Gyanmanjari Innovative University

Course Syllabus
Gyanmanjari Institute of Technology
Semester-1 (B.Tech)

Subject: Good Lab Practices-BETBT11201

Type of course: Skill Enhancement Courses (SEC)

Prerequisite: Nil

Rationale: This course has been designed to make the students know about the basic principles of lab instruments. Students will learn about the biosafety and quality of the research, results which are essential for developing safe and effective products.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
					Practical Marks		CA	
CI	T	P	C	ESE	V	P	ALA	
0	0	4	2	0	10	40	50	100

Legends: CI-Class Room Instructions; T – Tutorial; P - Practical; C – Credit; ESE - End Semester Evaluation; MSE- Mid Semester Examination;V – Viva voice; CA-Continuous Assessment; ALA- Active Learning Activities.

Continuous Assessment:

Sr. No.	Active Learning Activity	Marks
1.	**Quiz:** Unit wise MCQ test will be conducted on Moodle. Per unit maximum of 10 Questions will be allocated to the students.	10
2.	**Look & Learn** Lab instrument Photographs will be provided by faculty and students have to Identify, describe, and upload the working principle of assigned photographs on Moodle.	10

3.	**Presentation** Give presentations on given topics by faculties and upload them on Moodle	10
4.	**Analysis and Evaluate** Determine the sample analysis by optical density in Excel in upload on Moodle	10
5.	**Attendance**	10
	Total	50

Course Content:

Sr. No	Descriptions	Hrs
1	**Standard Operating Procedures** • Basic SOPs for instrument handling and Maintenance. • Keeping data records, its analysis by using statistical and mathematical tools.	10
2	**Demonstration of Laboratory Safety** • History, Scope, Fundamental points of GLP (Resources Characterization, Rules, Results). • General Rules/Protocols for Lab Safety measures, Precaution and Safety in handling of chemicals, Laboratory tools, Glassware and instruments.	10
3	**Portfolio maintenance** • Demo and Maintenance of Internal and External Portfolio	10
4	**Instrument maintenance** • Calibration of Basic Instruments such as pH meter, Water bath, colorimeter.	10
5	**Data maintenance and record** • Use of Microsoft Word, and Excel. (For Data entry, Calculation, and graphical representation).	10
6	**A brief introduction to equipment** • Basic introduction of equipment such as micropipette, Burette, Pipette, and other glassware etc.	10
		60

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks **(Revised Bloom's Taxonomy)**						
Level	Remembrance (R)	Understanding (U)	Application (A)	Analyze (N)	Evaluate (E)	Create (C)
Weightage	20%	40%	30%	10%	-	-

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from the above table.

List of Experiments:

Experiments no.	Description	Unit	Hrs
1.	Understanding Basic lab instrumentation	1	4
2.	Preparation and Analysis of Instruments SOPs	1	4
3.	Understanding and analyzing various basic safety lab-1	2	6
4.	Understanding and analyzing various basic safety lab-2	2	6
5.	Understanding and analyzing various basic safety lab-3	2	6
6.	Understanding and analyzing various basic safety lab-4	2	6
7.	Gain detailed knowledge about the precaution and safety of lab instruments and chemicals	2	4
8.	Acquire the concept of Demo and Maintenance of Internal and External Portfolio	3	4
9.	Calibration of Basic Instruments such as pH meter, Water bath, colorimeter	4	4
10.	Use of Microsoft word, and Excel. (For Data entry, Calculation, and graphical representation).	5	4
11.	Analyzing the data using Excel of the given population sample	5	6
12.	Basic introduction of Molecular Biology equipment such as micropipette, Burette etc.	6	6
		Total	60

Instructional Method:

The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.

From the content 10% topics are suggested for flipped mode instruction.

Students will use supplementary resources such as online videos, NPTEL/SWAYAM videos, e-courses, Virtual Laboratory

The internal evaluation will be done based on Active Learning Assignment

A practical/Viva examination will be conducted at the end of the semester for evaluation of the performance of students in the laboratory.

Reference Books:

1) Handbook Good Laboratory Practices-World Health Organization (WHO)
2) Life science protocol manual (2018)-DBT Star College scheme
3) Guidelines for good laboratory practices council of medical research, New Delhi (2008).