



**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**Integrated Master of Science (Biotechnology)**

**Semester: 6**

**Subject Name: Minor Research Project**

**Subject Code: 1360401**

**Prerequisite:** To undertake the Minor Research Project, students must be enrolled in the Integrated MSc Biotechnology at GTU and have completed the necessary core and elective courses.

**Rationale:** The Minor Research Project is designed to bridge the gap between theoretical knowledge and practical application in the field of biotechnology. It provides students with an opportunity to engage in high-level projects that synthesize and apply their learning to real-world scenarios. This experience is crucial for preparing students to address professional challenges and contribute effectively to their chosen fields.

**Teaching and Examination Scheme:**

Teaching Scheme			Credits	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
			ESE (E)	PA (M)	PA (I)	ESE (V)		
0	0	20	10	0	0	100	150	250

**Objectives:**

The Minor Research Project aims to:

1. Integrate and apply academic knowledge to practical and professional contexts.
2. Develop and demonstrate skills in independent research, project management, and problem-solving.
3. Encourage collaboration and communication skills through the presentation of project outcomes.
4. Enhance professional readiness by tackling real-world issues related to the student's area of specialization.

**General Guidelines:**

**1. Topic Selection and Proposal Submission:**

- Students must select their project topic in consultation with their academic advisor.
- The proposal should include:
  - 1.) Introduction: Background and context of the project.
  - 2.) Objectives and Goals: Clear articulation of the project's aims and intended outcomes.
  - 3.) Methodology: Description of the approach, research methods, and activities to be undertaken.
  - 4.) Timeline: Should be completed within 6<sup>th</sup> Semester.
  - 5.) Final Deliverables: Description of the expected final product (report, presentation, prototype, etc.)



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## 2. Project Report:

The final project report should be submitted at the end of the semester in following format is required:

- Acknowledgements and Foreword
- Executive Summary: A concise overview of the project.
- Introduction: Background, purpose, and outline of the report.
- Literature Review : Review of relevant and recent scholarly articles.
- Methodology: Detailed description of research methods and measurements.
- Findings and Discussion : Presentation and analysis of results.
- Recommendations: Proposed solutions and decision criteria.
- Implementation Plan: Schedule and steps for implementing recommendations.
- Reflections & Conclusion: Challenges faced, lessons learned, and future directions.
- References: Cited works and sources (not included in word count).

## 3. Presentation:

- Students must present their Minor Research project to a panel of faculty members and peers.
- The presentation should effectively communicate the project's objectives, methodology, findings, and recommendations.
- The presentation will be assessed based on clarity, depth of analysis, and the quality of delivery.

## 4. Assessment Criteria:

The Minor Research Project will be evaluated on the following basis:

**Project Report:** 80%

**Presentation:** 20%

The assessment will consider the project's relevance, originality, analytical depth, practical applicability, and overall quality.

**Note:** All Minor Research projects and reports will be archived by GTU and may be used for future educational and research purposes

## Course Outcome:

After Completion of the Course, Student will be able to:

S No	Course Outcomes	RBT Level
1	Demonstrate an understanding of research methodologies and project management	UN,AP,AN



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2	Apply biotechnology knowledge to design and conduct experiments or research	AP,AN, CR
3	Analyze experimental data to interpret results and draw valid conclusions	AN, EL, AP
4	Evaluate the impact of biotechnological research in solving real-world problems	EL, AN, UN
5	Create a comprehensive research report and present findings effectively	CR, AP, EV

\*RM: Remember, UN: Understand, AP: Apply, AN: Analyze, EL: Evaluate, CR: Create

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