

SCHOOL OF SCIENCE
Department of Microbiology

CRITERIA 1

SUB CRITERIA 1.3.3

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

Academic Year

2022-2023


Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)

SCHOOL OF SCIENCE
Department Of Microbiology

Total Number of Research Projects/Internships in UG

Internships/Research Projects	Program	Total Number of students involved in Internship
	BSc Microbiology	02

In the microbiology 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 Microbiology	14

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. Microbiology, students undertake field visits to research institutes, industries, sewage treatment plants, water treatment plants, pathologies etc. to enhance knowledge and enrich skills.


Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)



UNIVERSITY
GWALIOR • MP • INDIA

"CELEBRATING DREAMS"

Index

S.no	Component	Page No
1.	Research Projects/Internships in UG	1-03
2.	Research Projects of PG	4-04
3.	Field Project/Industry visits in UG and PG	5-09


Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)

School of Sciences

NAME OF COURSE: B. SC. MICROBIOLOGY

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	BSMB-601	Medical Microbiology	40	30	30	40	30	30	200	3	1	04
2	BSMB-602	Food and Dairy Microbiology	40	30	30	40	30	30	200	3	1	04
3	BSMB-603	Research Methodology	40	30	30	-	-	-	100	4	0	04
4	BSMB-604	Marine Microbiology	40	30	30	40	30	30	200	3	1	04
5	BSMB-605	Environmental Microbiology	40	30	30	-	-	-	100	2	-	02
6	BSMB 606	Open Elective 2	40	30	30	-	-	-	100	2	-	02
7	BSMB - 607	Major Project + Seminar	-	-	-	200+	-	-	300	2	-	02
8	BSMB 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	BSMB 606 A: Introduction to Nanobiotechnology	BSMB 606 B: Frontiers in Biotechnology and Microbiology
------------------------------------	---	---



Dr. Y.C. Goswami
(Chairman)



Dr. Rita Sharma
(Coordinator & member)



Dr. Santosh Kumar
(Exam Superintendent)


Dr. Omveer Singh
 REGISTRAR
 ITM University
 Gwalior (M.P.)

Syllabus (B.Sc. Microbiology)

Title of the Course	Major Project
Course Code	BSMB 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 rs
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


Dr. Omveer Singh
 REGISTRAR
 ITM University
 Gwalior (M.P.)



UNIVERSITY
GWALIOR • MP • INDIA

“ CELEBRATING DREAMS ”

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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-


Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)



UNIVERSITY
GWALIOR • MP • INDIA

"CELEBRATING DREAMS"

Details of UG Research projects/Internship

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

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

Session: 2022– 2023

Total No. of Students enrolled: 02

Duration: 45 Days



UNIVERSITY
GWALIOR • MP • INDIA
"CELEBRATING DREAMS"

Department of Biotechnology/Microbiology

School of Sciences

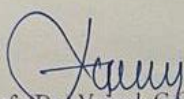
List of UG Major Project

Branch: B.Sc Microbiology

Batch :2020-23

No of Students:02

S.No	Roll No	Name Of Students	Name of Industry/Institute	Topic	Supervisor
1	BSMN1MB2001	Pallavi sharma	ITM University	Identification and characterization of bacterial flora from various laboratories of ITM University, Gwalior (M.P)	Dr. Prachi Dixit
2	BSMN1MB2002	Anushree Kamthan	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


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


Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)



UNIVERSITY
GWALIOR • MP • INDIA

“ CELEBRATING DREAMS ”

List of Students of BSc Microbiology 6th Semester

Roll No.	Name of Student
BSBN1MB20001	Pallavi Sharma
BSBN1MB20002	Anushree Kamthan


Dr. Omveer Singh
REGISTRAR
ITM University
Gwalior (M.P.)

A Major Project Report

On

"Development and Evaluation of Green synthesized Sunscreen Cream containing Silver Nanoparticles for enhanced UV radiation protection and Antioxidant activity"

Submitted in the Partial fulfillment for the award of the Degree in

BACHELOR OF SCIENCE

IN

MICROBIOLOGY



Under the Supervision Of:

Prof. (Dr.) Richa Kothari

Department of Chemistry

ITM University, Gwalior

Submitted By:

Anushree Kamthan

B.Sc. (Hons.) Microbiology

BSMN1MB20002

School Of Sciences

ITM University, Gwalior



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

CERTIFICATE

This is to certify that Ms. Anushree Kamthan, a regular student of B.Sc. (Hons.) Microbiology -VI semester (2020-2023), of ITM University, has completed her major project work entitled “**Development and Evaluation of Green Synthesized Sunscreen Cream containing Silver Nanoparticle for enhanced UV radiation Protection and antioxidant activity**” under my supervision from **January 18th to March 6th**, towards the partial fulfillment of B.Sc. (Hons.) Degree in Microbiology.

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

NH44, Bypass Turari, Turari Campus, Jhansi Road, Gwalior 475001 (M.P.)
Website: <http://itmuniversity.ac.in/>

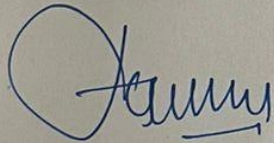
DEPARTMENT OF MICROBIOLOGY

SCHOOL OF SCIENCES

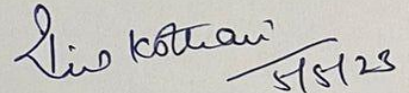
CERTIFICATE

This is to certify that the major project report titled "Development and Evaluation of Green Synthesized Sunscreen Cream Containing Silver Nanoparticle for Enhanced UV Radiation Protection and Antioxidant Activity" has been carried out by Anushree Kamthan, a student of B.Sc. (Hons.) Microbiology at ITM University, Batch 2020-23, under the guidance of Prof. (Dr.) Richa Kothari, Depart. Of Chemistry, ITM University.

The project was undertaken as a part of the academic curriculum of B.Sc. (Hons.) Microbiology and the work presented in the report is the original and independent work of the student. The project has been conducted according to the guidelines and ethical principles of research.



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




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

NH44, Bypass Turari, Turari Campus, Jhansi Road, Gwalior475001 (M.P.)
Website:<http://itmuniversity.ac.in/>

Declaration

I, hereby declare that the work entitled "*Identification and Characterization of Bacterial Flora From Various Laboratories of ITM University*" which has been presented in the partial fulfilment of B.Sc. (Hons.) in Microbiology at "ITM University, Gwalior" is a record of my own authentic work, carried under the supervision of Dr. Prachi Dixit Assistant Professor, Department of Biotechnology, School of Science, ITM University, Gwalior.

The matter embodied in this report has not been submitted for any other kind of degree or diploma.


Pallavi Sharma
BSMN1MB20001
B.Sc. (Hons) in Microbiology
School of Sciences
ITM University, Gwalior



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

Date: 25-09-2022

CERTIFICATE

This is to certify that **Ms. Pallavi Sharma**, a regular student of B.Sc (Hons.) Microbiology -VI semester (2020-2023), of ITM university, has successfully completed her major project work entitled "**Identification and Characterization of Bacterial Flora From Various Laboratories of ITM University, Gwalior (M.P)**" under the guidance of **Dr. Prachi Dixit**, Assistant Professor, Department of Biotechnology, School of Sciences, ITM University, Gwalior from August 01 to 20th September 2022, towards the partial fulfillment of B.Sc (Hons.) degree in Microbiology.

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
School of Science ITM University
ITM University
Gwalior (M.P) - 474001
Gwalior

Dr. Shiv Om Singh
Associate Professor,
School of Science
ITM University
Gwalior

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

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.

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.

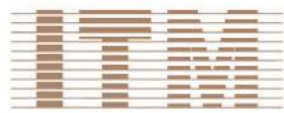


"CELEBRATING DREAMS"

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


Dr. Omveer Singh
 REGISTRAR
 ITM University
 Gwalior (M.P.)



UNIVERSITY
GWALIOR • MP • INDIA


“CELEBRATING DREAMS”



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



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



Dr. Omveer Singh
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



<https://prashantkumarsharma.org.in/practices-at-icar-cafri-jhansi-up-under-the-guidance-of-sr-scientist-dr-k-rajarajan>


Dr. Omveer Singh 13
 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



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



Dr. Omveer Singh
REGISTRAR
JIM 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