



Progressive Education Society's

**Modern College of Arts, Science and Commerce, Ganeshkhind, Pune**  
**(Autonomous)**

[www.moderncollegegk.org](http://www.moderncollegegk.org)

**Two Year Post-Graduate Degree Program in Biotechnology**  
**(Faculty of Science & Technology)**

**Skeleton of**  
**M.Sc. (Biotechnology)**  
**Choice Based Credit System Syllabus**  
**To be implemented from Academic Year 2022-2023**

**Semester I**

Course code	Course Title	Credits
<b>Core Compulsory Theory Papers (CCTP)</b>		
22MBT- 101	Advanced Biological Chemistry	4 Credits
22MBT- 102	Cell & Molecular Biology	4 Credits
22MBT- 103	Genetics & Immunology	4 Credits
<b>Core Compulsory Practical Paper: CCPP-1</b>		
22MBT- 104	Laboratory Course I - Advanced Biological Chemistry, Cell & Molecular Biology, Immunology	4 Credits
<b>Choice Based Optional Papers: CBOP (any One)</b>		
22MBT -105	Environmental Biotechnology	4 Credits ( 2T + 2P)
22MBT -106	Food Biotechnology	4 Credits (T)
<b>Total</b>		20 Credits

**Semester II**

Course Code	Course Title	Credits
<b>Core Compulsory Theory Papers (CCTP)</b>		
22MBT- 201	Genetic Engineering	4 Credits
22MBT- 202	Bacteriology and Virology	4 Credits
22MBT- 203	Plant Biotechnology	4 Credits
<b>Core Compulsory Practical Paper : CCPP-1</b>		
22MBT- 204	Laboratory Course II - Genetic Engineering, Bacteriology and Virology, Plant Biotechnology	4 Credits
<b>Choice Based Optional Papers: CBOP (any One)</b>		
22MBT -205	Nanobiotechnology	4 Credits (2T + 2P)
22MBT -206	Medical Biotechnology	4 Credits
<b>Total</b>		20 Credits

**Semester III**

Course code	Course Title	Credits
<b>Core Compulsory Theory Papers (CCTP)</b>		
23MBT- 301	Animal & Stem Cell technology	4 Credits
23MBT- 302	Bioprocess engineering	4 Credits
23MBT- 303	Bioinformatics & Biostatistics	4 Credits
<b>Core Compulsory Practical Course : CCPP-1</b>		
23MBT - 304	Laboratory Course IV- Animal Biotechnology, Bioprocess engineering & Bioinformatics & Biostatistics	4 Credits
<b>Choice Based Optional Papers: CBOP (any One)</b>		
23MBT - 305	Quality Control, Bio safety & Bioethics	4 Credits
23MBT - 306	Agricultural Biotechnology	4 Credits (2T + 2P)
<b>Total</b>		20 Credits

**Semester IV**

Course code	Course Title	Credits
<b>Core Compulsory Theory Papers (CCTP)</b>		
23MBT- 401	Genomics and Proteomics	4 Credits
23MBT- 402	Advanced Bio analytical Techniques	4 Credits
<b>Core Compulsory Practical Paper : CCPP-1</b>		
23MBT- 403	Research Project	4 Credits
<b>Choice Based Optional Papers: CBOP (any Two)</b>		
23MBT - 404	Bio entrepreneurship & Start up Designing	4 Credits
23MBT - 405	Pharmaceutical Biotechnology & Drug Designing	4 Credits
23MBT - 406	Research Methodology & Scientific Communication	4 Credits (2T + 2P)
23MBT - 407	Clinical Research, Database Management and IPR	4 Credits
<b>Total</b>		20 Credits

*\*Each credit will be equivalent to 15 hours of clock hour teaching and each practical credit is equivalent to 30 clock hours of teaching in a semester.*

*\*Research project though will be evaluated in Semester IV; students are expected to start the research projects at the beginning of Semester III.*

*\*Evaluation pattern will be 70% (Term-end) + 30% (continuous internal assessment).*