



List of Revised Courses

Department : **Biotechnology**

Program Name : **B.Sc.**

Academic Year : **2016-17**

List of Revised Courses

Sr. No.	Course Code	Name of the Course
1.	LBTC 301	BIOSTATISTICS
2.	LBTC 401	IMMUNOLOGY

Signature & Seal of HoD

विभागाध्यक्ष, जैव प्रौद्योगिकी विभाग
Head, Department of Biotechnology
गुरु घासीदास विश्वविद्यालय, बिलासपुर (छ.ग.)
Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)



Minutes of Meetings (MoM) of Board of Studies (BoS)

Academic Year : 2016-17

School : **School of Studies of Interdisciplinary Education and Research**

Department : **Biotechnology**

Date and Time : **01-07-2015 - 03:00 pm**

Venue : **Room of Head, Department of Biotechnology**

MINUTES OF THE MEETING OF BOARD OF STUDIES IN BIOTECHNOLOGY HELD ON 01/07/2015

A meeting of the BOS was held on 01.07.2015 at 3 pm to discuss the following:

- To discuss and approve the course structure and scheme of examination of Int. UG/PG and M.Sc. courses in Biotechnology as per CBCS scheme of the UGC effective from academic session 2015-2016.
- Any other matter by permission of the Chair.

The following member were present:

(i)	Prof. B.N. Tiwary, Head	Chairman
(ii)	Dr. Renu Bhatt, Associate Professor	Member
(iii)	Dr. D.K. Parihar, Assistant Professor	Member

A copy of the draft of course structure and scheme of examination was sent in advance by email for perusal and comment to Prof. Ashok Kumar, Department of Biotechnology, BHU, the external subject expert. However, no reply was received till the time of meeting on 01.07.2015.

At the very outset the HOD and Chairman of BOS welcomed all the esteemed members and placed the draft prepared to revise course structure and scheme of examination in the light of UGC directives as per CBCS scheme to be implemented from 2015-2016. Further the chairman brought to the notice of all members about the resolution of meeting called by the Dean on **21.06.2015** regarding following changes to be made for undergraduate courses:

- There should be 03 core subjects at entry level of integrated courses in addition to AECC (Ability Enhancement Core Courses) and elective courses.
- There should be at least 02 groups in each undergraduate course of every Department of the school. The students may opt any one of the two groups for Biotechnology (Hons.)

The course structure and scheme of examination was approved by all members.

The chairman categorically pointed out that in UG courses only 03 core subjects have to be defined and the student shall have choice to opt for any of the subject to pursue, the Honors degree course in 05th sem.

The BOS resolved to have two groups

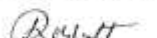
Group A : Biotechnology-Chemistry-Zoology

Group B: Biotechnology-Chemistry-Botany

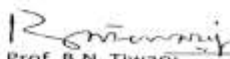
Each of the groups shall have a maximum of 30 seats, i.e. within the total approved seat of 60 in Biotechnology Honors. The number of students of other Departments of School of Life Sciences, opting Biotech as one of the core subjects in no case shall exceed 60.

However, one of the esteemed members, Dr. D.K. parihar, showed his descent ~~mentoring~~ ^{concern} that segregating students in Botany and Zoology will lead to incomplete and inadequate knowledge of Biological sciences, as this is an integral component of Biotechnology.

The meeting ended with a vote of thanks by the Chair.


Dr. Renu Bhatt
(Member)


Dr.D. K. Parihar
(Member)


Prof. B.N. Tiwary 01.07.2015
(Chairman)



In the meeting of BOS-Biotechnology held on 01-07-2015, the following courses were revised in the of Syllabus of B. Sc. and M.Sc. Course work:

Sr. No.	Course Code	Name of the Course
1.	LBTC 301	BIOSTATISTICS
2.	LBTC 401	IMMUNOLOGY
3.	LBTM 301	ANIMAL BIOTECHNOLOGY
4.	LBTM 302	ADVANCED IMMUNOLOGY
5.	LBTM 303	PLANT BIOTECHNOLOGY

The following new courses were introduced in the Syllabus of B. Sc. and M.Sc. Course:

Course Code	Course Name
LBTC 402	Biophysical Techniques
LBTM 304	A . Bioprocess Engineering and Technology
LBTM 304	B. Molecular Docking
LBTM 304	C. Molecular Diagnostics
LBTM 304	D. Plant Metabolic Engineering
LBTM 401	Immunotechniques
LBTM 402	Environmental Technology
LBTM 403	A. Microbial and Fermentation Technology
LBTM 403	B. Chemoinformatics and Drug Designing
LBTM 403	C. Plant Genetic Engineering and Molecular Breeding

Signature & Seal of HoD

विभागाध्यक्ष, जैव प्रौद्योगिकी विभाग
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Scheme and Syllabus

Semester - III					
Code	Course Opted	Subjects	Hours/Semester	Hours/Week	Credits
LBTc-301	Core-1	Paper-1 Biostatistics	32	2	2
LBTc-302		Paper-2 Molecular Biology	32	2	2
	Core-2	Paper-1	32	2	2
		Paper-2	32	2	2
	Core-3	Paper-1	32	2	2
		Paper-2	32	2	2
	Skill Enhancement Course-1	Environmental Sciences-I	32	2	2
LBTc-303	Core-1	Laboratory (Based on Paper-1 & 2)	64	4	2
	Core-2	Laboratory (Based on Paper-1 & 2)	64	4	2
	Core-3	Laboratory (Based on Paper-1 & 2)	64	4	2
		Total	416	28	20

Semester - IV					
Code	Course Opted	Subject	Hours/Semester	Hours/Week	Credits
LBTc-401	Core-1	Paper-1 Immunology	32	2	2
LBTc-402		Paper-2 Biophysical Techniques	32	2	2
	Core-2	Paper-1	32	2	2
		Paper-2	32	2	2
	Core-3	Paper-1 Chemistry-VII	32	2	2
		Paper-2 Chemistry-VIII	32	2	2
	Skill Enhancement Course-1	Environmental Sciences-II	32	2	2
		Disaster Management (incorporate only if common syllabus or Academic council decision)	32	2	2
LBTc-403	Core-1	Laboratory (Based on Paper-1 & 2)	64	4	2
	Core-2	Laboratory (Based on Paper-1 & 2)	64	4	2
	Core-3	Laboratory (Based on Paper-1 & 2)	64	4	2
		Total	448	32	22

*Student can opt any one out of the three core papers (Biotechnology, Botany/Zoology and Chemistry) as the honours (Subject to the availability of the seats as approved by the Academic Council)

*The decision of the Dean of the school and the Head of the respective Department will be final

Q. Shetty

[Signature]



Course: **Biostatistics**
Course Code:
Course Credit: (2-0-0) 2

Unit - 1

Introduction and definition of biostatistics, tabulation and classification of data, frequency distribution and graphical distribution of data

Unit - 2

Measures of central tendencies, mean, median, mode and their properties, measure of dispersion: mean deviation, variance, coefficient of variance and standard deviation

Unit-3

Comparison of two data sets: hypothesis, student's t-test, paired t-test, correlation coefficient, linear regression analysis, chi-square test, contingency test, testing of hypothesis

Unit - 4

Concepts and problems on probability: probability distribution function, binomial distribution, poisson distribution

Unit - 5

Comparison of three and more samples: one-way ANOVA test, least significant difference, two-way ANOVA test, hypothesis and testing of hypothesis

Evaluation Scheme:

S.No.	Examination	Duration	% of Marks
1	Internal Assessment I	1 hour	15
2	Internal Assessment II	1 hour	15
3	End Semester	3 hours	30
4	Attendance/Assignment/Class performance	Each semester	5

Note: The best one out of two Internal Assessments will be taken into consideration

Suggested Readings

1. Principles of Biostatistics: Mishra BN and Mishra SN
2. Biostatistics: Daniel WW
3. Principle of Biostatistics: Marcello pagano

Ansari

Raj

Ans



Course: Immunology
Course Code:
Course Credit: (2-0-0) 2

Unit - 1

Innate and adaptive immunity, antigens, antigenicity and immunogenicity, B and T cell epitopes

Unit - 2

Structure and function of antibody molecules, monoclonal antibodies, antigen-antibody interactions

Unit - 3

MHC molecules, antigen processing and presentation, activation and differentiation of B and T cells, B and T cell receptors and their roles

Unit - 4

Humoral and cell-mediated immune responses, primary and secondary immune modulation, the complement system

Unit - 5

Inflammation, hypersensitivity and autoimmunity, immune response during bacterial (tuberculosis), parasitic (malaria) and viral (HIV) infections, vaccines

Evaluation Scheme:

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Suggested Readings

1. Essentials of Immunology: Roitt IM
2. Immunology: Kuby J
3. Advanced Immunology: Male D Champion B, Cooke A & Owen M
4. Immunology: Rao CV
5. Immunology: Joshi, Osama
6. Immunology: Ranga MM