

## Notification

File No.:GBU/ADM/243/2022-23/228

Date:04/08/2023

**Gujarat Biotechnology University**

**M.Sc. Biotechnology Programme (2022-2024)**

**Semester-2 Credit Structure**

The credit structure for semester-2 of M.Sc. programme at GBU has been approved by the Chairman of academic council. In anticipation of approval of this credit structure for M.Sc. Semester-2 by the academic council. Credit structure for the five specialization of M.Sc. Biotechnology Program is notified below.

### Animal Biotechnology

Sr. No	Course	Subject Code	Mode assessment(s) of this course	Maximum Marks	Passing Marks	Credit
1	Fundamentals of Animal Biotechnology	AFAB002	<b>Formative assessment:</b> Group discussion, Lab conduct, Assignment, Poster presentation <b>Summative assessment:</b> Presentation, written exam, MCQ, Viva-voce, Practical exam	100	50	6
2	Cellular Biotechnology in Agriculture	ACBA002	<b>Formative assessment:</b> Group discussion, Lab conduct, Assignment, Industrial Visit <b>Summative assessment:</b> Presentation, written exam, MCQ, Viva-voce, Practical exam	100	50	3
3	Animal Health and Disease Management	AHDM002	<b>Formative assessment:</b> Group discussion, Lab conduct, Assignment, <b>Summative assessment:</b>	100	50	4



			Presentation, written exam, MCQ, Viva-voce, Practical exam			
4	Breeding and Genetic Improvement	ABGI002	<b>Formative assessment:</b> Group discussion, Lab conduct, Assignment <b>Summative assessment:</b> Presentation, written exam, MCQ, Viva-voce, Practical exam	100	50	4
5	Reproductive Biotechnologies, Transgenics and Genetic Engineering	ARTG002	<b>Formative assessment:</b> Group discussion, Lab conduct, Assignment, Elocution <b>Summative assessment:</b> Presentation, written exam, MCQ, Viva-voce, Practical exam	100	50	4
6	Product Discovery and Development	SPDV002	<b>Formative assessment:</b> Elocution, Group activity <b>Summative assessment:</b> Critique, MCQ, Presentation, Problem-based assignment, Lab report	100	50	3
7	Analytical Techniques	SACA002	<b>Formative assessment:</b> Poster presentation <b>Summative assessment:</b> MCQ	100	50	2
8	Simulation and Modelling	SSAM002	<b>Formative assessment:</b> Assignment Coding exercise <b>Summative assessment:</b> Project Reports, MCQ	100	50	2
9	Entrepreneurship and Innovation II	SEAI002	<b>Formative assessment:</b> Student Participation, Group Activities <b>Summative assessment:</b> Project Reports, Group Activities, Presentations	100	50	2
<b>Total Credits</b>						<b>30</b>



## Environmental Biotechnology

Sr. No	Course	Subject Code	Mode assessment(s) of this course	Maximum Marks	Passing Marks	Credit
1	Ecology and Biodiversity	ECOB002	<b>Formative assessment:</b> MCQ quizzes, Simulations, Presentations <b>Summative assessment:</b> MCQ test, Case Studies, Presentations	100	50	2
2	Environmental Monitoring, Risk, and Assessment	EMRA002	<b>Formative assessment:</b> Lab challenge, Experimental design <b>Summative assessment:</b> MCQ test, Paper presentation, Case study, Practical	100	50	2
3	Environmental Chemistry	ECHE002	<b>Formative assessment:</b> MCQ; Experimental Design <b>Summative assessment:</b> Lab book, Technical Reports	100	50	2
4	Ecological Engineering	EENG002	<b>Formative assessment:</b> Project Design and Ecothon Project <b>Summative assessment:</b> Literature review, Lab book, Presentation & Case study and Activity	100	50	5
5	Ecotoxicology and Human Health	ETOX002	<b>Formative assessment:</b> Brief-Technical Document, Toxicity Task <b>Summative assessment:</b> Presentations, Lab Book, Fieldwork	100	50	2
6	Water Bio-Technologies	EWBT002	<b>Formative assessment:</b> MCQ Quizzes; Presentation (Group); Technical Documents <b>Summative assessment:</b> Presentation (Group), Case studies, Technical Documents	100	50	3

7	Waste Management and Reuse	EWMR002	<b>Formative assessment:</b> MCQ Quizzes; Media Pack <b>Summative assessment:</b> Journal Article, Case studies	100	50	3
8	Urban Environments and Sustainability	EUES002	<b>Formative assessment:</b> MCQs <b>Summative assessment:</b> Media Pack & Case study Presentations	100	50	2
9	Product Discovery and Development	SPDV002	<b>Formative assessment:</b> MCQs <b>Summative assessment:</b> Media Pack & Case study Presentations	100	50	3
10	Analytical Techniques	SACA002	<b>Formative assessment:</b> Poster presentation <b>Summative assessment:</b> MCQ	100	50	2
11	Simulation and Modelling	SSAM002	<b>Formative assessment:</b> Assignment, Coding exercise <b>Summative assessment:</b> Project Reports, MCQ	100	50	2
12	Entrepreneurship and Innovation II	SEAI002	<b>Formative assessment:</b> Student Participation, Group Activities <b>Summative assessment:</b> Project Reports, Group Activities, Presentations	100	50	2
<b>Total Credits</b>						<b>30</b>

### Industrial Biotechnology

Sr. No.	Course	Subject Code	Mode assessment(s) of this course	Maximum Marks	Passing Marks	Credit
1	Microbiology for Industry	IMBI002	<b>Formative assessment:</b> MCQ, Peer review, Lab journal <b>Summative assessment:</b> MCQ, Mini review	100	50	4
2	Fermentation Technology	IFET002	<b>Formative assessment:</b> MCQ writing & Problem-solving Quizzes;	100	50	4

			Experimental plan & Lab journal <b>Summative assessment:</b> Advice pitch; Industrial R&D report; MCQ			
3	Enzymology for Industrial Biotechnology	IENZ00 2	<b>Formative assessment:</b> One page <i>in silico</i> report Experimental plan; Quiz <b>Summative assessment:</b> MCQ; Case study poster	100	50	3
4	Metabolic Engineering: Integration of Systems and Synthetic Biology	IMES00 2	<b>Formative assessment:</b> Metabolic map analysis; MCQ <b>Summative assessment:</b> MCQ; Presentation	100	50	3
5	Industrially produced Therapeutics	ITHE00 2	<b>Formative assessment:</b> MCQ <b>Summative assessment:</b> R&D strategy design; Lab note book; Review; MCQ	100	50	3
6	Bio manufacturing and Downstream processing	IBMD00 2	<b>Formative assessment:</b> Lab notebook; MCQ <b>Summative assessment:</b> MCQ; Risk assessment and SOP drafting; Case study poster; Research letter	100	50	2
7	Process engineering	IPRE00 2	<b>Formative assessment:</b> MCQ; Design review meeting <b>Summative assessment:</b> MCQ; Scale up plan and industrial design; Presentation	100	50	2
8	Product Discovery and Development	SPDV00 02	<b>Formative assessment:</b> Elocution; Group activity <b>Summative assessment:</b> Critique. MCQ, Presentation, Problem-based assignment, Lab report	100	50	3
9	Analytical Techniques	SACA00 02	<b>Formative assessment:</b> Poster presentation <b>Summative assessment:</b> MCQ	100	50	2
10	Simulation and Modelling	SSAM00 02	<b>Formative assessment:</b> Assignment, Coding exercise <b>Summative assessment:</b> Project Reports, MCQ	100	50	2



11	Entrepreneurship and Innovation II	SEAI002	<b>Formative assessment:</b> Student Participation, Group Activities <b>Summative assessment:</b> Project Reports, Group Activities, Presentations	100	50	2
<b>Total Credits</b>						<b>30</b>

### Medical Biotechnology

Sr. No.	Course	Subject Code	Mode assessment(s) of this course	Maximum Marks	Passing Marks	Credit
1	Fundamentals in Medical Biotechnology	MFMB002	<b>Formative assessment:</b> MCQ, Assignments, Debate competition Quiz competition, Critique presentation case study <b>Summative assessment:</b> MCQ	100	50	5
2	Cellular Engineering	MCET002	<b>Formative assessment:</b> MCQ, Group discussion <b>Summative assessment:</b> Presentation, Assignment, Project	100	50	3
3	Disease Biology	MDIB002	<b>Formative assessment:</b> MCQ <b>Summative assessment:</b> MCQ, Assignment, Project	100	50	4
4	Omics for Medical Sciences	MOMS002	<b>Formative assessment:</b> MCQ <b>Summative assessment:</b> Presentation, Assignment, Project, Data Analysis	100	50	3
5	In vitro Diagnostics	MMDB002	<b>Formative assessment:</b> MCQ <b>Summative assessment:</b> MCQ, Assignment, Project+viva	100	50	3
6	Medical Therapeutics	MTHE002	<b>Formative assessment:</b> MCQ <b>Summative assessment:</b> Presentation, Assignment, Project, Laboratory Report	100	50	3

7	Product Discovery and Development	SPDV002	<b>Formative assessment:</b> Elocution, Group activity <b>Summative assessment:</b> Critique, MCQ, Presentation Problem-based assignment, Lab report	100	50	3
8	Analytical Techniques	SACA002	<b>Formative assessment:</b> Poster presentation <b>Summative assessment:</b> MCQ	100	50	2
9	Simulation and Modelling	SSAM002	<b>Formative assessment:</b> Assignment, Coding exercise <b>Summative assessment:</b> Project Reports, MCQ	100	50	2
10	Entrepreneurship and Innovation II	SEAI001	<b>Formative assessment:</b> Student Participation, Group Activities <b>Summative assessment:</b> Project Reports, Group Activities, Presentations	100	50	2
<b>Total Credits</b>						<b>30</b>

### Plant Biotechnology

Sr. No.	Course	Subject Code	Mode assessment(s) of this course	Maximum Marks	Passing Marks	Credit
1	Plant Growth and Productivity	PPGP002	<b>Formative assessment:</b> Draft proposal, MCQ Quiz <b>Summative assessment:</b> Infographic, MCQ test, Project proposal	100	50	2
2	Plant Molecular Biotechnology	PPMB002	<b>Formative assessment:</b> Draft proposal, MCQ quiz, Case study critique, Project proposal poster <b>Summative assessment:</b> Lab notebook, MCQ test, Project proposal	100	50	6
3	Enhancing Plant Performance	PEPP002	<b>Formative assessment:</b> MCQ quiz, Draft mediapack <b>Summative assessment:</b> Lab report, MCQ test, Mediapack	100	50	4

4	Plant Genetics and Breeding	PPGB002	<b>Formative assessment:</b> Draft policy proposal, MCQ Quiz <b>Summative assessment:</b> Policy proposal, MCQ quiz, critical blog	100	50	3
5	Sustainable Food Security	PSFS002	<b>Formative assessment:</b> Draft policy proposal, MCQ Quiz, Critical blog <b>Summative assessment:</b> Policy proposal, MCQ test, Critical blog	100	50	3
6	Plant Cell and Tissue Biotechnology	PPCT002	<b>Formative assessment:</b> Annotated Bibliography, Lab book, MCQ quiz <b>Summative assessment:</b> Lab report, MCQ test, Literature Review	100	50	3
7	Product Discovery and Development	SPDV002	<b>Formative assessment:</b> Elocution, Group activity <b>Summative assessment:</b> Critique, MCQ, Presentation, Problem-based assignment, Lab report	100	50	3
8	Analytical Techniques	SACA002	<b>Formative assessment:</b> Poster presentation <b>Summative assessment:</b> MCQ	100	50	2
9	Simulation and Modelling	SSAM002	<b>Formative assessment:</b> Assignment, Coding exercise <b>Summative assessment:</b> Project Reports, MCQ	100	50	2
10	Entrepreneurship and Innovation II	SEAI002	<b>Formative assessment:</b> Student Participation, Group Activities <b>Summative assessment:</b> Project Reports, Group Activities, Presentations	100	50	2
<b>Total Credits</b>						<b>30</b>

  
Registrar



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2. Examination Committee (By E-mail)
3. Academic Department (By E-mail)
4. IT Department (By E-mail)
5. All staff and students of GBU (By E-mail)
6. PA to Hon'ble Director General