



M.Sc. (Biotechnology)
Curriculum



KIIT School of Biotechnology
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M. Sc. Biotechnology**CURRICULUM****Semester-I**

Subject code	Subject	L	T	P	Credits	Exam Duration (h)
BT4101	Biochemistry	2	1	0	3	3
BT4103	Molecular Biology	2	1	0	3	3
BT4105	Microbiology	2	1	0	3	3
BT4107	Biostatistics	2	1	0	3	3
BT4109	Cell Biology	2	1	0	3	3
BT4191	Microbiology Lab	0	0	6	4	6
BT4193	Biochemistry and Cell Biology Lab	0	0	6	4	6
BT4181	Computing Lab	0	0	0	2	3
Total		10	5	12	25	

Semester-II

Subject code	Subject	L	T	P	Credits	Exam Duration (h)
BT4102	Biophysics and Structural biology	2	1	0	3	3
BT4104	Immunology	2	1	0	3	3
BT4106	Enzymology	2	1	0	3	3
BT4108	Plant Biotechnology and IPR	2	1	0	3	3
BT4112	Genetic Engineering	2	1	0	3	3
BT4192	Recombinant Technology and Molecular Biology Lab	0	0	6	4	6
BT4194	Immunology Lab	0	0	6	4	6
BT4182	Scientific Writing and Communication Skills	0	0	0	2	3
Total		10	5	12	25	

* Note: Students can undergo summer training (optional) at the end of Sem-II

Semester-III

Subject code	Subject	L	T	P	Credits	Exam Duration (h)
BT5101	Bioprocess Engineering	2	1	0	3	3
BT5103	Bioinformatics and System Biology	2	1	0	3	3
BT5105	Animal and Medical Biotechnology	2	1	0	3	3
BT5107	Environmental Biotechnology	2	1	0	3	3
BT5109	Applied & Advanced Biotechnology	2	1	0	3	3
BT5191	Environmental Biotechnology and Bioprocess Engineering Lab	0	0	6	4	6
BT5193	Animal and Plant Biotech Lab	0	0	6	4	6
BT5181	Seminars	0	0	0	2	3
Total		10	5	12	25	

* Note: Industrial/educational tour will be organized during semester-III

Semester-IV

Subject code	Subject	L	T	P	Credits	Exam Duration (h)
BT5192	Dissertation*	0	0	36	24	
Total				36	24	

* Dissertation duration of 5-6 months in any National or International laboratory

Credit points: Theory paper: 1 credit is equivalent to 1 contact h/week

Practical paper: 1 credit is equivalent to 1.5 contact h/week

1. EVALUATION:

All subject items will be evaluated on cent percent points. The break-up for each category is:

- **Theory Subjects:** Evaluation will be on continuous and end-semester examination basis with 60% points for end-semester examination and 40% points on continuous evaluation. For continuous evaluation one mid-sem examination and two quizzes or tests/ assignments/seminars have to be conducted with point distribution as: 25% for mid-sem, 15% for quizzes / assignments /seminars.
- **Evaluation of Seminar:** Students will choose any scientific original research paper according to their choice but impact factor not less than 4.0. They have to make the PPT and article should be presented in front of two evaluators. The marks will be given as - chosen of article and preparation of slide -20; presentation skills 20; knowledge of the topic-20; Defence-20; Attendance-20.
- **Practical Subjects:** Evaluation will be on continuous and end-semester examination basis with distribution of points as, 50% for continuous internal evaluation & 30% for the experiments conducted and 20% for grand viva during end-semester examination. 100 marks for practicals will be divided into: 50 (internal evaluation) and 20 (Grand Viva) and 30 (Major experiment and spotting)
 - 50 marks for internal evaluation are evaluated as: Regularity: 10; Record File: 10; Basics: 10; Technique/execution: 10; Analysis: 10
 - Grand Viva will consist of a jury of faculty members (including subject teachers) + 1 external (non subject teacher). 20 marks will be evaluated as: Fundamentals 5; Experimental analysis: 10; Presentation: 5.
 - 30 marks in practicals are for one major experiment (20 marks) and spotting/identification (10)
- **Dissertation:** To be evaluated by internal as well as external examiners. Distribution of points allocated is: 60% for work done, 20% for report and 20% for seminar and *viva*.

2. GRADING & PERFORMANCE INDEX:

A seven point grading system on a base of 10 will be followed for grading in a subject item and thesis.

SGPA: Semester Grade Point Average (SGPA) is the credit weighted average of grade points earned in all the subject items in a Semester. It indicates the performance level of a student in a particular Semester.

CGPA: Cumulative Grade Point Average (CGPA) is the credit weighted average of grade points earned in all the subject items up to the last completed Semester starting from the 1st Semester. It indicates the current performance level of a student.

3. ATTENDANCE:

If a student's attendance in a subject item falls below 75%, he/she will be debarred from appearing in the end-semester examination in that subject item.

4. PROMOTION:

A student has to pass in all the individual paper with minimal grade 'D'.

If a student fails during one academic year (two semesters) in more than five subjects he/she will not be promoted to next year and will be demoted to previous year.

If a student fails in a semester, back paper examination will be conducted in the next year academic session.

If a student fails in the 3rd semester (for M.Sc Biotechnology & Applied Microbiology), a back paper examination will be scheduled for him/her during end of 4th Semester. If a student fails in the project work, he/she will be re-evaluated after six months time.

If a student fails in the 10th Semester (M.Tech Dual degree and Integrated M.Sc Biotechnology), back paper examination will be scheduled immediately after the declaration of the end semester results.

5. DEGREE REQUIREMENT:

For award of the degree the student has to secure minimum CGPA of 5.5 and should have secured minimal grade D in all the subjects.