VIGNAN'S
Foundation for Science, Technology & Research
(Deemed to be University)
-Estd u/s 3 of UGC Act 1956

DEPARTMENT OF BIOTECHNOLOGY

Action Taken Report of B. Tech Bioinformatics Programme

Implemented in R21 (from A.Y:2021-22) based on R19 Feedback

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 19

Parameters	Strongly Agree	Agree	Moderate	Disagree	Strongly Disagree	Avg. Rating	Grade
Q1	77.9	21.3	0	0.8	0	4.763	Excellent
Q2	97.5	1.6	0.8	0	0	4.963	Excellent
Q3	76.2	23.8	0	0	0	4.762	Excellent
Q4	77.9	2.5	0.8	0	18.9	4.208	Excellent
Q5	75.4	23.8	0	0	0.8	4.73	Excellent
Q6	75.4	4.9	19.7	0	0	4.557	Excellent
Q7	75.4	23.8	0	0	0.8	4.829	Excellent
Q8	72.1	27	0.8	0	0	4.709	Excellent
Q9	72.1	27	0.8	0	0	4.709	Excellent

Itemized responses given to the Suggestions of Students

Suggestion: Increase the number of computer courses to improve the programming skills of students which will fetch jobs in software industry.

Action Taken: Keeping eye on the developments in IT sector, to prepare students to get high package IT jobs good weightage was given to computer courses in R19 curriculum. In addition, other new courses such as Machine learning in life sciences and Competitive Programming was were included in R21 curriculum.

Suggestion: Add advanced courses in emerging areas for better placements for students

Action Taken: Emerging courses such as Machine learning in life sciences, 3D Bioprinting and Vaccinology were incorporated in R21 curriculum

Suggestion: Phylogenetic tree analysis is important component for Bioinformatics students.

Action Taken: The course namely Molecular Phylogenetics was made as mandatory course for Bioinformatics students in R21 curriculum.

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

Action Taken: Additional courses like 'Algorithms in Computational Biology' and 'Python Programming' are introduced to enhance the programming skills of the students in previous curriculum itself.

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 from other Universities, our curriculum provided technical skills.
7. Current Curriculum is superior than studied Curriculum.

Analysis of Overall Feedback given by the Alumni on R19

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	100	0	0	0	0	5	Excellent
Q4	100	0	0	0	0	5	Excellent

Q5	100	0	0	0	0	5	Excellent
Q6	100	0	0	0	0	5	Excellent
Q7	100	0	0	0	0	5	Excellent

Itemized responses given to the Suggestions of Alumni

Suggestion: More emphasis needs to be laid on introducing 'Programming' which is very much important now a days to get better placements in IT sector.

Action Taken: Good number of computer courses especially in emerging areas such as Artificial intelligence; Data science were incorporated in R 21 curriculum to grab better opportunities in IT field.

Suggestion: A course on Phylogenetics has to be introduced in Bioinformatics curriculum.

Action Taken: The course namely Molecular Phylogenetics was made as mandatory course for Bioinformatics students in R21 curriculum.

Suggestion: Courses on emerging areas related to Biotechnology and Bioinformatics has to incorporated to guide the students towards good research in the field.

Action Taken: A new course entitled 3D Bioprinting was added to professional department electives.

Suggestion: Let there be more emphasis on computational subjects.

Action Taken: A few of the computational courses such as R programming, Python programming, algorithms in computational biology, web technologies, IOT, and structural bioinformatics etc. were added to the curriculum.

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 R19

Parameters	Strongly Agree	Agree	Moderate	Disagree	Strongly Disagree	Avg. Rating	Grade
Q1	60.9	39.1	0	0	0	4.609	Excellent
Q2	60.9	39.1	0	0	0	4.609	Excellent
Q3	82.6	17.4	0	0	0	4.826	Excellent
Q4	73.9	26.1	0	0	0	4.739	Excellent
Q5	56.5	43.5	0	0	0	4.565	Excellent
Q6	69.6	26.1	4.3	0	0	4.653	Excellent
Q7	78.3	21.7	0	0	0	4.783	Excellent
Q8	65.2	30.4	4.3	0	0	4.605	Excellent
Q9	73.9	21.7	0	4.3	0	4.649	Excellent

Itemized responses given to the suggestions of Faculty

Suggestion: Increase the number of computer courses to improve the programming skills of students which will fetch jobs in software industry.

Action Taken: Keeping eye on the developments in IT sector, to prepare the students to get high package IT jobs good weightage was given to computer courses in R19 curriculum. In addition, other new courses such as Machine learning in life sciences and Competitive Programming was were included in R21 curriculum.

Suggestion: Add advanced courses in emerging areas for better placements for students

Action Taken: Emerging courses such as Machine learning in life sciences, 3D Bioprinting and Vaccinology were incorporated in R21 curriculum

Suggestion: A course on Phylogenetics has to be introduced in Bioinformatics curriculum.

Action Taken: The course namely Molecular Phylogenetics was made as mandatory course for Bioinformatics students in R21 curriculum.

Suggestion: Courses on emerging areas related to Biotechnology and Bioinformatics has to incorporated to guide the students towards good research in the field.

Action Taken: A new course entitled 3D Bioprinting was added to professional department electives.

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

Action Taken: Additional courses like 'Algorithms in Computational Biology' and 'Python Programming' are introduced to enhance the programming skills of the students in previous curriculum itself.

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 21

Parameters	Strongly Agree	Agree	Moderate	Disagree	Strongly Disagree	Avg. Rating	Grade
Q1	85.7	7.1	0	7.1	0	4.711	Excellent
Q2	78.6	14.3	7.1	0	0	4.715	Excellent
Q3	85.7	7.1	7.1	0	0	4.782	Excellent
Q4	85.7	14.3	0	0	0	4.857	Excellent
Q5	78.6	21.4	0	0	0	4.786	Excellent

Itemized responses given to the suggestions of Employers

Suggestion: It is better to include advanced programming languages and databases to address data intensive and large scale biological problems.

Action Taken: Advanced programming and databases like C language, JAVA and PYTHON, DBMS and R-programming are included in curriculum to handle data intensive biological problems in computational point of view.

Suggestion: Introduce courses which make familiar with students on advanced research areas in the field of Bioinformatics.

Action Taken: Key areas of bioinformatics such as sequence alignment, gene and promoter prediction, molecular phylogenetics, structural bioinformatics, genomics & proteomics, bioperl and systems biology are included for students who wish to do research and develop their knowledge in bioinformatics.

Suggestion: It is better to provide option for students learning their choice of interested courses through online e-learning digital platforms.

Action Taken: Provided options and allocated credits for learning courses through e-learning plat forms like NPTEL, SWAYAM etc., to gain knowledge about the courses of student's interest.

Suggestion: It is required to introduce courses for solving health issues occurring due to exponential growth of population.

Action Taken: Courses like Biomedical informatics and Immunology and Immunoinformatics were included to identify diseases and finding remedies.

HOD, BT