

INNOVATIVE TEACHING RUBRICS



M.Tech
Department of Biotechnology
Ramaiah Institute of
Technology Bengaluru-560054

Department of Biotechnology, RIT follows distinct rubrics for the evaluation of OBE based curriculum for the assessment of efficiency of teaching learning process of PG Biotechnology course.

The rubrics used for the assessment of innovative teaching methodologies adopted to assess efficiency of student centric activities such as:

1. CIE (Continuous Internal Evaluation), SEE (Semester End Examination), assignments and quiz, etc.
2. Mini project
3. Internship
4. Final year Project work

1. CIE, SEE, Assignments, Quiz: • The CIE & SEE question papers are designed to ensure that the student is tested for the different cognitive levels of learning.

The CIE and SEE questionnaire patterns are framed in accordance with bloom taxonomy (L1: Remember, L2: Understanding, L3: apply, L4: analyze, L5: evaluate etc.).

- Each faculty adopt distinct rubrics for the evaluation of assignment/ other components

Samples are as follows.

Assignment Based on Tutorial Classes

Course Code: MBT21

Credit: 3:1:0

Term: 23.06.2023 to 23.09.2023

Course: Industrial Biotechnology

Maximum Marks: 10

Guidelines

1. Assignment Objective:

- Solve the set of problems provided, which are based on the concepts covered in tutorial classes.

2. Submission Format:

- Solutions must be neatly written and clearly labeled.
- Include all necessary steps and calculations for each problem.

3. Problem Solving:

- Demonstrate a thorough understanding of the concepts by applying them correctly in problem-solving.
- Ensure accuracy in calculations and logical reasoning.

4. Deadline:

- Submit the completed assignment by the specified deadline.
- Late submissions may result in a penalty or may not be accepted.

Rubrics for Evaluation

Criteria	Excellent (8-10 marks)	Good (5-7 marks)	Satisfactory (1-4 marks)	Unsatisfactory (0 marks)
1. Accuracy of Solutions	Correct solutions with accurate calculations	Mostly correct solutions with minor errors	Partially correct solutions with errors	Incorrect solutions or no attempt
2. Application of Concepts	Demonstrates excellent understanding and application of tutorial concepts	Good understanding with minor conceptual errors	Basic understanding with several conceptual errors	Poor or no understanding of concepts
3. Clarity and Organization	Solutions are well-organized, clearly presented, and easy to follow	Generally organized with some clarity issues	Solutions are somewhat disorganized and hard to follow	Disorganized and unclear presentation
4. Completeness	All problems are attempted and completed fully	Most problems are attempted with minor omissions	Some problems attempted with incomplete answers	Few or no problems attempted

Case Study Analysis

Course Code: MBT21

Credit: 3:1:0

Term: 23.06.2023 to 23.09.2023

Course: Industrial Biotechnology

Maximum Marks: 10

Guidelines

1. Case Study Selection:

- Choose an example file from the ones provided with SuperPro Designer software.
- Ensure that the selected case study is relevant to your field of study or interest.

2. Review Articles:

- Select 3 to 5 peer-reviewed articles published in reputable journals.
- These articles should be closely related to the chosen example.
- Summarize the key findings and relate them to your case study.

3. Oral Presentation:

- Prepare an oral presentation based on the chosen case study and review articles.
- Do not use PowerPoint or any other slide-based tool.
- Focus on explaining the methodology, findings, and relevance of the case study.

4. Submission Requirements:

- Submit the example file from SuperPro Designer that you worked on.
- Provide hard copies of the selected review articles with your key annotations or notes.
- Ensure all submissions are clearly labeled with your name and student ID.

Rubrics for Evaluation

Criteria	Level 3 (Exemplary)	Level 2 (Proficient)	Level 1 (Basic)	Marks
1. Understanding of the Case Study	In-depth understanding, broad connections	Good grasp, minor misunderstandings	Limited understanding, significant gaps	3 Marks
2. Integration of Review Articles	Effective integration, insightful analysis	Adequate integration, some analysis	Minimal or superficial integration	2 Marks
3. Presentation Skills	Clear, confident, engaging presentation	Structured presentation, minor issues	Unclear, disorganized presentation	5 Marks



RAMAIAH
Institute of Technology

Department of
BIOTECHNOLOGY

Programme: MTech Biotechnology

Course: Industrial Biotechnology

Term: 23.06.2023 to 23.09.2023

Semester: II

Credits: 3:1:0

Case study Analysis on
"Production and Formulation of Probiotics"

Submitted by

PRATHIBHA S B
(1MS22BBT06)


Submitted to

Dr. T P Krishna Murthy
Assistant Professor & Course Coordinator

Evaluation

Marks Obtained	Caste Study	Review	Oral	Submission	Total
	Selection	Articles	Presentation	Requirements	
	03	02	03	01	09
Maximum Marks	3	2	4	1	10

Name and Signature of the faculty with Date:


Dr. T P Krishna Murthy 20/09/2023

DEPARTMENT OF BIOTECHNOLOGY		
Ramaiah Institute of Technology, Bangalore-560054 (An Autonomous Institute Affiliated to VTU, Belgaum)		
Continuous Internal Evaluation- Other component Assessment		
Course & Branch: M.Tech.- Biotechnology	Semester : II	Term: 23-06-23 to 23-09-2023
Subject: Bioprocess Engineering	Maximum Marks : 10	Test Date: 04-09-2023
Subject Code: MBTE232		Credits: 3:0:0:0

Sl. #	Virtual Lab topic:	Blooms Level	Marks
	Process Economics and Cost estimation analysis of various bioprocess products using Superpro Designer		
1	Introduction to the selected product and the Superpro designer tool Introducing the product selected and the Brief outline about its significance Introducing the tool used to build the production flow chart	L1 L2	02
2	Production Flowchart : Design the production flow chart of the selected product using Superpro designer and attach the obtained flow chart	L3	02
3	Cost estimation /market analysis: Tabulate the cost estimation of the product and discuss the details of each component with pie chart.	L4	06

Methodology/Results-4M,
Summary/References & organization of the report-3M

MBTE12 Protein Engineering and Industrial applications

**Assignment 2 MBTE12 related Functional genomics NPTEL Course
3 assignment submission**

Sl. No.	USN	Students Name	Marks 10
1	1MS21BBT01	Akshaya A	8.00
2	1MS21BBT02	Ananya N A	9.00
3	1MS21BBT03	Anjali R	7.00
4	1MS21BBT04	Anjali R G	8.00
5	1MS21BBT05	Aparna Srinath	9.50
6	1MS21BBT06	B M Karthik	8.50
7	1MS21BBT07	Gopi Chand Rao	8.50
8	1MS21BBT08	K Jaya Rani	9.00
9	1MS21BBT09	Pooja C K	9.00
10	1MS21BBT10	Rakshitha A	9.00
11	1MS21BBT11	Ramya Pattabiraman	7.50
12	1MS21BBT12	Roshni K K	6.85
13	1MS21BBT13	Salome Ruth Jimmy Vijayaraghavan	5.00
14	LMS21BBT14	Thrisha Chandru	6.00

Rubrics- for 10M NPTEL Course 3 assignment submission

3 NPTEL course assignments need to be submitted
2 best scored assignments considered for evaluation
[1 assignment carries 5M Total for 2-10M]

Stream : M.Tech
 Semester : Semester 1
 Subject Name : Recombinant DNA Technology
 Total Students : 14

Department : Biotechnology
 Subject Code : MBTE02
 Max Cie Marks : 50
 Term : Odd Term 2021

Assignment 1 mini Project write up related to rDNA Technology

Student Name	USN	A1 Mini Project write up Topics	Marks
Akshaya A	IMS20BBT01	Edible Vaccine using potato for hepatitis B disease	9.50
Ananya N A	IMS20BBT02	Tissue specific targeting of DNA nanodevices in a multicellular living organism in rDNA Technology	9.00
Anjali R	IMS20BBT03	Efficient production of pronuclear embryos in breeding and nonbreeding season for generating transgenic sheep overexpressing TLR4	8.00
Anjali R G	IMS20BBT04	Isolation of DNA by ELISA	9.00
Aparna Srinath	IMS20BBT05	Chitosan as an effective transfection agent for recombinant protein expression in silkworm larvae	10.00
B M Karthik	IMS20BBT06	Genetically modified microorganisms for Industrial food enzyme production	7.00
Gopi Chand Rao	IMS20BBT07	Production of riboflavin by metabolically engineered corny bacterium ammoniagenes	8.00
K Jaya Rani	IMS20BBT08	Genetically modified crops and social concern	9.00
Pooja C K	IMS20BBT09	Agarobacterium mediated gene transformation system for passion fruit kpf4 passiflora edulis f. Edulis × passiflora edulis f. Flavicarpa).	10.00
Rakshitha A	IMS20BBT10	Recombinant Influenza A/H1N1 carrying a short immunogenic peptide of MERS-Cov as Bivalent vaccine in BALB c Mice	9.00
Ramya Pattabiraman	IMS20BBT11	Use of Recombinant DNA Technology in treatment of Diabetes	9.00
Roshni K K	IMS20BBT12	Role of Transgenic animals on Production of Human antibodies	9.00
Salome Ruth Jimmy Vijayaraghavan	IMS20BBT13	The potential of gene therapy in treating neurodegenerative disorders	8.00
Thrisha Chandru	IMS21BBT14	Analysis of mitochondrial ssDNA plays an important role in mtDNA replication by using FISH and other invitro assays	9.50

Rubrics of Evaluation—for Assignment1 Total 10 marks

1. Topic selection & Submission—2M
2. Contents and Flow of Information—6M
3. References and organization of the report—2M

Stream : M.Tech
 Semester : Semester 1
 Subject Name : Recombinant DNA Technology
 Total Students : 14

Department : Biotechnology
 Subject Code : MBTE02
 Max Cie Marks : 50
 Term : Odd Term 2021

Assignment 2 Poster related to rDNA Technology



Department of Biotechnology,
Ramaiah Institute of Technology.


Assignment report

Title of the Assignment topic: "The Cancer Biology or Tumor Micro-Environment plays an important role in development of novel anti-cancer agents!"

Name of the Candidate : Ananta Biswas.

USN : 1MS22BBT02.

Subject & code	MBT22	Biopharmaceutical Technology.	
Rubrics for evaluation Report			
Precise Identification of background of topic	02 Marks		02
Elaboration of basic background	03 Marks		03
Case study	03 Marks		03
References	02Marks		01
Rubrics for evaluation Presentation			
Presentation contents	05 Marks		05
Mode of delivery and time management	03 Marks		03
Interaction	02 Marks		01
Total Marks Obtained			9/10


05/09/23
Signature of the student with date


Signature of the faculty with date

EVALUATION
PROCESS
(SEE and CIE)

Quality of Semester End Examination:

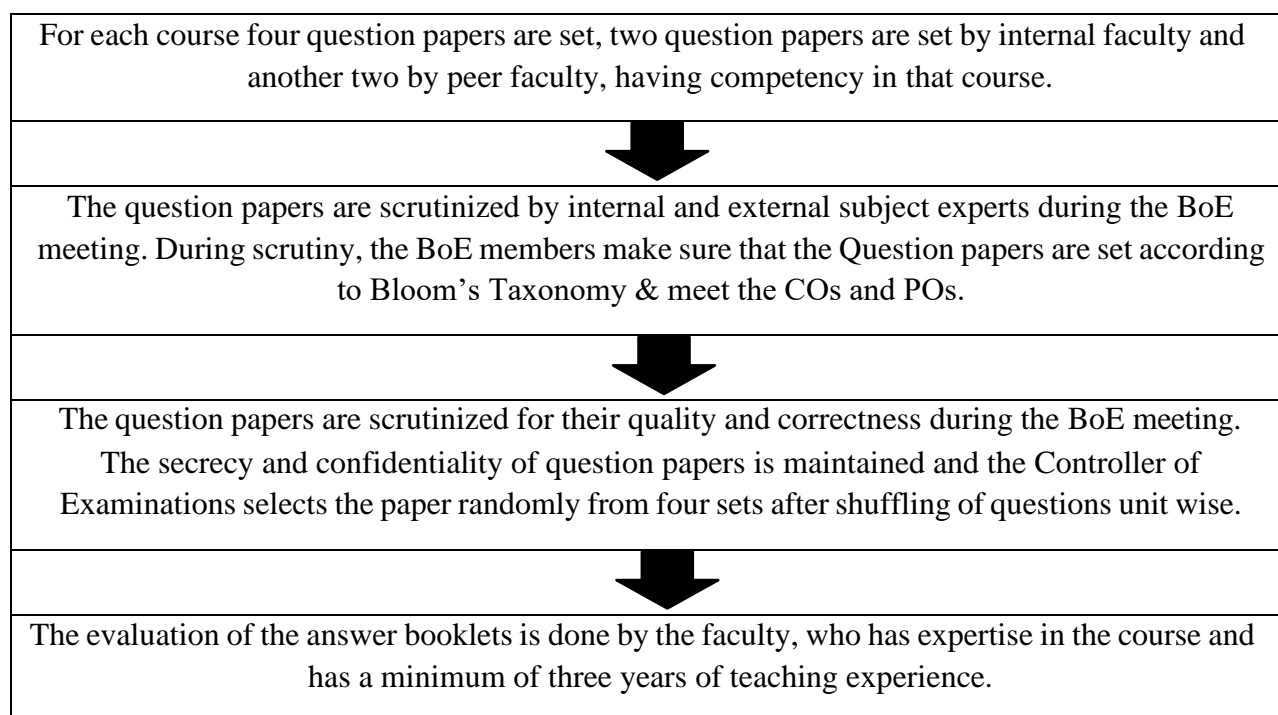
In order to ensure the quality of Semester End Examinations (SEE) question papers, the following measures are taken:

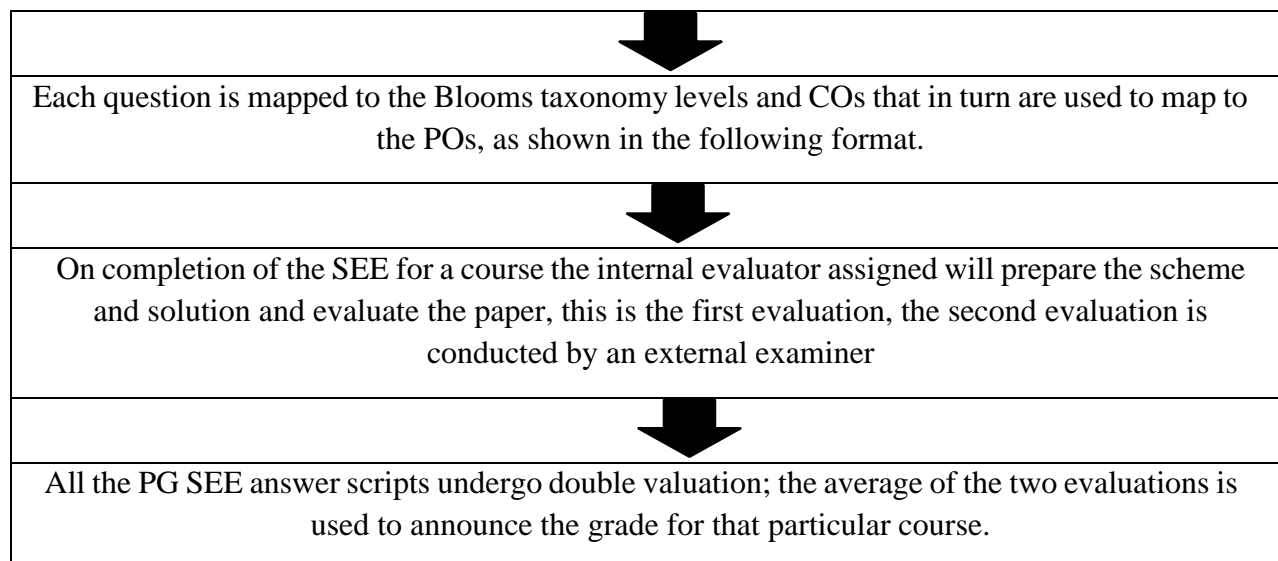
- Faculty, who are setting the question paper for a particular course are given the following inputs:
 - Lesson Plan: Set by the course coordinator at the beginning of the semester.
 - Question Paper pattern: Two questions (with subsections) are to be set for 20 marks each, from each unit, with an internal choice between the two questions.
 - CO-PO Mapping
 - The questions are mapped to the cognitive levels as per Bloom's taxonomy.
- Ten questions are prepared 2 from each unit, and the students answer five full questions, one from each unit thereby covering the entire curriculum, which also ensures the coverage of all the COs defined.
- The choice questions should address the same CO.
- The external paper setter is provided with the detailed syllabus of the course for which the paper is to be set along with the guidelines to be followed by the office of the CoE.
- In each course 50% of the question papers are set by internal faculty & the other 50% by external faculty members. The request is sent from the Controller of Examinations to the internal and external paper setters.
- Board of Examination (BoE) consists of the HOD, who is the chairperson, selected internal faculty and external domain experts who are invited to review the SEE Question papers and scrutinize them for their content & quality.
- Any corrections/ clarifications are done during the BOE meeting.
- Questions from each unit of different question papers of the same course are shuffled at the CoE's office to obtain SEE, Supplementary and Makeup Question Papers.
- The proposed list of external examiners is presented in the BoS & approved therein.
- The approved list of examiners is submitted to the CoE.

- The panel of examiners both internal and external is communicated by the department to the CoE well before the commencement of the SEE.
- Upon the completion of the SEE for a course, the internal evaluator assigned will prepare the scheme and solutions and evaluate the paper, this is the first evaluation, and the second evaluation is conducted by an external examiner.
- The external examiners who are the subject experts from other academic institutes are appointed by the COE prior to the start of the SEE.
- All the PG SEE answer scripts undergo double valuation; the average of the two evaluations is used to announce the grade for that particular course.

Semester End examination (SEE): Semester end examination for theory is conducted at the end of semester for 100 marks and is scaled down to 50 marks. Semester end examination for laboratory is conducted at the end of semester for 50 marks. The sum of CIE and SEE in a given course is used to assign a grade. The process followed for maintaining the quality of SEE question paper is as follows:

Process for end semester examination paper setting and evaluation and effective process implementation





The template for the SEE question paper Outcome Based Education (OBE) Analysis is provided in Fig. In this template the mapping of the questions to the relevant Bloom's levels & COs is done by the evaluator before the evaluation process commences. This information is fed into the examination automation platform called e-Sutra which facilitates the OBE analysis. Thereafter, the question wise analysis of Bloom's levels & COs for all the courses is generated.

Template for SEE Question Paper OBE Analysis



Ramaiah Institute of Technology, Bangalore – 560054
Template for SEE Question Paper OBE Analysis

Department : _____ Level: UG/PG
 Course Name : _____ Date of Examination: _____
 Course Code : _____ Term : _____

Question	Max. Marks	Bloom's Level (L1 to L6)	Course Outcome (CO1 to CO5)
1.	a)		
	b)		
	c)		
	d)		
2.	a)		
	b)		
	c)		
	d)		
3.	a)		
	b)		
	c)		
	d)		
4.	a)		
	b)		
	c)		
	d)		
5.	a)		
	b)		
	c)		
	d)		
6.	a)		
	b)		
	c)		
	d)		
7.	a)		
	b)		
	c)		
	d)		
8.	a)		
	b)		
	c)		
	d)		
9.	a)		
	b)		
	c)		
	d)		
10.	a)		
	b)		
	c)		
	d)		

Blooms Level (L1: Remember; L2: Understand; L3: Apply; L4: Analysis; L5: Evaluate; L6: Create)

Template for SEE question paper OBE Analysis

Laboratory courses are evaluated as follows:

- 30 Marks: Continuous internal assessment for 30 marks is based on successful conduction of experiments during regular labs and record writing.
- 20 Marks: Internal laboratory test is conducted towards assessment of the remaining 20 marks which includes the viva – voce component.

Project work : Process and Rubrics for evaluation

All M.Tech students are required to do a project as a part of their curriculum. The students are guided to do innovative projects individually relevant to the field of Biotechnology. The students are expected to design and implement new ideas relevant to the field of Biotechnology, demonstrate their ability to solve problems within a specific time frame and, attain the communication skills in both the written and oral forms. M. Tech project work provides perfect platform for **M.Tech student where they can implement the principles of experiential & project learning tools to find innovative solution / outcome through their project work.**

During the final year a student is expected to carry out a project work with considerable complexity for the duration of 8-10 months. During fourth semester, each candidate is expected to define clear and very concise list of objectives, problem statement with title. Clear understanding of all the current and good quality papers, methodology followed, all the steps carried in the techniques, tools used, and presentation of results are expected.

1. Selection of projects

The students based on their interest in an area of expertise approach faculty members in the Department based on their domain expertise. The senior faculty members i.e., Associate Professors and Professors are allowed to guide two M.Tech project students each. The assistant Professors take one M.Tech student for guidance. Once the internal guide and external guide (if the project work is done in Industry/Institution) mutually agree to guide the student, a title, with names of the guides and place of work is submitted to the department.

2. Evaluation of project work

The Project Work is by far the most important work in the post-graduate programme. It provides an opportunity for the student to demonstrate independence and originality, to plan and organize work over a period and to put into practice some of the techniques learnt throughout the course.

The project work is to be done in two phases over a period of one year with Project Work-I in 3rd semester and Project Work-II in 4th semester, which may be a continuation of Project work- I. The Project work evaluation process will have periodical reviews in both semesters.

3. Project review committee

The quality of the student projects is assessed during the review meetings that are conducted by the project evaluation committee consisting of the HoD, who is the chairperson and three senior faculty members. The evaluation committee completes the assessment as per the guidelines and rubrics fixed. The Project Work Review Committee conducts the reviews for the students within the stipulated period. The committee also makes necessary arrangements required for the smooth conduct of reviews.

4. Evaluation of M.Tech project work-I

Students register for the project work-I during the third semester. Students are permitted to do their project work either in-house or in a research institute/industry. The project evaluation committee constituted in the department evaluates the student project work. The students are required to give power point presentation on the problem definition, approach to the solution and plan of work. The project work is approved by the committee after the preliminary review. At the end of the semester, along with a report in the prescribed format, the students are required to give presentation covering extensive literature survey, work plan and results obtained as part of internal evaluation. The final CIE marks of 100 is scaled down to 50.

Evaluation Criteria for M Tech Project work –1

		Inadequate	Average	Good	Excellent
Organization of (15)		Hard to follow; inadequate information (8)	The flow of information follows sequence but the organization is inadequate (10)	Information presented in logical sequence; easy to follow (12)	The Information is well organized and follows the sequence (15)
Content	Background content 10	The literature survey was inadequate and does not support the project work. (7)	Includes some amount of literature to the pertaining research (8)	Adequate literature and background content collected for the research topic (9)	Excellent literature collected and summarized and identified the research gaps from existing literature. (10)
	Methods 10	Methods too brief or insufficient for adequate understanding (7)	Sufficient for understanding but not clearly presented (8)	Sufficient for understanding and effectively presented with flow charts (9)	Sufficient for understanding and exceptionally presented in figures and flow charts (10)
	Results (figures, graphs, tables, etc.) 10	Has not used tables, figures and graphs to present the results (7)	Uses some tables/graphs/figures to present results without legends (8)	Uses tables, graphs and figures to present the results in the text with appropriate legends (9)	Uses tables, graphs and figures with legends that explain and reinforce the results and project work (10)
Presentation (25)		Sentences are poorly written; there are numerous incorrect word choices and errors in grammar, punctuation and spelling Very inadequate presentation style (19)	Sentences are generally well-written; there are few incorrect word choices and errors in grammar, punctuation and spelling Inadequate explanation in some parts of the presentation (21)	Sentences are generally well-written but Presentation has errors Most of the seminar well Paced and adequate explanation for most part of the presentation (23)	Sentences are well-written; there are no incorrect word choices and the text is free of errors in grammar, punctuation, and spelling. Appropriate, Well-paced throughout and an excellent explanation of the research idea and the results obtained (25)
Interaction (10)		Does not have grasp of information; answered only rudimentary questions (7)	At ease with information; answered most questions (8)	Able to answer most of the questions but failed to elaborate and had an adequate grasp on the project work (9)	Demonstrated more than adequate knowledge and had a good grasp on the project; answered all questions with explanation (10)
Report (20)		Hard to follow and sequence of information is not clear (14)	Paragraphs are poorly organized; flow of information is just about adequate (16)	Paragraphs are usually well-organized; use of sections is logical and flow of information is appropriate and easy to follow (18)	All paragraphs are well-organized; use of sections is logical and flow of information is excellent (20)

Evaluation criteria for M Tech Project work – 2

➤ Evaluation criteria for M Tech project work -2 (Phase – 1)

Project phase I evaluation is carried out by a project assessment committee. Each project is evaluated according to the rubrics. This phase is evaluated for 10 marks which includes problem identification, review of literature and defining the objectives of the project with brief methodology. The rubrics table for Phase I is given in Table 1.2.2b.

➤ Evaluation criteria for M Tech project work -2 (Phase – 2)

Phase II of the review is conducted to evaluate the progress of the project work. This phase is evaluated for 30 marks. Students are required to give a presentation on and progress of the project work as per plan, methodology, and results if any. The rubrics table for Phase 2 is given in Table 1.2.2c.

➤ Evaluation criteria for M Tech project work -2 (Phase – 3)

Phase III of the review is conducted to evaluate the project work. This phase is evaluated for 60 marks. Students are required to give a presentation on the project work, methodology and detailed results. A draft copy of the report submitted by the student is also evaluated during this phase and suggestions are given. The rubrics table for Phase 3 is given in Table 1.2.2d. The rubrics for project evaluation by the internal guide is given in Table 1.2.2e.

The final CIE marks of 100 is scaled down to 50. This comprises of 100 marks valuation given by the committee members during the 3 phases (10, 30 and 60), scaled down to 60marks and 100-marks valuation of guide marks scaled down to 40. The CIE is based on 40% marks awarded by the internal guide and 60% marks by the project evaluation committee.

Once the projects are approved by the project assessment committee and the internal guide, the dissertation reports prepared by the students and attested by both the internal and external guides are submitted to the Department of Biotechnology for further processing.

Evaluation Criteria for M Tech Project work-2: Phase - 1 Maximum Marks:

10

Sl. No	Assessment Component	Assessment Criteria & Marks				
		Excellent (4)	Good (3)	Average (2)	Acceptable (1.5)	Unacceptable (1)
1	Identification of Problem and Detailed Analysis	Detailed and extensive explanation of the purpose and need of the project	Good explanation of the purpose and need of the project	Average explanation of the purpose and need of the project	Moderate explanation of the purpose and need of the project	Minimal explanation of the purpose and need of the project
2	Study of the Existing literature and Feasibility of Project Proposal	Excellent (3)	Good (2.5)	Average (2)	Acceptable (1.5)	Unacceptable (1)
		Detailed and extensive literature review of the existing systems	Collects a great deal of information and good study of the existing systems	Moderate study of the existing systems; collects some basic information	Explanation of the specifications and the limitations of the existing systems not very satisfactory; limited information	Minimal explanation of the specifications and the limitations of the existing systems; incomplete information
3	Objectives and Methodology of the Proposed Work	Excellent (3)	Good (2.5)	Average (2)	Acceptable (1.5)	Unacceptable (1)
		All objectives of the proposed work are well defined; Steps to be followed to solve the defined problem are clearly specified	Good justification to the objectives; Methodology to be followed is specified but detailing is not done	Incomplete justification to the objectives proposed; Steps are mentioned but unclear; without justification to objectives	Only Some objectives of the proposed work are well defined; Steps to be followed to solve the defined problem are not specified properly	Objectives of the proposed work are either not identified or not well defined; Incomplete and improper specification

Evaluation Criteria for M Tech Project work-2: Phase - 2 Maximum Marks: 30

Sl. no	Assessment Component	Assessment Criteria & Marks				
		Excellent (15)	Good (12)	Average (9)	Acceptable (6)	Unacceptable (3)
1	Methodology (15)	Selection of methods Detailed and extensive explanation	Selection of methods Good explanation	Selection of methods Average explanation	Selection of methods Moderate explanation	Selection of methods Minimal explanation
		Excellent (10)	Good (8)	Average (6)	Acceptable (4)	Unacceptable (2)
2	Planning of Project Work (10)	Time frame properly specified and being followed Appropriate distribution of project work	Time frame properly specified and being followed inappropriate Distribution of project work	Time frame Properly specified, but not being followed Distribution of project work uneven	Time frame properly specified, but not being followed Uneven distribution of project work and no synchronization	Time frame not properly specified Inappropriate distribution of project work
		Excellent (5)	Good (4)	Average (3)	Acceptable (2)	Unacceptable (1)
3	Presentation (5)	Objectives achieved as per time frame Contents of presentations are Appropriate and well-arranged Proper eye contact with audience and clear voice with good spoken language	Objectives achieved as per time frame Contents of presentations are appropriate but not well arranged Satisfactory demonstration, clear voice with good spoken language but eye contact not proper	Objectives achieved as per time frame Contents of presentations are Appropriate but not well arranged Presentation Not satisfactory and average demonstration	Objectives not Achieved as per time frame Contents of presentations are not appropriate Eye contact with few people and unclear voice	No objectives Achieved Contents of presentations are not appropriate and not well delivered Poor delivery of presentation

Evaluation Criteria for M Tech Project CIE Phase - 3 Maximum Marks: 60

Sl. no	Assessment Component	Assessment Criteria & Marks				
		Excellent (20-15)	Good (15-12)	Average (10-9)	Acceptable (8-10)	Unacceptable (6)
1	Project Demonstration and Incorporation of Suggestions (20)	All defined objectives are Achieved Changes are made as per modification suggested during midterm evaluation and new innovations added	All defined objectives are achieved Changes are made as per modifications suggested during midterm evaluation and good justification	All defined objectives are achieved All major changes are made as per modifications suggested during mid-term evaluation	Some of the defined objective s are achieved Few changes are made as per modifications suggested during midterm evaluation	Some of the defined objective s are achieved Suggestions during midterm evaluation are not incorporated
		Excellent (25-30)	Good (20-22)	Average (18-20)	Acceptable (16-18)	Unacceptable (15)
2	Project report (30)	Project report is according to the specified format References and citations are appropriate and well mentioned	Project report is according to the specified format References and citations are appropriate but not mentioned well	Project report is according to the specified format but some mistakes In-sufficient references and citations	Project report is not fully according to the specified format Insufficient references and citations	Project report not prepared according to the specified format References and citations are not appropriate
		Excellent (10)	Good (8)	Average (7)	Acceptable (6)	Unacceptable (5)
3	Presentation (10)	Contents of presentation are appropriate and well delivered Proper eye contact with audience and clear voice with good spoken language	Contents of presentation are appropriate and well delivered. Clear voice with good spoken language but less eye contact with audience	Contents of presentation are appropriate but not well delivered Eye contact with few people and unclear voice	Contents of presentations are not appropriate Eye contact with few people and unclear voice	Contents of presentations are not appropriate and not well delivered Poor delivery of presentation

Internal Guide's Evaluation (100 marks): Criteria for internal guide evaluation is as follows:

Evaluation of the Project Work by guides

Maximum Marks: 100

Self Motivation and Determination (10)	Technical Knowledge and Awareness related to the Project(10)	Literature survey and plan of work (15)	Implementation of experimental work (35)	Punctuality / regular updates (15)	Organization of report (15)	Remarks
High involvement in identifying research problem and designing and focus on performing experiment to result to address the problem. (10)	Identifies multiple approaches for solving the problem that apply within a specific context. (10)	Collects a great deal of information--all relates to the topic. (15)	Effectively used most relevant methods to address the problem and possible alternative methods of working on the problem. able to recognizes problems during the conduction of experiment and successfully troubleshoot them (35)	Regular attendance and punctual in performing and updating experimental results.(15)	Fully & imaginatively supports thesis & purpose. Sequence of ideas is effective. Transitions are effective (15)	Excellent
Active Involvement in identifying research problem and designing and performing experiment to result to address the problem.(8)	Identifies multiple approaches for solving the problem, only some of which apply within a specific context. (8)	Collects some basic information--most relates to the topic. (12)	Successfully used most relevant methods to address the problem and able to explain principles and application of methodology and able to recognizes problems during the conduction of experiment and tried to troubleshoot them. (30)	Regular attendance and punctual in performing and not updating experimental results(12)	Organization supports thesis and purpose. Transitions are mostly appropriate. Sequence of ideas could be improved (12)	good
Moderate Involvement in identifying research problem and designing and performing experiment to result to address the problem.(6)	Identifies only a single approach for solving the problem that does apply within a specific context. (6)	Collects very little information-- some relates to the topic. (9)	Identifies some but not all methods required for dealing with the issue; does not explain why they are relevant or effective. (25)	Irregular attendance but good in performing and updating experimental results.(9)	Some signs of logical organization. May have abrupt or illogical shifts & ineffective flow of ideas (9)	average
poor Involvement in identifying research problem and designing and performing experiment to result to address the problem (4)	Identifies one or more approaches for solving the problem that do not apply within a specific context. (4)	Does not collect any information that relates to the topic (6)	Fails to explain how/why/which specific methods of research are relevant to the kind of issue at hand. (20)	Irregular attendance and poor in performing and updating experimental results.(6)	Unclear organization OR organizational plan is inappropriate to thesis. (6)	poor

Evaluation of project work – 2 (SEE)

The Department of Biotechnology once it receives the dissertation reports duly signed by HoD, internal guide and external guide sends it to the Examination section of the Institute. The Department in consultation with the internal project guide will identify Professionals and domain experts available in other institution and organizations and send these reports to them for evaluation purposes. The Examination section dispatches the reports to the domain experts and the project is also evaluated by the internal guide in consultation with the external guide. The domain experts and the internal guide evaluate the project for 100 marks each. When the evaluation reports are received from the internal guide and domain experts, the internal guide in consultation with the Head of the Department fixes the date for viva voce of the student. Based on the student performance in viva voce, marks are awarded for 100.

Rubrics for the evaluation of the project work (SEE):

The criteria for evaluation is decided by the respective panel. Generally the examiners look for relevance of the project to the field of biotechnology, its real time application to food, health, environment and other allied fields. Students with publication in national / international journals or presentations in national/international conference/ workshop are appreciated. Some common evaluation criteria taken into account by the panel of examiner are listed below:

- Relevance of the topic
- Systematic plan of work and execution
- Data analysis and interpretation
- Sound conclusion and future directions
- Viva voce
- Presentation skills
- Report writing skills

Quality of completed projects: The quality of the completed student projects are assessed by considering the following parameters:

- i. Acquisition of funding for the project work
- ii. Projects that receive any awards
- iii. Projects eventually leading to quality publications in peer reviewed indexed journals.
- iv. Projects carried out in industry/institutes of national repute

-Internship Evaluation Rubrics

Topic	Beginning (Totally unrelated)1	Developing (Remotely related)2	Accomplished (Somewhat relevant)3	Exemplary (Directly relevant)4
Organization (Overall order, flow, and transitions) (30)	Details and examples are not organized, are hard to follow and understand. (20)	Information is scattered and needs further development. (24)	Information is logically ordered with paragraphs and transitions. (28)	Information is presented in effective order. Excellent structure of paragraphs and transitions enhances readability and comprehension. (30)
Quality of Information (30)	Unable to find specific details. (20)	Details are somewhat sketchy. (24)	Some details don't support the report topic. (28)	Supporting details are specific to topic and provide the necessary information. (30)
Introduction (10)	Introductory paragraph is not apparent. (7)	Introductory paragraph is vague. (8)	Introductory paragraph is clearly stated with a focus. (9)	Introductory paragraph is clearly stated, has a sharp, distinct focus and enhances the impact of the report (10)
Conclusion (10)	Concluding paragraph is not apparent. (7)	Concluding paragraph is only remotely related to the report topic. (8)	Concluding paragraph follows and summarizes the report discussion and draws a conclusion. (9)	Concluding paragraph summarizes and draws a clear, effective conclusion and enhances the impact of the report. (10)
Format (10)	Document is formatted poorly and lacks a quality cover page and index (7)	Inconsistency in format. Improper arrangement of cover pages (8)	Formatting of the document is generally consistent and adequate, and includes a good quality cover page and index (9)	Formatting of the document is professional and includes a professional cover page and index (10)
Bibliography (10)	Resources not cited in paper or proper format not used.	Some resources are cited but not all. Not formatted correctly.	All resources are cited, but formatting isn't correct.	All resources are cited and appear with correct formatting.