


KLEF
DEPARTMENT OF BIOTECHNOLOGY
MINUTES OF DEPARTMENT BOS (2012-13)

Particulars of Meeting conducted:

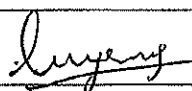



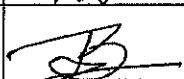

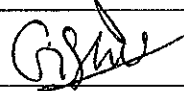
Type of Meeting	BOS
Department conducting the Meeting	Biotechnology
Number of the Meeting	11
Date of Meeting	15/06/2012
Time of Meeting	11:30 AM
Venue of Meeting	Faculty Conference Hall, Biotechnology

Agenda items to be discussed:

Agenda Item number	Agenda Item Description	Resolution
BT-BOS-12001	To design y12 batch/B-Tech syllabus with the following specialization streams such as a) Biomedical engineering, Food and industrial Biotechnology, Bioenergy and Biofuels, Bioinformatics and Genetic engineering.	The BOS unanimously resolved to recommend the following specialization streams for Y12 Batch/ BTech. Biomedical engineering, Food and industrial Biotechnology, Bioenergy and Biofuels, Bioinformatics and Genetic engineering (Annexure-1)
BT-BOS-12002	To Change minor modifications in Biochemical Reaction Engineering and Mathematics and Biostatistics Lab for M-Tech Y12 batch.	The BOS resolved to introduce minor modifications in Biochemical Reaction Engineering and Mathematics and Biostatistics Lab for M-Tech Y12 batch.(Annexure-2)

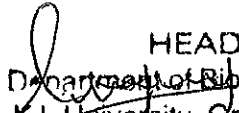

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Members Present:

S.No	Name of the person	Institution	Department	Designation	Position of the person in the meeting	Signature
1	Dr S Vijayasradhi	KLEF	Biotechnology	Associate Professor	Chairman	
2	K Srinivasulu	KLEF	Biotechnology	Associate Professor	Internal Member	
3	V Praveen Kumar	KLEF	Biotechnology	Assistant Professor	Internal Member	
4	Dr R Srinivasa Reddy	KLEF	Biotechnology	Associate Professor	Internal Member	
5	Dr B Mahendran	KLEF	Biotechnology	Assistant Professor	Internal Member	
6	Dr M Sudhamani	KLEF	Biotechnology	Assistant Professor	Internal Member	
7	Dr G Satyanarayana	IIT Madras	Biotechnology	Professor	External Member	

Based on the feedback received by DAC, the following recommendations were approved in the BOS.

1. The following specialization streams for Y12 Batch/ B-Tech were approved in the BOS.
 - a. Biomedical engineering,
 - b. Food and industrial Biotechnology,
 - c. Bioenergy and Biofuels,
 - d. Bioinformatics and Genetic engineering
2. Minor modifications in Biochemical Reaction Engineering and Mathematics and Biostatistics Lab for Y12 batch (M-Tech) were approved in the BOS. (Annexure-2)


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HOD-BT
Dr S Vijayasradhi

K L UNIVERSITY
DEPARTMENT OF BIOTECHNOLOGY
MINUTES OF DEPARTMENT ACADEMIC COMMITTEE MEETING(2012-13)

The Department Academic Committee meeting was conducted in HOD, Biotechnology, seminar hall on 20 Apr 2012 at 3:00 pm

Agenda:

1. To discuss the feedbacks received from stake holders on curriculum
2. To propose the curriculum for B-Tech and M-Tech /Y12admitting batch
3. Any other points with the permission of the DAC chairman

The following members were present:

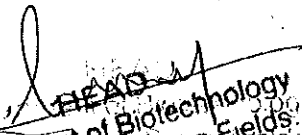
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|--------------------------|------------------------|
| 1. Dr.K Srinivasulu | Head of the Department |
| 2. Dr.BJK Singh | Associate Professor |
| 3. Dr. V Praveen Kumar | Associate Professor |
| 4. Dr.B Mahendran | Associate Professor |
| 5. Dr. R Srinivasa Reddy | Associate Professor |
| 6. Dr. K Srinivasulu | Associate Professor |

The following points were discussed and resolved:

1. The DAC discussed and resolved to recommend BOS that y12 batch syllabus design with the following specialization streams such as
 - a)Biomedical engineering, Food and industrial Biotechnology, Bioenergy and Biofuels, Bioinformatics and Genetic engineering. (Annexure 1)
2. Upon discussing the feedback from students, the committee resolved to recommend the following to BOS
 - a. Minor modifications in Biochemical Reaction Engineering and Mathematics and Biostatistics for Y12 Batch M-Tech .(Annexure 2 and 3)
 - b. Upon considering above mentioned feedbacks and surveying through the policy documents in relevance to, Human Resource Development Policy, Govt. of India, National Skill Development Corporation, Govt. of India, ABET, NBA norms, AICTE statutory norms , it is resolved to propose enclosed Program development documents and curriculum for B-Tech and MTech -Biotechnology Program for BOS approval.

Dr.K Vijayasradhi
(head of the Department)
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DEPARTMENT OF BIOTECHNOLOGY				Annexure:1
S.No	Course Code	Course Title	L-T-P	Credits
Semester -1				
1	11HS101	English	2-0-2	3
2	11BT106	Basic Mathematics	2-2-2	4
3	11BS103	Engineering Physics	3-0-2	4
4	11BS105	Ecology and Environment	2-0-0	2
5	11ES103	Engineering Materials	3-0-0	3
6	11HS103	Energy and Society	3-0-0	3
7	11ES104	Engineering graphics with CAD	0-0-4	2
	Total Credits			21
Semester -2				
1	11HS102	Technical Communication Skills	3-0-0	3
2	11BT107	Basic Biology	3-1-0	4
3	11MP101	Mini project	NC	0
4	11BS104	Engineering Chemistry	3-0-2	4
5	11ES101	Problem Solving through programming	3-0-2	4
6	11ES102	Measurements	3-0-2	4
7	11ES103	Workshop Practice		2
	Total Credits			21
Semester -3				
1	12BT201	Biochemistry	3-0-2	4
2	11BT202	Microbiology	3-0-2	4
3	11BT203	Cell biology	3-1-0	4
4	12ES204	Information Technology	3-1-0	4
5	12ES205	Fluid mechanics and Heat Transfer	3-0-2	4
6	11BS201	Probability and statistics	3-1-0	4
7	11MP201	Mini Project		1
	Total Credits			25
Semester -4				
1	11BT204	Bio analytical Techniques	3-0-2	4
2	11BT206	Genetics and Molecular Biology	4-0-0	4
3	12BT205	Bioinformatics	3-0-2	4
4	11BT207	Process Engineering Principles	3-1-0	4
5	11ES206	Biochemical Thermodynamics	4-0-0	4
6	11BS209	Numerical Methods	3-1-0	4
7		Management Elective-1	3-0-0	3
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Semester -5				
1	12BT301	Plant and animal biotechnology	3-0-2	4
2	11HS301	Professional communication skills	3-0-0	3
3	11BT302	Genetic Engineering	3-0-2	4
4	12BT303	Biomedical signals and systems	3-2-0	5
5	11BT304	Fermentation Technology	3-0-2	4
6		Professional Elective-I	3-0-0	3
	Total Credits			23
Semester -6				
1	11BT305	Biochemical Reaction Engineering	3-0-2	4
2	12BT306	Mass Transfer Operations	3-0-2	4
3	12BT307	Immunology	3-0-2	4
4		Professional Elective-II	3-0-0	3
5		Professional Elective-III	3-0-0	3
6		Open Elective -1.	3-0-0	3
6	11MP 301	Mini Project	0-0-2	1
	Total Credits			22
Semester -7				
1	11BT401	Bioprocess Dynamics and control	3-1-0	4
2	11BT402	Downstream Processing	3-1-2	4
3		Professional Elective-IV	3-0-0	3
4		Open Elective-II	3-0-0	3
5		Open Elective -III	3-0-0	3
6	11TP401	Term Paper	0-0-4	2
	Total Credits			19
Semester -8				
4	12FP401	Project (OR)		18
5	12PS401	Practice school		18
	Total Credits			18
Professional Electives				
FOOD AND INDUSTRIAL BIOTECHNOLOGY				
1	12BTE42	Microbial Technology	3-0-0	3
2	11BTE43	Pharmaceutical Biotechnology	3-0-0	3
3	12BTE44	Food Biotechnology	3-0-0	3
4	12BTE45	Metabolic Engineering	3-0-0	3
GENETIC ENGINEERING				
1	11BTE30	Molecular genetics and DNA forensics	3-0-0	3
2	11BTE31	Transgenic Technology	3-0-0	3


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3	11BTE32	Genomics and Proteomics	3-0-0	3
4	12BTE33	Molecular Expression Technology	3-0-0	3
BIOMEDICAL ENGINEERING				
1	12BTE34	Immunotechnology	3-0-0	3
2	11BTE35	Stem cell technology	3-0-0	3
3	12BTE36	Medical Biotechnology	3-0-0	3
4	12BTE37	Cancer Biology	3-0-0	3
BIOENERGY AND BIOFUELS				
1	12BTE38	Bioenergy	3-0-0	3
2	11BTE39	Algal Biotechnology	3-0-0	3
3	12BTE40	Biomass Processing Chemistry	3-0-0	3
4	12BTE41	Biorefinery and Biofuels	3-0-0	3
BIOINFORMATICS				
	12BTE46	Molecular modeling and drug design	3-0-0	3
	11BTE47	Bioperl and PERL programming	3-0-0	3
	12BTE48	Biomedical Informatics	3-0-0	3
	12BTE49	Structural Biology	3-0-0	3
Open Electives				
1	11BTE34	Molecular modeling and drug design	3-0-0	3
2	11BTE41	Cancer Biology	3-0-0	3
3	11HS201	Emotional intelligence	3-0-0	3
4	11HS205	Professional ethics and values	3-0-0	3
5	11HS206	Behavioral science	3-0-0	3
6	11HS210	Self Management	3-0-0	3
7	11HS211	Organization Management	3-0-0	3
8	13HS212	Construction project Management	3-0-0	3
9	13HS213	Fundamentals of Photography	3-0-0	3
10	13HS214	Event Management	3-0-0	3
11	12HS215	Public Administration	3-0-0	3
12	13OE422	Water	3-0-0	3
MANAGEMENT ELECTIVES				
1	11HS203	Indian economy	3-0-0	3
2	11HS208	Managing personal finance	3-0-0	3
3	11HS209	Basics of marketing for engineers	3-0-0	3

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M. Tech Biotechnology

1st semester I/II

BIOCHEMICAL ENGINEERING LAB

(Perform minimum any 10 practicals)

1. Study of thermal death kinetics and estimation of delta factor for bacterial culture
2. Determination of Volumetric mass transfer coefficient in fermenters (sodium sulphite technique, Static method)
3. Determination of gas holdup in sparged reactor
4. Determination of mixing time in bioreactor
5. Determination of circulation time using flow follower method
6. Estimation of Reynolds number for a given flow in pipes
7. Residence time distribution experiment in CSTR
8. Estimation of power number for stirrer in fermenters
9. Estimation of conversion of a substrate in plug flow reactor
10. Kinetic studies in fluidized bed bioreactor
11. Design exercises on fermenters


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BIOCHEMICAL ENGINEERING LAB

1. Study of thermal death kinetics and estimation of delta factor for bacterial culture
2. Determination of Volumetric mass transfer coefficient in fermenters
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M. Tech Biotechnology

1st semester III**MATHEMATICS AND BIostatISTICS Lab**

(Perform minimum any 10 practicals at least 5 from each Lab)

Mathematics Lab

1. Finding roots of Equation (Polynomials or transcendental) using bisection method. (2-3 practical).
2. Curve tracing (Using Maxima and Minima, symmetry along X-axis, Y-axis, $Y=X$, $Y=-X$, point of intersection with X-axis and Y-axis, $f(|x|), |f(x)|$) (2-3 practical).
3. Computation of Definite integral using trapezoidal and Simpson's Rule. (2-3 practical).
4. Sets (Venn diagram, Union, Intersection, Difference of sets, Symmetric Difference of sets, Complement of sets). (2-3 practical).
5. Relations (Graphical Representation of relation from set A to set B and set A to set B) (1 practical).
6. Functions (Graph of standard functions, modulus, greatest integer, exponential, $\log_a x$, signum, sin, cos, tan, cot, sec, cosec) (2-3 practical).
7. Increasing and decreasing (polynomial functions), Wavy curve method. (2 practical).
8. Plotting of irrational numbers $\sqrt{2}$, $\sqrt{3}$, $\sqrt{5}$, etc. on number line. (1 practical).
9. Argand plane (plotting of complex numbers). (1 practical).

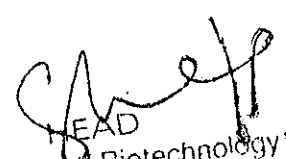
Statistics Lab

These entire practical will also be done on software's like SPSS or SYSTAT. If these are not available then write programs for all these practicals in C language.

1. Graphical representation of data and measures of central tendency: mean, median, mode.
2. Measures of dispersion: range, mean deviation about any arbitrary point, variance, standard deviation, coefficient of variation.
3. Quartiles, percentiles, Measures of skewness.
4. Correlation coefficient, regression lines.
5. Expectation and variance in terms of expectation, area property of Normal distribution.
6. t-test (one sample and two sample problems)
7. F-test and Chi-square test.
8. Z-test (one sample and two sample problems)
9. One way ANOVA and two way ANOVA.
10. Non-parametric tests (sign test, Wilcoxon signed rank test, Median test and Mann-whitney test).

Reference books:

1. Dan Yates, David S. Moore, Daren S. Starnes. The Practice Of Statistics: Ti-83/84/89 Graphing Calculator Enhanced (Hardcover), W. H. Freeman Publisher, 2007


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MATHEMATICS AND BIOSTATISTICS Lab**Mathematics Lab**

1. Finding roots of Equation (Polynomials or transcendental) using bisection method. (2-3 practical).
2. Curve tracing (Using Maxima and Minima, symmetry along X-axis, Y-axis, $Y=X$, $Y=-X$, point of intersection with X-axis and Y-axis, $f(|x|)$, $|f(x)|$) (2-3 practical).
3. Computation of Definite integral using trapezoidal and Simpson's Rule. (2-3 practical).
4. Sets (Venn diagram, Union, Intersection, Difference of sets, Symmetric Difference of sets, Complement of sets). (2-3 practical).
5. Relations (Graphical Representation of relation from set A to set B and set A to set B) (1 practical).
6. Functions (Graph of standard functions, modulus, greatest integer, exponential, $\log_e x$, signum, sin, cos, tan, cot, sec, cosec) (2-3 practical).
7. Increasing and decreasing (polynomial functions), Wavy curve method. (2 practical).
8. Plotting of irrational numbers $\sqrt{2}$, $\sqrt{3}$, $\sqrt{5}$, etc. on number line. (1 practical).
9. Argand plane (plotting of complex numbers). (1 practical).

Statistics Lab

These entire practical will also be done on software's like SPSS or SYSTAT. If these are not available then write programs for all these practicals in C language.

1. Graphical representation of data and measures of central tendency: mean, median, mode.
2. Quartiles, percentiles, Measures of skewness.
3. Correlation coefficient, regression lines.
4. Expectation and variance in terms of expectation, area property of Normal distribution.
5. t-test (one sample and two sample problems)
6. F-test and Chi -square test.
7. Z-test (one sample and two sample problems)
8. One way ANOVA and two way ANOVA.
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M. Tech Biotechnology 1st semester I/II

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