING OF FARM HOUSE IN  
ROLLAVAKA VILLAGE, VIZIANAGARAM**

A project report submitted towards partial  
Fulfilment of the requirement for award of the degree of

Bachelor of Technology

In

CIVIL ENGINEERING

By

**TAPASWINI PANDA (170101110005)**

**DEBARATA BAROI (170101110007)**

**MUHAMMED DANISH (170101110013)**

**AJIT KUMAR NAYAK (170301111056)**

**SASWAT SAIRAM NAYAK (170301111057)**

Under the Guidance of

**Prof. M. Vignesh**

Assistant Professor, Dept. of Civil Engineering

CUTM, Paralakhemundi



**Centurion  
UNIVERSITY**

DEPARTMENT OF CIVIL ENGINEERING

SCHOOL OF ENGINEERING & TECHNOLOGY PARLAKHEMUNDI ODISHA  
(2020 – 2021)

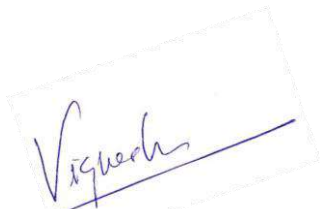
CENTURION UNIVERSITY OF TECHNOLOGY &  
MANAGEMENT Paralakhemundi, Odisha 761211. Department  
of Civil Engineering

---

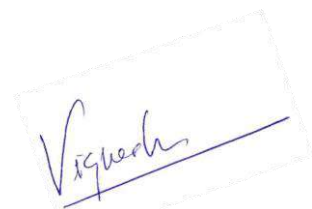
**CERTIFICATE**

This is to certify that the project work titled “**PLANNING, DESIGNING, ESTIMATION AND 3D MODELLING OF FARM HOUSE IN ROLLAVAKA VILLAGE, VIZIANAGARAM**” is a bonafied work of **TAPASWINI PANDA (170101110005), DEBARATA BAROI (170101110007), MUHAMMED DANISH (170101110013), AJIT KUMAR NAYAK (170301111056) and SASWAT SAIRAM NAYAK (170301111057)** submitted in partial fulfilment of the requirements for the award of Bachelor of Technology in "CIVIL ENGINEERING" during the academic year 2020-21.

Certified that the above-mentioned project was completed in accordance with the college's and university's rules and regulations.



Prof. Vignesh  
Dept. of Civil Engineering  
CUTM, Paralakhemundi  
(Guide)



Head of the Department  
Dept. of Civil Engineering  
CUTM, Paralakhemundi.



Rajib Kumar Majhi  
External

## ACKNOWLEDGEMENT

We would want to use this occasion to convey our heartfelt gratitude to all of the people who served as lighthouses for us during this project, guiding us to a successful and satisfactory conclusion. We would like to convey our heartfelt gratitude to Prof. M. Vignesh, Department of Civil Engineering, CUTM, Paralakhemundi, who patiently guided us through the complexities of this project with unmatched magnanimity. We would also like to express our gratitude to all of our department's faculty members, particularly Dr. Prafulla Kumar Panda. We express our gratitude and respect to the laboratory personnel for explaining the lab equipment and its operation, for completing the project, and for all of the college's resources. We express our heartfelt gratitude to all members of the Civil Engineering Department's teaching and non-teaching personnel for their support and encouragement. Last but not least, we'd want to express our gratitude to all of the people whose names I couldn't reveal but who were kind enough to assist me with my endeavour.

*Tapaswini Panda*

TAPASWINI PANDA (170101110005)

*D. Baroi*

DEBARATA BAROI (170101110007)

*M. Danish*

MUHAMMED DANISH (170101110013)

*A. K. Nayak*

AJIT KUMAR NAYAK (170301111056)

*Saswat S. Nayak*

SASWAT SAIRAM NAYAK (170301111057)

**PROJECT REPORT**

**ON**

**OBJECT DETECTION WITH OPENCV**

*Submitted to*

**Centurion University of Technology & Management**

*in partial fulfillment of the requirement for award of the degree of*

**B. TECH.**

**in**

**COMPUTER SCIENCE & ENGINEERING**

*Submitted By*

**ALISHA DASH**

**REG NO-190301120018**

*Under the Guidance of*

**MRS. MAMATA GARANAYAK**



**DEPT. OF COMPUTER SCIENCE & ENGINEERING**

**SCHOOL OF ENGINEERING & TECHNOLOGY,**

**Centurion University of Technology & Management, Odisha**

**APRIL 2022**



## CERTIFICATE

This is to be certified that the project entitled “**OBJECT DETECTION WITH OPENCV**” has been submitted for the Bachelor of Technology in Computer Science Engineering, School of Engineering & Technology, CUTM, Jatni during the academic year 2021-2022 is a persuasive piece of project work carried out by “**ALISHA DASH**” towards the partial fulfillment for award of the degree (B.Tech.) under the guidance of “**Prof. MAMATA GARANAYAK**” and no part there has been submitted by them for any degree to the best of my knowledge.

Signature of HOD

Signature of Project Guide

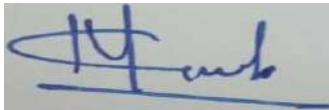
Signature of Coordinator

Signature of Dean, SOET

## EVALUATION SHEET

Title of the Project: **OBJECT DETECTION WITH OPENCV**

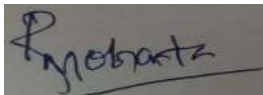
1. Year of submission:2022
2. Name of the degree: BTech
3. Date of Examination: APRIL 2022
4. Student Name with Regn No.: **ALISHA DASH REG NO-190301120018**
5. Name of the Guide: **Prof. MAMATA GARANAYAK**
6. Result: [APPROVED]



Signature of Project Guide



Signature of HOD



Signature of Coordinator



Signature of External Examiner



Signature of Dean, SOET

**PROJECT REPORT**  
**ON**  
**NETWORK DESIGN USING LAN AND INTEGRATION**  
**OF DIFFERENT SERVERS**

*Submitted to*

**Centurion University of Technology & Management**

*in partial fulfillment of the requirement for award of the degree of*

**B. TECH.**

**in**

**COMPUTER SCIENCE & ENGINEERING**

*Submitted By*

**AYUSH NAMAN PATI**

**REG NO- 190301200004**

**DIBYADARSHAN CHAKRA**

**REG NO- 190301200005**

*Under the Guidance of*

**PROF. SHREELA DASH**



**DEPT. OF COMPUTER SCIENCE & ENGINEERING**

**SCHOOL OF ENGINEERING & TECHNOLOGY,**

**Centurion University of Technology & Management, Odisha**

**APRIL 2022**

**A**

**Minor Project report on**

**SOLAR TREE**

*Submitted by*  
*B-tech EEE 4<sup>th</sup> Semester*

*In the partial fulfillment for the award of the degree Of*  
**Bachelor of Technology**

*In*  
**Electrical and Electronics Engineering**

Academic Year- 2021-2022

Under the Esteemed Guidance of  
**Prof. Rama Prasanna Dalai**



**Centurion**  
**UNIVERSITY**

**Department of Electrical and Electronics Engineering**  
**Centurion University of Technology & Management**  
**(Bhubaneswar, Ramchandrapur, Jatani, Khurda, Odisha-752050)**



**SPECIMEN CERTIFICATE**

*DEPARTMENT OF ELECTRICAL AND ELECTRONICS  
ENGINEERINGCENTURION UNIVERSITY OF TECHNOLOGY  
AND MANAGEMENT, BHUBANESWAR-752050*

**BONAFIDE CERTIFICATE**

Certified that this project report **SOLAR TREE** is the Bonafide work of **B Sai** who carried out the project work under my supervision This is to further certify to the best of my knowledge, that this project has not been carried out earlier in this institute and the university.



**SIGNATURE**

(Signature of Supervisor)

*Certified that the above-mentioned project has been duly carried out as per the norm of the college and statutes of the university*



**SIGNATURE**

**HEAD OF THE DEPARTMENT**

## **ACKNOWLEDGEMENTS**

It is our pleasure to be indebted to various people, who directly or indirectly contributed in the development of this work and who influenced my/our thinking, behavior and acts during the course of study.

We are thankful to **Prof. Rama Prasanna Dalai** for her support, cooperation, and motivation provided to us during for constant inspiration, presence and blessings.

We also extend our sincere appreciation to **Prof. Sudhansu Kumar Samal**, Head of Department who provided his valuable suggestions and precious time in accomplishing our academic project.

B Sai (200301151015)

# **DETECTION OF THE STRUCTURE CHANGES IN AUTOCAD OF MBA BUILDING BY FIELD INSPECTION**

**A MINOR PROJECT REPORT**

*Submitted by*

BIBHU DHAL (180301110005)

ANSUMAN MOHAPATRA (180301110005)

SATYAJIT KHUNTIA (180301110010)

*in partial fulfillment for the award of the degree*

*of*

**BACHELOR OF TECHNOLOGY**

*in*

**CIVIL ENGINEERING**



**DEPARTMENT OF CIVIL ENGINEERING**

**CENTURION INSTITUTE OF TECHNOLOGY: BHUBANESWAR**

**CENTURION UNIVERSITY OF  
TECHNOLOGY&MANAGEMENT::ODISHA**

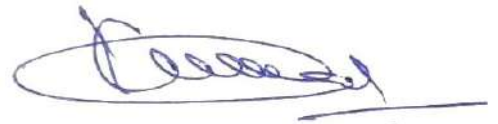
**DECEMBER 2021- MAY 2022**

**DEPARTMENT OF CIVIL ENGINEERING**

**CENTURION INSTITUTE OF TECHNOLOGY  
AND MANAGEMENT, BHUBANESWAR-752050**

## **BONAFIDE CERTIFICATE**

Certified that this project report “**DETECTION OF THE STRUCTURE CHANGES IN AUTOCAD OF MBA BUILDING BY FIELD INSPECTION**” is the bonafide work of “**BIBHU DHAL, ANSUMAN MOHAPATRA, SATYAJIT KHUNTIA**” who carried out the project work under my supervision. This is to further certify to the best of our knowledge, that this project has not been carried out earlier in this institute and the university.



**DR. KAMAL KUMAR BARIK**  
(HEAD OF THE DEPARTMENT, Dept. of CIVIL)

*Certified that the above mentioned project has been duly carried out as per the norms of the college and statues of the university.*



**Internal Examiner**



**Head of the Department**



**External Examiner**

## **ACKNOWLEDGEMENT**

I wish to express my profound and sincere gratitude to MRS. SAINI SIKTA DAS , who guided me into the intricacies of this project non-chalantly with matchless magnanimity.

I thank ASST.PROFESSOR, DR. KAMAL KUMAR BARIK, Head of the Department of Civil Engineering, CUTM Bhubaneswar and PROF.PRASHANT MOHANTY DEAN, SOET CIT for extending their support during course of this investigation.

I am indebted to MR. SUBHENDRA BALIYARSINGH for their constant encouragement co-operation and help. Words of gratitude are not enough to describe the accommodation and fortitude which they have shown throughout our Endeavour.

**BIBHU DHAL**

**ANSUMAN MOHAPATRA**

**SATYAJIT KHUNTIA**

**PROJECT REPORT**  
**ON**  
**ENTERPRISE NETWORK DESIGN FOR IPV4**

*Submitted to*

**Centurion University of Technology & Management**

*in partial fulfillment of the requirement for award of the degree of*

**B. TECH.**

**in**

**COMPUTER SCIENCE & ENGINEERING**

*Submitted By*

**AMIT KUMAR DAS                      REG NO- 190301200002**  
**BINAYAK MOHAPATRA              REG NO- 190301200003**

*Under the Guidance of*

**PROF. SHREELA DASH**



**DEPT. OF COMPUTER SCIENCE & ENGINEERING**  
**SCHOOL OF ENGINEERING & TECHNOLOGY,**  
**Centurion University of Technology & Management, Odisha**

**APRIL 2022**



## CERTIFICATE

This is to be certified that the project entitled “**ENTERPRISE NETWORK DESIGN FOR IPV4**” has been submitted for the Bachelor of Technology in Computer Science Engineering, School of Engineering &Technology, CUTM, Jatni during the academic year 2021-2022 is a persuasive piece of project work carried out by “**AMIT KUMAR DAS, BINAYK MOHAPATRA**” towards the partial fulfillment for award of the degree (B.Tech.) under the guidance of “**Prof. SHREELA DASH**” and no part there has been submitted by them for any degree to the best of my knowledge.

Signature of HOD

Signature of Project Guide

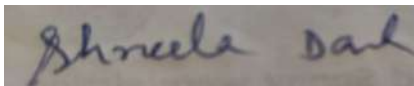
Signature of Coordinator

Signature of Dean, SOET

## EVALUATION SHEET

Title of the Project: **ENTERPRISE NETWORK DESIGN FOR IPV4**

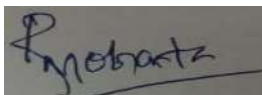
1. Year of submission:2022
2. Name of the degree: BTech
3. Date of Examination: April2022
4. Student Name with Regn No.: **AMIT KUMAR DAS,REG NO-190301200002**  
**BINAYK MOHAPATRA,REG NO-190301200003**
5. Name of the Guide: **Prof. SHREELA DASH**
6. Result: [APPROVED]



Signature of Project Guide



Signature of HOD



Signature of Coordinator



Signature of External Examiner



Signature of Dean, SOET





*A Project report on*

**CONSTRUCTION PROJECT MANAGEMENT AND MONITORING OF  
H.L BRIDGE OVER RIVER “JALANGA” FROM P.W.D. ROAD TO  
SANATUNDI ROAD, RAYAGADA BLOCK, GAJAPATI, ODISHA**

*To fulfilment of the requirement for award of the degree of*

**Bachelor of Technology  
in  
Civil Engineering**

**Domain – Construction, Planning, Monitoring and Project Management**

*Submitted By*

Sridhar Kumar Panda (180101110001)      Bundi Purandhar Reddy (190101110001)  
Alok Kumar Patra (180101110003)      Biswajit Singh (190101110003)  
Sai Soumya Shubhankar (180101170023)      Kundan Kumar (190101110023)  
Palli Chandrashekar (180101111006)

*Under the Supervision of*

**Dr. Rajib Kumar Majhi**

Department of Civil Engineering, CUTM, Paralakhemundi

**Prof. Deepak Sahu**

Department of Civil Engineering, CUTM, Bhubaneswar



**Centurion  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

**DEPARTMENT OF CIVIL ENGINEERING  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
MAY-2022**

# Centurion University of Technology & Management

(A UGC recognized State University by the Act of Assembly)

## Department of Civil Engineering

P.O: R. Sitapur, Paralakhemundi,  
Pin: 761211, Dist.: Gajapati, Odisha  
(India), www.cutm.ac.in



Phone No. - +919438269572  
E-mail: prafullapanda@cutm.ac.in

**Centurion  
UNIVERSITY**  
Shaping Lives  
Empowering Communities

### CERTIFICATE

This is to certify that the project work entitled "Construction Project Management and Monitoring of H.L Bridge Over River "JALANGA" from P.W.D Road to Sanatundi Road, Rayagada Block, Gajapati District, Odisha" is a bonafide work carried out by Sridhar Kumar Panda(180101110001), Alok Kumar Patra(180101110003), Sai Soumya Shubhankar(180101170023), Palli Chandrashekar(180101111006), Bundi Purandhar Reddy(190101110001), Biswajit Singh(190101110003) and Kundan Kumar(190101110023) for the partial fulfilment of the requirements for the award of Bachelor of Technology in Civil Engineering during the academic year 2020- 2022.

It is certified that the Project Report has not been submitted to any other College/University for the award of Diploma/Degree.

*Deepak Kumar Sahu*

**Prof. Deepak Kumar Sahu**

Asst. Professor  
Department of Civil Engineering  
CUTM, Bhubaneswar  
(Supervisor)

*Dr. Rajib Kumar Majhi*

**Dr. Rajib Kumar Majhi**

Asst. Professor  
Department of Civil Engineering  
CUTM, Paralakhemundi  
(Supervisor)

*Dr. Prafulla Kumar Panda*

**Dr. Prafulla Kumar Panda**

HOD, Civil Engineering  
CUTM, Paralakhemundi



*External Examiner*

**External Examiner**

## ACKNOWLEDGEMENT

With great solemnity and sincerity, we offer our profuse thanks to **Centurion University of Technology and Management** for providing all the resources to complete my project successfully.

We wish to express my deep sense of gratitude to **Dr. Rajib Kumar Majhi**, Department of Civil Engineering, CUTM PKD for his wholehearted co-operation, unfailing inspiration and valuable guidance. Throughout the project work, his useful suggestions, constant encouragement has given a right direction and shape to my learning. Really, we are indebted to his for his excellent and enlightened guidance.

We consider OUR privilege to express deepest gratitude to **Prof. Deepak Sahu**, Department of Civil Engineering, CUTM BBSR for his valuable suggestions and constant motivation that greatly helped the project work to get successfully completed.

It is our pleasure to acknowledge the help and support of all the teaching and Non-teaching faculty of Civil Department. We thank all those who contributed directly or indirectly in successfully carrying out this work.

*Sridhar Kumar Panda*  
Sridhar Kumar Panda

*Alok Kumar Patra*  
Alok Kumar Patra

*Sai Soumya Shubhankar*  
Sai Soumya Shubhankar

*P. Chandrashekar*  
Palli Chandrashekar

*B. Purandhar Reddy*  
B. Purandhar Reddy

*Biswajit Singh*  
Biswajit Singh

*Kundan Kumar*  
Kundan Kumar

## DECLARATION

We hereby declare that this project entitled "Construction Project Management and Monitoring of H.L Bridge over River "JALANGA" from P.W.D. Road to Sanatundi Road, Rayagada Block, Gajapati, Odisha" is entirely original and has been carried out in the Department of Civil Engineering, Centurion University of Technology & Management. This is being submitted in partial fulfillment for the award of Degree of Bachelor of Technology in Structural Detailing and Drawing from Centurion University of Technology & Management, Paralakhemundi, Odisha.

We hereby state that this report is not submitted to any other College/University or published at any time before.

*Sridhar Kumar Panda.*  
Sridhar Kumar Panda

*Alok K. Patra*  
Alok Kumar Patra

*Sai soumya Subhakar*  
Sai Soumya Shbbhankar

*P. Chandrashekar*  
Palli Chandrashekar

*B. Purandhar*  
B. Purandhar Reddy

*Biswajit Singh*  
Biswajit Singh

*Kundan Kumar*  
Kundan Kumar

# **CONSTRUCTION OF A.N.M MEDICAL CENTER, JODA, KENDUJHAR**

**A PROJECT REPORT**

*Submitted by*

**CHANDAN KUMAR: 180301110014**

**ABHISEK MISHRA: 180301110003**

**KAUSTUVA PRASAD DAS: 180301110001**

**DILLIP NAYAK: 180301111021**

**ASHISH PATEL: 180301110002**

*in partial fulfilment for the award of the degree*

*of*

**BACHELOR OF TECHNOLOGY**

*in*

**CIVIL ENGINEERING**



**Centurion  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities!*

**DEPARTMENT OF CIVIL ENGINEERING**

**CENTURION INSTITUTE OF TECHNOLOGY: BHUBANESWAR**

**CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT: ODISHA**

**JANUARY 2022 / MAY 2022**

**DEPARTMENT OF CIVIL ENGINEERING**



## **ACKNOWLEDGEMENT**

I wish to express my profound and sincere gratitude to Asst. Prof. Deepak Sahu, Department of Civil Engineering, CUTM Bhubaneswar, who guided me into the intricacies of this project non-chalantly with matchless magnanimity.

I thank Dr. Kamal Kumar Barik, Head of the Dept. of Civil Engineering, CUTM Bhubaneswar and Prof. Prashant Mohanty, DEAN, SOET CUTM for extending their support during Course of this investigation.

I am indebted to Asst. Prof. Deepak Sahu for their constant encouragement, co-operation and help. Words of gratitude are not enough to describe the accommodation and fortitude which they have shown throughout my endeavour.

CHANDAN KUMAR: 180301110014

ABHISEK MISHRA: 180301110003

KAUSTUVA PRASAD DAS: 180301110001

DILLIP NAYAK: 180301111021

ASHISH PATEL: 180301110002



# PLANNING, DESIGNING AND PREPARATION OF DETAILED REPORT OF AN APARTMENT

**A PROJECT REPORT**

*Submitted by*

**CHANDAN TARA: 180301110015**

*In partial fulfilment for the award of the degree*

*of*

**BACHELOR OF TECHNOLOGY**

*in*

**CIVIL ENGINEERING**



**Centurion  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities!*

**DEPARTMENT OF CIVIL ENGINEERING**

**CENTURION INSTITUTE OF TECHNOLOGY: BHUBANESWAR**

**CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT:: ODISHA**

**APRIL 2022 / MAY 2022**

**DEPARTMENT OF CIVIL ENGINEERING**

**SCHOOL OF ENGINEERING AND TECHNOLOGY**

**BHUBANESWAR -752050**

## **BONAFIDE CERTIFICATE**

Certified that this project report "***PLANNING, DESIGNING AND PREPARATION OF DETAILED REPORT OF AN APARTMENT***" is the bonafide work of CHANDAN TARA I who carried out the project work under my supervision. This is to further certify to the best of my knowledge that this project has not been carried out earlier in this institute and the university.

Deepak Kumar Sahu

**SIGNATURE**

**MR. Deepak kumar sahu**  
(Assistant Professor)

*Certified that the above mentioned project has been duly carried out as per the norms of the college and statues of the university*

Deepak Kumar Sahu

**SIGNATURE**  
**INTERNAL EXAMINER**

Dr. Kamal Kumar Barik

**SIGNATURE**  
**(DR. KAMAL KUMAR BARIK)**

Siba Prasad Mishra

**SIGNATURE**  
**EXTERNAL EXAMINER**

DEPARTMENT SEAL

## ACKNOWLEDGEMENT

I wish to express my profound and sincere gratitude to Asst. Prof. Surya Narayan, Department of Electrical Engineering, CUTM Bhubaneswar, who guided me into the intricacies of this project non-chalantly with matchless magnanimity.

I thank Dr. Kamal Kumar Barik, Head of the Dept. of Civil Engineering, CUTM Bhubaneswar and Prof. Prashant Mohanty, DEAN, SOET CUTM for extending their support during Course of this investigation.

I am indebted to Asst. Prof. Deepak kumar sahu for their constant encouragement, co-operation and help. Words of gratitude are not enough to describe the accommodation and fortitude which they have shown throughout my endeavour.

CHANDAN TARA I - 180301110015

**PLANNING, DESIGNING, ESTIMATION AND  
3D MODELLING OF FARM HOUSE IN  
ROLLAVAKA VILLAGE, VIZIANAGARAM**

A project report submitted towards partial  
Fulfilment of the requirement for award of the degree of

Bachelor of Technology

In

CIVIL ENGINEERING

By

**TAPASWINI PANDA (170101110005)**

**DEBARATA BAROI (170101110007)**

**MUHAMMED DANISH (170101110013)**

**AJIT KUMAR NAYAK (170301111056)**

**SASWAT SAIRAM NAYAK (170301111057)**

Under the Guidance of

**Prof. M. Vignesh**

Assistant Professor, Dept. of Civil Engineering

CUTM, Paralakhemundi



**Centurion  
UNIVERSITY**

DEPARTMENT OF CIVIL ENGINEERING

SCHOOL OF ENGINEERING & TECHNOLOGY PARLAKHEMUNDI ODISHA  
(2020 – 2021)

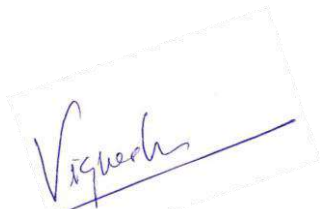
CENTURION UNIVERSITY OF TECHNOLOGY &  
MANAGEMENT Paralakhemundi, Odisha 761211. Department  
of Civil Engineering

---

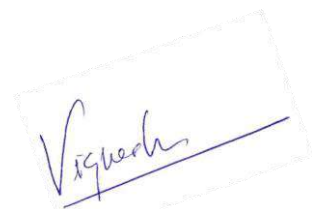
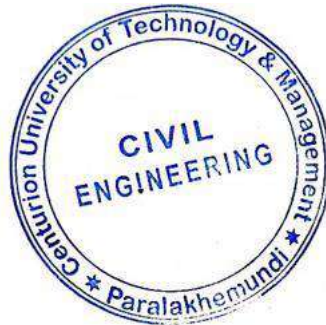
**CERTIFICATE**

This is to certify that the project work titled “**PLANNING, DESIGNING, ESTIMATION AND 3D MODELLING OF FARM HOUSE IN ROLLAVAKA VILLAGE, VIZIANAGARAM**” is a bonafied work of **TAPASWINI PANDA (170101110005), DEBARATA BAROI (170101110007), MUHAMMED DANISH (170101110013), AJIT KUMAR NAYAK (170301111056) and SASWAT SAIRAM NAYAK (170301111057)** submitted in partial fulfilment of the requirements for the award of Bachelor of Technology in "CIVIL ENGINEERING" during the academic year 2020-21.

Certified that the above-mentioned project was completed in accordance with the college's and university's rules and regulations.



Prof. M. Vignesh  
Dept. of Civil Engineering  
CUTM, Paralakhemundi  
(Guide)



Head of the Department  
Dept. of Civil Engineering  
CUTM, Paralakhemundi.



Rajib Kumar Majhi  
External

## ACKNOWLEDGEMENT

We would want to use this occasion to convey our heartfelt gratitude to all of the people who served as lighthouses for us during this project, guiding us to a successful and satisfactory conclusion. We would like to convey our heartfelt gratitude to Prof. M. Vignesh, Department of Civil Engineering, CUTM, Paralakhemundi, who patiently guided us through the complexities of this project with unmatched magnanimity. We would also like to express our gratitude to all of our department's faculty members, particularly Dr. Prafulla Kumar Panda. We express our gratitude and respect to the laboratory personnel for explaining the lab equipment and its operation, for completing the project, and for all of the college's resources. We express our heartfelt gratitude to all members of the Civil Engineering Department's teaching and non-teaching personnel for their support and encouragement. Last but not least, we'd want to express our gratitude to all of the people whose names I couldn't reveal but who were kind enough to assist me with my endeavour.

*Tapaswini Panda*

TAPASWINI PANDA (170101110005)

*D. Baroi*

DEBARATA BAROI (170101110007)

*M. Danish*

MUHAMMED DANISH (170101110013)

*A. K. Nayak*

AJIT KUMAR NAYAK (170301111056)

*Saswat S. Nayak*

SASWAT SAIRAM NAYAK (170301111057)

**A PROJECT REPORT**  
**On**  
**AUTOMATIC VOLTAGE REGULATOR**  
**Submitted By:**  
**Ranjan Kumar Pal(180301150004)**



**Centurion**  
**UNIVERSITY**

**DEPARTMENT OF ELECTRICAL AND ELECTRONICS  
ENGINEERING**  
**CENTURION UNIVERSITY OF TECHNOLOGY &  
MANAGEMENT**  
**ODISHA**  
**YEAR-2021-22**



# Centurion UNIVERSITY

## CERTIFICATE

It is certified that this project report “Automatic Voltage Regulator”, which will be submitted for the award of project report, is the bona-fide work of Raj Kumar Pal (190301150004) and under my guidance and supervision. This is to further certify to the best of my knowledge that this project has not been out elsewhere for the award off any degree.

Signature of Guide

Signature of HoD, EEE





**Project report of**  
**Repair of 5KV Transformer**

*Submitted by*

*B-tech 6<sup>th</sup> Semester*

*Rajendra prasad dash*

*In the partial fulfillment for the award of the degree Of*

**Bachelor of Technology**

*In*

**Electrical and Electronics Engineering**

Academic Year- 2019-2023

**Under the Esteemed Guidance of**

**MR. Swakantik Mishra**

**Department of Electrical and Electronics Engineering**  
**Centurion University of Technology & Management**  
**(Bhubaneswar, Ramchandrapur, Jatani, Khurda, Odisha-752050 )**

## **ACKNOWLEDGEMENTS**

It is our pleasure to be indebted to various people, who directly or indirectly contributed in the development of this work and who influenced my/our thinking, behavior and acts during the course of study.

We are thankful to **Mr. SWAKANTIK MISHRA** for her support, cooperation, and motivation provided to me/us during for constant inspiration, presence and blessings.

We also extend our sincere appreciation to **ASUTOSH MOHAPATRA** , who provided his valuable suggestions and precious time in accomplishing our academic project.

## **DECLARATION**

I hereby declare that entire work embodied in this project report entitled “5 KVA TRANSFORMER REPAIR” has been carried out by us. No part of it has been submitted for any institution previously.

To the best of our knowledge, the matter embodied in the thesis has not been submitted to any other university for award any Degree.

# **DOMAIN**

## **OPERATION AND MAINTENANCE OF ELECTRICAL GRID SYSTEM AND TRANSFORMER**

**PROJECT: - REPAIR OF 5KV TRANSFORMER**

**GROUP MEMBERS: -**

MANISH KUMAR	(190301140004 EE)
RANJAN KUMAR	(190301140005 EE)
DEBASHIS TRIPATHY	(190301141006 EE)
ABHISHEK TRIPATHY	(190301141007 EE)
SAURAV SUMAN	(190301150006 EEE)
SWAGAT KR. PANDA	(190301150007 EEE)
RAJENDRA PRASAD DASH	(1903011510011 EEE)

**A PROJECT REPORT**

**On**

***HYDRAULIC DISC BRAKES***

***In partial fulfilment for the award of the degree***

***Of***

**BACHELOR OF TECHNOLOGY**

***In***

**MECHANICAL ENGINEERING**

<b>MALLIPURAM SRINU</b>	<b>(180101161016)</b>
<b>G. MANIKANTA</b>	<b>(180101160001)</b>
<b>P. SHYAM</b>	<b>(180101160002)</b>
<b>O. DILLESWAR</b>	<b>(180101160010)</b>
<b>P. SAIKIRAN</b>	<b>(180101160007)</b>
<b>R. AKHIL</b>	<b>(180101160006)</b>



**Centurion**  
**UNIVERSITY**

**DEPARTMENT OF MECHANICAL ENGINEERING**

**SCHOOL OF ENGINEERING & TECHNOLOGY**

**CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT**

**PARALAKHEMUNDI, ODISHA**

**2021-2022**

DEPARTMENT OF MECHANICAL ENGINEERING  
SCHOOL OF ENGINEERING & TECHNOLOGY  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
PARALAKHEMUNDI -761211

**BONAFIDE CERTIFICATE**

Certified that this project report entitled

***“HYDRAULIC DISC BRAKES”***

is the bonafide work of

<b>MALLIPURAM SRINU</b>	<b>(180101161016)</b>
<b>G. MANIKANTA</b>	<b>(180101160001)</b>
<b>P. SHYAM</b>	<b>(180101160002)</b>
<b>O. DILLESWAR</b>	<b>(180101160010)</b>
<b>P. SAIKIRAN</b>	<b>(180101160007)</b>
<b>R. AKHIL</b>	<b>(180101160006)</b>

Who carried out the project work under my supervision. This is to further certify to the best of my knowledge that this project has not been carried out earlier in this institute.

*Santosh Patro*  
*6.12.21*  
Signature of the supervisor

**Mr. Santosh Patro & Mrs. G Sri Devi**

*Certified that the above-mentioned project has been duly carried out as per the norms of the college and statutes of the university.*

*Sujit Mishra*  
HEAD OF THE DEPARTMENT  
**Mr. Sujit Mishra**



Status:  Approved/Not Approved

*[Signature]*  
INTERNAL EXAMINER

*[Signature]*  
EXTERNAL EXAMINER

**A PROJECT REPORT**

**On**

***FABRICATION OF BOTTLE STAND***

***In partial fulfillment for the award of the degree***

***of***

**BACHELOR OF TECHNOLOGY**

***In***

**MECHANICAL ENGINEERING**

<b>Tapan Barado</b>	<b>(180101161014)</b>
<b>Mallipuram Srinu</b>	<b>(180101161016)</b>
<b>Menda Tarak</b>	<b>(180101161017)</b>
<b>G Dileep Kumar</b>	<b>(180101110002)</b>



**Centurion**  
**UNIVERSITY**

**DEPARTMENT OF MECHANICAL ENGINEERING**

**SCHOOL OF ENGINEERING & TECHNOLOGY**

**CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT**

**PARALAKHEMUNDI, ODISHA**

**2021-2022**

DEPARTMENT OF MECHANICAL ENGINEERING  
SCHOOL OF ENGINEERING & TECHNOLOGY  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
PARALAKHEMUNDI, ODISHA

**BONAFIDE CERTIFICATE**

Certified that the project report entitled

***“FABRICATION OF BOTTLE STAND”***

is a bonafide work of

TAPAN BARADO	(180101161014)
MALLIPURAM SRINU	(180101161016)
MENDA TARAK	(180101161017)
G DILEEP KUMAR	(180101110002)

Who carried out the project work under my supervision and guidance, submitted to our college in partial fulfillment for the award of the degree of Bachelor of Technology in Mechanical Engineering.

  
Signature of the supervisor

Dr. Santosh Patro

*Certified that the above mentioned project has been duly carried out as per the norms of the college and statutes of the university.*

  
HEAD OF THE DEPARTMENT

Dr. Sujit Mishra

Status: Approved/Not Approved

  
INTERNAL EXAMINER

  
EXTERNAL EXAMINER





**A PROJECT REPORT**

**On**

***FABRICATION OF STOOL***

*In partial fulfillment for the award of the degree*

*Of*

**BACHELOR OF TECHNOLOGY**

*In*

**MECHANICAL ENGINEERING**

<b>P.Sai Kiran Kumar</b>	<b>(180101160005)</b>
<b>O.Dilleswar Rao</b>	<b>(180101160010)</b>
<b>Yeshi Wangchuck</b>	<b>(180101160011)</b>



**Centurion**  
**UNIVERSITY**

**DEPARTMENT OF**

**PROJECT REPORT**

**ON**

**EVENT CALENDAR WITH TO DO LIST**

*Submitted to*

**Centurion University of Technology & Management**

*in partial fulfillment of the requirement for award of the degree of*

**B. TECH.**

**in**

**COMPUTER SCIENCE & ENGINEERING**

*Submitted By*

**AYAN BISWAS**

**REG NO-1903011200**

**HIMANSU SEKHAR JENA**

**REG NO-190301120076**

*Under the Guidance of*

**MR. NILAMADHAB DASH**



**DEPT. OF COMPUTER SCIENCE & ENGINEERING**

**SCHOOL OF ENGINEERING & TECHNOLOGY,**

**Centurion University of Technology & Management, Odisha**

**APRIL 2022**



## CERTIFICATE

This is to be certified that the project entitled “**EVENT CALENDAR WITH TO DO LIST**” has been submitted for the Bachelor of Technology in Computer Science Engineering, School of Engineering & Technology, CUTM, Jatni during the academic year 2021-2022 is a persuasive piece of project work carried out by “**AYAN BISWAS, HIMANSHU SEKHAR JENA**” towards the partial fulfillment for award of the degree (B.Tech.) under the guidance of “**Prof. NILAMADHAB DASH**” and no part there has been submitted by them for any degree to the best of my knowledge.

Signature of HOD

Signature of Project Guide

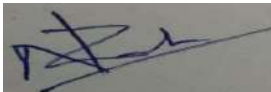
Signature of Coordinator

Signature of Dean, SOET

## EVALUATION SHEET

Title of the Project: **EVENT CALENDAR WITH TO DO LIST**

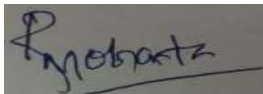
1. Year of submission:2022
2. Name of the degree: BTech
3. Date of Examination: APRIL 2022
4. Student Name with Regn No.: **AYAN BISWAS REG NO-1903011200010**  
**HIMANSHU SEKHAR JENA REG NO-180301200076**
5. Name of the Guide: **Prof. NILAMADHAB DASH**
6. Result: [APPROVED]



Signature of Project Guide



Signature of HOD



Signature of Coordinator



Signature of External Examiner



Signature of Dean, SOET

**A**

**Minor Project report on**

**SOLAR TREE**

*Submitted by*  
*B-tech EEE 4<sup>th</sup> Semester*

*In the partial fulfillment for the award of the degree Of*  
**Bachelor of Technology**

*In*  
**Electrical and Electronics Engineering**

Academic Year- 2021-2022

Under the Esteemed Guidance of  
**Prof. Rama Prasanna Dalai**



**Centurion**  
**UNIVERSITY**

**Department of Electrical and Electronics Engineering**  
**Centurion University of Technology & Management**  
**(Bhubaneswar, Ramchandrapur, Jatani, Khurda, Odisha-752050)**

SPECIMEN CERTIFICATE

DEPARTMENT OF ELECTRICAL AND ELECTRONICS  
ENGINEERING CENTURION UNIVERSITY OF TECHNOLOGY  
AND MANAGEMENT, BHUBANESWAR-752050

BONAFIDE CERTIFICATE


Certified that this project report **SOLAR TREE** is the Bonafide work of **Hitesh Kumar Nath**, who carried out the project work under my supervision This is to further certify to the best of my knowledge, that this project has not been carried out earlier in this institute and the university.



SIGNATURE

(Signature of Supervisor)

*Certified that the above-mentioned project has been duly carried out as per the norm of the college and statutes of the university*



SIGNATURE

HEAD OF THE DEPARTMENT

## **ACKNOWLEDGEMENTS**

It is our pleasure to be indebted to various people, who directly or indirectly contributed in the development of this work and who influenced my/our thinking, behavior and acts during the course of study.

We are thankful to **Prof. Rama Prasanna Dalai** for her support, cooperation, and motivation provided to us during for constant inspiration, presence and blessings.

We also extend our sincere appreciation to **Prof. Sudhansu Kumar Samal**, Head of Department who provided his valuable suggestions and precious time in accomplishing our academic project.

Hitesh Kumar Nath (200301150005)

**A PROJECT REPORT**

**On**

***FABRICATION OF BIRD SHELTER***

***In partial fulfillment for the award of the degree***

***of***

**BACHELOR OF TECHNOLOGY**

***In***

**MECHANICAL ENGINEERING**

**Gajjivelli Manikanta (180101160001)**

**P Shyam Sundar Rao (180101160002)**

**Palli Pavan Kumar (180101160003)**

**Routu Chaitanya (180101160004)**



**Centurion**  
**UNIVERSITY**

**DEPARTMENT OF MECHANICAL ENGINEERING**

**SCHOOL OF ENGINEERING & TECHNOLOGY**

**CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT**

**PARALAKHEMUNDI, ODISHA**

**2021-2022**



DEPARTMENT OF MECHANICAL ENGINEERING  
SCHOOL OF ENGINEERING & TECHNOLOGY  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
PARALAKHEMUNDI, ODISHA

**BONAFIDE CERTIFICATE**

Certified that the project report entitled

**"FABRICATION OF BIRD SHELTER"**

is a bonafide work of

GALJVELLI MANIKANTA (180101160001)  
P SHYAM SUNDAR RAO (180101160002)  
PALLI PAVAN KUMAR (180101160003)  
ROUTU CHAITANYA (180101160004)

Who carried out the project work under my supervision and guidance, submitted to our college in partial fulfillment for the award of the degree of Bachelor of Technology in our Mechanical Engineering.

Signature of the ~~supervisor~~ *Dr. Santosh Patro*

Dr. Santosh Patro

*Certified that the above mentioned project has been duly carried out as per the norms of the college and statutes of the university.*

Signature of the ~~supervisor~~ *Dr. Sujit Mishra*  
HEAD OF THE ~~DEPARTMENT~~

Dr. Sujit Mishra

Stamp: ~~Approved/Not Approved~~

*[Signature]*  
INTERNAL EXAMINER

*[Signature]*  
EXTERNAL EXAMINER



*A Project report on*

# **Hydrological Modelling Simulation using SWAT - A Case Study of Vamsadhara River Basin, Odisha**

*submitted towards partial fulfilment of the requirement for award of the degree of*

**Bachelor of Technology**

*in*

**Civil Engineering**

**(Domain - Aerial Surveying and Remote Sensing Application)**

*Submitted By*

Pradip Kumar Sharma (190101110018)    Arvind Kumar (190101110011)  
Md Gulam Raza (190101110034)        Nitesh Kumar Patel (190101110019)  
Suhaila Gulami (190101110040)

*Under the guidance of*

**Dr. Prafulla Kumar Panda**

Associate Professor, Department of Civil Engineering  
Centurion University of Technology & Management, Paralakhemundi

**Dr. Kamal Kumar Barik**

Associate Professor, Department of Civil Engineering  
Centurion University of Technology & Management, Bhubaneswar



**CENTURION  
UNIVERSITY**  
*Shaping Lives...  
Empowering Communities!*

**Department of Civil Engineering**  
**School of Engineering & Technology, Paralakhemundi Campus**  
**Centurion University of Technology & Management, Odisha**  
**May-2022**

**Centurion University of Technology & Management, Odisha**  
**Department of Civil Engineering**

P.O: R. Sitapur, Paralakhemundi,  
Pin: 761211, Dist: Gajapati, Odisha  
(India), cutm.ac.in



Phone No. - +919438269572

E-mail: prafullapanda@cutm.ac.in

---

**CERTIFICATE**

This is to certify that the project work titled "**Hydrological Modelling Simulation using SWAT - A Case Study of the Vamsadhara River Basin, Odisha**" is a bonafied work carried out by Pradeep Kumar Sharma (190101110018), Arvind Kumar (190101110011), Md Gulam Raza (190101110034), Nitesh Kumar Patel (190101110019), and Suhaila Gulami (190101110040), submitted in partial fulfilment of the requirements for the award of Bachelor of Technology in "Civil Engineering" during the academic year 2021-22. It is also certified that this project report has not been submitted to any other College/University for the award of any degree/diploma.

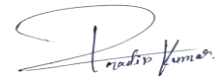
**Dr. Prafulla Kumar Panda**  
Department of Civil Engineering  
CUTM, Paralakhemundi  
(HOD & Guide)

**External Examiner**

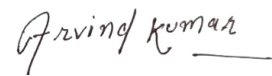
## DECLARATION

It is hereby declared that the project report titled "**Hydrological Modelling Simulation using SWAT - A Case Study of the Vamsadhara River Basin, Odisha**" is completely unique and was carried out at Department of Civil Engineering of Centurion University of Technology & Management, Paralakhemundi Campus for the partial fulfilment of the requirements of the degree of Bachelor of Technology in Civil Engineering. This report has not been submitted to any other College/University or published at any time before.

### Signature of the Students



Pradip kumar sharma



Arvind kumar



Md Gulam Raza



Nitesh kumar Patel



Suhaila Gulami

## ACKNOWLEDGEMENT

We would like to convey our heartfelt gratitude to **Dr. Prafulla Kumar Panda**, Department of Civil Engineering, CUTM, Paralakhemundi, & **Dr. Kamal Kumar Barik**, Department of civil engineering, CUTM, Bhubaneswar who patiently guided us through the complexities of this project with unmatched magnanimity.

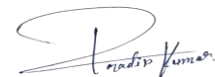
Dr. Prafulla Kumar Panda, Department of Civil Engineering, CUTM, Paralakhemundi, & Dr. Kamal Kumar Barik, Department of civil engineering, CUTM, Bhubaneswar has been extremely helpful throughout our inquiry.

We would also like to express our gratitude to other members who have helped us in various aspects particularly **Dr. Sonam Sandeep Dash, Mr. Pratyush Kumar Behera, Mr. Sovan Sankalp**

We express our gratitude and respect to the laboratory personnel for explaining the lab equipment and its operation, for completing the project, and for all of the college's resources. We express our heartfelt gratitude to all members of the Civil Engineering Department's teaching and non-teaching personnel for their support and encouragement.

Last but not least, we'd want to express our gratitude to all of the people whose names I couldn't reveal but who were kind enough to assist me with my endeavour.

### Signature of the Students



Pradip kumar sharma



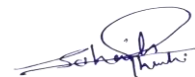
Arvind kumar



Md Gulam Raza



Nitesh kumar Patel



Suhaila Gulami

# **UNDERGROUND PARKING STRUCTURE** A PROJECT REPORT

*Submitted by*

**SAHU PRAGATI: 180301111024**

*In partial fulfilment for the award of the degree of*

**BACHELOR OF TECHNOLOGY  
*in*  
CIVIL ENGINEERING**



**DEPARTMENT OF CIVIL ENGINEERING**

**CENTURION INSTITUTE OF TECHNOLOGY: BHUBANESWAR**

**CENTURION UNIVERSITY OF  
TECHNOLOGY & MANAGEMENT:: ODISHA**

**APRIL 2022 / MAY 2022**

**DEPARTMENT OF CIVIL ENGINEERING  
SCHOOL OF ENGINEERING AND TECHNOLOGY**

**BHUBANESWAR -752050**

**BONAFIDE CERTIFICATE**

**Certified that this project report “UNDERGROUND PARKING STRUCTURE” is the bonafide work of PRAGATI SAHU who carried out the project work under my supervision. This is to further certify to the best of my knowledge that this project has**

not been carried out earlier in this institute and the university.

Deepak Kumar Sahu

**SIGNATURE**  
**MR. Deepak kumar sahu**  
**(Assistant Professor)**

*Certified that the above mentioned project has been duly carried out as per the norms of the college and statues of the university*



Deepak Kumar Sahu



**Internal**

**Examiner Head of the Department External Examiner**

## **DEPARTMENT SEAL**

### **ABSTRACT**

The increasing rate of private car use in urban areas as a result of fast growing economy, derelict policies and subsidies are the main causes making car parking one of the main concerns

for transport and traffic management all over the world. As there be comes scar city of available and, underground parking be comes more and more appealing day by day, especially in urban locations. Multi-storey car parks, underground or basement car parks, and car parks in a multi – function building are common. Even though multi-storey car parks are mainly

**PROJECT REPORT**  
**ON**  
**TRANSPORTATION MANAGEMENT BASED WEB**  
**APPLICATION**

*Submitted to*

**Centurion University of Technology & Management**

*in partial fulfillment of the requirement for award of the degree of*

**B. TECH.**

**in**

**COMPUTER SCIENCE & ENGINEERING**

*Submitted By*

**PRITAM KUMAR NAYAK**

**REG NO-190301121115**

**SURMA NIBEDITA**

**REG NO- 190301121116**

*Under the Guidance of*

**PROF. RAJ KUMAR MOHANTA**



**DEPT. OF COMPUTER SCIENCE & ENGINEERING**  
**SCHOOL OF ENGINEERING & TECHNOLOGY,**  
**Centurion University of Technology & Management, Odisha**

**APRIL 2022**





## CERTIFICATE

This is to be certified that the project entitled “**TRANSPORTATION MANAGEMENT BASED WEB APPLICATION**” has been submitted for the Bachelor of Technology in Computer Science Engineering, School of Engineering & Technology, CUTM, Jatni during the academic year 2021-2022 is a persuasive piece of project work carried out by “**PRITAM KUMAR NAYAK, SURMA NIBEDITA**” towards the partial fulfillment for award of the degree (B.Tech.) under the guidance of “**Prof. RAJ KUMAR MOHANTA**” and no part there has been submitted by them for any degree to the best of my knowledge.

Signature of HOD

Signature of Project Guide

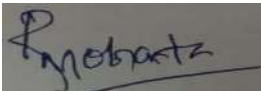
Signature of Coordinator

Signature of Dean, SOET

## EVALUATION SHEET

Title of the Project: **TRANSPORTATION MANAGEMENT BASED WEB APPLICATION**

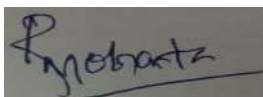
1. Year of submission:2022
2. Name of the degree: BTech
3. Date of Examination: April 2022
4. Student Name with Regn No.: **PRITAM KUMAR NAYAK REG NO-190301121115**  
**SURMA NIBEDITA REG NO-190301121116**
5. Name of the Guide: **Prof. RAJ KUMAR MOHANTA**
6. Result: [APPROVED]



Signature of Project Guide



Signature of HOD



Signature of Coordinator



Signature of External Examiner



Signature of Dean, SOET



**PLANNING, DESIGNING, ESTIMATION AND  
3D MODELLING OF FARM HOUSE IN  
ROLLAVAKA VILLAGE, VIZIANAGARAM**

A project report submitted towards partial  
Fulfilment of the requirement for award of the degree of

Bachelor of Technology

In

CIVIL ENGINEERING

By

**TAPASWINI PANDA (170101110005)**

**DEBARATA BAROI (170101110007)**

**MUHAMMED DANISH (170101110013)**

**AJIT KUMAR NAYAK (170301111056)**

**SASWAT SAIRAM NAYAK (170301111057)**

Under the Guidance of

**Prof. M. Vignesh**

Assistant Professor, Dept. of Civil Engineering

CUTM, Paralakhemundi



**Centurion  
UNIVERSITY**

DEPARTMENT OF CIVIL ENGINEERING

SCHOOL OF ENGINEERING & TECHNOLOGY PARLAKHEMUNDI ODISHA  
(2020 – 2021)

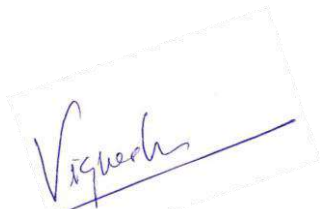
CENTURION UNIVERSITY OF TECHNOLOGY &  
MANAGEMENT Paralakhemundi, Odisha 761211. Department  
of Civil Engineering

---

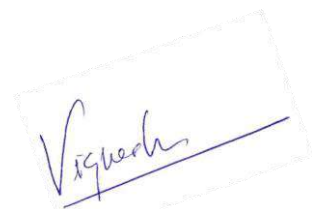
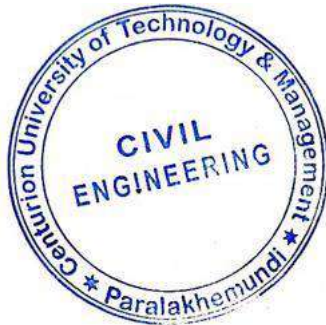
**CERTIFICATE**

This is to certify that the project work titled “**PLANNING, DESIGNING, ESTIMATION AND 3D MODELLING OF FARM HOUSE IN ROLLAVAKA VILLAGE, VIZIANAGARAM**” is a bonafied work of **TAPASWINI PANDA (170101110005), DEBARATA BAROI (170101110007), MUHAMMED DANISH (170101110013), AJIT KUMAR NAYAK (170301111056) and SASWAT SAIRAM NAYAK (170301111057)** submitted in partial fulfilment of the requirements for the award of Bachelor of Technology in "CIVIL ENGINEERING" during the academic year 2020-21.

Certified that the above-mentioned project was completed in accordance with the college's and university's rules and regulations.



Prof. M. Vignesh  
Dept. of Civil Engineering  
CUTM, Paralakhemundi  
(Guide)



Head of the Department  
Dept. of Civil Engineering  
CUTM, Paralakhemundi.



Rajib Kumar Majhi  
External

## ACKNOWLEDGEMENT

We would want to use this occasion to convey our heartfelt gratitude to all of the people who served as lighthouses for us during this project, guiding us to a successful and satisfactory conclusion. We would like to convey our heartfelt gratitude to Prof. M. Vignesh, Department of Civil Engineering, CUTM, Paralakhemundi, who patiently guided us through the complexities of this project with unmatched magnanimity. We would also like to express our gratitude to all of our department's faculty members, particularly Dr. Prafulla Kumar Panda. We express our gratitude and respect to the laboratory personnel for explaining the lab equipment and its operation, for completing the project, and for all of the college's resources. We express our heartfelt gratitude to all members of the Civil Engineering Department's teaching and non-teaching personnel for their support and encouragement. Last but not least, we'd want to express our gratitude to all of the people whose names I couldn't reveal but who were kind enough to assist me with my endeavour.

*Tapaswini Panda*

TAPASWINI PANDA (170101110005)

*D. Baroi*

DEBARATA BAROI (170101110007)

*M. Danish*

MUHAMMED DANISH (170101110013)

*A. K. Nayak*

AJIT KUMAR NAYAK (170301111056)

*Saswat S. Nayak*

SASWAT SAIRAM NAYAK (170301111057)

# **DETECTION OF THE STRUCTURE CHANGES IN AUTOCAD OF MBA BUILDING BY FIELD INSPECTION**

**A MINOR PROJECT REPORT**

*Submitted by*

BIBHU DHAL (180301110005)

ANSUMAN MOHAPATRA (180301110005)

SATYAJIT KHUNTIA (180301110010)

*in partial fulfillment for the award of the degree*

*of*

**BACHELOR OF TECHNOLOGY**

*in*

**CIVIL ENGINEERING**



**DEPARTMENT OF CIVIL ENGINEERING**

**CENTURION INSTITUTE OF TECHNOLOGY: BHUBANESWAR**

**CENTURION UNIVERSITY OF  
TECHNOLOGY & MANAGEMENT: ODISHA**

**DECEMBER 2021- MAY 2022**

**DEPARTMENT OF CIVIL ENGINEERING**

**CENTURION INSTITUTE OF TECHNOLOGY**

# **AND MANAGEMENT, BHUBANESWAR-752050**

## **BONAFIDE CERTIFICATE**

Certified that this project report “**DETECTION OF THE STRUCTURE CHANGES IN AUTOCAD OF MBA BUILDING BY FIELD INSPECTION**” is the bonafide work of “ **BIBHU DHAL, ANSUMAN MOHAPATRA, SATYAJIT KHUNTIA**” who carried out the project work under my supervision. This is to further certify to the best of our knowledge, that this project has not been carried out earlier in this institute and the university.



**DR. KAMAL KUMAR BARIK**  
(HEAD OF THE DEPARTMENT, Dept. of CIVIL)

*Certified that the above mentioned project has been duly carried out as per the norms of the college and statues of the university.*

Deepak Kumar Sahu



Siba Prasad Mishra

Internal Examiner

**Head of the Department External Examiner**



**A**

**Minor Project report on**

**SOLAR TREE**

*Submitted by*  
*B-tech EEE 4<sup>th</sup> Semester*

*In the partial fulfillment for the award of the degree Of*  
**Bachelor of Technology**

*In*  
**Electrical and Electronics Engineering**

Academic Year- 2021-2022

Under the Esteemed Guidance of  
**Prof. Rama Prasanna Dalai**



**Centurion**  
**UNIVERSITY**

**Department of Electrical and Electronics Engineering**  
**Centurion University of Technology & Management**  
**(Bhubaneswar, Ramchandrapur, Jatani, Khurda, Odisha-752050)**

SPECIMEN CERTIFICATE

DEPARTMENT OF ELECTRICAL AND ELECTRONICS  
ENGINEERINGCENTURION UNIVERSITY OF TECHNOLOGY  
AND MANAGEMENT, BHUBANESWAR-752050

BONAFIDE CERTIFICATE

Certified that this project report **SOLAR TREE** is the Bonafide work of **SK Azharul Haque**. who carried out the project work under my supervision This is to further certify to the best of my knowledge, that this project has not been carried out earlier in this institute and the university.



SIGNATURE

(Signature of Supervisor)

*Certified that the above-mentioned project has been duly carried out as per the norm of the college and statutes of the university*



SIGNATURE

HEAD OF THE DEPARTMENT

## **ACKNOWLEDGEMENTS**

It is our pleasure to be indebted to various people, who directly or indirectly contributed in the development of this work and who influenced my/our thinking, behavior and acts during the course of study.

We are thankful to **Prof. Rama Prasanna Dalai** for her support, cooperation, and motivation provided to us during for constant inspiration, presence and blessings.

We also extend our sincere appreciation to **Prof. Sudhansu Kumar Samal**, Head of Department who provided his valuable suggestions and precious time in accomplishing our academic project.

SK Azharul Haque (200301151016)

## **ABSTRACT**

With oil supplies decreasing and prices increasing, the pros and cons of other energy sources are being debated worldwide. Wind turbines produce high output, but people living near high-quality landscape don't want their views spoiled. Biomass –plant products burnt as fuel is a proven technology. But some researchers estimate that powering all the world's vehicles with biofuels means doubling the amount of land used for farming. Nuclear energy produces abundant power, but many, fear the repercussions of catastrophes such as Chernobyl. The benefits of fusion energy, produced when two atoms are fused, could last for millennia. But it requires some of the most complex machinery on earth.

# **IMPACT OF ORGANIC SEED TREATMENT ON GREEN GRAM**

A Thesis  
Submitted to

**Centurion University of Technology and Management**

*In the partial fulfillment of the requirements for the degree of*

**MASTER OF SCIENCE  
IN  
BOTANY**

By

**CHINMAYEE SAHOO**  
**Registration No.: 200705170071**



**CENTURION  
UNIVERSITY**  
*Shaping Lives...  
Empowering Communities!*

**Department of Botany**

**School of Applied Science**

**Centurion University of technology and management, Ramachandrapur, Jatni-752050,  
Odisha, India**

**MAY 2022**

## **DECLARATION**

I declare that the thesis entitled “**Impact of organic seed treatment on green gram**” is my own work, which I completed under the supervision of Dr. Saurav Barman, Associate professor, Department of Soil Science, Mr. Lalichetti Sagar, Assistant professor, Department of Agronomy and Dr. B. Praveen, Associate professor and Head, Department of Plant pathology, M.S. Swaminathan School of Agriculture, Centurion University of Technology and Management, Paralakhemundi, Odisha.

I furthermore declare that this thesis does not contain any part of any work that has been submitted for the granting of any degree at the University or elsewhere without proper citation.

Place: CUTM, Odisha

Date:

**CHINMAYEE SAHOO**

Registration no. 200705170071

M.Sc. in Botany

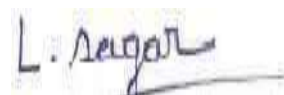
2020-2022

## **CERTIFICATE - I**

This is to certify that the thesis entitled “**Impact of organic seed treatment on green gram**” submitted to School of Applied Science is a piece of research work done by **Chinmayee Sahoo** with Registration No. **200705170071** under my guidance and supervision for the partial fulfillment of the degree of Master of Science in Botany.

To the best of my knowledge and belief the thesis

1. Embodies the work of candidate himself.
2. Has duly been completed.
3. Fulfils the requirement of the ordinance relating to the MSc Botany in Post Graduate degree of the University.



Place: Bhubaneswar  
Date: \_\_\_ May 2022

**MR. LALICHETTI SAGAR**

Assistant Professor  
Department of Agronomy  
M.S. Swaminathan School of Agriculture  
Centurion University of Technology &  
Management

## CERTIFICATE - II

This is to certify that the thesis entitled “**Impact of organic seed treatment on green gram**” has been prepared and submitted by **Chinmayee Sahoo** with Registration No. **200705170071** in partial fulfillment of the requirements for the award of degree of Master of Science in Botany has been examined and approved by the Evaluation Committee after viva-voce.

Research Advisory Committee:

Guided by

**Mr. Lalichetti Sagar**

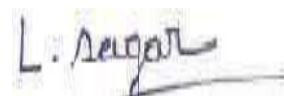
Asst. Prof

Department of Agronomy

M.S. Swaminathan School of  
Agriculture

Centurion University of

Technology and Management  
Paralakhemundi



Domain Co-coordinator

**Dr. Saurav Barman**

Associate Professor

Department of Soil Science

M.S. Swaminathan School of Agriculture



Centurion University of

Technology and Management  
Paralakhemundi

Date of final external evaluation \_\_\_\_\_

---

**Head**

School of Applied Science  
Centurion University of  
Technology and Management,  
Bhubaneswar

---

**Dean**

School of Applied Science  
Centurion University of  
Technology and Management,  
Bhubaneswar



**EVALUATION OF QUALITY PARAMETERS OF GERBERA  
CULTIVATED UNDER CONTROLLED CONDITIONS**

**A Thesis  
Submitted to  
Centurion University of Technology and Management**

*In partial fulfillment of the requirements for the award of the  
degree of*

**MASTER OF SCIENCE  
IN  
BOTANY  
BY**

**DEEPAK KUMAR NAYAK  
(Registration No.200705170097)**



**CENTURION  
UNIVERSITY**  
*Shaping Lives...  
Empowering Communities!*

**Department of Botany  
School of Applied Science  
Centurion University of technology and management,  
Ramachandrapur, Jatni-752050, Odisha, India**

**[www.cutm.ac.in](http://www.cutm.ac.in)**

**May, 2022**

## **DECLARATION**

I declare that the thesis entitled "**Evaluation of Quality Parameters of Gerbera Cultivated under Controlled Conditions**" is my own work, which I completed under the supervision of guide Mr. Lalichetti Sagar, Assistant professor, Department of Agronomy and Dr. Sagar Maitra, Professor and Head Department of Agronomy and Argo Forestry, M.S. Swaminathan School of Agriculture, Centurion University of Technology and Management, Paralakhemundi, Odisha.

I furthermore declare that this thesis does not contain any part of any work that has been submitted for the granting of any degree at the University or elsewhere without proper citation.

**Place:**

**Signature of the Candidate**

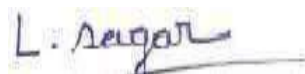
**Date:**

**Deepak kumar Nayak**

## **CERTIFICATE - I**

This is to certify that the thesis entitled “**Evaluation of Quality Parameters of Gerbera Cultivated under Controlled Conditions**” submitted to School of Applied Science is a piece of research work done by **Deepak kumar Nayak** with Registration No.**200705170097** under my guidance and supervision for the partial fulfillment of the degree of Master of Science in Botany.

To the best of my knowledge and belief the thesis1. Embodies the work of candidate himself.2. Has duly been completed.3. Fulfils the requirement of the ordinance relating to the Msc Botany in Post Graduate degree of the University.



Place: Bhubaneswar

Date: \_\_\_ May 2022

**MR. LALICHETTISAGAR**

Assistant Professor  
Department of Agronomy  
M.S. Swaminathan School of Agriculture  
Centurion University of Technology &  
Management

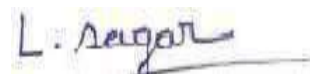
## CERTIFICATE - II

This is to certify that the thesis entitled “**Evaluation of Quality Parameters of Gerbera Cultivated under Controlled Conditions**” has been prepared and submitted by **Deepak kumar Nayak** with Registration No. **200705170097** in partial fulfillment of the requirements for the award of degree of Master of Science in Botany has been examined and approved by the Evaluation Committee after viva-voce.

Research Advisory Committee:

Guided by

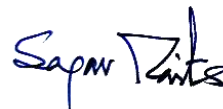
**Mr. Lalichetti Sagar**  
Asst. Prof  
Department of Agronomy  
M.S. Swaminathan School of  
Agriculture  
Centurion University of  
Technology and Management  
Paralakhemundi



---

Domain Co-ordinator

**Dr. Sagar Maitra**  
Prof. and Head  
Department of Agronomy  
M.S. Swaminathan School of  
Agriculture  
Centurion University of  
Technology and Management  
Paralakhemundi



---

Date of final external evaluation \_\_\_\_\_

---

**Head**

School of Applied Science  
Centurion University of  
Technology and Management,  
Bhubaneswar

---

**Dean**

School of Applied Science  
Centurion University of  
Technology and Management,  
Bhubaneswar

# **IMPACT OF ORGANIC SEED TREATMENT ON GREEN GRAM**

A Dissertation submitted in partial fulfillment of the requirements  
For the degree of

**MASTER OF SCIENCE  
IN  
BOTANY**

BY

**Mr.KANHEI NAIK**

**Registration No.: 200705170053**

*Under the supervision of*

**Dr.SAURAV BARMAN  
&  
Mr.LALICHETTI SAGAR**



**Centurion  
UNIVERSITY**

*Shaping Lives...*

*Empowering Communities...*

**DEPARTMENT OF BOTANY  
SCHOOL OF APPLIED SCIENCE  
CENTIRION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA,INDIA**

**MAY,2022**

# **IMPACT OF ORGANIC SEED TREATMENT ON GREEN GRAM**

A Thesis  
Submitted to  
**Centurion University of Technology and Management**

*In partial fulfillment of the requirements for the award of the degree of*

**MASTER OF SCIENCE  
IN  
BOTANY**

**BY**

**KANHEI NAIK  
(Registration No.200705170053)**



**CENTURION  
UNIVERSITY**  
*Shaping Lives...  
Empowering Communities!*

Department of Botany

School of Applied Science

Centurion University of technology and management, Ramachandrapur, Jatni-752050,  
Odisha, India

[www.cutm.ac.in](http://www.cutm.ac.in)

**May 2022**

## **DECLARATION**

I declare that the thesis entitled “**Impact of organic seed treatment on green gram**” is my own work, which I completed under the supervision of Dr.Saurav Barman, Associate professor, Department of Soil Science, Mr. Lalichetti Sagar, Assistant professor, Department of Agronomy and Dr. B. Praveen, Associate professor and Head, Department of Plant pathology, M.S. Swaminathan School of Agriculture, Centurion University of Technology and Management ,Paralakhemundi, Odisha.

I furthermore declare that this thesis does not contain any part of any work that has been submitted for the granting of any degree at the University or elsewhere without proper citation.

**Place:** Bhubaneswar

**Date:** : 2 May 2022

**Signature of the Candidate**

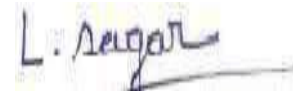
**Kanhei Naik**

## **CERTIFICATE - I**

This is to certify that the thesis entitled “**Impact of organic seed treatment on green gram**” submitted to School of Applied Science is a piece of research work done by **Kanhei Naik** with Registration No. **200705170053** under my guidance and supervision for the partial fulfilment of the degree of Master of Science in Botany.

To the best of my knowledge and belief the thesis

1. Embodies the work of candidate himself.
2. Has duly been completed.
3. Fulfils the requirement of the ordinance relating to the MSc Botany in Post Graduate degree of the University.



Place: Bhubaneswar

Date: 2 May 2022

**MR. LALICHETTI SAGAR**

Assistant Professor  
Department of Agronomy  
M.S. Swaminathan School of Agriculture  
Centurion University of Technology &  
Management



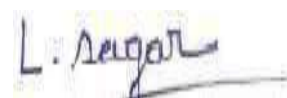
## **CERTIFICATE - II**

This is to certify that the thesis entitled “**Impact of organic seed treatment on green gram**” has been prepared and submitted by **Kanhei Naik** with Registration No. **200705170053** in partial fulfilment of the requirements for the award of degree of Master of Science in Botany has been examined and approved by the Evaluation Committee after viva-voce.

Research Advisory Committee:

Guided by

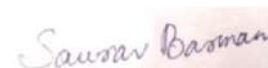
**Mr. Lalichetti Sagar**  
Asst. Prof  
Department of Agronomy  
M.S. Swaminathan School of  
Agriculture  
Centurion University of  
Technology and Management  
Paralakhemundi



---

Domain Co-ordinator

**Dr. Saurav Barman**  
Associate Professor  
Department of Soil Science  
M.S. Swaminathan School of  
Agriculture  
Centurion University of  
Technology and Management  
Paralakhemundi



---

Date of final external evaluation \_\_\_\_\_

---

**Head**

School of Applied  
ScienceCenturion University of  
Technology and Management,  
Bhubaneswar

---

**Dean**

School of Applied  
ScienceCenturion University of  
Technology and Management,  
Bhubaneswar

**EFFECT OF ORGANIC SEED PRIMING ON SOIL  
PARAMETERS OF BLACK GRAM**

A Thesis  
Submitted to  
**Centurion University of Technology and Management**

*In partial fulfillment of the requirements for the award of the degree of*

**MASTER OF SCIENCE  
IN  
BOTANY**

**BY**

**MANISHA DASH  
(Registration No.200705170046)**



**CENTURION  
UNIVERSITY**  
*Shaping Lives...  
Empowering Communities!*

Department of Botany

School of Applied Science

Centurion University of technology and management, Ramachandrapur, Jatni-752050,  
Odisha, India

[www.cutm.ac.in](http://www.cutm.ac.in)

**May, 2022**

## **DECLARATION**

I declare that the thesis entitled “**Effect of Organic Seed Priming on Soil Parameters of Black Gram**” is my own work, which I completed under the supervision of Dr. Saurav Barman, Associate professor, Department of Soil Science, Mr. Lalichetti Sagar, Assistant professor, Department of Agronomy and Dr. B. Praveen, Associate professor and Head, Department of Plant pathology, M.S. Swaminathan School of Agriculture, Centurion University of Technology and Management, Paralakhemundi, Odisha.

I furthermore declare that this thesis does not contain any part of any work that has been submitted for the granting of any degree at the University or elsewhere without proper citation.

**Place:**

**Signature of the Candidate**

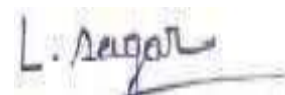
**Date:**

## **CERTIFICATE - I**

This is to certify that the thesis entitled “**Effect of Organic Seed Priming on Soil Parameters of Black Gram**” submitted to School of Applied Science is a piece of research work done by **Manisha Dash** with Registration No.**200705170046** under my guidance and supervision for the partial fulfilment of the degree of Master of Science in Botany.

To the best of my knowledge and belief the thesis

1. Embodies the work of candidate himself.
2. Has duly been completed.
3. Fulfils the requirement of the ordinance relating to the MSc Botany in Post Graduate degree of the University.



Place: Bhubaneswar

Date: \_\_\_ May 2021

**MR. LALICHETTI SAGAR**

Assistant Professor  
Department of Agronomy  
M.S. Swaminathan School of Agriculture  
Centurion University of Technology &  
Management

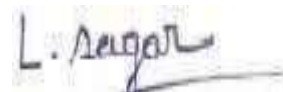
## CERTIFICATE - II

This is to certify that the thesis entitled “**Effect of Organic Seed Priming on Soil Parameters of Black Gram**” has been prepared and submitted by **Manisha Dash** with Registration No. **200705170046** in partial fulfilment of the requirements for the award of degree of Master of Science in Botany has been examined and approved by the Evaluation Committee after viva-voce.

Research Advisory Committee:

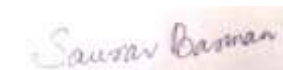
Guided by

**Mr. Lalichetti Sagar**  
Asst. Prof  
Department of Agronomy  
M.S. Swaminathan School of  
Agriculture  
Centurion University of  
Technology and Management  
Paralakhemundi



Domain Co-ordinator

**Dr. Saurav Barman**  
Associate Professor  
Department of Soil Science  
M.S. Swaminathan School of  
Agriculture  
Centurion University of  
Technology and Management  
Paralakhemundi



Date of final external evaluation \_\_\_\_\_

---

**Head**

School of Applied  
ScienceCenturion University of  
Technology and Management,  
Bhubaneswar

---

**Dean**

School of Applied  
ScienceCenturion University of  
Technology and Management,  
Bhubaneswar

# **NITROGEN USE EFFICIENCY OF PERMITTED MANURES IN ORGANIC FARMING OF FEW EXOTIC SPECIES OF LEAFY GREENS**

**A Dissertation submitted in partial fulfillment of the requirements  
For the degree of**

**MASTER OF SCIENCE  
IN  
BOTANY**

*By*

**MOHINI JENA  
Registration No.: 200705170094**

*Under the guidance of*  
**Dr. SAGARIKA PARIDA**



**Centurion**  
**UNIVERSITY**  
*Shaping Lives...  
Empowering Communities...*

**DEPARTMENT OF BOTANY  
SCHOOL OF APPLIED SCIENCES  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA, INDIA  
MAY 2022**

## **DECLARATION**

I do hereby declare that the work presented in this project is original and has been done by me under the supervision of **Dr. Sagarika Parida**, Associate Professor Department of Botany, School of Applied Sciences, Centurion University of Technology and Management, Odisha, India. I further declare that this work has not been submitted partly/ fully elsewhere for the award of any other degree in this university or any other institutions.



Date:

Place: CUTM, Odisha

**Mohini Jena**

Registration No. 200705170094

**Master of Science in Botany**

Session: 2020-2022



**Centurion**  
**UNIVERSITY**  
*Shaping Lives...  
Empowering Communities...*

School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA

### **CERTIFICATE**

This is to certify that the dissertation entitled “**Nitrogen use efficiency of permitted manures in organic farming of few exotic species of leafy greens**” is a bonafide work done by Mohini Jena of M.Sc. (Botany) bearing Registration No. 200705170094 in partial fulfillment for the award of the degree of **Master of Science in Botany**, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

**Supervisor**

**HOD**

**Dean**



## **CERTIFICATE**

This is to certify that the dissertation entitled “**Nitrogen use efficiency of permitted manures in organic farming of few exotic species of leafy greens**” is a bonafide work done by Mohini Jena of M.Sc. (Botany) bearing Registration No. 200705170094 for the award of the degree of **Master of Science in Botany** is carried out under my supervision. The results presented in this thesis have not been submitted partly / fully elsewhere for the award of any other degree in this university or any other institutions to the best of my knowledge. In my opinion, this work is fulfilling the requirements for the award of the degree mentioned in this certificate.



**Dr. Sagarika Parida**  
Associate Professor  
Department of Botany  
School of Applied Sciences  
CUTM, Odisha

# **IMPACT OF ORGANIC SEED TREATMENT ON GREEN GRAM**

A Thesis  
Submitted to

**Centurion University of Technology and Management**

*In the partial fulfillment of the requirements for the degree of*

**MASTER OF SCIENCE  
IN  
BOTANY**

By

**MONALISA PRADHAN  
Registration No.: 200705170072**



**CENTURION  
UNIVERSITY**  
*Shaping Lives...  
Empowering Communities!*

**Department of Botany**

**School of Applied Science**

**Centurion University of technology and management, Ramchandrapur, Jatni-752050,  
Odisha, India**

**MAY 2022**

## **DECLARATION**

I declare that the thesis entitled “**Impact of organic seed treatment on green gram**” is my own work, which I completed under the supervision of Dr. Saurav Barman, Associate professor, Department of Soil Science, Mr. Lalichetti Sagar, Assistant professor, Department of Agronomy and Dr. B. Praveen, Associate professor and Head, Department of Plant pathology, M.S. Swaminathan School of Agriculture, Centurion University of Technology and Management, Paralakhemundi, Odisha.

I furthermore declare that this thesis does not contain any part of any work that has been submitted for the granting of any degree at the University or elsewhere without proper citation.

Place: CUTM, Odisha

Date:

**MONALISA PRADHAN**

Registration no. 200705170072

M.Sc. in Botany

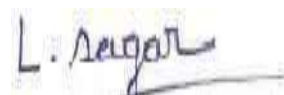
2020-2022

## **CERTIFICATE - I**

This is to certify that the thesis entitled “**Impact of organic seed treatment on green gram**” submitted to School of Applied Science is a piece of research work done by **Monalisa Pradhan** with Registration No.**200705170072** under my guidance and supervision for the partial fulfillment of the degree of Master of Science in Botany.

To the best of my knowledge and belief the thesis

1. Embodies the work of candidate himself.
2. Has duly been completed.
3. Fulfils the requirement of the ordinance relating to the MSc Botany in Post Graduate degree of the University.



Place: Bhubaneswar  
Date: \_\_\_ May 2022

**MR. LALICHETTI SAGAR**

Assistant Professor  
Department of Agronomy  
M.S. Swaminathan School of Agriculture  
Centurion University of Technology &  
Management

## CERTIFICATE - II

This is to certify that the thesis entitled “**Impact of organic seed treatment on green gram**” has been prepared and submitted by **Monalisa Pradhan** with Registration No. **200705170072** in partial fulfillment of the requirements for the award of degree of Master of Science in Botany has been examined and approved by the Evaluation Committee after viva-voce.

Research Advisory Committee:

Guided by

**Mr. Lalichetti Sagar**

Asst. Professor

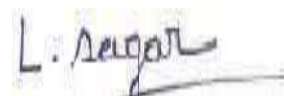
Department of Agronomy

M.S. Swaminathan School of  
Agriculture

Centurion University of

Technology and Management

Paralakhemundi



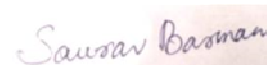
Domain Co-coordinator

**Dr. Saurav Barman**

Associate Professor

Department of Soil Science

M.S. Swaminathan School of Agriculture



Centurion University of

Technology and Management

Paralakhemundi

Date of final external evaluation \_\_\_\_\_

---

**Head**

School of Applied Science  
Centurion University of  
Technology and Management,  
Bhubaneswar

---

**Dean**

School of Applied Science  
Centurion University of  
Technology and Management,  
Bhubaneswar

**“FINDING SMALL MOLECULES TO TARGET ZIKA  
VIRUS NS3 HELICASE”**

A Thesis

Submitted to

**Centurion University of Technology and Management**

*In partial fulfilment of the requirements for the award of the degree of*

**MASTER OF SCIENCE (BOTANY)**

**IN**

**SCHOOL OF APPLIED SCIENCES**

**By**

**NIKITA DAS**

**(Registration No: - 200705170085)**



**Department of Botany**

**School of Applied Sciences**

**Centurion University of Technology and Management,**

**Bhubaneswar**

**Dist: khurdha– 752050, Odisha, India**

**[www.cutm.ac.in](http://www.cutm.ac.in)**

**May, 2022**

## **DECLARATION**

I, declare that the thesis entitled “**FINDING SMALL MOLECULES TO TARGET ZIKA VIRUS NS3 HELICASE**” is my own work conducted under the supervision of Mrs. Preetha Bhadra, Associate Professor, Department of Biotechnology and Dr. Bibhudutta Mishra, Asst. Professor, Department of Zoology, School of Applied Science, Centurion University of Technology and Management, Bhubaneswar, Odisha.

I, furthermore declare that this thesis does not contain any part of any work which has been submitted for the award of any degree either in the University or in any other University without proper citation.

**Place:** Bhubaneswar

**Date:**(            )

**Signature of the Candidate**

## CERTIFICATE - I

This is to certify that the thesis entitled “**FINDING SMALL MOLECULES TO TARGET ZIKA VIRUS NS3 HELICASE**” submitted to School of Applied Science is a piece of research work done by **NIKITA DAS** with **Registration No. 200705170085** under my guidance and supervision for the partial fulfilment of the degree of **Master of Science in Botany**.

To the best of my knowledge and belief the thesis

1. Embodies the work of candidate herself.
2. Has duly been completed.
3. Fulfils the requirement of the ordinance relating to the M. Sc. Botany in Post Graduate degree of the University.

Place: Bhubaneswar  
Date: \_\_\_\_\_ May  
2022



Mrs. Preetha Bhadra  
Associate Professor  
Department of Biotechnology  
Centurion University of Technology and  
Management, Odisha, India



## CERTIFICATE II

This is to certify that the thesis entitled “**FINDING SMALL MOLECULES TO TARGATE ZIKA VIRUS NS3 HELICASE**” has been prepared and submitted by **NIKITA DAS** with **Registration No. 200705170085** in partial fulfilment of the requirements for the award of degree of **Master of Science in Botany** has been examined and approved by the Evaluation Committee after viva voce.

Research Advisory Committee:

Member            Mrs. Preetha Bhadra  
Assistant Professor  
Department of Biotechnology  
M.S Swaminathan School of Agriculture  
Centurion University of Technology and Management  
Paralakhemundi

Member            Dr. Bibhudutta Mishra  
Assistant Professor  
Department of Zoology  
School of Applied Science  
Centurion University of Technology and Management  
Bhubaneswar

Member            Dr. Rukmini Mishra  
Head of Botany Department  
School of Applied Science  
Centurion University of Technology and Management  
Bhubaneswar

Date of final viva voce \_\_\_\_\_  
\_\_\_\_\_

Head  
Department of Botany  
Centurion University of Technology and  
Management

Dean  
School of Applied Science  
Centurion University of Technology and  
Management



**Centurion  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

## CERTIFICATE

This is to certify that the dissertation entitled “**A review on environmental impact of non-biodegradable material**”.

Is a bona fide work done by **Roja Rani Sahu** of M.Sc. (Chemistry) bearing Registration No. **200705100011** in partial fulfilment for the award of the degree of **Master of Science in Applied Chemistry**, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

*Atia Arzoo  
12/05/22*

Signature of supervisor  
Dr. Atia Arzoo

*Atia Arzoo  
12/05/22*

Signature of HOD

Dr. Atia Arzoo

H.O.D

Department of Chemistry  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
Bhubaneswar, Odisha

*Y. Nayak  
12/05/2022*

Signature of Dean

Dr. Yashaswi  
Nayak



**Centurion**  
**UNIVERSITY**  
*Shaping Lives...  
Empowering Communities...*

School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA

## **CERTIFICATE**

This is to certify that the dissertation entitled “**DESIGN, MANUFACTURING AND PROPERTIES OF FRP FISH BREEDING TANK**” is a bona fide work done by Akash Kumar Behera of M.Sc. (Chemistry) bearing Registration No.200705100046 in partial fulfilment for the award of the degree of **Master of Science in Chemistry**, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

Dajalisa Sahu

**Supervisor**

Akash Kumar Behera

**Name of the student**

# Graphene Oxide-MgO Nanocomposite For The Removal of Toxic Cr(VI) Ions

A Dissertation submitted in partial fulfilment of the requirement for the  
degree of

MASTER OF SCIENCE IN

APPLIED CHEMISTRY

By

ANUPAMA SAHOO

Registration NO: 200705100002

Under the supervision of

Dr. SHRABAN KUMAR SAHOO



**Centurion**  
**UNIVERSITY**

*Shaping Lives...*  
*Empowering Communities...*

DEPARTMENT OF CHEMISTRY  
SCHOOL OF APPLIED SCIENCES  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT,  
ODISHA-752050, 2020-22

## DECLARATION

I hereby declare that the work presented in this project is original and has been done by me under the supervision of **Dr. Shraban Kumar Sahoo** in the Department of Chemistry, School of Applied Sciences, Centurion University of Technology and Management, Odisha, India. I further declare that this work has not been submitted elsewhere for the award of any other degree in this university or any other institution.

Date: 05.05.2022

Place: CUTM, Odisha

*Anupama Sahoo*  
ANUPAMA SAHOO

Registration No:200705100002

M.Sc. In Applied Chemistry

Session: 2020-2022



**Centurion**  
**UNIVERSITY**

## CERTIFICATE

This is to certify that the dissertation entitled “**Graphene oxide-MgO nanocomposite for the removal of toxic Cr(VI) ions**” being submitted by Ms. Anupama Sahoo of M.Sc. chemistry, bearing Registration No.200705100002 for the award of the degree of **Master of Science in Applied Chemistry**, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

*SAS*  
05-05-22  
Supervisor

*Alex*  
HOD  
Aree  
07/07/22

*Y*  
Dean  
5/5/2022

H.O.D  
Department of Chemistry  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar, Odisha

DEAN  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar, Odisha

## ACKNOWLEDGEMENT

With deep regards and profound respect, I take this opportunity to express my deep sense of gratitude and indebtedness to Dr SHRABAN KUMAR SAHOO, School of Applied Sciences, Centurion University of Technology and Management, Bhubaneswar for introducing the topic and for inspiring guidance, constructive criticism and valuable suggestion throughout this research work. I am very much thankful to our HOD, Dr Atia Arzoo because it wouldn't have been possible for me to bring out this project report without her help and constant encouragement. I wish she will keep in touch with me in future and will continue to give her valuable advice.

I would also like to thank all the lab assistants and lab attendants who have helped us to complete this project successfully. Due to their guidance and help I was able to proceed the project towards completion.

It was a nice and memorable experience with all the things of my department. I wish to give them my heartfelt thanks for their constant help and support I would also like to thank my parents for constantly encouraging and supporting me to give my 100% and work hard till I achieve my goal above all, I thank God, the Almighty for giving me all these people to help and courage me, and also for providing skills and opportunity to complete this report.

Date: 05.05.2022

Place: CUTM, Odisha

Anupama Sahoo  
ANUPAMA SAHOO

Registration No: 200705100002

M.Sc. Applied Chemistry



**Centurion**  
**UNIVERSITY**  
*Shaping Lives...  
Empowering Communities...*

School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA

## **CERTIFICATE**

This is to certify that the dissertation entitled “**DESIGN, MANUFACTURING AND PROPERTIES OF FRP FISH BREEDING TANK**” is a bona fide work done by Anwesha Samal of M.Sc. (Applied Chemistry) bearing Registration No.200705100040 in partial fulfilment for the award of the degree of Master of Science in Applied Chemistry, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

*Prajna Paramita Debata.*

**Supervisor**

*Anwesha Samal*

**Name of the student**





**Centurion  
UNIVERSITY**  
*Creating Future  
Empowering Communities*

School of Applied Sciences

**CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT**

**ODISHA**

**I**

**CERTIFICATE**

This is to certify that the dissertation entitled "**Alteration in different chemical constituents present in banana juice due to addition of preservative (vinegar)**" is a bonafide work done by Arpita Patel of M.Sc. (Chemistry) bearing Registration No.200705100033 in partial fulfilment for the award of the degree of **Master of Science in Applied Chemistry**, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

Atia Arzu  
04/05/22  
Supervisor

Atia Arzu  
04/05/22  
HOD  
H.O.D

Department of Chemistry  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
Bhubaneswar, Odisha

Y. Arzu  
4/5/2022  
Dean  
DEAN  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGI  
Bhubaneswar, Odisha



**Centurion**  
**UNIVERSITY**  
*Shaping Lives...  
Empowering Communities...*

School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA

## **CERTIFICATE**

This is to certify that the dissertation entitled “**DESIGN, MANUFACTURING AND PROPERTIES OF FRP FISH BREEDING TANK**” is a bona fide work done by Ashesh kumar nandi of M.Sc. (Applied Chemistry) bearing Registration No.200705100044 in partial fulfilment for the award of the degree of Master of Science in Applied Chemistry, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

*Pragna Paramita Debata.*

**Supervisor**

*Ashesh Kumar Nandi*

**Name of the student**



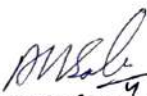
**Centurion  
UNIVERSITY**  
*Shiksha, Jeevan,  
Empowerment, Commitment*


School of Applied Sciences

CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA

## CERTIFICATE

This is to certify that the dissertation entitled “**Role of biofilm in waste water treatment.**” is a bona fide work done by Ch Tanmayee of M.Sc. (Chemistry) bearing Registration No. **200705100050** in partial fulfilment for the award of the degree of **Master of Science in Applied Chemistry**, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

  
Signature of supervisor  
Dr. Ashish Kumar Sahoo

  
Signature of HOD  
Dr. Atia Arzoo  
H.O.D  
Department of Chemistry  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar, Odisha

  
Signature of Dean  
Dr. Yashaswi Nayak  
DEAN  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar, Odisha

# DECLARATION

I hereby declare that the work presented in this project is original and has been done by me under the supervision of **Dr Ashish Kumar Sahoo**, in the Department of Chemistry, School of Applied Sciences, Centurion University of Technology and Management, Bhubaneswar, Odisha, India. I further declare that this work has not been submitted elsewhere for the award of any other degree.

Date: 04/05/22

Place: CUTM, Odisha

*Ch. Tanmayee*

**Ch Tanmayee**

Registration No: **200705100050**

M.Sc. Applied Chemistry

Session: 2020-2022

## ACKNOWLEDGEMENT

With deep regards and profound respect, I take this opportunity to express my deep sense of gratitude and indebtedness to **Dr. Ashish Kumar Sahoo**, School of Applied Sciences, Centurion University of Technology and Management, Bhubaneswar for introducing the research topic and for inspiring guidance, constructive criticism and valuable suggestion throughout this research work. I am very much thankful to our HOD, Dr. Atia Arzoo because it wouldn't have been possible for me to bring out this project report without her help and constant encouragement. I wish she will keep in touch with me in future and will continue to give her valuable advice.

I would also like to thank all lab assistants and lab attendants who have helped me to complete this project successfully. Due to their guidance and help I was able to proceed the project towards completion.

It was a nice and memorable experience with all things of my department. I wish to give them my heartfelt thanks for their constant help and support. I would also like to thank my parents for constant encouragement and support to achieve my goal. Above all, I thank God, the Almighty for giving me all these people to help and encourage me, and also for providing skills and opportunity to complete this report.

Date: 04/05/22

Place: CUTM, Odisha

*Ch. Tanmayee*

**Ch Tanmayee**

Registration No: **200705100050**

M.Sc. Applied Chemistry

**“Graphene as an advanced material for solar cell  
application”**

**Dissertation submitted in partial fulfilment of the requirement  
For the degree of**

**MASTER OF SCIENCE  
IN  
APPLIED CHEMISTRY**

**By**

**Chittaranjan Sahoo**

**Registration No.: 200705100024**

**Under the supervision of**

**Dr. Shraban Kumar Sahoo**



**Centurion  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

**DEPARTMENT OF CHEMISTRY  
SCHOOL OF APPLIED SCIENCES  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT,  
ODISHA-752050  
2020**

I  
**CERTIFICATE**

This is to certify that the dissertation entitled "**Graphene as an advanced material for solar cell application**" being submitted by **Mr Chittaranjan Sahoo**, for the award of the degree of **Master of Science in Applied Chemistry** is carried out by him under my supervision in the Department of Chemistry, School of Applied Sciences, Centurion University of Technology and Management, Odisha. The results presented in this thesis have not been submitted elsewhere for the award of any other degree to the best of my knowledge. In my opinion, this work is fulfilling the requirements for the award of the degree mentioned.

*S.K. Sahoo*  
17-05-22  
Supervisor

*Alia Arzoo*  
17/05/22  
HOD  
Department of Chemistry  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar, Odisha

*Y. J. Jha*  
17-05-2022  
Dean  
DEAN  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar, Odisha

## II

### DECLARATION

I hereby declare that the work presented in this project is original and has been done by me under the supervision of Dr. **Shraban Kumar Sahoo** in the Department of Chemistry, School of Applied Sciences, Centurion University of Technology and Management, Odisha, India. I further declare that this work has not been submitted elsewhere for the award of any other degree.

Date:

Place: CUTM, Odisha

*Chittaranjan Sahoo*  
**Chittaranjan Sahoo**

Registration No: 200705100024  
M.Sc. Applied Chemistry  
Session: 2020-2022



### III

## ACKNOWLEDGEMENT

First and foremost, praises and thanks to the God, the Almighty, for His showers of blessings throughout my research work to complete the research successfully.

I would like to express my deep and sincere gratitude to my research supervisor, Dr. Shraavan kumar sahu, Associate Professor of the department of Chemistry, Centurion University of Technology and Management BBSR, for encouraging and guiding me in project and for giving valuable suggestions. I am also thankful to her for giving me the opportunity to do this wonderful project on "**Graphene as an advanced material for solar cell application**".

I also show a deep sense of gratitude towards Dr. Atia Arzoo head of the department of chemistry as well as Dr. Dipankar Bhattacharya dean school of applied sciences & Dr. Sushant Kumar Biswal senior professor department of chemistry who gave the golden opportunity to do this wonderful project.

I would also like to thank all the teaching staffs Dr. Ashish kumar Sahoo, Dr. Arun Kumar Pradhan, Dr. Shraavan Kumar Sahoo, Mr. Chittaranjan Routray & Dr. Suchismita Acharya, Dr. Pratap Kumar Chotray and Dr. Srikant Sahu department of chemistry helped me in successfully completing my project work.

and also to Laxmikanta sir Geetanjali mam for helping me with the setup for the project and gave valuable practical insight.

I specially acknowledge paramedics department of CUTM, BBSR, for sharing their laboratory to accomplish my project work.

Without thanking my parents for their unwavering support this acknowledgement would be incomplete.

Truly this project would not have come so far without you people. I'm indebted to you all.

*Chittaranjan Sahoo*

**Chittaranjan Sahoo**

Registration No: 200705100024  
M.Sc. Applied Chemistry

Date:

Place: CUTM, Odisha

**Elemental content present in banana wine and it's impact on human health**

**A dissertation submitted in partial fulfilment of the requirements**

**for the degree of**

**MASTER OF SCIENCE**

**IN**

**APPLIED CHEMISTRY**

**By**

**Diptee Manjari Mallick**

**Registration No.: 200705100028**

**Under the supervision of**

**Dr Atia Arzoo**



**Centurion**  
**UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

**DEPARTMENT OF CHEMISTRY**

**SCHOOL OF APPLIED SCIENCES**

**CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT**

**ODISHA, INDIA**

**2020-2022**



**Centurion  
UNIVERSITY**  
*Shaping Lives...  
Empowering Communities...*

School of Applied Sciences

**CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT**

**ODISHA**

**I**

**CERTIFICATE**

This is to certify that the dissertation entitled “**Elemental content present in banana wine and its impact on human health**” is a bona fide work done by Diptee Manjari Mallick of M.Sc. (Chemistry) bearing Registration No.200705100028 in partial fulfilment for the award of the degree of **Master of Science in Applied Chemistry**, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

*Alia Arzoo  
05/05/22*

**Supervisor**

*Alia Arzoo  
05/05/22*

**HOD**

**H.O.D**

**Department of Chemistry  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
Bhubaneswar, Odisha**

*Yash  
5/5/2022*

**Dean  
DEAN**

**School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGE  
Bhubaneswar, Odisha**

## II

### DECLARATION

I do hereby declare that the work presented in this project is original and has been done by me under the supervision of Dr Atia Arzoo in the department of chemistry, School of Applied Sciences, Centurion University of Technology, and Management, Odisha, India. I further declare that this work has not been submitted partly / fully elsewhere for the award of any other degree in this university or any other institution.

Date: 5.5.22

Place: CUTM, Odisha

Diptee Manjari Mallick  
Diptee Manjari Mallick

Registration No. 200705100028

M.Sc.in Applied Chemistry

Session: 2020-2022

### III

## ACKNOWLEDGEMENT

With deep regards and profound respect, I take this opportunity to express my deep sense of gratitude and indebtedness to Dr Atia Arzoo, Associate Professor, Centurion University of Technology and Management, Bhubaneswar for introducing the topic and for inspiring guidance, constructive criticism and valuable suggestion throughout this research work. I am very much thankful to our HOD, Dr. Atia Arzoo because it wouldn't have been possible for me to bring out this project report without her help and constant encouragement. I wish she will keep in touch with me in the future and will continue to give her valuable advice.

I would also like to thank all the lab assistants and lab attendants who have helped us to complete this project successfully. Due to their guidance and help, I was able to precede the project towards completion.

It was a nice and memorable experience with all the things in my department. I wish to give them my heartfelt thanks for their constant help and support I would also like to thank my parents for their constant encouragement and support to achieve my goal. Above all, I thank God the Almighty for giving me all these people to help and courage me, and also for providing skills and opportunity to complete this report

Date: 6.5.22

Place: CUTM, Odisha

Diptee Manjari Mallick.  
Diptee Manjari Mallick

Registration No: 200705100028

M Sc. In Applied Chemistry



**Centurion**  
**UNIVERSITY**  
*Shaping Lives...  
Empowering Communities...*

School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA

## **CERTIFICATE**

This is to certify that the dissertation entitled “**DESIGN, MANUFACTURING AND PROPERTIES OF FRP FISH BREEDING TANK**” is a bona fide work done by Dipti Mayee Sahoo of M.Sc. (Applied Chemistry) bearing Registration No.200705100038 in partial fulfilment for the award of the degree of Master of Science in Applied Chemistry, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

*Prajna Paramita Debata.*

**Supervisor**

*Dipti Mayee Sahoo.*

**Name of the student**

**BIOFILM PREPARATION FROM CORN STARCH USING BEETROOT  
AS COLOURING AGENT**

**A Dissertation submitted in partial fulfilment of the requirements**

**for the degree of**

**MASTER OF SCIENCE**

**IN**

**APPLIED CHEMISTRY**

**By**

**Jayanti Rani Gouda**

**Registration No.: 200705100056**

Under the supervision of

**Dr Ashish Kumar Sahoo**



**Centurion  
UNIVERSITY**  
*Shaping Lives,  
Empowering Communities...*

**DEPARTMENT OF CHEMISTRY**

**SCHOOL OF APPLIED SCIENCES**

**CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT**

**ODISHA, INDIA**

**2020-2022**



**Centurion  
UNIVERSITY**  
*Shaping Lives,  
Empowering Communities...*

**School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA**

## **CERTIFICATE**

This is to certify that the dissertation entitled “**BIOFILM PREPARATION FROM CORN STARCH USING BEETROOT AS COLOURING AGENT**” is a bona fide work done by Jayanti Rani Gouda of M.Sc. (Chemistry) bearing Registration No.200705100046 in partial fulfilment for the award of the degree of **Master of Science in Applied Chemistry**, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

  
25/4/2022  
Supervisor

  
30/04/22

**HOD  
H.O.D**

**Department of Chemistry  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
Bhubaneswar, Odisha**



**Dean**

**DEAN  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEM  
Bhubaneswar, Odisha**



# I

## DECLARATION

I do hereby declare that the work presented in this project is original and has been done by me under the supervision of Dr Ashish Sahoo in the department of chemistry, School of Applied Sciences, Centurion University of Technology, and Management, Odisha, India. I further declare that this work has not been submitted partly / fully elsewhere for the award of any other degree in this university or any other institution.

Date:

Place: CUTM, Odisha

Jayanti Rani Gouda

Registration No. 200705100056

M.Sc.in Applied Chemistry

Session: 2020-2022

## II

### ACKNOWLEDGEMENT

With deep regards and profound respect, I take this opportunity to express my deep sense of gratitude and indebtedness to Dr Ashish Kumar Sahoo, Assistant Professor, Centurion University of Technology and Management, Bhubaneswar for introducing the topic and for inspiring guidance, constructive criticism and valuable suggestion throughout this research work. I am very much thankful to our HOD, Dr. Alia Arzoo because it wouldn't have been possible for me to bring out this project report without her help and constant encouragement. I wish she will keep in touch with me in the future and will continue to give her valuable advice.

I would also like to thank all the lab assistants and lab attendants who have helped us to complete this project successfully. Due to their guidance and help, I was able to precede the project towards completion.

It was a nice and memorable experience with all the things in my department. I wish to give them my heartfelt thanks for their constant help and support I would also like to thank my parents for their constant encouragement and support to achieve my goal. Above all, I thank God the Almighty for giving me all these people to help and courage me, and also for providing skills and opportunity to complete this report

Date:

Jayanti Rani Gouda

Place: CUTM, Odisha

Registration No: 200705100056

M Sc. In Applied Chemistry



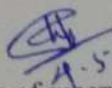
**Centurion**  
**UNIVERSITY**  
*Shaping Lives...  
Empowering Communities...*

School of Applied Sciences

CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA

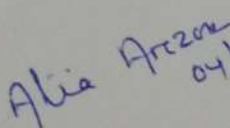
**CERTIFICATE**

This is to certify that the dissertation entitled “**Supercritical Fluids As An Alternate Green Media And Their Important Applications**” is a bona fide work done by Kirtida Karana of M.Sc. (Chemistry) bearing Registration No.200705100048 in partial fulfilment for the award of the degree of **Master of Science in Applied Chemistry**, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

  
11.5.22

Signature of supervisor

Dr. Pratap Kumar Chhotray

  
04/05/22

Signature of HOD

Dr. Atia Arzoo

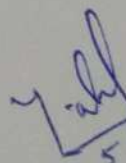
H.O.D

Department of Chemistry

School of Applied Sciences

CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT

Bhubaneswar, Odisha

  
5/5/2022

Signature of Dean

Dr. Yashaswi Nayak

DEAN

School of Applied Sciences

CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT

Bhubaneswar, Odisha

*Synthesis of Alumina/Iron Oxide Mixed Nanocomposite using  
Combustion method*

**A Dissertation**

**Submitted in partial fulfilment for the degree of**

**MASTER OF SCIENCE IN CHEMISTRY**

**Under Academic Autonomy**

**CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT**

**ODISHA**

**By**

**LOPAMUDRA PANDA**

**Registration No.: 200705100012**

**Under the supervision of**

**Dr. Shraban Kumar Sahoo**



**Centurion  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities.*

**DEPARTMENT OF CHEMISTRY**

**SCHOOL OF APPLIED SCIENCES**

**CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT**

ODISHA, INDIA

APRIL-2022



Centurion  
UNIVERSITY

## GUIDE CERTIFICATE

**Dr. Shraban Kumar Sahoo**

Assistant Professor of Chemistry Department

Centurion University Of Technology And Management

Bhubaneswar-752050

Odisha

This is to certify that the dissertation entitled "**Synthesis of Alumina/Iron Oxide Mixed Nanocomposite using Combustion method**" by **Lopamudra Panda (Registration No-200705100012)** to the department of chemistry, Centurion University of Technology And Management, Bhubaneswar for the degree of Master of Science in Applied Chemistry is based on the result obtained in the bonafide project work carried out by her under my Guidance and supervision.

I further certify that to the best of my knowledge **Lopamudra Panda** bears a good moral character.

Date

*SK Sahoo*  
*09-05-22*  
**Dr. Shraban Kumar Sahoo**

**C.U.T.M, Bhubaneswar**



Centurion  
UNIVERSITY

School of Applied Sciences

CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT,

BHUBANESWAR, ODISHA

I

**CERTIFICATE**

This is to certify that the dissertation entitled "**Synthesis of Alumina/Iron Oxide Mixed Nanocomposite using Combustion method**" is a Bonafede work done by Lopamudra Panda of M.Sc. (Applied Chemistry) bearing Registration No-200705100012 in partial fulfilment for the award of the degree of Master of Science in Applied Chemistry, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned

*S. K. Saha*  
07-05-22  
Supervisor

*Alia Arora*  
07/05/22  
HOD  
H.O.D

*T. J. J.*  
7/5/22  
Dean/Coordinator  
DEAN  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar, Odisha

Department of Chemistry  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
Bhubaneswar, Odisha

## II

### DECLARATION

I LopamudraPanda hereby declare that this project report entitled "Synthesis of Alumina/Iron Oxide Mixed Nanocomposite using Combustion method" is the original work carried out by us under supervision of Dr. Shraban Kumar Sahoo, Department of chemistry, Centurion University Of Technology And Management (CUTM), Odisha and the present work or any other part thereof has not been presented to any other University or Institution for the award of any other degree regarding to our belief.

**Date:**

Place: CUTM, Odisha

Lopamudra Panda

**Lopamudra Panda**

Registration No-200705100012

M.Sc.in Applied Chemistry

Session: 2020-22

### III

## ACKNOWLEDGEMENT

The respect and gratitude for my guide **Dr. Shraban Kumar Sahoo**, Assistant Professor, Department of Chemistry, Centurion University Of Technology And Management Bhubaneswar, cannot be expressed in words. I am grateful to him for devoting time for thought provoking and stimulating discussions in spite of his busy schedule.

I thank him for his patience, guidance and regular monitoring of the work and inputs without which this work could have never come to fruition. Indeed, the experience of working under him is one of that I will cherish forever.

I am grateful to Assistant Prof. Aatia Arzoo Head of the Department, Centurion University of Technology And Management, Bhubaneswar for providing me the opportunity and laboratory facilities for the completion of my work.

I would like to thank Mama Madhusmita Mahakul, Swapnamayee Muduli and all my friends. They were with me in my difficulty that I faced, and their constant efforts and encouragement was a tremendous source of inspiration. Their inputs to this work have been crucial.

Lopamudra Panda

**Lopamudra Panda**

Registration No.: 200705100012

M.Sc. in Chemistry

Session: 2020-2022





**Centurion**  
**UNIVERSITY**  
*Shaping Lives...  
Empowering Communities...*

School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA

## **CERTIFICATE**

This is to certify that the dissertation entitled “**DESIGN, MANUFACTURING AND PROPERTIES OF FRP FISH BREEDING TANK**” is a bona fide work done by Mukesh Moharana of M.Sc. (Chemistry) bearing Registration No.200705100060 in partial fulfilment for the award of the degree of **Master of Science in Chemistry**, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

**Supervisor**

**Name of the student**

# **Milk adulteration and detection**

A Dissertation submitted in partial fulfilment of the requirement for  
the degree of

**MASTER OF SCIENCE  
IN**

**APPLIED CHEMISTRY  
By**

**NIKITA MOHANTY**

**Registration NO: 200705100023**

Under the supervision of

**Dr. ATIA ARZOO**



**Centurion  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

**DEPARTMENT OF CHEMISTRY  
SCHOOL OF APPLIED SCIENCES  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT,  
ODISHA-752050 2020-22**

## DECLARATION

I hereby declare that the work presented in this project is original and has been done by me under the supervision of Dr. Atia Arzoo in the Department of Chemistry, School of Applied Sciences, Centurion University of Technology and Management, Odisha, India. I further declare that this work has not been submitted elsewhere for the award of any other degree in this university or any other institution.

Date: 05.05.22

Place: CUTM, Odisha

*Nikita Mohanty*  
NIKITA MOHANTY

Registration No:200705100023  
M.Sc. In Applied Chemistry  
Session: 2020-2022



**Centurion**  
**UNIVERSITY**

**CERTIFICATE**

This is to certify that the dissertation entitled “Milk adulteration and detection” being submitted by Ms. Nikita Mohanty of M.Sc. chemistry, bearing Registration No.200705100023 for the award of the degree of **Master of Science in Applied Chemistry**, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

*Alia Arora*  
*05/05/22*  
Supervisor

**HOD**  
H.O.D  
Department of Chemistry  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar, Odisha

*Alia Arora*  
*05/05/22*  
Dean

**DEAN**  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar, Odisha

## ACKNOWLEDGEMENT

With deep regards and profound respect, I take this opportunity to express my deep sense of gratitude and indebtedness to Dr Atia Arzoo, HOD of chemistry department, School of Applied Sciences, Centurion University of Technology and Management, Bhubaneswar for introducing the topic and for inspiring guidance, constructive criticism and valuable suggestion throughout this research work. I am very much thankful to our HOD, Dr Atia Arzoo because it wouldn't have been possible for me to bring out this project report without her help and constant encouragement. I wish she will keep in touch with me in future and will continue to give her valuable advice.

I would also like to thank all the lab assistants and lab attendants who have helped us to complete this project successfully. Due to their guidance and help I was able to proceed the project towards completion.

It was a nice and memorable experience with all the things of my department. I wish to give them my heartfelt thanks for their constant help and support I would also like to thank my parents for constantly encouraging and supporting me to give my 100% and work hard till I achieve my goal above all, I thank God, the Almighty for giving me all these people to help and courage me, and also for providing skills and opportunity to complete this report.

Date: 05.05.20

Place: CUTM, Odisha

*Nikita Mohanty*

NIKITA MOHANTY

Registration No: 200705100023

M.Sc. Applied Chemistry



**School of Applied Sciences**  
**CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT**  
**ODISHA**  
**CERTIFICATE**

This is to certify that the dissertation entitled “*Design and Fabrication of Products from Glass Fiber/SiC Reinforced Polymer Composite*” is a bonafide work done by **Prakash Chandra Panda** of M.Sc. (Chemistry) bearing **Registration No. 200705100051** in partial fulfillment for the award of the degree of **Master of Science in Applied Chemistry**, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

*Dejalisa Sahu*

**Supervisor**

*Solvothermal synthesis of MgO-Fe<sub>2</sub>O<sub>3</sub> nanocomposite for the removal of Congo red dye from water*

**A Dissertation**

**Submitted in partial fulfilment for the degree of**

**MASTER OF SCIENCE IN CHEMISTRY**

**Under Academic Autonomy**

**CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT**

**ODISHA**

**By**

**PRIYANKA PATEL**

**Registration No.: 200705100049**

**Under the supervision of**

**Dr. Shraban Kumar Sahoo**



**Centurion**  
**UNIVERSITY**

**DEPARTMENT OF CHEMISTRY**

**SCHOOL OF APPLIED SCIENCES**

**CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT**

ODISHA, INDIA

APRIL-2022



Centurion  
UNIVERSITY

**GUIDE CERTIFICATE**

**Dr. Shraban Kumar Sahoo**

Assistant Professor of Chemistry Department

Centurion University Of Technology And Management

Bhubaneswar-752050

Odisha

This is to certify that the dissertation entitled "**Solvothermal synthesis of MgO-Fe<sub>2</sub>O<sub>3</sub> nanocomposite for the removal of Congo red dye from water**" by **Priyanka Patel (Registration No-200705100049)** to the department of chemistry, Centurion University of Technology And Management, Bhubaneswar for the degree of Master of Science in Applied Chemistry is based on the result obtained in the bonafide project work carried out by her under my Guidance and supervision. I further certify that to the best of my knowledge **Priyanka Patel** bears a good moral character.

*SV Sahoo*  
27-05-22

**Dr. Shraban Kumar Sahoo**

**C.U.T.M, Bhubaneswar**

**Date:**





**Centurion  
UNIVERSITY**

School of Applied Sciences

**CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT,  
BHUBANESWAR, ODISHA**

**I**

**CERTIFICATE**

This is to certify that the dissertation entitled "**Solvothermal synthesis of MgO-Fe<sub>2</sub>O<sub>3</sub> nanocomposite for the removal of Congo red dye from water**" is a Bonafede work done by Priyanka Patel of M.Sc. (Applied Chemistry) bearing Registration No-200705100049 in partial fulfilment for the award of the degree of Master of Science in Applied Chemistry, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned

*Sivadas*  
09-05-22  
**Supervisor**

*Atia* *Ar200*  
09/05/22  
**HOD**

*[Signature]*  
09/05/22  
**Dean/Coordinator**

**H.O.D**  
Department of Chemistry  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar, Odisha

**DEAN**  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar, Odisha

## II

### DECLARATION

I **Priyanka Patel** hereby declare that this project report entitled “**Solvothermal synthesis of MgO-Fe<sub>2</sub>O<sub>3</sub> nanocomposite for the removal of Congo red dye from water**” is the original work carried out by us under supervision of Dr. Shraban Kumar Sahoo, Department of chemistry, Centurion University Of Technology And Management (CUTM), Odisha and the present work or any other part thereof has not been presented to any other University or Institution for the award of any other degree regarding to our belief.

**Date:**

Place: CUTM, Odisha

*Priyanka Patel*  
**Priyanka Patel**

Registration No-200705100049

M.Sc.in Applied Chemistry

Session: 2020-22

### III

## ACKNOWLEDGEMENT

The respect and gratitude for my guide **Dr. Shraban Kumar Sahoo**, Assistant Professor, Department of Chemistry, Centurion University Of Technology And Management Bhubaneswar, cannot be expressed in words. I am grateful to him for devoting time for thought provoking and stimulating discussions in spite of his busy schedule.

I thank him for his patience, guidance and regular monitoring of the work and inputs without which this work could have never come to fruition. Indeed, the experience of working under him is one of that I will cherish forever.

I am grateful to Assistant Prof. Aatia Arzoo Head of the Department, Centurion University of Technology And Management, Bhubaneswar for providing me the opportunity and laboratory facilities for the completion of my work.

I would like to thank Laxmipriya Mohapatra, Swapnamayee Muduli and all my friends. They were with me in my difficulty that I faced, and their constant efforts and encouragement was a tremendous source of inspiration. Their inputs to this work have been crucial.

*Priyanka Patel*  
**Priyanka Patel**

Registration No.: 200705100049

M.Sc.in Chemistry

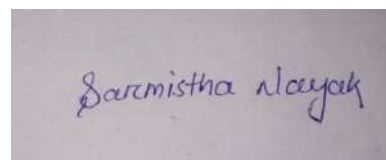
Session: 2020-2022

# CERTIFICATE

This is to certify that the dissertation entitled “**Design and Fabrication of Composite** ” being submitted by Sarmistha Nayak M.Sc.(Chemistry) bearing Registration No.200705100054 for the award of the degree of Master of Science in Chemistry is carried out under my supervision. The results presented in this thesis have not been submitted partly / fully elsewhere for the award of any other degree in this university or any other institutions to the best of my knowledge. In my opinion, this work is fulfilling the requirements for the award of the degree mentioned in this certificate.

A rectangular box containing a handwritten signature in blue ink that reads "Dejalisa Sahu".

Supervisor

A rectangular box containing a handwritten signature in blue ink that reads "Sarmistha Nayak".

Name of the student

# Synthesis of Iron Oxide Mixed Nanocomposite using Combustion method

A Dissertation submitted in partial fulfilment of the requirement for  
the degree of

MASTER OF SCIENCE IN

APPLIED CHEMISTRY

By

SASWAT DASH

Registration NO: 200705100053

Under the supervision of

Dr. ATIA ARZOO



**Centurion**  
**UNIVERSITY**

*Shaping Lives...*  
*Empowering Communities...*

DEPARTMENT OF CHEMISTRY  
SCHOOL OF APPLIED SCIENCES  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT, ODISHA-  
752050, 2020-22

## DECLARATION

I hereby declare that the work presented in this project is original and has been done by me under the supervision of Dr. Atia Arzoo in the Department of Chemistry, School of Applied Sciences, Centurion University of Technology and Management, Odisha, India. I further declare that this work has not been submitted elsewhere for the award of any other degree in this university or any other institution.

Date: 05/05/2022

Place: CUTM, Odisha

*Saswat Dash*  
SASWAT DASH

Registration No:200705100053

M.Sc. In Applied Chemistry

Session: 2020-2022



**Centurion**  
**UNIVERSITY**

## CERTIFICATE

This is to certify that the dissertation entitled "Synthesis of Iron Oxide Mixed Nanocomposite using Combustion method" being submitted by Mr. Saswat Dash of M.Sc. chemistry, bearing Registration No.200705100053 for the award of the degree of **Master of Science in Applied Chemistry**, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

*Alia Arora*  
05/05/22

Supervisor

*Alia Arora*  
05/05/22

HOD

Dean

*Yishuf*  
6/5/22

H.O.D  
Department of Chemistry  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar, Odisha

DEAN  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar, Odisha

## ACKNOWLEDGEMENT

With deep regards and profound respect, I take this opportunity to express my deep sense of gratitude and indebtedness to Dr Atia Arzoo, HOD of chemistry department, School of Applied Sciences, Centurion University of Technology and Management, Bhubaneswar for introducing the topic and for inspiring guidance, constructive criticism and valuable suggestion throughout this research work. I am very much thankful to our HOD, Dr Atia Arzoo because it wouldn't have been possible for me to bring out this project report without her help and constant encouragement. I wish she will keep in touch with me in future and will continue to give her valuable advice.

I would also like to thank all the lab assistants and lab attendants who have helped us to complete this project successfully. Due to their guidance and help I was able to proceed the project towards completion.

It was a nice and memorable experience with all the things of my department. I wish to give them my heartfelt thanks for their constant help and support I would also like to thank my parents for constantly encouraging and supporting me to give my 100% and work hard till I achieve my goal above all, I thank God, the Almighty for giving me all these people to help and courage me, and also for providing skills and opportunity to complete this report.

Date: 05/05/2022

Place: CUTM, Odisha

Sarwat Dash  
SASWAT DASH

Registration No: 200705100053

M.Sc. Applied Chemistry





**Centurion  
UNIVERSITY**

Quality Education  
Empowering Communities

School of Applied Sciences

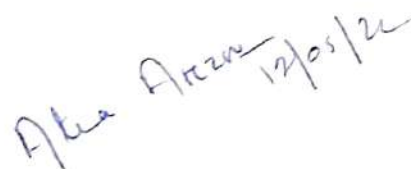
**CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA**

## **CERTIFICATE**

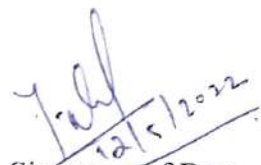
This is to certify that the dissertation entitled “**Effective nutritional value of edible biofilm than synthetic food wrapper**” is a bona fide work done by Saswati Nayak of M.Sc. (Chemistry) bearing Registration No.200705100058 in partial fulfilment for the award of the degree of **Master of Science in Applied Chemistry**, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

  
Signature of supervisor

Dr. Ashish Kumar Sahoo

  
Signature of HOD

Dr. Atia Arzoo

  
Signature of Dean

Dr. Yashaswi Nayak

H.O.D  
Department of Chemistry  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
Bhubaneswar, Odisha

# **Design and Development of Low-Cost Solar Powered Mobile charging Station**

**A Dissertation submitted in partial fulfillment of the requirements  
For the degree of**

**BACHELOR OF SCIENCE  
IN  
APPLIED PHYSICS**

*By*

**ROHAN KUMAR SAHU (190604120006)  
ASHA RANI PADHEE (190604120010)  
BRUNDABATI MEHER (190604120007)  
RAMESHWARI BEHERA (190604120016)  
PADMALOCHAN SAHU (190604120011)  
AISHWARYA PANI (190604120002)**

*Under the supervision of*

**Prof Smruti Ranjan Nayak**



**Centurion  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

**DEPARTMENT OF PHYSICS  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA, INDIA  
BALANGIR**

## DECLARATION

We do hereby declare that the work presented in this project is a work which is original and has been done by Rohan Kumar Sahu (19060412000), Brundabati Meher (190604120007), Asha Rani Padhee (190604120010), Rameswari Behera (190604120016), Padmalochan Sahu (190604120011), Aishwarya Pani (190604120002) under the supervision of Prof. Smruti Ranjan Nayak and Mrs. Meena Kumari Sahu Centre for Renewable Energy and Environment, Centurion University of Technology and Management, Odisha.

ROHAN KUMAR SAHU (190604120006)  
ASHA RANI PADHEE (190604120010)  
BRUNDABATI MEHER (190604120007)  
RAMESHWARI BEHERA (190604120016)  
PADMALOCHAN SAHU (190604120011)  
AISHWARYA PANI (190604120002)

Date: 24 March, 2022

Place: CUTM, Balangir, Odisha

B.sc in Applied Physics  
Session: 2019-2021

Rohan Kumar Sahu  
Asha Rani Padhee  
Brundabati Meher  
Rameswari Behera  
Padmalochan Sahu  
Aishwarya Pani.

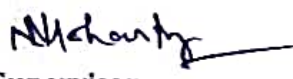


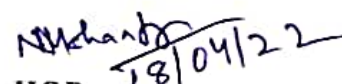
**Centurion**  
**UNIVERSITY**  
*Shaping Lives...  
Empowering Communities...*

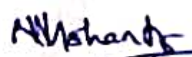
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA

**CERTIFICATE**

I hereby certify that the dissertation entitled "A Low-Cost Solar Powered Mobile charging Station" is a bonafide work done by Rohan Kumar Sahu (19060412000), Brundabati Meher (190604120007), Asha Rani Padhee (190604120010), Rameswari Behera (190604120016), Padmalochan Sahu (190604120011), Aiswarya Pani (190604120002) of BSc. (Applied Physics) in partial fulfillment for the award of the degree of Bachelor of Science in Applied Physics, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

For   
Supervisor  
Prof. S. R. Nayak

  
HOD 18/04/22

  
Dean  
for 18/04/22

# **DESIGN AND IMPLEMENTATION OF SOLAR-POWERED STREET LIGHT**

**A Dissertation submitted in partial fulfillment of the requirements  
For the degree of**

**BACHELOR OF SCIENCE  
IN  
APPLIED PHYSICS**

*By*

*Rameswari Satpathy(190604120008)  
Kasturee Dash (190604120015)  
Saraswati Pradhan(190604120005)  
Sambit Kumar Mishra(190604120013)  
Balkrushna Behera(190604120003)  
Kanha Charan Kalsai(190604120004)*

*Under the supervision of*

**SMRUTI RANJAN NAYAK**

**MEENA KUMARI SAHU**



**Centurion  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

**DEPARTMENT OF PHYSICS  
SCHOOL OF APPLIED SCIENCES  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA, INDIA  
BALANGIR**

## DECLARATION

We do hereby declare that the work presented in this project is a work which is original and has been done by Rameswari Satpathy (190604120008), Kasturee Dash (190604120015), Saraswati Pradhan (190604120005), Sambit kumar Mishra (190604120013), Balkrushna Behera (190604120003), Kanha charan Kalsai (190604120004) under the supervision of Prof. Smruti Ranjan Nayak and Asst. Prof. Meena kumari Sahu Centre for Renewable Energy and Environment, Centurion University of Technology and Management, Odisha.

Date: 24 March, 2022

Place: CUTM, Odisha

Rameswari Satpathy (190604120008)  
Kasturee Dash (190604120015)  
Saraswati Pradhan (190604120005)  
Sambit kumar Mishra (190604120013)  
Balkrushna Behera (190604120003)  
Kanha charan Kalsai (190604120004)  
B.sc in Applied Physics  
Session: 2019-2022

Rameswari Satpathy  
Kasturee Dash  
Saraswati Pradhan  
Sambit Kumar Mishra  
Balkrushna Behera  
Kanha charan Kalsai



**Centurion**  
**UNIVERSITY**  
*Shaping Lives,  
Empowering Communities...*

School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA

**CERTIFICATE**

This is to certify that the dissertation entitled “Design and Implementation of solar-powered street light” is a bonafide work done by Rameswari Satpathy (190604120008), Kasturee Dash (190604120015), Saraswati Pradhan (190604120005), Sambit kumar Mishra (190604120013), Balkrushna Behera (190604120003), Kanha charan Kalsai (190604120004) of BSc. (Applied Physics) in partial fulfillment for the award of the degree of Bachelor of Science in Applied Physics, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

*N.Mohanty*  
For Supervisor *18/04/22*  
Prof. S.R. Nayak

*N.Mohanty*  
HOD *18/04/22*  
Dr. N.K. Mohanty

*N.Mohanty*  
Dean For *18/04/22*

# **Design and Development of Low-Cost Solar Powered Mobile charging Station**

**A Dissertation submitted in partial fulfillment of the requirements  
For the degree of**

**BACHELOR OF SCIENCE  
IN  
APPLIED PHYSICS**

*By*

**ROHAN KUMAR SAHU (190604120006)  
ASHA RANI PADHEE (190604120010)  
BRUNDABATI MEHER (190604120007)  
RAMESHWARI BEHERA (190604120016)  
PADMALOCHAN SAHU (190604120011)  
AISHWARYA PANI (190604120002)**

*Under the supervision of*

**Prof Smruti Ranjan Nayak**



**Centurion  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

**DEPARTMENT OF PHYSICS  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA, INDIA  
BALANGIR**



## DECLARATION

We do hereby declare that the work presented in this project is a work which is original and has been done by Rohan Kumar Sahu (19060412000), Brundabati Meher (190604120007), Asha Rani Padhee (190604120010), Rameswari Behera (190604120016), Padmalochan Sahu (190604120011), Aishwarya Pani (190604120002) under the supervision of Prof. Smruti Ranjan Nayak and Mrs. Meena Kumari Sahu Centre for Renewable Energy and Environment, Centurion University of Technology and Management, Odisha.

ROHAN KUMAR SAHU (190604120006)  
ASHA RANI PADHEE (190604120010)  
BRUNDABATI MEHER (190604120007)  
RAMESHWARI BEHERA (190604120016)  
PADMALOCHAN SAHU (190604120011)  
AISHWARYA PANI (190604120002)

Date: 24 March, 2022

Place: CUTM, Balangir, Odisha

B.sc in Applied Physics  
Session: 2019-2021

Rohan Kumar Sahu  
Asha Rani Padhee  
Brundabati Meher  
Rameswari Behera  
Padmalochan Sahu  
Aishwarya Pani.

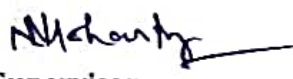


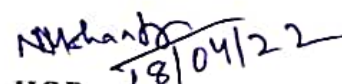
**Centurion**  
**UNIVERSITY**  
*Shaping Lives...  
Empowering Communities...*

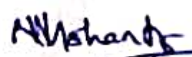
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA

**CERTIFICATE**

I hereby certify that the dissertation entitled "A Low-Cost Solar Powered Mobile charging Station" is a bonafide work done by Rohan Kumar Sahu (19060412000), Brundabati Meher (190604120007), Asha Rani Padhee (190604120010), Rameswari Behera (190604120016), Padmalochan Sahu (190604120011), Aiswarya Pani (190604120002) of BSc. (Applied Physics) in partial fulfillment for the award of the degree of Bachelor of Science in Applied Physics, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

For   
Supervisor  
Prof. S. R. Nayak

  
HOD 18/04/22

  
Dean  
for 18/04/22

# **Design and Development of Low-Cost Solar Powered Mobile charging Station**

**A Dissertation submitted in partial fulfillment of the requirements  
For the degree of**

**BACHELOR OF SCIENCE  
IN  
APPLIED PHYSICS**

*By*

**ROHAN KUMAR SAHU (190604120006)  
ASHA RANI PADHEE (190604120010)  
BRUNDABATI MEHER (190604120007)  
RAMESHWARI BEHERA (190604120016)  
PADMALOCHAN SAHU (190604120011)  
AISHWARYA PANI (190604120002)**

*Under the supervision of*

**Prof Smruti Ranjan Nayak**



**Centurion  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

**DEPARTMENT OF PHYSICS  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA, INDIA  
BALANGIR**

## DECLARATION

We do hereby declare that the work presented in this project is a work which is original and has been done by Rohan Kumar Sahu (19060412000), Brundabati Meher (190604120007), Asha Rani Padhee (190604120010), Rameswari Behera (190604120016), Padmalochan Sahu (190604120011), Aishwarya Pani (190604120002) under the supervision of Prof. Smruti Ranjan Nayak and Mrs. Meena Kumari Sahu Centre for Renewable Energy and Environment, Centurion University of Technology and Management, Odisha.

ROHAN KUMAR SAHU (190604120006)  
ASHA RANI PADHEE (190604120010)  
BRUNDABATI MEHER (190604120007)  
RAMESHWARI BEHERA (190604120016)  
PADMALOCHAN SAHU (190604120011)  
AISHWARYA PANI (190604120002)

Date: 24 March, 2022

Place: CUTM, Balangir, Odisha

B.sc in Applied Physics  
Session: 2019-2021

Rohan Kumar Sahu  
Asha Rani Padhee  
Brundabati Meher  
Rameswari Behera  
Padmalochan Sahu  
Aishwarya Pani.

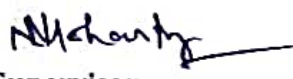


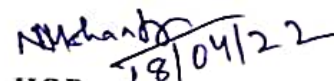
**Centurion**  
**UNIVERSITY**  
*Shaping Lives...  
Empowering Communities...*

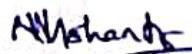
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA

**CERTIFICATE**

I hereby certify that the dissertation entitled "A Low-Cost Solar Powered Mobile charging Station" is a bonafide work done by Rohan Kumar Sahu (19060412000), Brundabati Meher (190604120007), Asha Rani Padhee (190604120010), Rameswari Behera (190604120016), Padmalochan Sahu (190604120011), Aiswarya Pani (190604120002) of BSc. (Applied Physics) in partial fulfillment for the award of the degree of Bachelor of Science in Applied Physics, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

For   
Supervisor  
Prof. S. R. Nayak

  
HOD 18/04/22

  
Dean  
for 18/04/22

# **DESIGN AND IMPLEMENTATION OF SOLAR-POWERED STREET LIGHT**

**A Dissertation submitted in partial fulfillment of the requirements  
For the degree of**

**BACHELOR OF SCIENCE  
IN  
APPLIED PHYSICS**

*By*

*Rameswari Satpathy(190604120008)  
Kasturee Dash (190604120015)  
Saraswati Pradhan(190604120005)  
Sambit Kumar Mishra(190604120013)  
Balkrushna Behera(190604120003)  
Kanha Charan Kalsai(190604120004)*

*Under the supervision of*

**SMRUTI RANJAN NAYAK**

**MEENA KUMARI SAHU**



**Centurion  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

**DEPARTMENT OF PHYSICS  
SCHOOL OF APPLIED SCIENCES  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA, INDIA  
BALANGIR**

## DECLARATION

We do hereby declare that the work presented in this project is a work which is original and has been done by Rameswari Satpathy (190604120008), Kasturee Dash (190604120015), Saraswati Pradhan (190604120005), Sambit kumar Mishra (190604120013), Balkrushna Behera (190604120003), Kanha charan Kalsai (190604120004) under the supervision of Prof. Smruti Ranjan Nayak and Asst. Prof. Meena kumari Sahu Centre for Renewable Energy and Environment, Centurion University of Technology and Management, Odisha.

Date: 24 March, 2022

Place: CUTM, Odisha

Rameswari Satpathy (190604120008)  
Kasturee Dash (190604120015)  
Saraswati Pradhan (190604120005)  
Sambit kumar Mishra (190604120013)  
Balkrushna Behera (190604120003)  
Kanha charan Kalsai (190604120004)  
B.sc in Applied Physics  
Session: 2019-2022

Rameswari Satpathy  
Kasturee Dash  
Saraswati Pradhan  
Sambit Kumar Mishra  
Balkrushna Behera  
Kanha charan Kalsai



**Centurion**  
**UNIVERSITY**  
*Shaping Lives,  
Empowering Communities...*

School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA

**CERTIFICATE**

This is to certify that the dissertation entitled “Design and Implementation of solar-powered street light” is a bonafide work done by Rameswari Satpathy (190604120008), Kasturee Dash (190604120015), Saraswati Pradhan (190604120005), Sambit kumar Mishra (190604120013), Balkrushna Behera (190604120003), Kanha charan Kalsai (190604120004) of BSc. (Applied Physics) in partial fulfillment for the award of the degree of Bachelor of Science in Applied Physics, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

*N.Mohanty*  
For Supervisor *18/04/22*  
Prof. S.R. Nayak

*N.Mohanty*  
HOD *18/04/22*  
Dr. N.K. Mohanty

*N.Mohanty*  
Dean For *18/04/22*



# **DESIGN AND IMPLEMENTATION OF SOLAR-POWERED STREET LIGHT**

**A Dissertation submitted in partial fulfillment of the requirements  
For the degree of**

**BACHELOR OF SCIENCE  
IN  
APPLIED PHYSICS**

*By*

*Rameswari Satpathy(190604120008)  
Kasturee Dash (190604120015)  
Saraswati Pradhan(190604120005)  
Sambit Kumar Mishra(190604120013)  
Balkrushna Behera(190604120003)  
Kanha Charan Kalsai(190604120004)*

*Under the supervision of*

**SMRUTI RANJAN NAYAK**

**MEENA KUMARI SAHU**



**Centurion  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

**DEPARTMENT OF PHYSICS  
SCHOOL OF APPLIED SCIENCES  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA, INDIA  
BALANGIR**

## DECLARATION

We do hereby declare that the work presented in this project is a work which is original and has been done by Rameswari Satpathy (190604120008), Kasturee Dash (190604120015), Saraswati Pradhan (190604120005), Sambit kumar Mishra (190604120013), Balkrushna Behera (190604120003), Kanha charan Kalsai (190604120004) under the supervision of Prof. Smruti Ranjan Nayak and Asst. Prof. Meena kumari Sahu Centre for Renewable Energy and Environment, Centurion University of Technology and Management, Odisha.

Date: 24 March, 2022

Place: CUTM, Odisha

Rameswari Satpathy (190604120008)  
Kasturee Dash (190604120015)  
Saraswati Pradhan (190604120005)  
Sambit kumar Mishra (190604120013)  
Balkrushna Behera (190604120003)  
Kanha charan Kalsai (190604120004)  
B.sc in Applied Physics  
Session: 2019-2022

Rameswari Satpathy  
Kasturee Dash  
Saraswati Pradhan  
Sambit Kumar Mishra  
Balkrushna Behera  
Kanha charan Kalsai



**Centurion**  
**UNIVERSITY**  
*Shaping Lives,  
Empowering Communities...*

School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA

**CERTIFICATE**

This is to certify that the dissertation entitled “Design and Implementation of solar-powered street light” is a bonafide work done by Rameswari Satpathy (190604120008), Kasturee Dash (190604120015), Saraswati Pradhan (190604120005), Sambit kumar Mishra (190604120013), Balkrushna Behera (190604120003), Kanha charan Kalsai (190604120004) of BSc. (Applied Physics) in partial fulfillment for the award of the degree of Bachelor of Science in Applied Physics, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

*N.Mohanty*  
For Supervisor *18/04/22*  
Prof. S.R. Nayak

*N.Mohanty*  
HOD *18/04/22*  
Dr. N.K. Mohanty

*N.Mohanty*  
Dean For *18/04/22*

# **DESIGN AND IMPLEMENTATION OF SOLAR-POWERED STREET LIGHT**

**A Dissertation submitted in partial fulfillment of the requirements  
For the degree of**

**BACHELOR OF SCIENCE  
IN  
APPLIED PHYSICS**

*By*

*Rameswari Satpathy(190604120008)  
Kasturee Dash (190604120015)  
Saraswati Pradhan(190604120005)  
Sambit Kumar Mishra(190604120013)  
Balkrushna Behera(190604120003)  
Kanha Charan Kalsai(190604120004)*

*Under the supervision of*

**SMRUTI RANJAN NAYAK**

**MEENA KUMARI SAHU**



**Centurion  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

**DEPARTMENT OF PHYSICS  
SCHOOL OF APPLIED SCIENCES  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA, INDIA  
BALANGIR**

## DECLARATION

We do hereby declare that the work presented in this project is a work which is original and has been done by Rameswari Satpathy (190604120008), Kasturee Dash (190604120015), Saraswati Pradhan (190604120005), Sambit kumar Mishra (190604120013), Balkrushna Behera (190604120003), Kanha charan Kalsai (190604120004) under the supervision of Prof. Smruti Ranjan Nayak and Asst. Prof. Meena kumari Sahu Centre for Renewable Energy and Environment, Centurion University of Technology and Management, Odisha.

Date: 24 March, 2022

Place: CUTM, Odisha

Rameswari Satpathy (190604120008)  
Kasturee Dash (190604120015)  
Saraswati Pradhan (190604120005)  
Sambit kumar Mishra (190604120013)  
Balkrushna Behera (190604120003)  
Kanha charan Kalsai (190604120004)  
B.sc in Applied Physics  
Session: 2019-2022

Rameswari Satpathy  
Kasturee Dash  
Saraswati Pradhan  
Sambit Kumar Mishra  
Balkrushna Behera  
Kanha charan Kalsai



**Centurion**  
**UNIVERSITY**  
*Shaping Lives,  
Empowering Communities...*

School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA

**CERTIFICATE**

This is to certify that the dissertation entitled “Design and Implementation of solar-powered street light” is a bonafide work done by Rameswari Satpathy (190604120008), Kasturee Dash (190604120015), Saraswati Pradhan (190604120005), Sambit kumar Mishra (190604120013), Balkrushna Behera (190604120003), Kanha charan Kalsai (190604120004) of BSc. (Applied Physics) in partial fulfillment for the award of the degree of Bachelor of Science in Applied Physics, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

*N.Mohanty*  
For Supervisor *18/04/22*  
Prof. S.R. Nayak

*N.Mohanty*  
HOD *18/04/22*  
Dr. N.K. Mohanty

*N.Mohanty*  
Dean For *18/04/22*

# **Design and Development of Low-Cost Solar Powered Mobile charging Station**

**A Dissertation submitted in partial fulfillment of the requirements  
For the degree of**

**BACHELOR OF SCIENCE  
IN  
APPLIED PHYSICS**

*By*

**ROHAN KUMAR SAHU (190604120006)  
ASHA RANI PADHEE (190604120010)  
BRUNDABATI MEHER (190604120007)  
RAMESHWARI BEHERA (190604120016)  
PADMALOCHAN SAHU (190604120011)  
AISHWARYA PANI (190604120002)**

*Under the supervision of*

**Prof Smruti Ranjan Nayak**



**Centurion  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

**DEPARTMENT OF PHYSICS  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA, INDIA  
BALANGIR**

## DECLARATION

We do hereby declare that the work presented in this project is a work which is original and has been done by Rohan Kumar Sahu (19060412000), Brundabati Meher (190604120007), Asha Rani Padhee (190604120010), Rameswari Behera (190604120016), Padmalochan Sahu (190604120011), Aishwarya Pani (190604120002) under the supervision of Prof. Smruti Ranjan Nayak and Mrs. Meena Kumari Sahu Centre for Renewable Energy and Environment, Centurion University of Technology and Management, Odisha.

ROHAN KUMAR SAHU (190604120006)  
ASHA RANI PADHEE (190604120010)  
BRUNDABATI MEHER (190604120007)  
RAMESHWARI BEHERA (190604120016)  
PADMALOCHAN SAHU (190604120011)  
AISHWARYA PANI (190604120002)

Date: 24 March, 2022

Place: CUTM, Balangir, Odisha

B.sc in Applied Physics  
Session: 2019-2021

Rohan Kumar Sahu  
Asha Rani Padhee  
Brundabati Meher  
Rameswari Behera  
Padmalochan Sahu  
Aishwarya Pani.



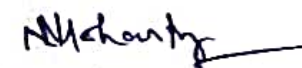


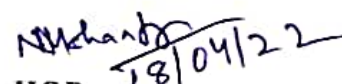
**Centurion**  
**UNIVERSITY**  
*Shaping Lives...  
Empowering Communities...*

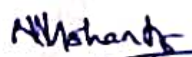
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA

**CERTIFICATE**

I hereby certify that the dissertation entitled "A Low-Cost Solar Powered Mobile charging Station" is a bonafide work done by Rohan Kumar Sahu (19060412000), Brundabati Meher (190604120007), Asha Rani Padhee (190604120010), Rameswari Behera (190604120016), Padmalochan Sahu (190604120011), Aiswarya Pani (190604120002) of BSc. (Applied Physics) in partial fulfillment for the award of the degree of Bachelor of Science in Applied Physics, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

For   
Supervisor  
Prof. S.R. Nayak

  
HOD 18/04/22

  
Dean  
for 18/04/22

# **Design and Development of Low-Cost Solar Powered Mobile charging Station**

**A Dissertation submitted in partial fulfillment of the requirements  
For the degree of**

**BACHELOR OF SCIENCE  
IN  
APPLIED PHYSICS**

*By*

**ROHAN KUMAR SAHU (190604120006)  
ASHA RANI PADHEE (190604120010)  
BRUNDABATI MEHER (190604120007)  
RAMESHWARI BEHERA (190604120016)  
PADMALOCHAN SAHU (190604120011)  
AISHWARYA PANI (190604120002)**

*Under the supervision of*

**Prof Smruti Ranjan Nayak**



**Centurion  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

**DEPARTMENT OF PHYSICS  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA, INDIA  
BALANGIR**

## DECLARATION

We do hereby declare that the work presented in this project is a work which is original and has been done by Rohan Kumar Sahu (19060412000), Brundabati Meher (190604120007), Asha Rani Padhee (190604120010), Rameswari Behera (190604120016), Padmalochan Sahu (190604120011), Aishwarya Pani (190604120002) under the supervision of Prof. Smruti Ranjan Nayak and Mrs. Meena Kumari Sahu Centre for Renewable Energy and Environment, Centurion University of Technology and Management, Odisha.

ROHAN KUMAR SAHU (190604120006)  
ASHA RANI PADHEE (190604120010)  
BRUNDABATI MEHER (190604120007)  
RAMESHWARI BEHERA (190604120016)  
PADMALOCHAN SAHU (190604120011)  
AISHWARYA PANI (190604120002)

Date: 24 March, 2022

Place: CUTM, Balangir, Odisha

B.sc in Applied Physics  
Session: 2019-2021

Rohan Kumar Sahu  
Asha Rani Padhee  
Brundabati Meher  
Rameswari Behera  
Padmalochan Sahu  
Aishwarya Pani.

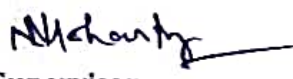


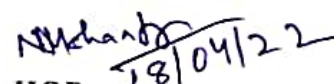
**Centurion**  
**UNIVERSITY**  
*Shaping Lives...  
Empowering Communities...*

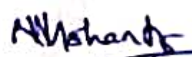
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA

**CERTIFICATE**

I hereby certify that the dissertation entitled "A Low-Cost Solar Powered Mobile charging Station" is a bonafide work done by Rohan Kumar Sahu (19060412000), Brundabati Meher (190604120007), Asha Rani Padhee (190604120010), Rameswari Behera (190604120016), Padmalochan Sahu (190604120011), Aiswarya Pani (190604120002) of BSc. (Applied Physics) in partial fulfillment for the award of the degree of Bachelor of Science in Applied Physics, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

For   
Supervisor  
Prof. S. R. Nayak

  
HOD 18/04/22

  
Dean  
for 18/04/22

# **DESIGN AND IMPLEMENTATION OF SOLAR-POWERED STREET LIGHT**

**A Dissertation submitted in partial fulfillment of the requirements  
For the degree of**

**BACHELOR OF SCIENCE  
IN  
APPLIED PHYSICS**

*By*

*Rameswari Satpathy(190604120008)  
Kasturee Dash (190604120015)  
Saraswati Pradhan(190604120005)  
Sambit Kumar Mishra(190604120013)  
Balkrushna Behera(190604120003)  
Kanha Charan Kalsai(190604120004)*

*Under the supervision of*

**SMRUTI RANJAN NAYAK**

**MEENA KUMARI SAHU**



**Centurion  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

**DEPARTMENT OF PHYSICS  
SCHOOL OF APPLIED SCIENCES  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA, INDIA  
BALANGIR**

## DECLARATION

We do hereby declare that the work presented in this project is a work which is original and has been done by Rameswari Satpathy (190604120008), Kasturee Dash (190604120015), Saraswati Pradhan (190604120005), Sambit kumar Mishra (190604120013), Balkrushna Behera (190604120003), Kanha charan Kalsai (190604120004) under the supervision of Prof. Smruti Ranjan Nayak and Asst. Prof. Meena kumari Sahu Centre for Renewable Energy and Environment, Centurion University of Technology and Management, Odisha.

Date: 24 March, 2022

Place: CUTM, Odisha

Rameswari Satpathy (190604120008)  
Kasturee Dash (190604120015)  
Saraswati Pradhan (190604120005)  
Sambit kumar Mishra (190604120013)  
Balkrushna Behera (190604120003)  
Kanha charan Kalsai (190604120004)  
B.sc in Applied Physics  
Session: 2019-2022

Rameswari Satpathy  
Kasturee Dash  
Saraswati Pradhan  
Sambit Kumar Mishra  
Balkrushna Behera  
Kanha charan Kalsai



**Centurion**  
**UNIVERSITY**  
*Shaping Lives,  
Empowering Communities...*

School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA

**CERTIFICATE**

This is to certify that the dissertation entitled “Design and Implementation of solar-powered street light” is a bonafide work done by Rameswari Satpathy (190604120008), Kasturee Dash (190604120015), Saraswati Pradhan (190604120005), Sambit kumar Mishra (190604120013), Balkrushna Behera (190604120003), Kanha charan Kalsai (190604120004) of BSc. (Applied Physics) in partial fulfillment for the award of the degree of Bachelor of Science in Applied Physics, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

*N.Mohanty*  
For Supervisor *18/04/22*  
Prof. S.R. Nayak

*N.Mohanty*  
HOD *18/04/22*  
Dr. N.K. Mohanty

*N.Mohanty*  
Dean For *18/04/22*

# **Design and Development of Low-Cost Solar Powered Mobile charging Station**

**A Dissertation submitted in partial fulfillment of the requirements  
For the degree of**

**BACHELOR OF SCIENCE  
IN  
APPLIED PHYSICS**

*By*

**ROHAN KUMAR SAHU (190604120006)  
ASHA RANI PADHEE (190604120010)  
BRUNDABATI MEHER (190604120007)  
RAMESHWARI BEHERA (190604120016)  
PADMALOCHAN SAHU (190604120011)  
AISHWARYA PANI (190604120002)**

*Under the supervision of*

**Prof Smruti Ranjan Nayak**



**Centurion  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

**DEPARTMENT OF PHYSICS  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA, INDIA  
BALANGIR**



## DECLARATION

We do hereby declare that the work presented in this project is a work which is original and has been done by Rohan Kumar Sahu (19060412000), Brundabati Meher (190604120007), Asha Rani Padhee (190604120010), Rameswari Behera (190604120016), Padmalochan Sahu (190604120011), Aishwarya Pani (190604120002) under the supervision of Prof. Smruti Ranjan Nayak and Mrs. Meena Kumari Sahu Centre for Renewable Energy and Environment, Centurion University of Technology and Management, Odisha.

ROHAN KUMAR SAHU (190604120006)  
ASHA RANI PADHEE (190604120010)  
BRUNDABATI MEHER (190604120007)  
RAMESHWARI BEHERA (190604120016)  
PADMALOCHAN SAHU (190604120011)  
AISHWARYA PANI (190604120002)

Date: 24 March, 2022

Place: CUTM, Balangir, Odisha

B.sc in Applied Physics  
Session: 2019-2021

Rohan Kumar Sahu  
Asha Rani Padhee  
Brundabati Meher  
Rameswari Behera  
Padmalochan Sahu  
Aishwarya Pani.

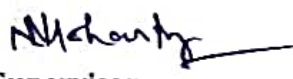


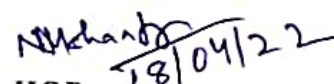
**Centurion**  
**UNIVERSITY**  
*Shaping Lives...  
Empowering Communities...*

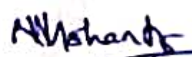
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA

**CERTIFICATE**

I hereby certify that the dissertation entitled "A Low-Cost Solar Powered Mobile charging Station" is a bonafide work done by Rohan Kumar Sahu (19060412000), Brundabati Meher (190604120007), Asha Rani Padhee (190604120010), Rameswari Behera (190604120016), Padmalochan Sahu (190604120011), Aiswarya Pani (190604120002) of BSc. (Applied Physics) in partial fulfillment for the award of the degree of Bachelor of Science in Applied Physics, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

For   
Supervisor  
Prof. S. R. Nayak

  
HOD 18/04/22

  
Dean  
for 18/04/22

# **DESIGN AND IMPLEMENTATION OF SOLAR-POWERED STREET LIGHT**

**A Dissertation submitted in partial fulfillment of the requirements  
For the degree of**

**BACHELOR OF SCIENCE  
IN  
APPLIED PHYSICS**

*By*

*Rameswari Satpathy(190604120008)  
Kasturee Dash (190604120015)  
Saraswati Pradhan(190604120005)  
Sambit Kumar Mishra(190604120013)  
Balkrushna Behera(190604120003)  
Kanha Charan Kalsai(190604120004)*

*Under the supervision of*

**SMRUTI RANJAN NAYAK**

**MEENA KUMARI SAHU**



**Centurion  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

**DEPARTMENT OF PHYSICS  
SCHOOL OF APPLIED SCIENCES  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA, INDIA  
BALANGIR**

## DECLARATION

We do hereby declare that the work presented in this project is a work which is original and has been done by Rameswari Satpathy (190604120008), Kasturee Dash (190604120015), Saraswati Pradhan (190604120005), Sambit kumar Mishra (190604120013), Balkrushna Behera (190604120003), Kanha charan Kalsai (190604120004) under the supervision of Prof. Smruti Ranjan Nayak and Asst. Prof. Meena kumari Sahu Centre for Renewable Energy and Environment, Centurion University of Technology and Management, Odisha.

Date: 24 March, 2022

Place: CUTM, Odisha

Rameswari Satpathy (190604120008)  
Kasturee Dash (190604120015)  
Saraswati Pradhan (190604120005)  
Sambit kumar Mishra (190604120013)  
Balkrushna Behera (190604120003)  
Kanha charan Kalsai (190604120004)  
B.sc in Applied Physics  
Session: 2019-2022

Rameswari Satpathy  
Kasturee Dash  
Saraswati Pradhan  
Sambit Kumar Mishra  
Balkrushna Behera  
Kanha charan Kalsai



**Centurion**  
**UNIVERSITY**  
*Shaping Lives,  
Empowering Communities...*

School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA

**CERTIFICATE**

This is to certify that the dissertation entitled “Design and Implementation of solar-powered street light” is a bonafide work done by Rameswari Satpathy (190604120008), Kasturee Dash (190604120015), Saraswati Pradhan (190604120005), Sambit kumar Mishra (190604120013), Balkrushna Behera (190604120003), Kanha charan Kalsai (190604120004) of BSc. (Applied Physics) in partial fulfillment for the award of the degree of Bachelor of Science in Applied Physics, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work done and the report satisfy the requirements for the award of the degree mentioned.

*N.Mohanty*  
For Supervisor *18/04/22*  
Prof. S.R. Nayak

*N.Mohanty*  
HOD *18/04/22*  
Dr. N.K. Mohanty

*N.Mohanty*  
Dean For *18/04/22*

**INDIGENOUS TECHNICAL KNOWLEDGE ON FRUITS AND VEGETABLE  
CROPS PROCESSING AND PRESERVATION IN INDIA**

**A dissertation submitted in fulfillment of the requirement for the degree**

**MASTER OF SCIENCE**

**IN**

**ZOOLOGY**

**By**

**Akankshya Mishra**

**Registration no 200705180115**



**Centurion  
UNIVERSITY**


**DEPARTMENT OF ZOOLOGY**

**SCHOOL OF APPLIED SCIENCES**

**CENTURION UNIVERSITY OF TECHNOLOGY AND  
MANAGEMENT**

## CERTIFICATE


This is to certify that the dissertation entitled "INDIGENOUS TECHNICAL KNOWLEDGE ON FRUITS AND VEGETABLE CROPS PROCESSING AND PRESERVATION IN INDIA" is a bonafide work done by Akankshya Mishra bearing university registration number 200705180115 Of MSc (zoology) in partial fulfillment for the award of the degree of Master of Science in Zoology, School of Applied Sciences of Centurion University of Technology Management, Odisha. The project work is done and the report satisfies the requirements for the award of the degree mentioned.



18-05-2022

**HOD**  
H.O.D

**Department of Zoology**  
**School of Applied Sciences**  
**CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT**  
**Bhubaneswar Odisha**



18-05-2022

**DEAN**  
**DEAN**

**School of Applied Sciences**  
**CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT**  
**Bhubaneswar, Odisha**

---

---

**ANALYSIS OF MOLECULES OF GINGER IN COLON CANCER**

**A Thesis**

**Submitted to**

**Centurion University of Technology and Management**

*In partial fulfilment of the requirement for the award of the degree of*

**MASTER OF SCIENCE (ZOOLOGY)**

**IN**

**APPLIED ZOOLOGY**

**By**

**ABHISHEK NAYAK**

**(Registration No. 200705180003)**

**Under the supervision of**

**DR. PREETHA BHADRA**



**Centurion**  
**UNIVERSITY**

**Department of Zoology**

**School of Applied Science**

**Centurion University of Technology and Management, Bhubaneswar**

**Dist: Khurda – 751009 Odisha, India**

[www.cutm.ac.in](http://www.cutm.ac.in)

**May, 2022**



## DECLARATION

I, declare that the thesis entitled “Analysis of molecules of Ginger in colon cancer” in Khurda district of Odisha is my own work conducted under the supervision of Dr. Preetha Bhadra, Asst, Professor, Department of Biotechnology, Centurion University of Technology and Management, Bhubaneswar, Odisha and approved by Research Advisory Committee.

I, further declare that this thesis does not contain any work which has been submitted for the award of any degree either in the University or in any other University without proper citation.

Place: Bhubaneswar

Date: 13.06.2022

Abhishek Nayak  
Signature of the candidate

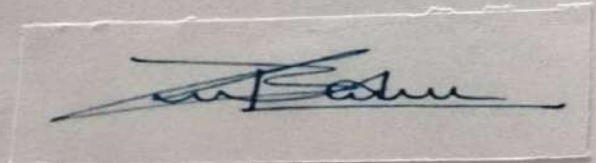
(Abhishek Nayak )

## CERTIFICATE – I

This is to certify that the thesis entitled “Analysis of molecules of Ginger in colon cancer” in Khurda district of Odisha submitted to School of applied science research work done by Abhishek Nayak with Registration No. 200705180003 under my guidance and supervision for the partial fulfilment of the degree of Master of Science in Zoology.

To the best of my knowledge and belief the thesis

1. Embodies the work of candidate himself.
2. Has duly been completed.
3. Fulfils the requirement of the ordinance relating to the Master of Science (Zoology) in Post Graduate degree of the University.



Place: Bhubaneswar

Date: \_\_\_\_\_ May 2022

Associate Professor  
Department of Biotechnolgy  
School of Applied Science  
Centurion University of Technology and Management

## CERTIFICATE- II

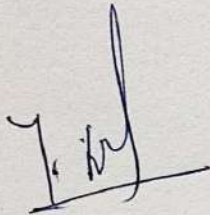
This is to certify that the thesis entitled "Analysis of molecules of Ginger in colon cancer" in Khurda district of Odisha" has been prepared and submitted by Abhishek Nayak with Registration No.200705180003 in partial fulfilment of the requirements for the award of degree Master of Science in Zoology has been examined and approved by the Evaluation Committee after viva-voice.

Research Advisory Committee:

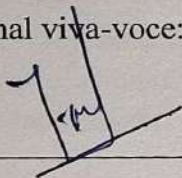
Member                      Dr. Preetha Bhadra  
~~Associate~~ Professor  
Department of Biotechnology  
School of applied science  
Centurion University of Technology  
and Management, Paralakhemundi

-----

Member                      Dr. Yashaswi Nayak  
Associate Professor & HOD  
Department of Zoology  
School Of Applied Science  
Centurion University of Technology  
And Management, Bhubaneswar

  
-----

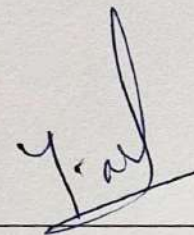
Date of final viva-voce: \_\_\_\_\_

  
-----

**Head**

Department of Zoology,  
School of Applied Science,  
Centurion University of Technology  
and Management, Bhubaneswar

**H O D**  
**Department of Zoology**  
**School of Applied Sciences**  
**CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT**  
**Bhubaneswar Odisha**

  
-----

**Dean**

School of Applied Science  
Centurion University of Technology and  
Management, Bhubaneswar

**DEAN**  
**School of Applied Sciences**  
**CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT**  
**Bhubaneswar, Odisha**

# **Comparative Study on Effect of Sex on Haematobiochemical Profiles of Goat (*Capra hircus*)**

**A Thesis Submitted to Centurion University of  
Technology and Management**

*In partial fulfilment of the requirements for the award of the degree of*

**MASTER OF SCIENCE IN ZOOLOGY**

**By ANUPAMA PATEL**

**(Registration No. 200705180005)**

Under the guidance of

**DR. SITARAM SWAIN**



**Centurion  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

**Department of Zoology School of Applied Sciences**

**Centurion University of Technology and Management,  
Bhubaneswar Dist-Khorda, Pin-752050, Odisha, India**

**[www.cutm.ac.in](http://www.cutm.ac.in)**

## DECLARATION

I declare that the thesis entitled "**COMPARATIVE STUDY ON EFFECT OF SEX ON HAEMATOBIOCHEMICAL PROFILES OF GOAT (*Capra hircus*)**" is my own work, which I completed under the supervision of DR. SITARAM SWAIN, Assistant Professor, Department of Zoology and DR. RUKMINI MISHRA, Asst. Professor, Department of Botany, School of Applied Sciences, Centurion University of Technology and Management, Bhubaneswar, Odisha.

I furthermore declare that this thesis does not contain any part of any work that has been submitted for the granting of any degree at the University or elsewhere without proper citation.

Place: Bhubaneswar

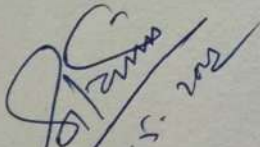
Date: 30.05.22 .

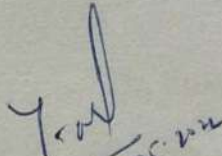
Anupama Patel

Signature of the Candidate

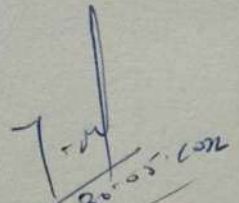
CERTIFICATE:

This is to certify that the dissertation entitled **COMPARATIVE STUDY ON EFFECT OF SEX ON HAEMATO-BIOCHEMICAL PROFILES OF GOAT (*Capra hircus*)** is a bonafide work done by **ANUPAMA PATEL** of M.Sc. (Zoology) bearing Registration No. 200705180003 in partial fulfillment for the award of the degree of Master of Science in Zoology, School of Applied Science of Centurion University of Technology and Management, Odisha. The project work done and report satisfy the requirements for the award of the degree mentioned.

  
30.05.2022  
Supervisor

  
30-05-2022  
HOD

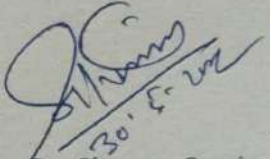
H.O.D  
Department of Zoology  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar Odisha

  
30-05-2022  
Dean

DEAN  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar, Odisha

## CERTIFICATE

This is to certify that the dissertation entitled **COMPARATIVE STUDY ON EFFECT OF SEX ON HAEMATO-BIOCHEMICAL PROFILES OF GOAT (*Capra hircus*)** being submitted by **ANUPAMA PATEL** of M.Sc. (Zoology) bearing Registration No. 200705180003 for the award of the degree of Master of Science in Zoology is carried out under my supervision. The results presented in this thesis have not been submitted partly/fully elsewhere for the award of any other degree in this university or any other institutions to the best of my knowledge. In my opinion, this work is fulfilling the requirements for the award of the degree mentioned in this certificate.



Dr. Sitaram Swain

Assistant Professor

Department of Zoology

School of Applied Sciences

CUTM, Odisha

# **HACCP PLAN FOR POST HARVEST BAKERY PRODUCTS**

**A report submitting in a partial fulfillment of the  
requirement of degree**

**MASTER OF SCIENCE  
IN  
ZOOLOGY**

*By*

**SUSHREE LABANYABATI PARIDA**

**Registration No:-200705180013**

**DOMAIN COURSE-FOOD PROCESSING**

**PROJECT NAME- HACCP Plan for veggie burger**



**Centurion  
UNIVERSITY**

**DEPARTMENT OF ZOOLOGY  
SCHOOL OF APPLIED SCIENCES**

**CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA, INDIA**

**MAY, 2022**





**Centurion**  
**UNIVERSITY**

**School of Applied Sciences**

**CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT**  
**ODISHA**


**CERTIFICATE**

This is to certify that the dissertation entitled “**HACCP plan for veggie burger**” is a bona fide work done by **Sushree Labanyabati Parida** of M.Sc (zoology) bearing Registration No. 200705180013 in partial fulfillment for the award of the degree of **Master of Science in Zoology**, School of Applied Sciences of Centurion University of Technology Management, Odisha. The project work is done and the report satisfy the requirements for the award of the degree mentioned.

  
20/05/2022  
**HOD**

**H.O.D**

**Department of Zoology**  
**School of Applied Sciences**  
**CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT**  
**Bhubaneswar Odisha**

  
20/05/2022

**Dean**

**DEAN**

**School of Applied Sciences**  
**CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT**  
**Bhubaneswar, Odisha**

# **INTERACTIVE DYNAMICS OF EPIGENOMIC MODULATORS WITH TUMOROGENIC PROTEINS**

*A Thesis Submitted to Centurion University of Technology and Management In  
Partial fulfillment of the requirements for the award of the degree of*

**MASTER OF SCIENCE  
IN  
ZOOLOGY**

*Submitted By*

**ANKITA PRIYADARSHANI  
200705180021**

*Under the guidance of*  
**DR. GAGAN KUMAR PANIGRAHI**



**Centurion  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

**Department of Zoology**

**School of Applied Sciences**

**Centurion University of Technology and Management,**

**Bhubaneswar**

**Khordha – 752050, Odisha, India**

**[www.cutm.ac.in](http://www.cutm.ac.in)**

**May 2022**

## DECLARATION

I, declare that the thesis entitled "*Interactive Dynamics of Epigenomic Modulators with Tumorigenic proteins*" is a presentation of my original research work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions. The work was done under the guidance of **DR. GAGAN KUMAR PANIGRAHI**, Assistant Professor, Department of Zoology, Centurion University of Technology and Management, Bhubaneswar.

Furthermore, I declare that this thesis does not contain any part of any work submitted for the award of any degree either in this University or in any other University without proper citation.

Place: Bhubaneswar  
Date: 16 -05-2022

*Ankita Priyadarshani*  
**ANKITA PRIYADARSHANI**  
200705180021



**Centurion  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*



# CERTIFICATE

This is to certify that the thesis entitled **“INTERACTIVE DYNAMICS OF EPIGENOMIC MODULATORS WITH TUMOROGENIC PROTEINS”** has been prepared and submitted by **ANKITA PRIYADARSHANI** bearing Registration No. **200705180021** in partial fulfillment of the requirements for the award the of the degree of **Master of Science in Zoology** has been examined and approved by the Evaluation Committee.

**Dr. Gagan Kumar Panigrahi**

**Supervisor**

Assistant Professor

Department of Zoology

CUTM, BBSR  
Department of Zoology  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar Odisha

**Dr. Rukmini Mishra**

**Domain Coordinator**

H.O.D.  
Associate Professor & Head  
Department of Botany

School of Applied Sciences  
Department of Botany  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar, Odisha  
CUTM, BBSR

**Dr. Yashaswi Nayak**

**Dean & Head of the Department**

DEAN  
Associate Professor  
School of Applied Sciences

CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Department of Zoology  
Bhubaneswar, Odisha

CUTM, BBSR

# **HACCP Plan for Post-harvest Fruit/vegetable Product**

A report submitted in a partial fulfillment of requirements for degree of  
**MASTER OF SCIENCE IN ZOOLOGY**



**Centurion**  
**UNIVERSITY**

**DOMAIN COURSE- FOOD PROCESSING**  
**PROJECT- HACCP PLAN FOR VEGGIE BURGER**

**By**

**Shaswati Jena (200705180027)**

**School of Applied Sciences (SoAS),**  
*Centurion University of Technology and Management, Bhubaneswar*  
**ODISHA,INDIA**



**Centurion**  
**UNIVERSITY**

**School of Applied Sciences**

**CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT,  
BHUBANESWAR  
ODISHA**

**CERTIFICATE**

This is to certify that the dissertation entitled “**HACCP PLAN FOR POST-HARVEST FRUIT/VEGETABLE PRODUCT**” bonafide work done by Shaswati Jena of M.Sc (Zoology) bearing Registration No. 200705180027 in partial fulfilment for the award of the degree of **Master of Science in Zoology**, School of Applied Sciences of Centurion University of Technology and Management, Odisha. The project work has done and the report satisfies the requirement for the award of the degree mentioned.

  
17-05-2022  
**HOD**

**H O D**  
**Department of Zoology**  
**School of Applied Sciences**  
**CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT**  
**Bhubaneswar Odisha**

  
17-5-2022  
**DEAN**

**DEAN**  
**School of Applied Sciences**  
**CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT**  
**Bhubaneswar, Odisha**

# **Gastro protective effects of “Amla”Emblica officinalis**

A Thesis  
Submitted to  
Centurion University of Technology and Management

In partial fulfillment of the requirements for the award of the degree of

## **MASTER OF SCIENCE IN ZOOLOGY**

By  
**SHIV SANKAR DWIVEDI**  
(Registration Number: 200705180028)



**Centurion**  
**UNIVERSITY**

Department of Zoology  
School of Applied Science

Centurion University of Technology and Management, Bhubaneswar

Dist.: Khordha - 752050, Odisha, India

[www.cutm.ac.in](http://www.cutm.ac.in)

May, 2022

## DECLARATION

I declare that the thesis titled "Gastroprotective effects of (Amla) Emblica officinalis" is my own work, which I completed under the supervision of Mrs. Preetha Bhadra, Associate Professor, Department of Biotechnology, Centurion University of Technology and Management, Paralakhemundi, Odisha.

I furthermore declare that this thesis does not contain any part of any work that has been submitted for the granting of any degree at the University or elsewhere without proper citation.

Place: Bhubaneswar  
Date: 27.05.22

*Shiv Sankar Dwivedi*  
Signature of the Candidate



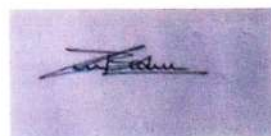
## CERTIFICATE - I

This is to certify that the thesis entitled “**Gastroprotective effects of (Amla) Emblica officinalis**” submitted to **School of Applied Science** is a piece of research work done by **SHIV SANKAR DWIVEDI** with **Registration No. 200705180028** under my guidance and supervision for the partial fulfilment of the degree of Master of Science in Zoology. To the best of my knowledge and belief the thesis.

1. Embodies the work of candidate himself.
2. Has duly been completed.
3. Fulfil the requirement of the ordinance relating to the M.Sc. Zoology in Postgraduate degree of the University.

**Place: Bhubaneswar**

**Date: 27 / 05 / 2022**



**Mrs. Preetha Bhadra**

Associate Professor

Department of Biotechnology

School of Applied Science

Centurion University of

Technology & Management

## CERTIFICATE - II

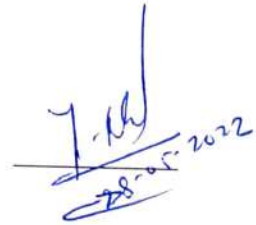
This is to certify that the thesis entitled "**Gastroprotective effects of (Amla) Emblica officinalis**" has been prepared and submitted by **ShivSankar Dwivedi** with **Registration No. 200705180028** in partial fulfilment of the requirements for the award of degree of Master of Science in zoology has been examined and approved by the Evaluation Committee after viva-voice.

### Research Advisory Committee:

Member Mrs. Preetha Bhadra  
**Associate Professor**  
Department of Biotechnology  
School of Applied Science  
Centurion University of Technology and Management  
Paralakhemundi



Member Dr. Yashaswi Nayak  
**Associate Professor & HOD**  
Department of Zoology  
School of Applied Science  
Centurion University of Technology and Management  
Bhubaneswar

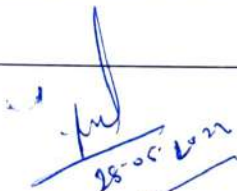


28-05-2022

Member Dr. Yashaswi Nayak  
Dean of School of Applied Science  
Centurion University of Technology and Management  
Bhubaneswar

Date of final viva voice \_\_\_\_\_

07.05.22



28-05-2022

Head of the Department of zoology  
Centurion University of Technology  
and Management, Bhubaneswar

**Department of Zoology**  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar Odisha

Dean  
School of Applied Science  
Centurion University of Technology  
and Management, Bhubaneswar



28-05-2022

**DEAN**  
**School of Applied Sciences**  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT

**COMPARATIVE ANALYSIS OF PHYSICOCHEMICAL PARAMETERS  
OF GELATIN EXTRACTED FROM SCALES of *Labeo rohita* (ROHU),  
*Mugil curema* (WHITE MULLET) and *Lates calcarifer* (SEA BASS)**

A Dissertation submitted in the partial fulfillment of the requirements  
For the master degree of

**MASTER OF SCIENCE  
IN  
ZOOLOGY**  
By

**SIKHA RANI SAHU**

**Registration No.-200705180029**

Under the guidance of

**Dr. YASHASWI NAYAK**



**Centurion  
UNIVERSITY**

**DEPARTMENT OF ZOOLOGY**

**(SCHOOL OF APPLIED SCIENCES)**

**CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT ,**

**BBSR, ODISHA, INDIA**

**MAY , 2022**



**Centurion**  
**UNIVERSITY**

**SCHOOL OF APPLIED SCIENCES**


**CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT**

**ODISHA**

**CERTIFICATE**

This is to certify that the dissertation entitled “**Comparative analysis of physiochemical parameters of gelatin extracted from scales of *Labeo rohita* (Rohu), *Mugil curema* (White Mullet) and *Lates calcarifer* (Barramundi or sea bass)**” is a bonafide work done by **Sikha Rani Sahu** of M. Sc. ZOOLOGY bearing Registration No. **200705180029** in partial fulfillment for the award of the **Degree of Master of Science in Zoology**, School of Applied Science of Centurion University of Technology and Management, Bhubaneswar, Odisha. This project work done and all the report satisfy the requirements for the award of degree mentioned.

  
30.05.2022  
**Supervisor**

  
30.05.2022  
**HOD**  
H.O.D  
Department of Zoology  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar Odisha

  
30.05.2022  
**Dean**  
DEAN  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar, Odisha

## DECLARATION

I do hereby declare that the work presented in this is original and has been done by me under the supervision of Dr. Yashaswi Nayak , Associate professor, Department of Zoology, School of Applied Science, Centurion University of Technology and Management, Odisha India. I further declare that this work has not been submitted partly or fully elsewhere for the award of any other degree in this University or any other Institutions.

**Date:** 30/05/2022

**Place:** CUTM, Bhubaneswar

*Sikha Rani Sahu*


**Sikha Rani Sahu**

**Registration No. -: 200705180029**  
**M. Sc. in Zoology**

**Session-: 2020-2022**

## CERTIFICATE

This is to certify that the dissertation entitled "Comparative analysis of physiochemical parameters of gelatin extracted from scales of *Labeo rohita* (Rohu), *Mugil curema* (White Mullet) and *Lates calcarifer* (Barramundi or sea bass)" being submitted by **Sikha Rani Sahu** of **M. Sc. Zoology** bearing Registration No. **200705180029** for the award of the degree of **Master of Science in Zoology** is carried under my supervision. The result presented in this thesis have not been submitted partly/ fully elsewhere for the award of the any other degree in this University or any other Institutions to the best of my knowledge. In my opinion, this work is fulfilling the requirements for the award of the degree mentioned in this certificate.



30.05.2022

**Dr. Yashaswi Nayak**

**Associate Professor**

**Department of Zoology**

**School of Applied Sciences**

**CUTM, ODISHA**

# **HACCP PLAN FOR VEGGIE BURGERS**

**A Report submitted for the fulfilment of the requirement  
for the masters' degree**

**MASTER OF SCIENCE  
IN  
ZOOLOGY**

**By**

**Sankalpa Sahoo**

**Registration Number- 200705180030**



**DEPARTMENT OF ZOOLOGY**

**CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT,  
BHUBANESWAR, ODISHA, INDIA.**

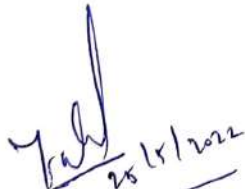
**MAY 2022**



**School of Applied Sciences**  
**CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT,**  
**ODISHA**

**CERTIFICATE**

This is to certify that the dissertation entitled "HACCP Plan for Veggie Burgers" is a bona-fide work done by Sankalpa Sahoo bearing university registration number 200705180030 of MSc (zoology) in partial fulfilment for the awarding of the degree of Master of Science in Zoology, School of Applied Sciences of Centurion University of Technology & Management, Odisha. The project work is done and the report satisfies the requirements for the award of the degree mentioned.

  
25/5/2022  
**HOD**

**Department of Zoology**  
H.O.D  
Department of Zoology  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar, Odisha

  
25-5-2022  
**DEAN**

**School of Applied Sciences**  
DEAN  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar, Odisha



# **FINDING SMALL MOLECULES TO TARGET DENGUE VIRUS NS1**

A Thesis  
Submitted to  
**Centurion University of Technology and Management**

*In partial fulfillment of the requirements for the award of the degree of*

**MASTER OF SCIENCE  
IN  
ZOOLOGY**

By  
**PURBASHA PRIYADARSHINI**  
(Registration No.200705180031)



**Centurion  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

**Department of Zoology**  
**School of Applied Sciences**  
**Centurion University of Technology and Management,**  
**Bhubaneswar**  
**Dist- Khordha, Jatani, Pin-752050, Odisha, India**

## DECLARATION

I declare that the thesis entitled “**Finding small molecules to target dengue virus NS1**” is my own work, which I completed under the supervision of Mrs. Preetha Bhadra, Assistant Professor, Department of Biotechnology, and Dr. Bibhudutta Mishra, Asst. Professor, Department of Zoology, School of Applied Science, Centurion University of Technology and Management, Bhubaneswar, Odisha.

I furthermore declare that this thesis does not contain any part of any work that has been submitted for the granting of any degree at the University or elsewhere without proper citation.

Place: Bhubaneswar

Date : (12.5.2022)

Rurbasha Prayadarshini  
Signature of the Candidate

# CERTIFICATE - I

This is to certify that the thesis entitled “**Finding small molecules to target dengue virus NS1**” submitted to School of Applied Science is a piece of research work done by **PURBASHA PRIYADARSHINI** with **Registration No. 200705180031** under my guidance and supervision for the partial fulfillment of the degree of Master of Science in Zoology.

To the best of my knowledge and belief the thesis

1. Embodies the work of candidate himself.
2. Has duly been completed.
3. Fulfils the requirement of the ordinance relating to the Msc Zoology in Post Graduate degree of the University.



Place: Bhubaneswar  
Date: 12.05 May 2022

Dr. Preetha Bhadra  
Assistant Professor  
Department of Biotechnology  
M.S. Swaminathan School of Agriculture  
Centurion University of Technology & Management

## CERTIFICATE – II

This is to certify that the thesis entitled “**Finding small molecules to target dengue virus NS1**” has been prepared and submitted by **PURBASHA PRIYADARSHINI** with **Registration No. 200705180031** in partial fulfillment of the requirements for the award of degree of Master of Science in Zoology has been examined and approved by the Evaluation Committee after viva-voce.

Research Advisory Committee:


Member            Mrs. Preetha Bhadra  
Assistant Professor  
Department of Biotechnology  
M.S. Swaminathan School of Agriculture  
Centurion University of Technology and Management  
Paralakhemundi

Member            Dr. Bibhudutta Mishra  
Assistant Professor  
Department of Zoology  
School of Applied Science  
Centurion University of Technology and Management  
Bhubaneswar

Member            Dr. Yashaswi Nayak  
Assistant Professor & HOD  
Department of Zoology  
School of Applied Science  
Centurion University of Technology and Management  
Bhubaneswar

Date of final viva voice \_\_\_\_\_

  
12-05-2022

  
12-05-2022

Head  
Department of Zoology  
Centurion University of Technology  
And Management, Bhubaneswar

**H O D**  
**Department of Zoology**  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar Odisha

Dean  
School of Applied Science  
Centurion University of Technology  
and Management, Bhubaneswar

**DEAN**  
**School of Applied Sciences**  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar, Odisha

# **MICROBIAL PARAMETERS OF SOIL**

A Thesis

Submitted to

**Centurion University of Technology and Management**

*In partial fulfilment of the requirements for the award of the degree of*

**MASTER OF SCIENCE**

**IN**

**ZOOLOGY**

**BY**

**GANNAWARAPU RUKMINI ACHARY**

**(Registration No.200705180032)**



**CENTURION  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities!*

**Department of Zoology**

**School of Applied Sciences**

**Centurion University of technology and management,  
Ramachandrapur, Jatni-752050, Odisha, India**

[www.cutm.ac.in](http://www.cutm.ac.in)

**May, 2022**

## DECLARATION

I declare that the thesis entitled "**Microbial Parameters of Soil** " is my own work, which I completed under the supervision of Dr.Saurav Barman, Associate professor, Department of Soil Science, Mr. Lalichetti Sagar, Assistant professor, Department of Agronomy and Dr. B. Praveen, Associate professor and Head, Department of Plant pathology, M.S. Swaminathan School of Agriculture, Centurion University of Technology and Management, Paralakhemundi, Odisha.

I furthermore declare that this thesis does not contain any part of any work that has been submitted for the granting of any degree at the University or elsewhere without proper citation.

Place: Bhubaneswar

Date: 21.05.2022

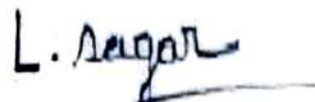
G. Rekmini Achary  
Signature of the Candidate

## CERTIFICATE - I

This is to certify that the thesis entitled "**Microbial Parameters of Soli**" submitted to School of Applied Science is a piece of research work done by **Gannawarapu Rukmini Achary** with Registration No. **200705180032** under my guidance and supervision for the partial fulfillment of the degree of Master of Science in Zoology.

To the best of my knowledge and belief the thesis

1. Embodies the work of candidate himself.
2. Has duly been completed.
3. Fulfils the requirement of the ordinance relating to the Msc Zoology in Post Graduate degree of the University.



**MR. LALICHETTI SAGAR**

Assistant Professor  
Department of Agronomy  
M.S. Swaminathan School of Agriculture  
Centurion University of Technology &  
Management

Place: Bhubaneswar

Date: 21 May 2022

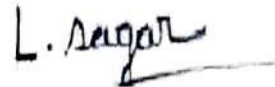
## CERTIFICATE - II

This is to certify that the thesis entitled "**Microbial Parameters of Soil**" has been prepared and submitted by **Gannawarapu Rukmini Achary** with Registration No. **200705180032** in partial fulfillment of the requirements for the award of degree of Master of Science in Zoology has been examined and approved by the Evaluation Committee after viva-voce.

Research Advisory Committee:

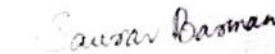
Guided by

**Mr. Lalichetti Sagar**  
Asst. Prof  
Department of Agronomy  
M.S. Swaminathan School of  
Agriculture  
Centurion University of  
Technology and  
Management  
Paralakhemundi

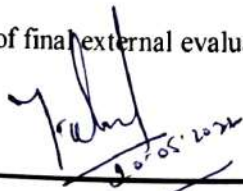


Domain Co-ordinator

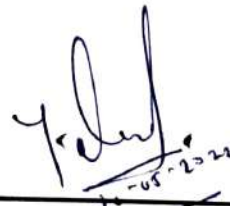
**Dr. Saurav Barman**  
Associate Professor  
Department of Soil Science  
M.S. Swaminathan School of  
Agriculture  
Centurion University of  
Technology and  
Management  
Paralakhemundi



Date of final external evaluation \_\_\_\_\_



**Head**



**Dean**

School of Applied Science  
Centurion University of  
Technology and Management,  
Bhubaneswar

**H.O.D**

**Department of Zoology**  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar Odisha

School of Applied Science  
Centurion University of  
Technology and Management,  
Bhubaneswar

**DEAN**

**School of Applied Sciences**  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar, Odisha



# POST COVID STRESS MANAGEMENT

A Dissertation is submitted in partial fulfilment of the requirements

For the degree of

**MASTER OF SCIENCE**

**IN**

**ZOOLOGY**

**BY**

**SUSANTA KUMAR BARIK**

**Registration No:- 200705180034**

*Under the Supervision of*

**Dr. SOUMYA JAL**

HOD of School of Paramedics & Allied Health Sciences



**CENTURION  
UNIVERSITY**  
*Shaping Lives...  
Empowering Communities!*

**DEPARTMENT OF ZOOLOGY**

**SCHOOL OF APPLIED SCIENCES**

**CENTURION UNIVERSITY OF THCHNOLOGY AND MANAGEMENT**

**ODISHA, INDIA**

**APRIL 2022**

## DECLARATION

I do hereby declare that the work presented in this project is original and has been done by me under the supervision **Dr. Soumya Jal , HOD of School of Paramedics and Allied Health Sciences , Centurion University of Technology And Management , Odisha , India** . I further declare that this work has not been submitted partly / fully elsewhere for award of any other degree in this university or any other institution.

Date:- 03.08.2022

Place:- CUTM , ODISHA

Susanta Kumar Barik

**Susanta kumar Barik**


Registration No :- 200705180034

M.SC in ZOOLOGY

Session:- 2020 - 2022

## CERTIFICATE

This is to certify that the dissertation entitled “ post covid stress management ” being submitted by **Susanta kumar Barik of M.sc Zoology** bearing **Registration No. 200705180034** for the award of the degree of **Master of Science in Zoology** is carried out under my supervision . The results presented in this thesis have not been submitted partly / fully elsewhere for the award of any other degree in this university or any other institutions to the best of my knowledge. In my opinion, this work is fulfilling the requirements for the award of the degree mentioned in this certificate.

  
3/8/22

**Dr. Soumya Jal**

**Head of the department of**

**School of Paramedics and Allied Health Sciences**

**CUTM, ODISHA**

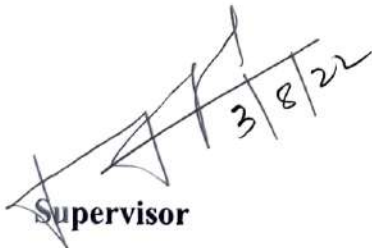


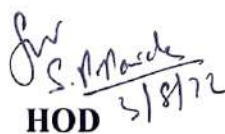
**CENTURION  
UNIVERSITY**  
*Shaping Lives  
Empowering Communities*

School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT  
ODISHA

## **CERTIFICATE**

This is to certify that the dissertation entitled “**post covid stress management**” is a bonafide work done by **Susanta kumar Barik** of **M.SC Zoology** bearing **Registration No – 200705180034** in partial fulfilment for the award of the degree of **Master of Science In Zoology** , School of Applied Sciences Of Centurion University of Technology And Management , Odisha . The project work has been done and the report satisfies the requirements for the award of the degree mentioned.

  
Supervisor

  
HOD

H.O.D  
Department of Zoology  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar Odisha

  
Dean

DEAN  
School of Applied Sciences  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar, Odisha

# FINDING SMALL MOLECULES TO TARGET DENGUE VIRUS NS1

A Thesis  
Submitted to  
Centurion University of Technology and Management

*In partial fulfilment of the requirements for the award of the degree of*

**MASTER OF SCIENCE  
IN  
ZOOLOGY**

**By  
MOUSUMI MISHRA  
(Registration No.200705180035)**



**Centurion  
UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

**Department of Zoology**

**School of Applied Sciences**

**Centurion University of Technology and Management, Bhubaneswar  
Dist- Khorda Pin-752050, Odisha, India**

## DECLARATION

I declare that the thesis entitled "**Finding Small Molecules to Target Dengue Virus NSI**" is my own work, which I completed under the supervision of Dr. Preetha Bhadra, Assistant Professor, Department of Biotechnology, and Dr. Bibhudutta Mishra, Asst. Professor, Department of Zoology, School of Applied Science, Centurion University of Technology and Management, Bhubaneswar, Odisha.

I furthermore declare that this thesis does not contain any part of any work that has been submitted for the granting of any degree at the University or elsewhere without proper citation.

Place: Bhubaneswar

*Mousumi Mishra*  
Signature of the Candidate

Date : ( 12/5/22 )

## CERTIFICATE - I

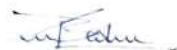
This is to certify that the thesis entitled "**Finding Small Molecules to Target Dengue Virus NS1**" submitted to School of Applied Science is a piece of research work done by **MOUSUMI MISHRA** with **Registration No. 200705180035** under my guidance and supervision for the partial fulfillment of the degree of Master of Science in Zoology.

To the best of my knowledge and belief the thesis

1. Embodies the work of candidate himself.
2. Has duly been completed.
3. Fulfill the requirement of the ordinance relating to the MSc Zoology in Post Graduate degree of the University.

Place: Bhubaneswar

Date: 12/5/22



Dr. Preetha Bhadra

Assistant Professor

Department of Biotechnology

M.S. Swaminathan School of Agriculture

Centurion University of Technology & Management

## CERTIFICATE - II

This is to certify that the thesis entitled “**Finding Small Molecules to Target Dengue Virus NS1**” has been prepared and submitted by **MOUSUMI MISHRA** with **Registration No. 200705180035** in partial fulfillment of the requirements for the award of degree of Master of Science in Zoology has been examined and approved by the Evaluation Committee after viva-voce.


Research Advisory Committee:

Member      Dr. Preetha Bhadra  
Assistant Professor  
Department of Biotechnology  
M.S. Swaminathan School of Agriculture  
Centurion University of Technology and Management  
Paralakhemundi

Member      Dr. Bibhudutta Mishra  
Assistant Professor  
Department of Zoology  
School of Applied Science  
Centurion University of Technology and Management  
Bhubaneswar

Member      Dr. Yashaswi Nayak  
Assistant Professor & HOD  
Department of Zoology  
School of Applied Science  
Centurion University of Technology and Management  
Bhubaneswar

Date of final viva voice \_\_\_\_\_

  
12.05.2022  
Head

Department of Zoology  
Centurion University of Technology and  
Management, Bhubaneswar

**HOD**  
**Department of Zoology**  
**School of Applied Sciences**  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar Odisha

  
12.05.2022  
Dean

School of Applied Sciences  
Centurion University of Technology  
and Management, Bhubaneswar

**DEAN**  
**School of Applied Sciences**  
CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT  
Bhubaneswar, Odisha



# HACCP PLAN FOR BAKED PRODUCTS

A Report submitted in fulfillment of the requirement for the degree

MASTER OF SCIENCE

IN

ZOOLOGY

By

Punyatoya Mishra

Registration No:200705180036



**Centurion**  
**UNIVERSITY**

DEPARTMENT OF ZOOLOGY

SCHOOL OF APPLIED SCIENCE

CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT

ODISHA, INDIA

MAY 2022



**Centurion**  
**UNIVERSITY**

**School of Applied Sciences**

**CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT,  
ODISHA**

**CERTIFICATE**

This is to certify that the dissertation entitled “**HACCP Plan for Baked Product**” is a bonafide work done by **Punyatoya Mishra** bearing university registration number 200705180036 of MSc (zoology) in partial fulfilment for the award of the degree of **Master of Science in Zoology**, School of Applied Sciences of Centurion University of Technology Management, Odisha. The project work is done and the report satisfies the requirements for the award of the degree mentioned.

**HOD**  
**H.O.D**

**Department of Zoology**  
**School of Applied Sciences**  
**CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT**  
**Bhubaneswar Odisha**

**Dean**  
**DEAN**

**School of Applied Sciences**  
**CENTURION UNIVERSITY OF TECHNOLOGY & MANAGEMENT**  
**Bhubaneswar, Odisha**