



Gyanmanjari
Innovative University

Course Syllabus
Gyanmanjari Institute of Technology
Semester-3 (Degree)

Subject: Lab Management and safety -BETCH10201

Type of course: Skill Enhancement Course

Prerequisite: Students should have a basic knowledge about chemical lab.

Rationale: The Prerequisite provide the foundation for understanding the lab safety and how to manage lab in chemical engineering.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks					Total Marks
CI	T	P		Theory Marks		Practical Marks		CA	
			ESE	MSE	V	P	ALA		
0	0	4	2	00	00	10	40	50	100

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

Course Content:

Unit No.	Course content	Hrs	% Weight age
1	Lab management Student seen lab and write lab manual of organic chemicals, inorganic chemicals, special category chemicals, How to arrange mineral acids, lab cleaning, waste management of wet and dry wastage etc.	15	25
2	Material safety Datasheet Student get sample of organic and inorganic material and write down samples characteristic such as density, boiling point/melting point, ignition point, purity, hazardous characteristic, impurity, understand mineral acids handling etc.	15	25



3	Safety precaution in lab Mock drill of fire in small scale and faculty guide how to handle typical case during fire in solid, liquid, and gas content as well as different type of fire extinguisher used during different types of fire, student not down in journal.	15	25
4	Organic mass handling in lab Sample of solid and liquid provide to student, student write down how to handle and which type of incident happening whether it used, faculty guide to student.	15	25

Continuous Assessment:

Sr. No	Active Learning Activities	Marks
1.	How handle chemicals in big scale Student find out big scale chemicals handling from reference book or from web portal and note down in book and upload GMIU web portal	10
2.	MSDS in chemical lab Student find out ethanol MSDS and submit report on GMIU web portal	10
3.	Different types of fire extinguisher Student find out different types of fire extinguisher used in home, office, company and public place and report note down and upload in GMIU web portal	10
4.	Safety Challenge-1: What kind of actions you will take, if Strong acid spills in lab OR in skin. Prepare a report and upload it on GMIU Web Portal	10
5.	Safety Challenge-II: What kind of actions you will take, if fire seen in LPG gas cylinder. Prepare a report and upload it on GMIU Web Portal	10
Total		50

Suggested Specification table with Marks (Theory): NA

Distribution of Theory Marks (Revised Bloom's Taxonomy)						
Level	Remembrance (R)	Understanding (U)	Application (A)	Analyze (N)	Evaluate (E)	Create (C)
Weightage	NA	NA	NA	NA	NA	NA



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 above table.

Course Outcome:

After learning the course the students should be able to:	
CO1	Understand lab management.
CO2	Realize any types of chemicals MSDS.
CO3	Aware of different types of fire extinguisher and use in real life during critical situations.
CO4	Take necessary precaution during handling chemicals.

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 lab technique, 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 on the basis of Active Learning Assignment

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

Reference Books:

- [1] Chemical technician, de gruyter text book
- [2] Laboratory management skills, gullybaba ignou baegh
- [3] Laboratory manuals , b bhushan cbse, aps books
- [4] Safety and Hazards Management In Chemical Industries by M.N, Vyas Atlantic Publishers and Distributors (P) Ltd

