PROGRAMME STRUCTURE

Category	Credits
Professional Core Courses	52
Professional Elective Core Courses	15
Online Courses	06
Industrial Training / Mini Project	03
Project	20
Career Orientation Skills (Luminous Club)	00
Total	96

SUMMARY

Semester	No. of Course	Credits
Semester -1	8	25
Semester -2	8	24
Semester -3	9	27
Semester -4	1	20
Total	**26**	**96**

DEPARTMENT OF MARINE BIOTECHNOLOGY

M.Sc. Biotechnology 2023-2024

List of Courses for the Program

SEMESTER - I

S. No.	Sub Code	Subject Title	C	L	T	P	M
1.	PABTC101	Cell and Molecular Biology	4	4	0	0	100
2.	PABTC103	Microbiology and Virology	4	4	0	0	100
3.	PABTC102	Biochemistry and Biophysics	4	4	0	0	100
4.	PABTC104	Developmental Biology and Immunology	4	4	0	0	100
5.		Professional Elective Course - 1	3	3	0	0	100
6.	PABTP101	Molecular Biology and Biochemistry Lab	2	0	0	4	100
7.	PABTP102	Microbiology and Immunology Lab	2	0	0	4	100
8.	PABTO01	MOOC/NPTEL*	2	0	2	0	100
9.	PABTP103	Career Orientation Skills (Luminous Club)**	0	0	1	0	-
			25	19	3	8	

TOTAL: 30 Periods/week

Note:

PABTP103**:** Career Orientation Skills

Through Luminous Club, the activities will be engaged and evaluations will be done by respective mentors. Activities include Organizing events such as debates, quiz, seminars etc. Evaluation will be based on Monthly reports by each student.

* MOOC credit will be added in the 2nd semester mark sheet.

** Assessment methods

1. Each students will be given 6 seminars and has to present one conference participation.
2. There will be no internal test.
3. Evaluation will be done by Internal Examiners for the maximum marks of 100.

SEMESTER - II

S. No.		Subject Title	C	L	T	P	M
1.	PABTC201	Genetic Engineering and Bioinformatics	4	4	0	0	100
2.	PABTC202	Genomics and Proteomics	4	4	0	0	100
3.	PABTC203	Artificial Intelligence and Machine Learning	4	4	0	0	100
4.		Professional Elective Course - 2	3	3	0	0	100
5.		Professional Elective Course - 3	3	3	0	0	100
6.	PABTP201	Genetic Engineering and Bioinformatics Lab	2	0	0	4	100
7.	PABTP202	Genomics, Proteomics, AI and ML Lab	2	0	0	4	100
8.	PABTO02	MOOC/NPTEL*	2	0	2	0	100
9.	PABTP203	Career Orientation Skills (Luminous Club)**	0	0	1	0	100
			24	18	3	8	

TOTAL: 29 Periods/week

Note:

PABTP103**:** Career Orientation Skills

Through Luminous Club, the activities will be engaged and evaluations will be done by respective mentors. Activities include Organizing events such as debates, quiz, seminars etc. Evaluation will be based on Monthly reports by each student.

* MOOC credit will be added in the 3rd semester marks sheet.

** Assessment methods

1. Each students will be given 6 seminars and has to present one conference participation.
2. There will be no internal test.
3. Evaluation will be done by Internal Examiners for the maximum marks of 100.

SEMESTER – III

S. No.	Sub Code	Subject Title	C	L	T	P	M
1.	PABTC301	Drug Design and Discovery	4	4	0	0	100
2.	PABTC302	Biosafety, Bioethics, and IPR	4	4	0	0	100
3.	PABTC303	Ecotoxicology and Nanobiotechnology	4	4	0	0	100
4.		Professional Elective Course - 4	3	3	0	0	100
5.		Professional Elective Course - 5	3	3	0	0	100
6.	PABTP301	Drug Design and Discover Lab	2	0	0	4	100
7.	PABTP302	Ecotoxicology and Nanobiotechnology Lab	2	0	0	4	100
8.	PABTO03	MOOC/NPTEL*	2	0	2	0	100
9.	PABTP303	Career Orientation Skills (Luminous Club)**	0	0	1	0	-
10.		Industrial Training / Mini Project***	3	0	0	0	-
			27	18	3	8	

TOTAL: 29 Periods/week

Note:

PABTP303**:** Career Orientation Skills

Through Luminous Club, the activities will be engaged and evaluations will be done by respective mentors. Activities include Organizing events such as debates, quiz, seminars etc. Evaluation will be based on Monthly reports by each student.

* MOOC credit will be added in the 4th semester marks sheet.

** Assessment methods

1. Each students will be given 6 seminars and has to present one conference participation.
2. There will be no internal test.
3. Evaluation will be done by Internal Examiners for the maximum marks of 100.

*** Field / Industry Visits / Internship assessment will be done based on attendance, project work and viva voce.

SEMESTER - IV

S. No.	Sub Code	Subject Title	C	L	T	P	M
1.	PABT4PV	Dissertation and Viva Voce	20	0	0	0	100
			20	0	0	0	100

PROFESSIONAL ELECTIVE COURSES

Sl. No	SUB CODE	SUBJECT TITLE	C	L	T	P	M
List of Core Elective Courses for 1st Semester							
1.	PABTE101	Marine Resources and Bioprospecting	3	3	0	0	100
2.	PABTE102	Fish Biotechnology	3	3	0	0	100
List of Core Elective Courses for 2nd Semester							
3.	PABTE201	Bioprocess & Fermentation Technology	3	3	0	0	100
4.	PABTE202	Research Methods, Statistics & Scientific Communication Skills	3	3	0	0	100
5.	PABTE203	Marine Environmental Biotechnology	3	3	0	0	100
6.	PABTE204	Algae Biotechnology	3	3	0	0	100
List of Core Elective Courses for 3rd Semester							
7.	PABTE301	Molecular Techniques and Diagnostics	3	3	0	0	100
8.	PABTE302	Stem Cell and Cancer Biology	3	3	0	0	100
9.	PABTE303	Enzyme Technology and Applications	3	3	0	0	100
10.	PABTE304	Biodegradation and Bioremediation Technology	3	3	0	0	100