



DEPARTMENT OF BIOTECHNOLOGY

Action Taken Report on B. Tech Bioinformatics Program R 13 Feedback

Implemented in R16 introduced in the AY 2016 - 17

Action taken based on the suggestions from Students:

1. The Course Contents of Bioinformatics Curriculum are in tune with the Program Outcomes
2. The Bioinformatics Course Contents are designed to enrich laboratory Skills and Core competencies.
3. The Courses placed in the Bioinformatics curriculum serve the needs of both advanced and slow learners.
4. Contact Hour Distribution among the various Course Components (LTP) is Satisfiable.
5. The Electives offered will enrich 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 Basic Sciences, Engineering, Humanities and Management Courses in the curriculum is a right mix and satisfiable.
8. No. of Laboratory sessions Integrated with Theory Courses in Bioinformatics have been sufficient to improve the technical skills.
9. Integration of Minor Project with Theory Courses offered in Bioinformatics have enhanced the technical competency and leadership skills in the management of biotech related firms

Analysis of Overall Feedback given by the Students on R 13

Parameters	Strongly Agree	Agree	Moderate	Disagree	Strongly Disagree	Avg. Rating	Grade
Q1	88.8	11.2	0	0	0	4.888	Excellent
Q2	82.1	17.9	0	0	0	4.821	Excellent
Q3	6.7	88.8	4.5	0	0	4.022	Excellent
Q4	73.1	15.7	4.5	2.2	4.5	4.507	Excellent
Q5	4.5	93.3	2.2	0	0	4.023	Excellent
Q6	13.4	82.1	4.5	0	0	4.089	Excellent
Q7	75.4	20.1	2.2	0	2.2	4.662	Excellent
Q8	79.9	17.9	2.2	0	0	4.777	Excellent
Q9	82.1	9	9	0	0	4.735	Excellent

Itemized responses given to the Suggestions of Students

Suggestion: Additional knowledge is required on computational skills

Action Taken: To enhance the computation skills of Bioinformatics students, courses like Basics of computers and Internet and computer Programming were introduced in the first year of the programme itself. Moreover, Unix programming and Object-oriented programming courses were also included in the curriculum as mandatory courses.

Suggestion: Introduce courses related to computational biology

Action Taken: To increase understanding between Biology and biological computations, courses such as Biological Data bases and Molecular Phylogenetics were introduced into the curriculum.

Suggestion: Focus of elective courses has to be in specific domain

Action Taken: Professional core electives were compiled as different streams such as Drugs and Genomes to facilitate students to opt any one stream based on their interest.

Suggestion: Connection between theory courses and laboratory is required for better understanding of the concept

Action Taken: Theory courses were integrated with Laboratories for better understanding of the concept.

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

Action Taken: Minor projects in core courses were introduced to make the student's industry ready

Suggestion: Introduce advanced informatics courses related to biological data, genome sequence analysis and drugs design.

Action Taken: Courses like Biological Databases, Next Generation Sequence and Analysis, Forensic Genomics, Metagenomics and Drug Design were introduced under professional elective streams.

Suggestion: Need of more practice sessions

Action Taken: In order to facilitate more practice sessions to the students, majority of core courses were linked to laboratories.

Suggestion: Introduce courses on emerging inter-disciplinary areas such as medical informatics and immuno-informatics

Action Taken: Advanced courses such as Biomedical Informatics, Structural Informatics were introduced. The contents related to Immune-informatics were added to Immunology course.

Suggestion: Emphasis has to be given on programming courses to gain more understanding programming skills.

Action Taken: To improve the programming skills of students, courses like Computer Programming, Object Oriented Programming and Unix Programming were introduced in R16 regulations curriculum.

Suggestion: Knowledge related to drug development will be helpful in Insilco drug design.

Action Taken: A stream of professional core electives under the name of Drugs by pooling courses such as Biopharmaceutical Technology, Molecular modeling, Metabolomics and Metabolic Engineering and Drug Design was introduced.

Suggestion: Activities related to life skills and employability have to be included in the curriculum

Action Taken: In order to promote self-confidence and also to inculcate sportiveness among students life skill activities were introduced in R16 curriculum.

Suggestion: More importance has to be given to genome sequence analysis to impart more knowledge in Genomes.

Action Taken: A stream of professional core electives under the name of Genome by pooling courses such as Genomes of Pathogens, Next Generation Sequencing and Analysis, Forensic Genomics and Metagenomics was introduced.

Suggestion: The curriculum must be suitable for attempting national competitive examinations and industry needs

Action Taken: To encourage the interest among students towards the central services, in Open elective streams Humanities stream was introduced. Credits were allocated for Modular courses to give industry orientation to students.

Suggestion: Encouragement towards extracurricular activities is needed

Action Taken: Life skill activities such as short film making, Photography, Yoga Multimedia, classical dance etc. were included in curriculum to take care of the interests of students towards extracurricular activities.

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

Action Taken: Credits were allocated for Modular courses to give industry orientation to the students.

Action taken based on the suggestions from Alumni:

1. The Curriculum laid a good foundation in understanding the basic engineering concepts in Bioinformatics.
2. The Course Contents of Bioinformatics Curriculum are in tune with the Program Outcomes.
3. The Bioinformatics Curriculum encompasses all the required Job Oriented Skills.
4. Professional and Open Electives of Curriculum serve the technical advancements needed in the Biotech, Biologics, Pharma and Information Technology industry.
5. The Tools and Technologies learnt during laboratory sessions will enrich the repository and retrieval of gene and satellite DNA information for the purpose of paternity testing and forensic investigations.
6. While comparing with your peers from other Universities, our curriculum provided technical skills.
7. Current Curriculum is superior than your studied Curriculum.

Feedback from Alumni

The first batch of Bioinformatics students admitted in 2014-15 academic year were passed out in the year 2017-18. Hence, feedback from alumni for R16 regulations were not available.

Action Taken Report

Not applicable

Action taken based on the suggestions from Faculty:

1. The Course Contents of Bioinformatics Curriculum are in tune with the Program Outcomes.
2. The Course Contents along with the laboratory skills will enhance Informatics and Core competencies.
3. The allocation of Credits to the respective Courses is satisfiable.
4. The Contact Hour Distribution among the various Course Components (LTP) is Satisfiable.
5. Electives will enable the passion to learn new technologies in emerging areas of Bioinformatics.
6. The Curriculum provides an opportunity towards Self learning to realize the expectations.
7. The Composition of Basic Sciences, Engineering, Humanities and Management Courses in the curriculum is satisfiable?
8. The number of theoretical courses amalgamated with laboratory sessions is sufficient to improve the technical skills of students.
9. The integration of Minor Project with Theory Courses will improve the technical competency and leadership skills among the students.

Analysis of Overall Feedback given by the Faculty on R 13

Parameters	Strongly Agree	Agree	Moderate	Disagree	Strongly Disagree	Avg. Rating	Grade
Q1	48.3	41.4	10.3	0	0	4.38	Excellent
Q2	51.7	37.9	6.9	3.4	0	4.376	Excellent
Q3	62.1	37.9	0	0	0	4.621	Excellent
Q4	62.1	31	6.9	0	0	4.552	Excellent
Q5	44.8	55.2	0	0	0	4.448	Excellent
Q6	41.4	44.8	10.3	3.4	0	4.239	Excellent
Q7	55.2	41.4	3.4	0	0	4.518	Excellent
Q8	51.7	37.9	10.3	0	0	4.41	Excellent
Q9	55.2	34.5	3.4	6.9	0	4.38	Excellent

Itemized responses given to the suggestions of Faculty

Suggestion: It is better to separate the subject Cell and microbiology subject as separate courses cell biology and microbiology

Action Taken: The subject Cell and microbiology subject were separated and 2 courses namely cell biology and microbiology were incorporated in the curriculum.

Suggestion: It is a prerequisite to include the concepts related to bioproducts and entrepreneurship aspects for Bioinformatics students

Action Taken: The basic concepts related to bioproducts and entrepreneurship aspects were incorporated and the subject Bioproducts and Bioentrepreneurship was included as subject for Bioinformatics students in the first year itself.

Suggestion: It is essential to focus on the elective courses related to Bioinformatics field

Action Taken: The elective courses related to Bioinformatics field were incorporated in the curriculum.

Suggestion: It is better to integrate the laboratories with the theory courses to get required skills in that subject.

Action Taken: The laboratory experiments are integrated with the theory courses to get required skills in that subject.

Suggestion: It is better to include the more bioinformatics courses such as drug design, Next generation sequencing analysis, molecular modelling, forensic genomics and metagenomics as core courses instead of elective courses to get more knowledge and expertise in specific domain.

Action Taken: The bioinformatics courses such as drug design, Next generation sequencing analysis, molecular modelling, forensic genomics and metagenomics courses were added as core courses and core streams to get more knowledge and expertise in specific domain.

Suggestion: There is a need to include the subjects like structural bioinformatics, biomedical informatics, genomics and proteomics, next generation sequencing analysis, biosensors, nanobiotechnology, and in silico drug design as interdisciplinary subjects.

Action Taken: The subject's structural bioinformatics, biomedical informatics, genomics and proteomics, next generation sequencing analysis, biosensors, nanobiotechnology, and in silico drug design were incorporated as interdisciplinary subjects.

Suggestion: It is useful to include the subject proteomics and genomics with regards to the drug development and also understanding of biological processes.

Action Taken: The subject proteomics and genomics with regards to the drug development and also understanding of biological processes was included.

Suggestion: It is better to add the immunology experiments in the subject immunology and immunoinformatics to get hands on training related wet lab.

Action Taken: The immunology experiments in the subject immunology and immunoinformatics were added for better understanding of the diagnostics.

Suggestion: It is better to remove the concepts related to evolutionary and ecological species concepts, Speciation and natural selection from the subject Biodiversity and conservation.

Action Taken: The concepts related to evolutionary and ecological species concepts, Speciation and natural selection are removed from the subject Biodiversity and conservation.

Suggestion: More emphasis is required related to the computational subjects.

Action Taken: More emphasis was given to the computational subjects in the curriculum.

Suggestion: It is better to give more insights related to the subject structural bioinformatics for better understanding of biological processes and drug development for diseases.

Action Taken: More insights related to the subject structural bioinformatics was given for better understanding of biological processes and drug development for diseases.

Suggestion: It is better to introduce the concept of KEGG database in unit 4 of Biological databases and also remove the topic EXPASY

Action Taken: The concept of KEGG database was added in the unit 4 of Biological databases and the topic EXPASY was removed.

Suggestion: It is essential to add the subject Enzyme technology for BI students for better understanding of biological systems and metabolic pathways.

Action Taken: The subject Enzyme technology was incorporated in the curriculum for BI students for better understanding of biological systems and metabolic pathways.

Suggestion: The subject Molecular evolution and phylogenetic trees should be replaced with the name molecular phylogeny.

Action Taken: The subject Molecular evolution and phylogenetic trees was replaced with the name molecular phylogeny.

Suggestion: To improve the programming skills of students, the courses like Computer Programming, Object Oriented Programming and Unix Programming are essential in bioinformatics domain.

Action Taken: The programming skills-oriented subjects like computer programming, object-oriented programming and Unix programming were introduced in R16 curriculum.

Feedback report from employers:

Feedback was obtained from employers on R13 regulation of B.Tech, Bioinformatics program for the academic years 2014-2015 and 2015-2016. The suggestions are summarized as indicated below

Action taken based on the suggestions from Employers:

1. The Course Contents of Bioinformatics Curriculum are in tune with the Program Outcomes
2. The relevance of the Course Contents is applicable with the Biotech, Biologics, Pharma and Information Technology Industry.
3. The Professional Electives and Open Electives offered to students are in-line with the technology advancements in the Bioinformatics related firms.
4. Applicability of the tools and technologies described in the curriculum will be enough to practice in Industry.
5. Laboratory skills and theoretical concepts 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 13

The first batch of Bioinformatics students admitted in 2014-15 academic year were passed out in the year 2017-18. Hence, feedback from employers for R13 regulations were not available.

Action Taken Report

Not applicable

Action taken based on the suggestions from Parents:

Analysis of Overall Feedback given by the Parents on R 13

Parameters	Strongly Agree	Agree	Moderate	Disagree	Strongly Disagree	Avg. Rating	Grade
Q1	100	0	0	0	0	5	Excellent
Q2	100	0	0	0	0	5	Excellent
Q3	23.3	76.7	0	0	0	4.233	Excellent
Q4	100	0	0	0	0	5	Excellent
Q5	82.5	17.5	0	0	0	4.825	Excellent

Itemized responses given to the suggestions of Parents

Suggestion: Introduce more courses related to core knowledge to improve the employment to students.

Action Taken: To improve the employment to students, professional core electives were introduced as different streams which facilitate students to gain complete knowledge in specific area of their interest.

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

Action Taken: Courses such as Technical English Communication, English Proficiency and Communication Skills and Professional Communication lab 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: Project oriented learning will give an opportunity to students to improve technical skills.

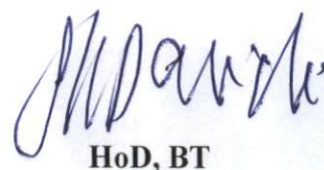
Action Taken: Specific activities related to major theory courses were pre-defined to facilitate students to carry out minor projects in that courses.

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.

Suggestion: In depth knowledge in core courses is required to write the national level examinations.

Action Taken: The contents in GATE syllabus were included in the syllabus of core courses to familiarize students about National level competitive examinations.


HoD, BT