

Title of Course:- Laboratory Skills and Standardization Methods					
Nodal Department of HEI to Run Course:-					
Broad Area/Sector:- Chemistry Laboratory Techniques					
Sub-sector:- Lab techniques and instrumentation					
Nature of Course:- Independent					
Name of Suggestive Skill Council: Chemical and Petrochemical sector skill council					
Aliened NSQF Level: 4					
Expected Fees of the Corse: -					
Stipend to Student Expected from Industry:-					
Number of Seats:-					
Course Code:-					
Maximum Marks: - 100		Minimum Marks:-		Credits:- 03(01 Theory, 02 Practical)	
Name of Proposed Skill Partner (Please specify, Name of Industry, Company etc. for Practical/Training/Internship/OJT):-					
Job Prospects-Expected Fields of Occupation where student will be able to get job after completing this course (Please specify, Name of Industry, Company etc. for Practical/Training/Internship/OJT):-					
<ol style="list-style-type: none"> 1. Students will have a firm foundation in the fundamentals and application of current chemical and scientific theories including those in Analytical, Inorganic, Organic and Physical Chemistries. 2. Students will be able to design and carry out scientific experiments as well as accurately record and analyze the results of such experiments. 3. Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems. 4. Students will be able to clearly communicate the results of scientific work in oral, written and electronic formats to both scientists and the public at large. 					
Syllabus					
Unit	Topics	General/ Skill Component	Theory/ Practical/ OJT/ Internship/ Training	No. of Theory Hours (Total 15 Hours = 01 Credit)	No. of Skill Hours (Total 60 Hours = 02 Credit)
I	Identify the glassware and chemical reagents and apparatus Knowledge about the Cause and prevention of accidents.	Handeling of glasswares, apparatus and preparation of Lab reagents.	Identify common chemical reagents and glasswares	2	25
II	General & Physical Chemistry	To understand basic concepts of chemistry	Theory	5	---
III	Concept about acid, base & salts.	To learn concept of nature of chemicals	Theory	5	---
IV	Determination of concentration of solutions	Learning of preparing working solutios	Preparation of solutions of solids, liquids and volatiles substance by weighing Standardization of solution.	3	35
Suggested Readings:-					
Author'sName, Initials, "Book Title", Publisher name, City/country of publication, Year of publication. Edition No. if any.					
<ol style="list-style-type: none"> 1. Vogel's qualitative inorganic analysis, 7th Edition, Addition Wesley Longman 2. Vogel's textbook of quantitative chemical analysis, 6th Edition, Pearson education 3. College practical chemistry by V. K. Ahluwalia, Sunita Dhingra, Adarsh Gulati, University Press 					

Suggested Digital Platforms/Web Links for Readings:-**Suggested OJT/Internship/Training/Skill Partner:-** Department of Chemistry, St. John's College, Agra**Suggested Continuous Evaluation Methods:-** Assessment will be evidence based comprising the following:

- Job carried out in labs/workshop
- Record book/ daily diary
- Answer sheet of assessment
- Viva-voce
- Progress chart
- Attendance and punctuality
- Assignment
- Project work

Course Pre-requisites:-

- No pre-requisite required, Open to All.
- To study this course, a student must have the subject Chemistry in class 12th /certificate.
- If progressive, to study this course a student must have passed previous courses of this series.

Suggested Equivalent Online Courses:-**Any Remarks/Suggestions:-****Note:**

- Number of units in Theory/Practical may vary as per need.
- Total Credits per Semester = 03 (It can be more, but students will get only 03 credits/ semester or 06 credits/year)
- Credits for Internship/OJT/Training/Practical = 02 (Training Hours = 60)