

*Progressive Education Society's*  
**Modern College of Arts, Science and  
Commerce,**  
Shivajinagar, Pune 5  
(An Autonomous College Affiliated to Savitribai Phule Pune University)

## **Framework of Syllabus**

**For M.Sc. Biotechnology**

**(2019-20 Course)**

**(with effect from 2019-20 )**

**CIA:** Continuous Internal Evaluation

**Semester 1 (Part 1)**

Course Type	Course Code	Course / Paper Title	Hours / Week	Credit	CIA	End Sem Exam	Total
CCT-1	19ScBioP101	Advanced Biological Chemistry	04	04	50	50	100
CCT-2	19ScBioP102	Cell and Molecular Biology	04	04	50	50	100
CCT-3	19ScBioP103	Genetics and Immunology	04	04	50	50	100
DSET-1	19ScBioP104	Environmental Biotechnology(T+P)	04	04	50	50	100
	19ScBioP105	Food Biotechnology (T)					
CCP-1	19ScBioP106	Lab Course 1 – Exercises in Advanced Biological Chemistry and Immunology	04	02	50	50	100
CCP-2	19ScBioP107	Lab Course 2 -Exercises in Molecular and Cell Biology	04	02	50	50	100
AECCT-1	19CpCysP101	Cyber Security-I	1	1	-	-	25
AECCT-2	19CpHrtP102	Human Rights-I	1	1	-	-	25
<b>Total Credits</b>			<b>-</b>	<b>22</b>			

**Semester 2 (Part 1)**

Course Type	Course Code	Course / Paper Title	Hours / Week	Credit	CIA	End Sem Exam	Total
CCT-9	19ScBioP201	Genetic Engineering	04	04	50	50	100
CCT-10	19ScBioP202	Principles of Bacteriology and Virology	04	04	50	50	100
CCT-11	19ScBioP203	Plant Biotechnology	04	04	50	50	100
DSET-2	19ScBioP204	Agriculture Biotechnology	04	04	50	50	100
	19ScBioP205	Medical Biotechnology					
CCP-5	19ScBioP206	Lab Course 3 - Exercises in Genetic Engineering and Plant Biotechnology	04	02	50	50	100
CCP-6	19ScBioP207	Lab Course 4 – Exercises in Bacteriology and Virology	04	02	50	50	100
AECCT-3	19CpCysP201	Cyber Security-II	1	1	-	-	25
AECCT-4	19CpHrtP202	Human Rights-II	1	1	-	-	25
<b>Total Credits</b>			<b>-</b>	<b>22</b>			

**Semester 3 (Part 2)**

Course Type	Course Code	Course / Paper Title	Hours / Week	Credit	CIA	End Sem Exam	Total
CCT-19	19ScBioP301	Animal Biotechnology& Stem Cell Technology	04	04	50	50	100
CCT-20	19ScBioP302	Bioprocess Engineering & Fermentation Technology	04	04	50	50	100
CCT-21	19ScBioP303	Research Methodology & Scientific Communication	04	04	50	50	100
DSET-3	19ScBioP304	Bio-entrepreneur & Start up designing	04	04	50	50	100
	19ScBioP305	Database Management and Clinical Research , IPR					
CCP-9	19ScBioP306	Lab 5 Exercises in Animal Biotechnology & Bioprocess Engineering	04	02	50	50	100

CCP-10	19ScBioP307	Lab 6 Project ( Data collection/ Survey/ Field visit / Review writing)	04	02	-	100	100
AECCT-5	19CpCysP301	Cyber Security-III	1	1	-	-	25
AECCT-6	19CpSkdP302	Skill Development-I	2	2	-	-	50
<b>Total Credits</b>			-	<b>23</b>			

**Semester 4 (Part 2)**

Course Type	Course Code	Course / Paper Title	Hours / Week	Credit	CIA	End Sem Exam	Total
CCT-25	19ScBioP401	Genomics and Proteomics	04	04	50	50	100
CCT-26	19ScBioP402	Biochemical and Biophysical techniques	04	04	50	50	100
CCT-27	19ScBioP403	Industrial Biotechnology	04	04	50	50	100
DSET-4	19ScBioP404	Bioinformatics	04	04	50	50	100
	19ScBIOP405	OR Nanotechnology					
CCP-13	19ScBioP406	Project	04	02	-	100	100
AECCT-5	19CpCysP401	Cyber Security-III	1	1	-	-	25
AECCT-6	19CpSkdP402	Skill Development-I	2	2	-	-	50
<b>Total Credits</b>			-	<b>23</b>			