



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

DEPARTMENT OF BIOTECHNOLOGY

Date: 09.04.2016.

Minutes of Board of Studies (BOS) meeting of B.Tech Biotechnology program held on 09-04-2016 at office Head of the department, Department of Biotechnology, Vignan's University, Vadlamudi.

Agenda of the meeting:

1. To discuss and finalize structure and detailed syllabus for B.Tech Biotechnology program applicable from 2016-17 admitted batch

Members present:

S.No	Name	Members	Signature
1.	Prof. S. Krupanidhi, HOD Department of Biotechnology	Chairman, BOS	
2.	Prof. Sathyanarayana N Gummadi IIT, Madras	Invited member	
3.	Dr. Vijayalakshmi Venkatesan, Scientist 'G' National Institute of Nutrition, Hyderabad	Invited member	
4.	Dr. Narashimhan, Manager, ADVANTA Pvt Ltd, Hyderabad	Invited member	
5.	Dr. D. Vijaya Ramu, Associate Professor	Internal Member	
6.	Dr. N. Jalaja, Assistant Professor	Internal Member	
7.	Mr. D. John Babu, Assistant Professor	Internal Member	
8.	Mrs. M. Indira, Assistant Professor	Internal Member	

Minutes of the BOS meeting

1. The chairman welcomed all the members of BOS.
2. The chairman highlighted broad objectives of the proposed changes in the course structure of B.Tech Biotechnology.
3. The chairmen also explained in detail the suggestions and comments communicated various stakeholders.
4. The members of the BOS thoroughly looked at the proposals of Department of Biotechnology in the light of suggestions made by experts and recommended a new course structure for B.Tech Biotechnology program.

After the discussion it is resolved to:

1. Propose and approve course structure for all 4 years of B.Tech. Programme in Biotechnology (Appendix I).
2. Propose and approve detailed syllabus for the 4 year of B.Tech. Programme in Biotechnology with effect from the academic year 2016-17. The proposed structure and syllabus are applicable for 2016 admitted batch onwards.
3. Stakeholder's feedback is collected, analyzed and given utmost priority while designing the curriculum and their suggestions are implemented
4. The curriculum follows choice-based credit system
5. Major restructuring has taken place in the curriculum which is oriented towards integration of major core courses with Minor Projects and Laboratories
6. Major restructuring has taken place in the curriculum by introducing new elective streams such as Plant Biotechnology, Animal Biotechnology and Fermentation Technology.
7. The total percentage of syllabus revision for B.Tech Biotechnology Program is 42.42%.
8. The curriculum is encompassing the courses that enable employability or entrepreneurship or skill development (Appendix II)
9. In the B.Tech. Biotechnology revised regulation R16, the substantial changes are made in the content of all courses and hence the courses are considered as new courses (Appendix III)

Appendix I

Course Structure

I Year I Semester

Course Title	L	T	P	C
Basic Mathematics-I	3	1	2	5
Engineering Physics	3	-	-	3
Technical English Communication	3	-	2	4
Basics of Computers and Internet	3	-	2	4
Computer Programming	3	1	2	5
Basics of Engineering Products	3	-	2	4
English Proficiency and Communication Skills	-	-	2	1
Engineering Physics Laboratory	-	-	3	2
Total	18	2	15	28

I Year II Semester

Course Title	L	T	P	C
Basic Mathematics-II	3	1	2	5
Engineering Chemistry	3	-	-	3
Engineering Graphics	1	-	3	3
Basics of Electrical and Electronics Engineering	3	-	2	4
Engineering Chemistry Laboratory	-	-	3	2
Environmental Science and Technology	2	-	-	2
Bioproducts and Bioentrepreneurship	3	1	-	4
Work shop Practice	-	-	3	2
Total	15	2	13	25

II Year I Semester

Course Title	L	T	P	C
Probability and Statistics	3	1	-	4
Management Science	3	-	-	3
Biochemistry	3	-	2	4
Cell Biology	3	-	2	4
Microbiology	3	-	2	4
Process Engineering Principles	3	1	-	4
Employability and Life Skills Elective*	-	-	-	1
Total	18	2	6	24

II Year II Semester

Course Title	L	T	P	C
Genetics	3	1	-	4
Heat and Mass Transfer	3	-	2	4
Instrumental Methods of Biological Analysis	3	-	2	4
Molecular Biology	3	-	2	4
Soft Skills Lab	-	-	2	1
Department Elective	-	-	-	3
Department / Open Elective	-	-	-	4
Employability and Life Skills Elective*	-	-	-	1
Total	12	1	8	25

III Year I Semester

Course Title	L	T	P	C
Biochemical Reaction Engineering	3	-	2	4
Biosensors	3	1	-	4
Enzyme Technology	3	-	2	4
Industrial Biotechnology	3	1	-	4
Professional Communication Lab	-	-	2	1
Department Elective	-	-	-	3
Department / Open Elective	-	-	-	4
Employability and Life Skills Elective*	-	-	-	1
Total	12	2	6	25

III Year II Semester

Course Title	L	T	P	C
Professional Ethics	2	-	-	2
Bioethics and Intellectual Property Rights	3	-	-	3
Bioprocess Engineering	3	-	2	4
Genetic Engineering and Epigenetics	3	-	2	4
Thermodynamics for Biotechnologists	3	-	-	3
Department Elective	-	-	-	4
Department / Open Elective	-	-	-	4
Employability and Life Skills Elective*	-	-	-	1
Total	14	1	4	25

IV Year I Semester

Course Title	L	T	P	C
Nanobiotechnology	3	-	-	3
Bioinformatics	3	-	2	4
Down Stream Processing	3	-	2	4
Genomics and Proteomics	3	-	-	3
Immunology and Immunoinformatics	3	-	2	4
Department Elective	-	-	-	4
Department / Open Elective	-	-	-	4
Employability and Life Skills Elective*	-	-	-	1
Total	14	-	8	27

IV Year II Semester

Course Title	L	T	P	C
Project work / Internship	-	-	30	15
Total	-	-	30	15

DEPARTMENT ELECTIVE STREAMS AND COURSES

STREAM - 1: PLANT BIOTECHNOLOGY

Course Title	L	T	P	C
Plant Metabolism	3	1	-	4
Agricultural Biotechnology	3	-	-	3
Plant Tissue Culture	3	-	2	4
Transgenic Plants	3	1	-	3

STREAM - 2: ANIMAL BIOTECHNOLOGY

Course Title	L	T	P	C
Physiology and Histology	3	1	-	4
Cell Culture Techniques	3	-	2	4
Tissue Engineering and Regenerative Medicine	3	-	-	3
Drug Toxicity Evaluation	3	-	-	3

STREAM - 3: FERMENTATION TECHNOLOGY

Course Title	L	T	P	C
Microbial Technology	3	1	-	4
Fermentation Products	3	-	-	3
Bioprocess Modelling and Simulations	3	1	-	4
Metabolomics and Metabolic Engineering	3	-	-	3

MODULAR COURSES

Course Title	L	T	P	C
MODULAR COURSE	1	-	-	1

Inter Department Electives

Course Title	L	T	P	C
Algal Biotechnology	3			4
Plant Biotechnology	3			4
Meat, Poultry, Fish and Dairy Technology	3			4
Nano Technology in Agricultural and Food Industries	3			4



DEPARTMENT OF BIOTECHNOLOGY

APPENDIX - II

List of courses that enable employability or entrepreneurship or skill development in the R-16 B.Tech – Biotechnology

S.No	Year	Core/Elective	Course Name	Employability/ Entrepreneurship/ Skill development
1.	I	Basic Engineering	Bioproducts and Bioentrepreneurship	Skill development
2.	II	Core	Biochemistry	Skill development
3.	II	Core	Cell Biology	Skill development
4.	II	Core	Microbiology	Skill development
5.	II	Core	Process Engineering Principles	Skill development
6.	II	Core	Genetics	Skill development
7.	II	Core	Molecular Biology	Skill development
8.	II	Core	Heat and Mass Transfer	Skill development
9.	II	Core	Instrumental Methods of Biological Analysis	Skill development
10.	II	Intra Department Elective	Plant metabolism	Skill development
11.	II	Intra Department Elective	Physiology and histology	Skill development
12.	II	Intra Department Elective	Microbial Technology	Skill development
13.	II	Inter Department Elective	Algal Biotechnology	Skill development
14.	III	Core	Biochemical Reaction Engineering	Skill development
15.	III	Core	Biosensors	Skill development

S.No	Year	Core/Elective	Course Name	Employability/ Entrepreneurship/ Skill development
16.	III	Core	Enzyme Technology	Skill development
17.	III	Core	Industrial Biotechnology	Skill development
18.	III	Intra Department Elective	Agricultural Biotechnology	Skill development
19.	III	Intra Department Elective	Cell cultural Techniques	Skill development
20.	III	Intra Department Elective	Fermentation Products	Skill development
21.	III	Inter Department Elective	Plant Biotechnology	Skill development
22.	III	Core	Genetic Engineering and Epigenetics	Skill development
23.	III	Core	Thermodynamics for Biotechnologists	Skill development
24.	III	Core	Bioprocess Engineering	Employability
25.	III	Core	Bioethics and Intellectual Property Rights	Entrepreneurship
26.	III	Intra Department Elective	Plant Tissue culture	Employability
27.	III	Intra Department Elective	Tissue Engineering and Regenerative Medicine	Employability
28.	III	Intra Department Elective	Bioprocess Modeling and simulation	Skill development
29.	III	Inter Department Elective	Nano Biotechnology	Skill development
30.	IV	Core	Bioinformatics	Employability
31.	IV	Core	Immunology and Immuno-informatics	Skill development
32.	IV	Core	Downstream Processing	Employability
33.	IV	Core	Genomics and Proteomics	Skill development
34.	IV	Core	Nanobiotechnology	Skill development
35.	IV	Intra Department Elective	Transgenic Plants	Skill development

S.No	Year	Core/Elective	Course Name	Employability/ Entrepreneurship/ Skill development
36.	IV	Intra Department Elective	Drug Toxicity and Evaluation	Skill development
37.	IV	Intra Department Elective	Metabolomics and Metabolic Engineering	Skill development
38.	IV	Inter Department Elective	MEAT, POULTRY, FISH AND DAIRY TECHNOLOGY	Skill development
39.	IV		Internship	Employability
40.	IV		Project Work	Employability
41.			Employability Skills- III	Employability
42.			Modular Course	Employability


Chairman BoS



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APPENDIX - III

List of new courses in the R-16 B.Tech – Biotechnology Curriculum

1.	I	Core	Bioproducts and Bioentrepreneurship
2.	II	Core	Biochemistry
3.	II	Core	Cell Biology
4.	II	Core	Microbiology
5.	II	Core	Process Engineering Principles
6.	II	Core	Genetics
7.	II	Core	Molecular Biology
8.	II	Core	Heat and Mass Transfer
9.	II	Core	Instrumental Methods of Biological Analysis
10.	II	Intra Department Elective	plant metabolism
11.	II	Intra Department Elective	physiology and histology
12.	II	Intra Department Elective	Microbial Technology
13.	II	Inter Department Elective	Algal Biotechnology
14.	III	Core	Biochemical Reaction Engineering
15.	III	Core	Biosensors
16.	III	Core	Enzyme Technology
17.	III	Core	Industrial Biotechnology
18.	III	Intra Department Elective	Agricultural Biotechnology
19.	III	Intra Department Elective	Cell cultural Techniques
20.	III	Intra Department Elective	Fermentation Products
21.	III	Inter Department Elective	Plant Biotechnology

22.	III	Core	Genetic Engineering and Epigenetics
23.	III	Core	Thermodynamics for Biotechnologists
24.	III	Core	Bioprocess Engineering
25.	III	Core	Bioethics and Intellectual Property Rights
26.	III	Intra Department Elective	Plant Tissue culture
27.	III	Intra Department Elective	Tissue Engineerign and Regenerative Medicine
28.	III	Intra Department Elective	Bioprocess Modeling and simulation
29.	III	Inter Department Elective	Nano Biotechnology
30.	IV	Core	Bioinformatics
31.	IV	Core	Immunology and Immuno-informatics
32.	IV	Core	Downstream Processing
33.	IV	Core	Genomics and Proteomics
34.	IV	Core	Nanobiotechnology
35.	IV	Intra Department Elective	Transgenic Plants
36.	IV	Intra Department Elective	Drug Toxicity and Evaluation
37.	IV	Intra Department Elective	Metabolomics and Metabolic Engineering
38.	IV	Inter Department Elective	MEAT, POULTRY, FISH AND DAIRY TECHNOLOGY
39.	IV		Internship
40.	IV		Project Work
41.			Employability Skills-III
42.			Modular Course

S. Muramoh.
Chairman BoS