

SCHOOL OF SCIENCE
Department of Biotechnology

CRITERIA 1

SUB CRITERIA 1.3.3

**Percentage of students undertaking field
projects / research projects / internships**

Academic Year

2022-2023


REGISTRAR
ITM UNIVERSITY
Gwalior (M.P.)

SCHOOL OF SCIENCE
Department Of Biotechnology

Total Number of Research Projects in UG and PG

Research Projects	Program	Total Number of students involved in research projects
	M. Sc Biotechnology	02

The students undertake mini and major projects for increasing their practical knowledge and experience. Students are encouraged to do their research in the Research Institutes, hospitals and Industries to encourage the research insight in them

Total Number of Research Projects/Internships in UG

Internships/Research Projects	Program	Total Number of students involved in Internship
	BSc Biotechnology	14

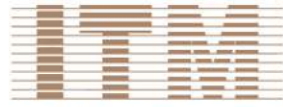
In the Biotechnology disciplines, there is mandatory Internship. In the curriculum design it has been incorporated into the programme and complete it as a mandatory part of final year training.

Total Number of Field Project/Industry visits in UG and PG

Field Project/Industry visits/Hands on Training	Program	Total Number of students involved in field projects
	BSc Biotechnology	14
	M. Sc Biotechnology	02

Field visits / Industry Visits Field/ Industrial visits during the course of any programme gives students an insight on the internal working environment of the company. Biotechnology, students undertake field visits to research institutes, industries, sewage treatment plants, water treatment plants, etc. to enhance knowledge and enrich skills.


REGISTRAR
ITM UNIVERSITY
 Gwalior (M.P)



UNIVERSITY
GWALIOR • MP • INDIA

"CELEBRATING DREAMS"

Index

S.no	Component	Page No
1.	Scheme and Syllabus	1-06
2.	Research Projects/Internships in UG	7-13
3.	Research Projects of PG	14-18
4.	Field Project/Industry visits in UG and PG	19-24

A handwritten signature in blue ink, consisting of stylized loops and curves.

REGISTRAR
ITM UNIVERSITY
Gwalior (M.P)

School of Sciences

NAME OF COURSE: B. SC. BIOTECHNOLOGY

SESSION 2022 ONWARDS

SEMESTER: VI

SUBJECT WISE DISTRIBUTION OF MARKS AND CORRESPONDING CREDITS

Sr. No.	Subject Code	Subject Name	Maximum Marks Allotted							Credits		Total Credits
			Theory Slot			Practical Slot			Total Marks	L	P	
			End Sem.	Mid Sem. MST (Two tests average)	Class Participation	End Sem.	Progressive Evaluation	Internal viva				
1	BSBT-601	Waste Management	40	30	30	40	30	30	200	3	1	04
2	BSBT-602	Food Microbiology	40	30	30	40	30	30	200	3	1	04
3	BSBT-603	Research Methodology	40	30	30	-	-	-	100	4	0	04
4	BSBT-604	Medicinal Chemistry	40	30	30	40	30	30	200	3	1	04
5	BSBT-605	Advances in Applied biological sciences and Wildlife conservation	40	30	30	-	-	-	100	2	-	02
6	BSBT 606	Open Elective 2	40	30	30	-	-	-	100	2	-	02
7	BSBT -607	Major Project + Seminar	-	-	-	200+	-	-	300	2	-	02
8	BSBT 608	NCC*/MOOC*	40	30	30	40	30	30	200	2	1	3
Total									1200			22+3

*Additional credit only for those students who opt for NCC/MOOC

List of Open Electives: 2 Subjects	BSBT 606 A: Introduction to Nanobiotechnology	BSBT 606 B: Frontiers in Biotechnology and Microbiology
------------------------------------	---	---



Dr. Y.C. Goswami
(Chairman)



Dr. Rita Sharma
(Coordinator & member)



Dr. Santosh Kumar
(Exam Superintendent)


REGISTRAR
 ITM UNIVERSITY
 Gwalior (M.P.)



Syllabus (B.Sc. Biotechnology)

Title of the Course	Major Project
Course Code	BSBT 607 [P]

Part A

Year	3rd	Semester	6th	Credits	L	T	P	C
					0	0	2	2
Course Type	Lab only							
Course Category	Projects and Internship							
Pre-Requisite/s	Knowledge of Basic Biotechnology and laboratory skills			Co-Requisite/s				
Course Outcomes & Bloom's Level	CO1- To enhance writing skills and knowledge. (BL2-Understand) CO2- To increase their mental ability. (BL3-Apply) CO3- To inculcate the ability to express innovative opinion and thoughts. (BL4-Analyze) CO4- To have Dissertation works as skills development in students. (BL5-Evaluate)							
Course Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		SDG (Goals)	SDG9(Industry Innovation and Infrastructure)				

Part B

Modules	Contents	Pedagogy	Hours
---------	----------	----------	-------

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module-I	Identification of a problem and formulation of a topic of project/thesis	Internship	BL3-Apply	15 hrs
Module-II	To have field work and data collection through a chosen methodology	Internship	BL4-Analyze	180 hrs
Module-III	Dissertation and Viva-Voce	Internship	BL5-Evaluate	60 hrs

Part D (Marks Distribution)


Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
300	150	300	150	-	

Part E

Books	
Articles	
References Books	
MOOC Courses	
Videos	

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-


 Prof. (Dr.) Yogesh C Goswami
 Dean
 School of Applied Sciences
 School of Science ITM University
 Gwalior (M.P.)-INDIA-474001


 REGISTRAR
 ITM UNIVERSITY
 Gwalior (M.P.)

Department of Biotechnology & Microbiology
(Batch 2022-23)

NAME OF COURSE: M.SC. BIOTECHNOLOGY

SEMESTER - IV

SUBJECT WISE DISTRIBUTION OF MARKS AND CORRESPONDING CREDITS

S.No.	Subject Code	Subject Name & Title	Maximum Marks Allotted							Credits Allotted Subject wise			Total Credits
			Theory Slot			Practical Slot			Total Marks	Period per week			
			End Sem	Mid Sem. MST (Two tests average)	Class Participation	End Sem	Progressive Evaluation	Internal viva		L	T	P	
1.	BT-401	Research Project	-	-	-	200	-	-	200	-	-	14	14
2.	BT-402	Research Report and Presentation	-	-	-	100	-	-	100	-	-	-	04
3	BT-403	Research Methodology	40	30	30	-	-	-	100			04	04

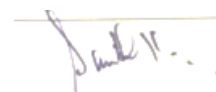
Minimum Marks for passing in End Semester Practical – 50%



Dr. Y.C. Goswami
(Chairman)



Dr. Rita Sharma
(Coordinator & member)



Dr. Santosh Kumar
(Exam Superintendent)



Syllabus (M.Sc. Biotechnology)

Title of the Course	RESEARCH PROJECT & RESEARCH REPORT AND PRESENTATION
Course Code	BT401/402

Part A

Year	2nd	Semester	4th	Credits	L	T	P	C
					0	0	14	14
Course Type	Project							
Course Category	Projects and Internship							
Pre-Requisite/s	Student must have basic knowledge of biotechnological laboratory skills			Co-Requisite/s				
Course Outcomes & Bloom's Level	<p>CO1- To provide students with the fundamental tools and practical skills required to generate competent and highly qualified post graduates. (BL2-Understand)</p> <p>CO2- To acquaint the students with the principles of biosafety and ethical perspectives of biotechnological systems. (BL2-Understand)</p> <p>CO3- To develop students' ability to apply knowledge and skills to solve theoretical and practical problems in biology and biotechnology. (BL5-Evaluate)</p> <p>CO4- To provide students with the basis for the life-long self-learning in an attempt to keep up with the continuous quick changes in the field of biotechnology. (BL3-Apply)</p> <p>CO5- To equip students with the necessary critical theoretical background, develop the analytical, and basic research skills that will help students to pursue higher education in reputed institutes at both national and international levels (BL4-Analyze)</p>							
Course Elements	Skill Development ✓ Entrepreneurship ✗ Employability ✓ Professional Ethics ✓ Gender ✗ Human Values ✓ Environment ✓		SDG (Goals)	SDG3(Good health and well-being) SDG4(Quality education) SDG8(Decent work and economic growth) SDG9(Industry Innovation and Infrastructure)				

Part B

Modules	Contents	Pedagogy	Hours
---------	----------	----------	-------

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level
Module-I	Identification of a problem and formulation of a topic of project/thesis	Internship	BL3-Apply
Module-II	To have field work and data collection through a chosen methodology	Internship	BL4-Analyze
Module-III	Dissertation and Viva-Voce	Internship	BL5-Evaluate


Part C

Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
300	150	300	150		

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-


 Prof. (Dr.) Yogesh C Goswami
 Dean
 School of Applied Sciences
 School of Science ITM University
 Gwalior (M.P.)-INDIA-474001


 REGISTRAR
 ITM UNIVERSITY
 Gwalior (M.P.)



Details of UG Research projects/Internship


Name of the School: School Science, ITM University, Gwalior.

Name of the Course and Branch: B.Sc. Biotechnology

Session: 2022– 2023


Total No. of Students enrolled: 14

Duration: 45 Days

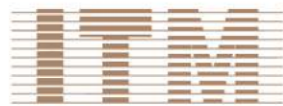

 UNIVERSITY
 GWALIOR • MP • INDIA
 CELEBRATING DREAMS
 Department of Biotechnology/Microbiology
 School of Sciences
 List of UG Major Project

Branch: B.Sc Biotechnology
 Batch :2020-23
 No of Students:14

S.No	Roll No	Name Of Students	Name of Industry/Institute	Topic	Supervisor
1	BSBN1BT20001	Anuj Shrivastava	ITM University	Development & evaluation of carbon-based kajal formulation, checking antimicrobial activity and feasibility as a semi-solid base for ophthalmic	Dr. Richa Kothari
2	BSBN1BT20002	Harsh Choudhary	ITM University	Formulation and evaluation of copper enriched polyherbal antimicrobial dusting powder derived from Catharanthus roseus copper II Complex	Dr. Richa Kothari
3	BSBN1BT20004	Priyanka Sharma	ITM University	Development and evaluation of a green synthesized sunscreen cream containing silver nanoparticles for enhanced UV radiation protection and antioxidant activity	Dr. Richa Kothari
4	BSBN1BT20005	Samridhi Sonker	ITM University	Development & evaluation of carbon-based kajal formulation, checking antimicrobial activity and feasibility as a semi-solid base for ophthalmic	Dr. Richa Kothari


 Prof. (Dr.) Yogesh C Gaswami
 Dean
 School of Science ITM University
 Gwalior (M.P.) INDIA-474001


REGISTRAR
ITM UNIVERSITY
 Gwalior (M.P.)



UNIVERSITY
GWALIOR • MP • INDIA

"CELEBRATING DREAMS"



UNIVERSITY

GWALIOR • MP • INDIA

"CELEBRATING DREAMS"

5	BSBN1BT20006	Somya Sharma	MP Council of science and technology, Bhopal	Genomic DNA isolation and Agarose gel electrophoresis	Dr. Pramod K. Sairkar
6	BSBN1BT20007	Tushant Wats	ITM University	Development and evaluation of a green synthesized sunscreen cream containing silver nanoparticles for enhanced UV radiation protection and antioxidant activity	Dr. Richa Kothari
7	BSBN1BT20008	Yaser Khan	ITM University	Evaluation and characterization of Navy Bean (<i>Phaseolus vulgaris</i>) for salinity stress	Dr. Rita Sharma
8	BSBN1BT20009	Srijita Rauth	ITM University	Development and evaluation of a green synthesized sunscreen cream containing silver nanoparticles for enhanced UV radiation protection and antioxidant activity	Dr. Richa Kothari
9	BSBN1BT20010	Monalisa Aktar	ITM University	Formulation and evaluation of copper enriched polyherbal antimicrobial dusting powder derived from <i>Catharanthus roseus</i> copper II Complex	Dr. Richa Kothari
10	BSBN1BT20011	Meenakshi Jadhav	ICAR-CAFRI, Jhansi	Understanding the drought tolerance mechanism of <i>Melia dubia</i> and role of phosphorous in alleviating drought stress.	Dr. K. Rajarajan
11	BSBN1BT20012	Kashish Jain	ITM University	Formulation and evaluation of copper enriched polyherbal antimicrobial dusting powder derived from <i>Catharanthus roseus</i> copper II Complex	Dr. Richa Kothari

Prof. (Dr.) Yogesh K. Goswami
Dean

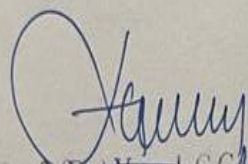
School of Science ITM University

REGISTRAR
ITM UNIVERSITY
Gwalior (M.P.)



"CELEBRATING DREAMS"

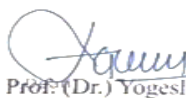
12	BSBN1BT20013	Deepika Goyal	ITM University	Development & evaluation of carbon-based kajal formulation, checking antimicrobial activity and feasibility as a semi-solid base for ophthalmic	Dr. Richa Kothari
13	BSBN1BT20018	Tanya Bhadoriya	ITM University	Development & evaluation of carbon-based kajal formulation, checking antimicrobial activity and feasibility as a semi-solid base for ophthalmic	Dr. Richa Kothari
14	BSBN1BT20019	Gabou Jonathan Levy	ITM University	Whole genome sequencing: Tools and applications	Dr. Moti Lal


 Prof. (Dr.) Yogesh C. G. Swami
 Dean
 School of Sciences
 ITM University
 Gwalior (M.P.)-INDIA-474001

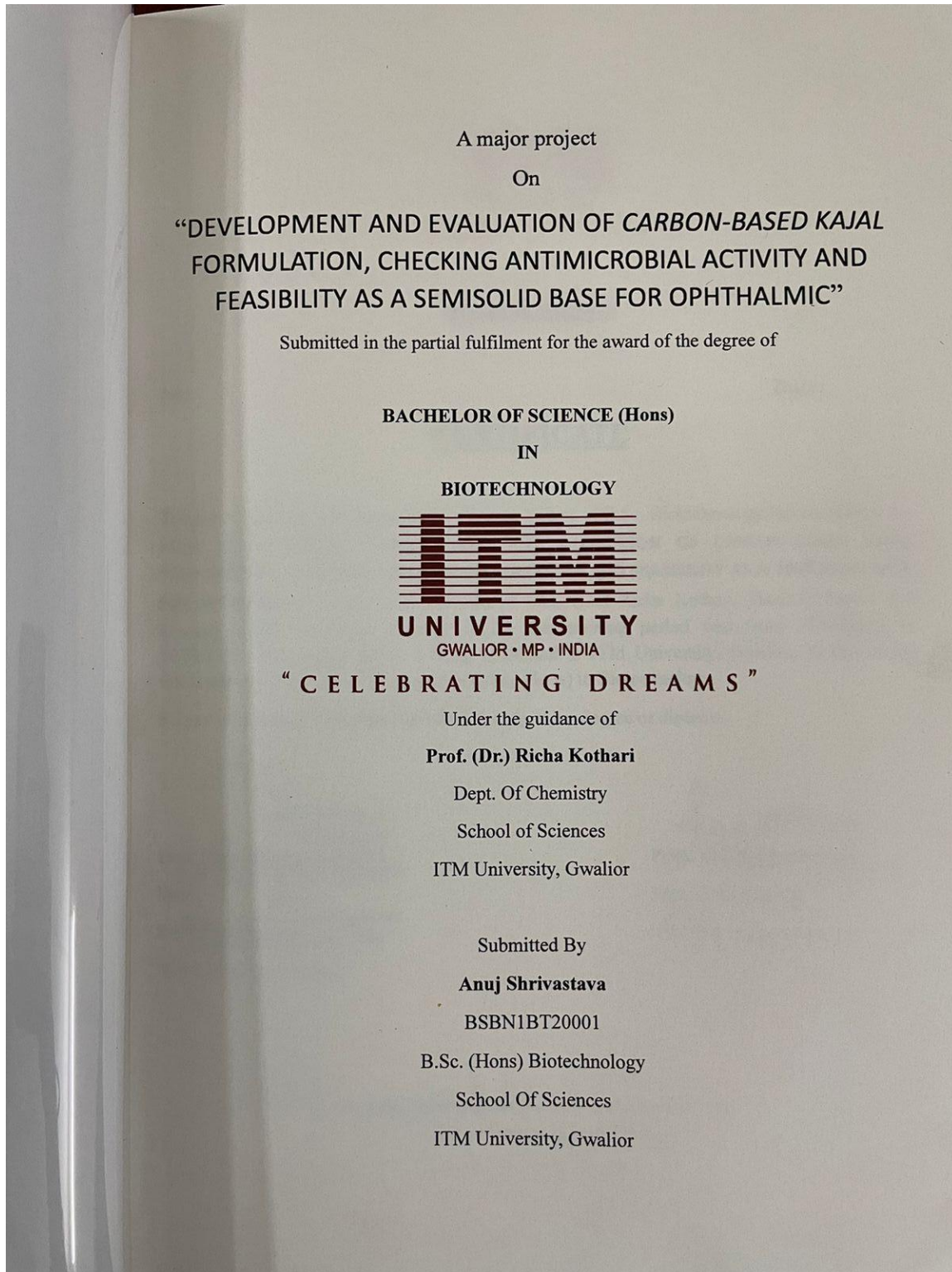

 REGISTRAR
 ITM UNIVERSITY
 Gwalior (M.P.)

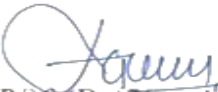
List of Students of BSc Biotechnology 6th Semester

Roll No.	Name of Student
BSBN1BT20001	Anuj Shrivastava
BSBN1BT20002	Harsh Choudhary
BSBN1BT20004	Priyanka Sharma
BSBN1BT20005	Samridhi Sonker
BSBN1BT20006	Somya Sharma
BSBN1BT20007	Tushant Wats
BSBN1BT20008	Yaser Khan
BSBN1BT20009	Srijita Rauth
BSBN1BT20010	Monalisa Aktar
BSBN1BT20011	Meenakshi Jadhav
BSBN1BT20012	Kashish Jain
BSBN1BT20013	Deepika Goyal
BSBN1BT20018	Tanya Bhadoriya
BSBN1BT20019	Gabou Jonathan Levy

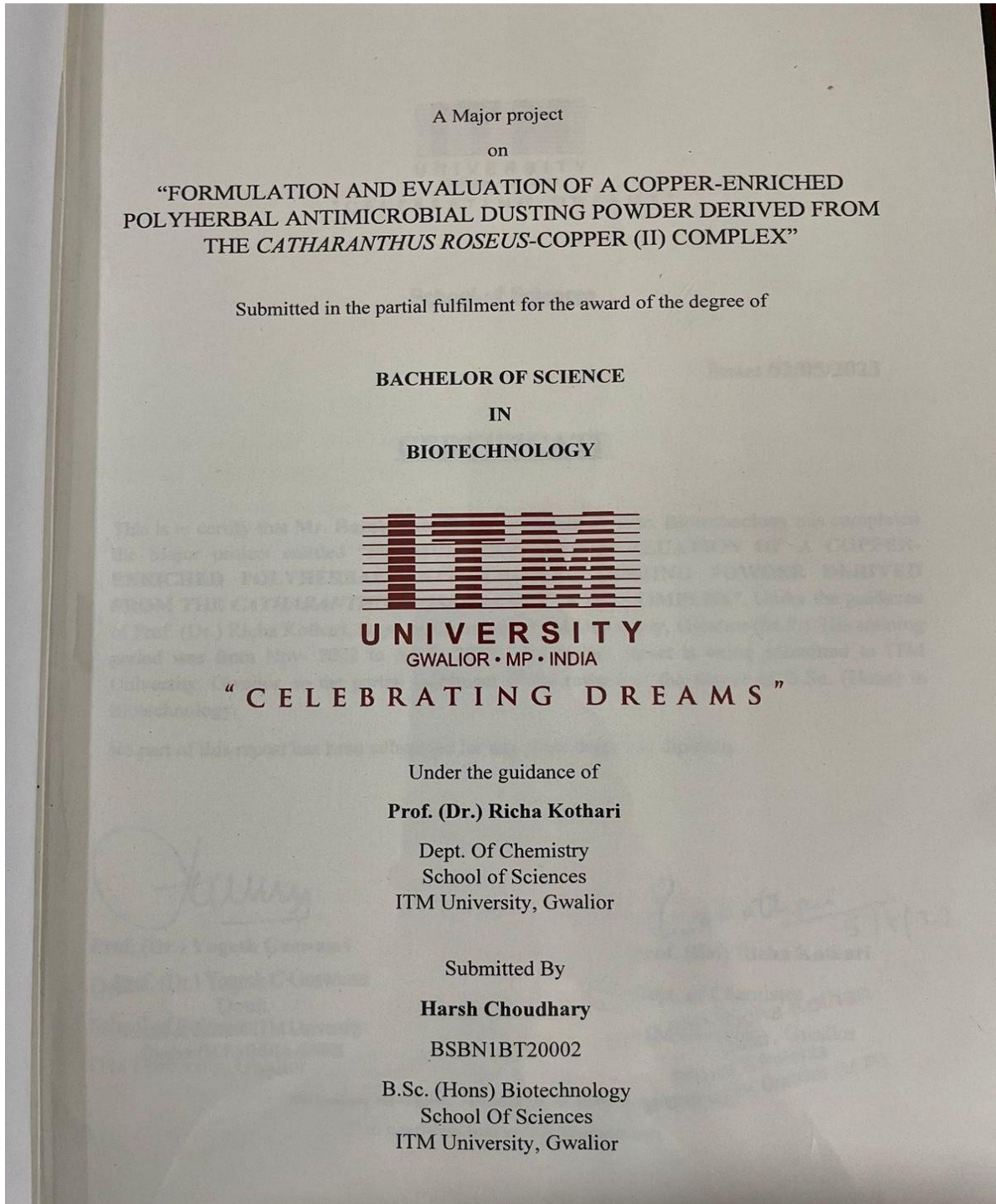

Prof: (Dr.) Yogesh C Goswami
School of Applied Sciences
School of Science ITM University
Gwalior (M.P.)-INDIA-474001



REGISTRAR
ITM UNIVERSITY
Gwalior (M.P)




Prof. (Dr.) Yogesh C Goswami
Dean
School of Applied Sciences
School of Science ITM University
Gwalior (M.P.)-INDIA-474001


REGISTRAR
ITM UNIVERSITY
Gwalior (M.P.)




Prof. (Dr.) Yogesh C Goswami
Dean
School of Applied Sciences
School of Science ITM University
Gwalior (M.P.)-INDIA-474001


REGISTRAR
ITM UNIVERSITY
Gwalior (M.P)



School of Sciences

Date: 02/05/2023

CERTIFICATE

This is to certify that **Mr. Harsh Choudhary**, a student of B.Sc. Biotechnology has completed the Major project entitled "**FORMULATION AND EVALUATION OF A COPPER-ENRICHED POLYHERBAL ANTIMICROBIAL DUSTING POWDER DERIVED FROM THE CATHARANTHUS ROSEUS-COPPER (II) COMPLEX**". Under the guidance of Prof. (Dr.) Richa Kothari, Dept. of Chemistry, ITM University, Gwalior (M.P.). His training period was from Nov- 2022 to April- 2023. The project report is being submitted to ITM University, Gwalior, in the partial fulfilment of the reward of the degree of B.Sc. (Hons) in Biotechnology.

No part of this report has been submitted for any other degree or diploma.

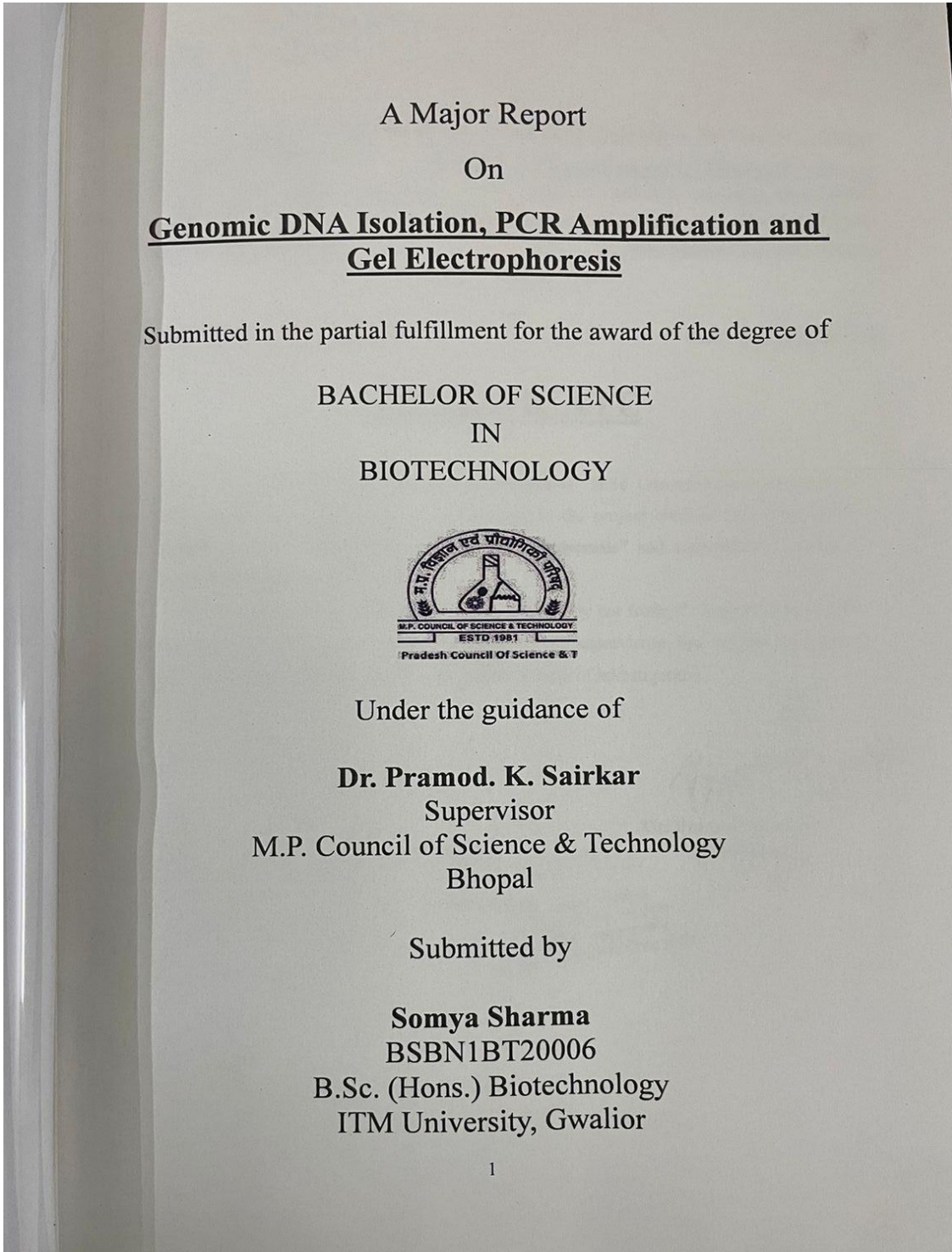
Prof. (Dr.) Yogesh Goswami
Dean
School of Sciences
ITM University
Gwalior (M.P.)-INDIA-474001
ITM University, Gwalior


Prof. (Dr.) Richa Kothari
Dept. of Chemistry
ITM University, Gwalior
Dean,
Project & Patents
ITM University, Gwalior (M.P.)

ITM University, NH-43 Bypass, Jhansi Road, Gwalior, Madhya Pradesh 474001, India

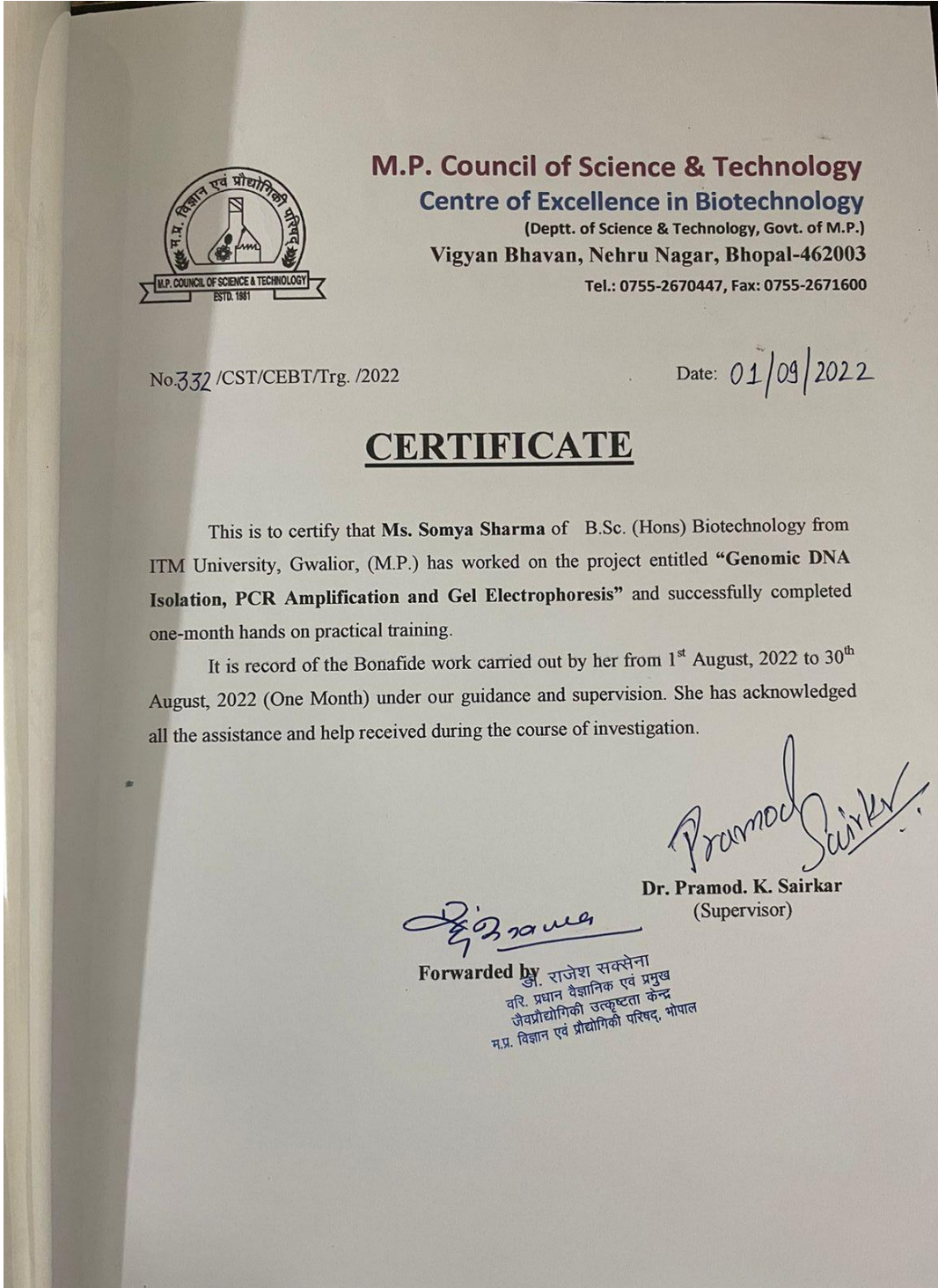
Ph: 1800 270 0031, in the web: www.itmuniversity.ac.in

REGISTRAR
ITM UNIVERSITY
Gwalior (M.P.)



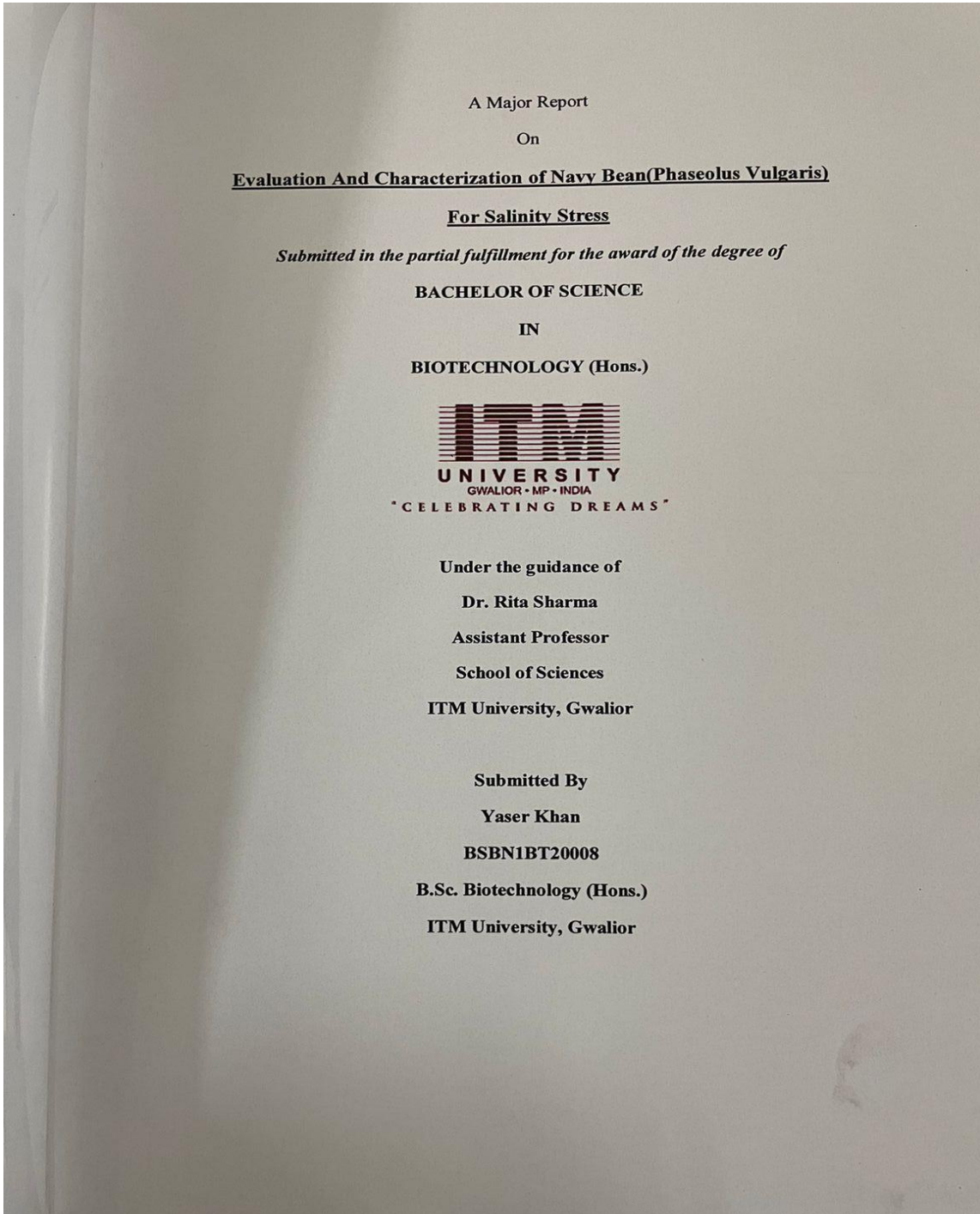

Prof. (Dr.) Yogesh C Goswami
Dean
School of Applied Sciences
School of Science ITM University
Gwalior (M.P.)-INDIA-474001

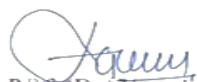

REGISTRAR
ITM UNIVERSITY
Gwalior (M.P.)



[Signature]
Prof. (Dr.) Yogesh C Goswami
 Dean
 School of Applied Sciences
 School of Science ITM University
 Gwalior (M.P.)-INDIA-473001

[Signature]
REGISTRAR
ITM UNIVERSITY
 Gwalior (M.P)




Prof. (Dr.) Yogesh C Goswami
Dean
School of Applied Sciences
School of Science ITM University
Gwalior (M.P.)-INDIA-474001


REGISTRAR
ITM UNIVERSITY
Gwalior (M.P)



DEPARTMENT OF BIOTECHNOLOGY/MICROBIOLOGY
SCHOOL OF SCIENCES
ITM UNIVERSITY, GWALIOR (M.P)

Date: 25-09-2022

CERTIFICATE

This is to certify that **Mr. Yaser Khan**, a regular student of B.Sc(Hons.) Biotechnology -VI semester (2020-2023), of ITM University, has successfully completed his major project work entitled "**Evaluation And Characterization of Navy Bean (*Phaseolus vulgaris*) for Salinity Stress**" under the guidance of **Dr. Rita Sharma**, Assistant Professor and Coordinator, Department of Biotechnology and Microbiology, School of Sciences, ITM University, Gwalior from August 01 to 20th September 2022, towards the partial fulfillment of B.Sc (Hons.) degree in Biotechnology.

No part of this report has been submitted for any other degree or diploma.

Prof. Y.C. Goswami
Prof. (Dr.) Yogesh C Goswami
Dean
School of Sciences
ITM University
Gwalior (M.P.)-INDIA-475001
ITM University
Gwalior

Dr Rita Sharma
Assistant Professor and Coordinator
Dept. of Biotechnology/Microbiology
School of Sciences
ITM University
Gwalior

NH-44, Bypass Turari, Turari Campus, Jhansi Road, Gwalior-475001(M.P)
Website:<http://itmuniversity.ac.in/>



"CELEBRATING DREAMS"

School of Sciences

No.

Date:

CERTIFICATE

This is to certify that **Ms. Tanyua Bhadauria**, a student of B.Sc. Biotechnology has completed the Major project entitled "**DEVELOPMENT AND EVALUATION OF CARBON-BASED KAJAL FORMULATION, CHECKING ANTIMICROBIAL ACTIVITY AND FEASIBILITY AS A SEMISOLID BASE FOR OPHTHALMIC**". Under the guidance of Prof. (Dr.) Richa Kothari, Dean of Patent and Research, ITM University, Gwalior (M.P.). Her training period was from 15/01/2023 to 20/04/2023. The project report is being submitted to ITM University, Gwalior, in the partial fulfilment of the reward of the degree of B.Sc. (Hons) in Biotechnology.

No part of this report has been submitted for any other degree or diploma.

Prof. (Dr.) Yogesh C Goswami
Dean
School of Sciences
ITM University
Gwalior (M.P.) INDIA-474001
ITM University, Gwalior

Prof. (Dr.) Richa Kothari
Dept. of Chemistry
ITM University, Gwalior

ITM University, NH-43 Bypass, Jhansi Road, Gwalior, Madhya Pradesh 475001, India

Ph: 1800 270 0031, in the web: www.itmuniversity.ac.in

Prof. (Dr.) Yogesh C Goswami
School of Sciences
ITM University
Gwalior (M.P.) INDIA-474001

REGISTRAR
ITM UNIVERSITY
Gwalior (M.P.)



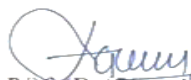
UNIVERSITY
GWALIOR • MP • INDIA

"CELEBRATING DREAMS"

12

List of Students of BSc Biotechnology 6th Semester

Roll No.	Name of Student
BSBN1BT20001	Anuj Shrivastava
BSBN1BT20002	Harsh Choudhary
BSBN1BT20004	Priyanka Sharma
BSBN1BT20005	Samridhi Sonker
BSBN1BT20006	Somya Sharma
BSBN1BT20007	Tushant Wats
BSBN1BT20008	Yaser Khan
BSBN1BT20009	Srijita Rauth
BSBN1BT20010	Monalisa Aktar
BSBN1BT20011	Meenakshi Jadhav
BSBN1BT20012	Kashish Jain
BSBN1BT20013	Deepika Goyal
BSBN1BT20018	Tanya Bhadoriya
BSBN1BT20019	Gabou Jonathan Levy


Prof. (Dr.) Yogesh C Goswami
Dean
School of Applied Sciences
School of Science ITM University
Gwalior (M.P.)-INDIA-474001


REGISTRAR
ITM UNIVERSITY
Gwalior (M.P)



UNIVERSITY
GWALIOR • MP • INDIA

"CELEBRATING DREAMS"

Details of PG Research projects

Name of the School: School of Science and Reserch, ITM University, Gwalior.

Name of the Course and Branch: M.Sc. Biotechnology

Session: 2022– 2023

Total No. of Students enrolled: 02

Sample of Research Projects

Department of Biotechnology and Microbiology

School of Applied Sciences

ITM University, Gwalior

Details of PG Research Projects

Course and Branch: M.Sc Biotechnology (Batch 2021-23)

Session: Batch 2021-23

No . of Students: 02

S.No	Student Name	Roll No	Research institute/Industry Name	Topic
1	Vaishali Savita	MSMN1BT21003	Tropolite PVT Ltd, Gwalior	Non dairy Whip topping cream
2	Vidhya Menon	MSMN1BT21004	CSIR-APMRI , Bhopal	Debelopment and surface modification of open celltitanium foam to mitigate bacterial infections

Prof. (Dr.) Yogesh C Goswami

Dean
School of Applied Sciences
School of Science ITM University
Gwalior (M.P.)-INDIA-474001

REGISTRAR
ITM UNIVERSITY
Gwalior (M.P)



UNIVERSITY
GWALIOR • MP • INDIA

"CELEBRATING DREAMS"

Development and Surface Modification of
open cell Titanium Foam to Mitigate
Bacterial Infections

Thesis

*Submitted in partial fulfilment for the award of the degree of
Master of Science*

In

Biotechnology



UNIVERSITY
GWALIOR • MP • INDIA

by

Vidhya Menon

Under The Supervision

of

Supervisor

Dr. Chetna Dhand

Senior Scientist

CSIR AMPRI Bhopal

Co-Supervisor

Dr. Sadhna Chaturvedi

Assistant Professor

ITM University Gwalior

Prof. (Dr.) Yogesh C Goswami
School of Applied Sciences
School of Science ITM University
Gwalior (M.P.)-INDIA-474001

REGISTRAR
ITM UNIVERSITY
Gwalior (M.P.)



UNIVERSITY
GWALIOR • MP • INDIA

"CELEBRATING DREAMS"

CERTIFICATE-I

This is to certify that thesis entitled "**Development and Surface Modification of open cell Titanium Foam to Mitigate Bacterial Infections**" is an original research work done by **Vidhya Menon** during the period of 6 months from January- June in CSIR AMPRI Bhopal under my guidance for partial fulfilment of degree in MSc Biotechnology from Department of Life Sciences ITM University Gwalior .The work of any portion of it cannot be published or used by University/college/student in any scientific or popular journals or magazines and cannot be presented in any scientific/non-scientific platforms without proper permission of the supervisors and institute. The contents of this thesis have not been taken from any other source or submitted to any other University for the award of any degree or diploma

Calhand

Dr. Chetna Dhand

Senior Scientist,

CSIR-AMPRI, Bhopal

Date: 27-06-2023

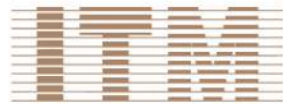
डॉ. चेतना डांड / Dr. Chetna Dhand
वरिष्ठ वैज्ञानिक / Senior Scientist
सी.एस.आई.आर.प्रगत पदार्थ तथा प्रक्रम अनुसंधान संस्थान
CSIR-Advanced Materials & Processes Research Institute
होशंगाबाद रोड, भोपाल-462026
Hoshangabad Road, Bhopal - 462026

Yogesh C Goswami

Prof. (Dr.) Yogesh C Goswami
School of Applied Sciences
School of Science ITM University
Gwalior (M.P.)-INDIA-474001

[Signature]

REGISTRAR
ITM UNIVERSITY
Gwalior (M.P)



UNIVERSITY
GWALIOR • MP • INDIA

"CELEBRATING DREAMS"

A Dissertation Report on

Non Dairy Whip Topping Cream



The taste of Happiness!

TROPILITE FOOD PVT. LTD.

Submitted to-

ITM University, Turari campus



UNIVERSITY
GWALIOR • MP • INDIA

"CELEBRATING DREAMS"

Submitted in partial fulfillment for the award of the degree of

MASTER OF SCIENCES

Under the supervision of

Dr. RITA SHARMA

Assistant professor

School of sciences, ITM University, Gwalior

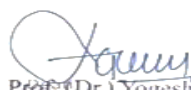
Prepared by :-

VAISHALI SAVITA

Roll No. MSBN1BT21003

2021-2023

17


Prof. (Dr.) Yogesh C Goswami
Dean
School of Applied Sciences
School of Science ITM University
Gwalior (M.P.)-INDIA-474001


REGISTRAR
ITM UNIVERSITY
Gwalior (M.P.)



UNIVERSITY
Gwalior • MP • INDIA

"CELEBRATING DREAMS"

CERTIFICATE- I

TFPL/HR/CERT/084


Date: 22-06-2023

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Ms. Vaishali Savita**; student of the Master of Science in Biotechnology, ITM University, Gwalior (M.P), has undergone 83 days "Training programme during the period from 04-04-2023 to 22-06-2023. Her topic for the project was "Non Dairy Whip Topping Cream".

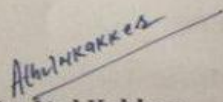
We found her sincere during her training and wish her tremendous success in all future endeavors.

For Tropilite Foods Pvt. Ltd, Gwalior


Dr. Sonali Saxena

Head - QC/QA

Tropilite Foods Pvt. Ltd.


Mr. Atul Kakkar

Head - HR & Legal

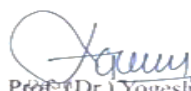
Tropilite Foods Pvt. Ltd.

Tropilite Foods Pvt. Ltd.



Head Office: Bhopal Campus, Industrial Area, Sector 10A, Gwalior-474001 (M.P.) India. Ph: +91 (0) 475 4942011, 4942012, 4942013, 4942014, 4942015, 4942016, 4942017, 4942018, 4942019, 4942020, 4942021, 4942022, 4942023, 4942024, 4942025, 4942026, 4942027, 4942028, 4942029, 4942030, 4942031, 4942032, 4942033, 4942034, 4942035, 4942036, 4942037, 4942038, 4942039, 4942040, 4942041, 4942042, 4942043, 4942044, 4942045, 4942046, 4942047, 4942048, 4942049, 4942050, 4942051, 4942052, 4942053, 4942054, 4942055, 4942056, 4942057, 4942058, 4942059, 4942060, 4942061, 4942062, 4942063, 4942064, 4942065, 4942066, 4942067, 4942068, 4942069, 4942070, 4942071, 4942072, 4942073, 4942074, 4942075, 4942076, 4942077, 4942078, 4942079, 4942080, 4942081, 4942082, 4942083, 4942084, 4942085, 4942086, 4942087, 4942088, 4942089, 4942090, 4942091, 4942092, 4942093, 4942094, 4942095, 4942096, 4942097, 4942098, 4942099, 4942100. Email: info@itm.ac.in, www.itmuniversity.ac.in

18


Prof. (Dr.) Yogesh C Goswami
Dean
School of Applied Sciences
School of Science ITM University
Gwalior (M.P.)-INDIA-474001


REGISTRAR
ITM UNIVERSITY
Gwalior (M.P.)

Details of Industrial Visit/Hands on Training (UG)

III Year B.Sc Biotechnology – Brief Summary

Objective

The objective of industrial visits /hands on training, provide students with the unique opportunity to witness how theoretical knowledge is applied in practical, industrial settings. Also, aware the students with the Real-world exposure. This firsthand experience enhances their understanding of concepts learned in the classroom. It helps to bridge the widening gap between theoretical learning and practical exposure by giving students first-hand exposure to identify the inputs and outputs of different business operations and processes performed at the workplace

As a part of educational visit, B.Sc. Biotechnology students have posted visited to ICAR-Central Argo Forestry Research institute (CAFRI), Jhansi (U.P). from 10/03/2022 to 12/03/2022. Dr. K. Rajarajan (Senior Scientist, Plant Genetics) conducted the training and visit along with Dr. Hirdayesh Anuragi (Scientist, Genetics and Plant Breeding). Students have learned about the standard operating protocol of laboratories and good laboratory practices (GLP). They have practiced to isolate DNA from the various samples and estimated it using several techniques like Agarose gel electrophoresis, UV spectrophotometer, PCR, RT-PCR, etc. Students also gained knowledge of agroforestry with the help of a field visit. They have seen how the agricultural crops can be merged with the forest trees for sustainable agriculture practices. This training was highly beneficial for our student's future research prospects.

At the end students were instructed to complete their assessment and to submit the file to respective teachers.



REGISTRAR
ITM UNIVERSITY
Gwalior (M.P)

The outcomes of Hands-on Training for BSc Biotechnology students include:

Cognitive Knowledge: To provide education that leads to comprehensive understanding of the principles and practices of biotechnology.

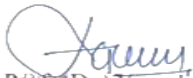
Enhanced Research Skills: Students gain hands-on experience by doing experiential learning, honing their research skills and competence.

Increased critical thinking ability: Provides opportunities to plan organize and engage in active learning experiences both inside and outside the classroom

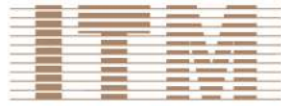
Improved Communication and Research Skills: Exposure to eminent and distinguished persons in different fields through talks encourages students to take on greater responsibility, fostering professional growth, and enhancing confidence in their research practice.

Information and Computer Literacy: To educate and make them up to date with the current scientific literature, computer programs and web information.

Preparation for Future Practice: Hands on training provides valuable experiential learning opportunities that prepare students for their future roles as competent and compassionate biotechnologists in various research organizations, industries or health care sectors.


Prof. (Dr.) Yogesh C Goswami
School of Applied Sciences
School of Science ITM University
Gwalior (M.P.)-INDIA-474001


REGISTRAR
ITM UNIVERSITY
Gwalior (M.P.)



UNIVERSITY
GWALIOR • MP • INDIA

“ CELEBRATING DREAMS ”

List of Students
(CAFRI-Jhansi U.P)

Roll No.	Name of Student
BSBN1BT20006	Somya Sharma
BSBN1BT20007	Tushant Wats
BSBN1BT20008	Yaser Khan
BSBN1BT20009	Srijita Rauth
BSBN1BT20010	Monalisa Aktar
BSBN1BT20011	Meenakshi Jadhav
BSBN1BT20012	Kashish Jain
BSBN1BT20013	Deepika Goyal
BSBN1BT20018	Tanya Bhadoriya
MSMNIBT21003	Vaishali Savita
MSMNIBT21004	Vidhya Menon

REGISTRAR
ITM UNIVERSITY
Gwalior (M.P)

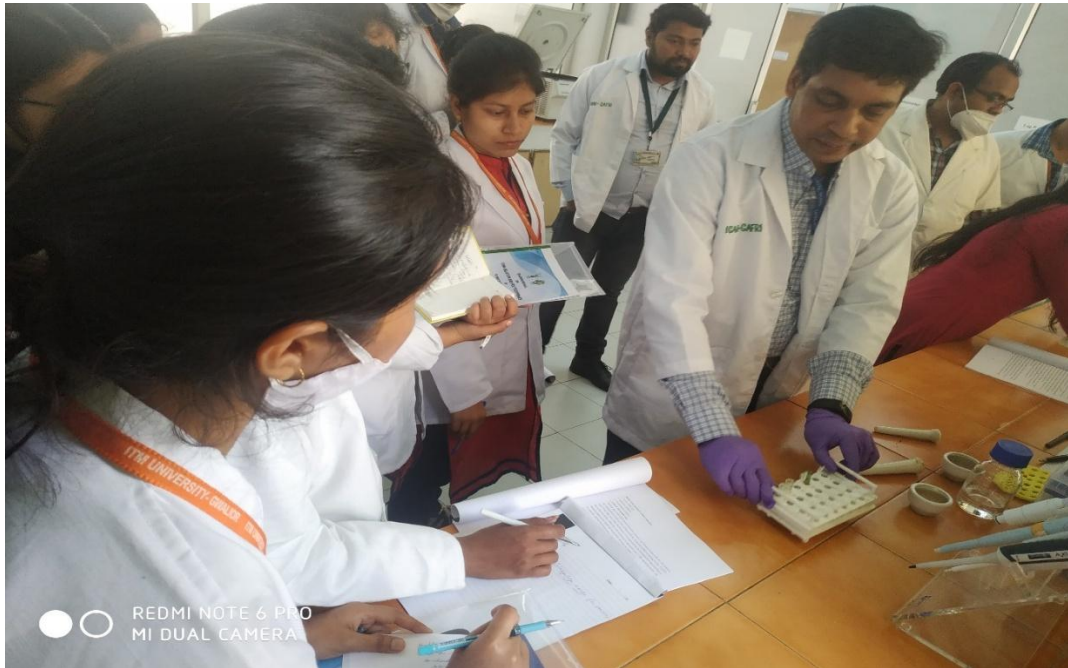


Students for their Hand on Training at ICAR-CAFRI, Jhansi (U.P)



Introductory session at ICAR-CAFRI, Jhansi (U.P)


REGISTRAR
ITM UNIVERSITY
Gwalior (M.P)



Students doing research practices at ICAR-CAFRI, Jhansi (U.P) under the guidance of Sr. Scientist Dr. K. Rajarajan



Students doing research practices at ICAR-CAFRI, Jhansi (U.P) under the guidance of Sr. Scientist Dr. K. Rajarajan


REGISTRAR
ITM UNIVERSITY
Gwalior (M.P)



Field visit at ICAR-CAFRI, Jhansi (U.P) under the guidance of Sr. Scientist Dr. Hridayesh Anuragi



Valedictory session at ICAR-CAFRI, Jhansi (U.P) with Director CAFRI Dr. A. Arunachalam


REGISTRAR
ITM UNIVERSITY
Gwalior (M.P)



Certificate distribution to the participants at ICAR-CAFRI, Jhansi (U.P) with Director CAFRI Dr. A. Arunachalam, Principal Scientist Dr. A. K. Handa


REGISTRAR
ITM UNIVERSITY
Gwalior (M.P)



Certificate distribution to the participants at ICAR-CAFRI, Jhansi (U.P) with Director CAFRI Dr. A. Arunachalam, Principal Scientist Dr. A. K. Handa


**REGISTRAR
ITM UNIVERSITY
Gwalior (M.P)**