



VIGNAN'S
Foundation for Science, Technology & Research
UNIVERSITY
(Estd u/s 3 of UGC Act of 1956)

DEPARTMENT OF BIOTECHNOLOGY

Action Taken Report on M. Tech Biotechnology Program R14 Feedback

Implemented in R17 regulation introduced in the AY 2017 - 18

Action taken based on the suggestions from Students:

1. The Course Contents of M.Tech Biotechnology Curriculum is in compliance with the Program Outcomes.
2. The Biotechnology Course Contents are designed to enable Technical lab Skills and Core competencies.
3. Courses placed in the Biotechnology curriculum serve the needs of aspiring students for higher education.
4. Contact Hour Distribution among the various Course Components (LTP) is Satisfiable.
5. The Electives offered have enabled the passion to learn new technologies in emerging areas.
6. The Curriculum provides an opportunity towards Self learning to realize the expectations.
7. The Composition of theory and lab Courses and year-long internship is a right mix and satisfiable.
8. Number of Laboratory sessions and Theory Courses in Biotechnology have been sufficient to improve the technical skills.
9. Student Orientation program and Research Methodology and Year-long internship offered in Biotechnology have enhanced the technical competency and leadership skills in the management of biotech related firms.

Analysis of Overall Feedback given by the Students on R14

Parameter	Strongly Agree	Agree	Moderate	Disagree	Strongly Disagree	Avg. Rating	Grade
Q1	0	100	0	0	0	4	Excellent
Q2	100	0	0	0	0	5	Excellent
Q3	0	100	0	0	0	4	Excellent
Q4	100	0	0	0	0	5	Excellent
Q5	0	100	0	0	0	4	Excellent

Q6	0	100	0	0	0	4	Excellent
Q7	0	100	0	0	0	4	Excellent
Q8	100	0	0	0	0	5	Excellent
Q9	0	100	0	0	0	4	Excellent

Itemized responses given to the Suggestions of Students

Suggestion: Introduce more elective courses in one specific area of students' interest.

Action Taken: In order to facilitate the students to focus more on their interested area, pool of professional core electives was offered with advanced courses such as Computational Biology, Industrial Biotechnology and Metabolic Engineering, Cancer Biology and Therapy etc.

Suggestion: Inclusion of small projects related to core courses will be useful for understanding the core concepts.

Action Taken: Field projects were introduced in majority of core courses for better understanding of the contents and also to make the student's industry ready

Suggestion: Include hands on training on fermenter for better understanding of Bioprocess parameters control.

Action Taken: To train the students on operation of fermenter for controlling the process parameters practical sessions were added to Bioprocess Engineering Laboratory.

Suggestion: The concept of recombinant Microbial Growth Kinetics is present in two courses i.e., Advanced Biochemical Reaction Engineering and Advanced Bioprocess Engineering.

Action Taken: the topic microbial growth kinetics were removed from Advanced Biochemical Reaction Engineering and continued in Advance Bioprocess Engineering.

Suggestion: Addition of industrial orientation courses are more beneficial in getting placements.

Action Taken: To give industry orientation to students, one-year Internship was introduced in R17 curriculum.

Action taken based on the suggestions from Alumni:

1. The Curriculum laid a good foundation in understanding the applied engineering concepts in Biotechnology.
2. The Course Contents of Biotechnology Curriculum are in compliance with the Program Outcomes.
3. The Biotechnology Curriculum imparts all the required Job Oriented Skills.
4. Professional electives of Curriculum suit to the technical advancements needed to serve in the Biotech, Biologics and Pharma industry.

5. The Tools and Technologies learnt during laboratory sessions will enrich the Bioprocess skills in Biotechnology industries.
6. While comparing with your peers from other Universities, our curriculum provided technical skills.
7. Current Curriculum is superior than your studied Curriculum.

Analysis of Overall Feedback given by the Alumni on R 14

Parameter	Strongly Agree	Agree	Moderate	Disagree	Strongly Disagree	Avg. Rating	Grade
Q1	40	60	0	0	0	4.4	Excellent
Q2	40	40	20	0	0	4.2	Excellent
Q3	40	40	20	0	0	4.2	Excellent
Q4	20	60	20	0	0	4	Excellent
Q5	40	20	40	0	0	4	Excellent
Q6	20	80	0	0	0	4.2	Excellent
Q7	100	0	0	0	0	5	Excellent

Itemized responses given to the Suggestions of Alumni

Suggestion: Give training to students on fermenter to familiarize them with process control.

Action Taken: To train the students on operation of fermenter for controlling the process parameters experiments on fermenter were included in Advanced Bioprocess Engineering Laboratory.

Suggestion: Include reactor design concepts in Advanced Biochemical Reaction Engineering course.

Action Taken: Ideal reactors design concepts were included for multiple reactions in the course namely Advanced Biochemical Reaction Engineering.

Suggestion: Introduce project-based learning to improve technical skills of the students.

Action Taken: Majority of core courses were integrated with laboratory and Minor Projects to facilitate students better correlation between the concept learned in theory course and practical knowledge.

Action taken based on the suggestions from Faculty:

1. The Course Contents of M.Tech Biotechnology Curriculum are in tune with the Program Outcomes.
2. The Course Contents will enhance the technical laboratory skills in biomedical and Core competencies.
3. The allocation of Credits to the Courses are satisfiable?
4. Contact Hour Distribution among the various Course Components (LTP) is Satisfiable.
5. Professional Electives will enrich the passion to learn new technologies in emerging areas of Biotechnology.

6. The Curriculum will provide opportunity towards Self learning to realize the expectations.
7. The Composition of core subjects, lab sessions and year-long internship are satisfiable.
8. The number of theoretical courses and laboratory sessions offered are sufficient to improve the Bioprocess technical skills of students.
9. The year-long internship will improve the technical and professional competency and leadership skills among the students.

Analysis of Overall Feedback given by the Faculty on R 14

Parameter	Strongly Agree	Agree	Moderate	Disagree	Strongly Disagree	Avg. Rating	Grade
Q1	50	41.9	8.1	0	0	4.419	Excellent
Q2	59.5	35.1	2.7	2.7	0	4.514	Excellent
Q3	59.5	40.5	0	0	0	4.595	Excellent
Q4	58.1	31.1	10.8	0	0	4.473	Excellent
Q5	55.4	44.6	0	0	0	4.554	Excellent
Q6	48.6	39.2	9.5	2.7	0	4.337	Excellent
Q7	62.2	31.1	6.8	0	0	4.558	Excellent
Q8	55.4	37.8	6.8	0	0	4.486	Excellent
Q9	62.2	31.1	2.7	4.1	0	4.517	Excellent

Itemized responses given to the suggestions of Faculty

Suggestion: It is a prerequisite to include the subjects related to industrially important subjects for Biotechnology students to acquire knowledge and skills.

Action Taken: The industrially important courses were introduced in the curriculum to strengthen the field.

Suggestion: It is better to include industrially important enzymes in the subject Industrial Biotechnology.

Action Taken: The topic industrially important enzymes in the subject Industrial Biotechnology was added.

Suggestion: For Biotechnology students it is essential to understand the concepts related to fermentation process and biological products.

Action Taken: The concepts related to fermentation process and biological products were incorporated in the advanced fermentation technology subject.

Suggestion: The industrial/research options available for the students passing out from this course has to get expertise in the industrial fermentation process. In this line it is required to include the optional subjects related to fermentation in the elective stream.

Action Taken: The subjects related to Bioprocess industry are incorporated in the curriculum to make students to get expertise in particular field. The subjects related to fermentation are incorporated in elective stream.

Suggestion: It is better to introduce the applications of enzymes in Enzyme technology subject.

Action Taken: The topic applications of enzymes in Enzyme technology subject was added.

Suggestion: It may be better to include analysis of actions of alternative medicines under cancer therapy, since the Govt is initiating integrated research now-a-days.

Action Taken: The topic analysis of actions of alternative medicines under cancer therapy was added in the subject r-DNA technology.

Suggestion: For Biotechnology students, it is more appropriate to give skill oriented experimental approaches related to the concepts of Fermentation process in Bioprocess Engineering subject.

Action Taken: The skill oriented experimental approaches related to the concepts of Fermentation process were included in the Advanced Bioprocess Engineering laboratory subject.

Suggestion: It is advised to incorporate Skill based practices which are required for industry demands.

Action Taken: The skill-based experiments are included in the laboratory subjects like Advanced Bioprocess Engineering lab, r-DNA lab, Advanced instrumentation laboratory and Downstream processing laboratory.

Action taken based on the suggestions from Employers:

1. The Course Contents of M.Tech Biotechnology Curriculum are in tune with the Program Outcomes.
2. The Course Contents are relevant with the Biotech, Biologics and Pharma Industry Demands.
3. The Professional Electives offered to students are in-line with the technology advancements in the biotech related firms.
4. Applicability of the tools and technologies described in the curriculum will be enough to practice in Industry.
5. Student Orientation program, Research Methodology and year-long internship acquired by the students through the course contents will enable them to be placed in MNC.

Analysis of Overall Feedback given by the Employers on R 14

Parameter	Strongly Agree	Agree	Moderate	Disagree	Strongly Disagree	Avg. Rating	Grade
Q1	33.3	66.7	0	0	0	4.333	Excellent
Q2	77.8	22.2	0	0	0	4.778	Excellent
Q3	0	88.9	11.1	0	0	3.889	Very Good
Q4	0	100	0	0	0	4	Excellent
Q5	88.9	0	11.1	0	0	4.778	Excellent

Suggestion: It is beneficial for students to add courses like rDNA Technology, Upstream and Downstream for the industry readiness.

Action Taken: Elective streams pertaining to industrial process were introduced to make students industry ready.

Suggestion: More courses associated with Plant, Animal and Microbial technologies need to be introduced as these courses are grabbing highest percentage of job market in biotechnology industries.

Action Taken: A pool of professional electives were introduced by including advanced courses related to Plant, Animal and Microbial technologies.

Suggestion: Better to include one year industry internship to reduce gap between industry and academic institution and to obtain training to the students.

Action Taken: in order to facilitate more industrial exposure to students, one-year internship was introduced in R17 curriculum.

Suggestion: It is essential to add basics principles of reactor design which are helpful for design of various bioreactors.

Action Taken: Bioprocess Modeling and Simulation course was offered to control bioprocesses for manufacturing of bioproducts economically.

Suggestion: Better to add more courses related to engineering principles for commercial production of primary and secondary metabolites.

Action Taken: Courses like Process engineering principles, Biochemical Reaction engineering and Downstream processing were included for industrial production of primary and secondary metabolites.

Action taken based on the suggestions from Parents:

1. The theoretical courses and practical sessions offered in our curriculum are satisfiable.
2. Overall assessment of technical knowledge in Biotechnology discipline acquired by your ward who is pursuing his/her M.Tech program in our Institution.
3. The Academic and Emotional Progression of your ward are satisfying as per your expectations.
4. Competency of your ward in Biotechnology is on par with the students from other Universities/Institutes
5. Course Contents of our M.Tech Biotechnology Curriculum are in tune with the Industry demand

Analysis of Overall Feedback given by the Parents on R 14

Parameter	Strongly Agree	Agree	Moderate	Disagree	Strongly Disagree	Avg. Rating	Grade
Q1	71.4	0	0	0	0	3.57	Very Good
Q2	71.4	14.3	14.3	0	0	4.571	Excellent
Q3	28.6	57.1	14.3	0	0	4.143	Excellent
Q4	71.4	0	28.6	0	0	4.428	Excellent
Q5	71.4	0	28.6	0	0	4.428	Excellent

Itemized responses given to the suggestions of Parents

Suggestion: Courses related to BCRE, Upstream and Downstream Processing for the training based on industrial positions.

Action Taken: To enlighten the students in industrial production of Bioproducts professional core elective stream namely Fermentation Technology was introduced which includes the courses namely Fermentation technology, Industrial biotechnology, Upstream and downstream.

Suggestion: Give priority to enhance communication skills and presentation skills to get placement in multinational companies.

Action Taken: Course such as Employability were introduced in curriculum to improve communication skills of the students.

Suggestion: Take steps to give more practical orientation to students to understand the concept clearly.

Action Taken: Majority of the courses were integrated with laboratories to give more practical orientation to students.

Suggestion: Courses must improve the chances of higher education to students.

Action Taken: The syllabus contents of all core courses were developed by considering the syllabus of all national level competitive exams like CSIR JRT, NET.

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