



SCHOOL OF BIO SCIENCES AND TECHNOLOGY

DEPARTMENT OF BIOMEDICAL SCIENCES

M.Sc., APPLIED MICROBIOLOGY

CURRICULUM

(2020-2021 admitted students)

VISION STATEMENT OF VELLORE INSTITUTE OF TECHNOLOGY

- Transforming life through excellence in education and research.

MISSION STATEMENT OF VELLORE INSTITUTE OF TECHNOLOGY

- **World class Education:** Excellence in education, grounded in ethics and critical thinking, for improvement of life.
- **Cutting edge Research:** An innovation ecosystem to extend knowledge and solve critical problems.
- **Impactful People:** Happy, accountable, caring and effective workforce and students.
- **Rewarding Co-creations:** Active collaboration with national & international industries & universities for productivity and economic development.
- **Service to Society:** Service to the region and world through knowledge and compassion.

VISION STATEMENT OF THE SCHOOL OF BIO SCIENCES AND TECHNOLOGY

- To nurture high-quality bioengineers and science graduates with the potential to innovate, invent and disseminate knowledge for the benefit of society and environment.

MISSION STATEMENT OF THE SCHOOL OF BIO SCIENCES AND TECHNOLOGY

- To create opportunities for multi-disciplinary education, training and research in biotechnology and bio-sciences.

- To instill a spirit of innovation and creativity in young minds from across the globe with sound research aptitude.
- To foster ethically strong biologists who effectively contribute towards the growth of the nation.

M.Sc., Applied Microbiology

Programme Educational Objectives (PEO)

PEO	Statements
PEO1	Graduates will be practitioners and leaders in their chosen field
PEO2	Graduates will function in their profession with social awareness and responsibility
PEO3	Graduates will interact with their peers in other disciplines in their work place and society and contribute to the economic growth of the country
PEO4	Graduates will be successful in pursuing higher studies in their chosen field
PEO5	Graduates will pursue career paths in teaching or research

M.Sc., Applied Microbiology

Programme Outcomes (POs)

POs	PO Statements
PO_1	Having a clear understanding of subject-related concepts and contemporary issues
PO_2	Having problem-solving ability for social issues
PO_3	Having a clear understanding of professional and ethical responsibility

- PO_4 Having cross-cultural competency exhibited by working in teams
- PO_5 Having a good working knowledge of communicating in English

M.Sc., Applied Microbiology

Programme Specific Outcomes (PSOs)

On completion of M.Sc., (Applied Microbiology) programme, graduates will be able to

PSO1: Acquire the expertise in the applications of microbial functioning at the need level.

PSO2: Equip students to make use of tools, technologies, and methods of microbiology and to apply the scientific methods

PSO3: Ability to independently carry out research and development work to solve the practical problems

Category-wise Credit distribution

CREDIT INFO		
S.no	Category	Credit
1	Programme Core	23
2	Programme Elective	22
3	University Core	29
4	University Elective	6
Total Credits		80



Programme Core

Sl. No	Course Code	Course Title	Course Type	Version	L	T	P	J	C
1	MSM5002	Advanced Microbiology	Embedded Theory, Lab and Project	1	2	0	2	4	4
2	MSM5003	Analytical Techniques	Embedded Theory and Lab	1	3	0	2	0	4
3	MSM5004	Molecular Biology	Embedded Theory and Lab	1	2	0	2	0	3
4	MSM5005	Immunology and Immunotechnology	Embedded Theory and Project	1	3	0	0	4	4
5	MSM5006	Microbial Physiology and Metabolism	Embedded Theory, Lab and Project	1	2	0	2	4	4
6	MSM5010	Fermentation Technology	Embedded Theory, Lab and Project	1	2	0	2	4	4



Programme Elective

Sl. No	Course Code	Course Title	Course Type	Version	L	T	P	J	C
1	MSM5007	Environmental Microbiology	Embedded Theory and Lab	1.1	3	0	2	0	4
2	MSM5008	Food Microbiology	Embedded Theory and Lab	1.1	3	0	2	0	4
3	MSM5009	Probiotics Technology	Theory Only	1.1	3	0	0	0	3
4	MSM5011	GxPs, Industrial Standards and Guidelines	Theory Only	1.1	3	0	0	0	3
5	MSM5012	Pharmaceutical Biotechnology	Embedded Theory and Project	1	2	0	0	4	3
6	MSM5013	Soil and Agricultural Microbiology	Theory Only	1.1	3	0	0	0	3
7	MSM5014	Marine Microbiology	Embedded Theory and Project	1	2	0	0	4	3
8	MSM5015	Fungal Biotechnology	Theory Only	1.1	3	0	0	0	3
9	MSM5016	Cell Culture Technology	Theory Only	1.1	3	0	0	0	3
10	MSM5017	Bio Business and Entrepreneurship	Theory Only	1.1	3	0	0	0	3
11	MSM5018	Bioinformatics	Embedded Theory, Lab and Project	1	2	0	2	4	4



12	MSM6001	Medical Microbiology	Embedded Theory and Project	1	2	0	0	4	3
13	MSM6002	Diagnostic Microbiology	Embedded Theory and Lab	1.1	3	0	2	0	4
14	MSM6003	rDNA Technology	Embedded Theory and Project	1	2	0	0	4	3
15	MSM6004	Industrial Microbiology	Theory Only	1.1	3	0	0	0	3
16	MSM6005	Nanobiotechnology	Theory Only	1.1	3	0	0	0	3

University Core									
Sl. No	Course Code	Course Title	Course Type	Version	L	T	P	J	C
1	MSM6099	Master's Thesis	Project	1	0	0	0	0	14
2	EFL6097	English and Foreign Language	Basket	1	0	0	0	0	2
3	MSM5001	Biostatistics	Embedded Theory and Lab	1.1	2	0	2	0	3
4	RES5001	Research Methodology	Embedded Theory and Project	1	1	0	0	4	2
5	SET5001	Science, Engineering and Technology Project - I	Project	1	0	0	0	0	2
6	SET5002	Science, Engineering and Technology Project - II	Project	1	0	0	0	0	2
7	SET5003	Science, Engineering and Technology Project – III	Project	1	0	0	0	0	2
8	LFS4777	Soft Skills-M.Sc Biotechnology 2 yr Programme 2020 onwards	Basket	1	0	0	0	0	2
9	STS4777	Soft Skills	Basket	1	0	0	0	0	2

University Electives (6 credits)



Sl. No.	Course Code	Course Title	L	T	P	J	C
1	UE	Any course offered to M.Tech (Subject to CGPA Conditions) / M.Sc., Programme					6