

Syllabus for Skill development course

Title of course- Basic Certificate in Fundamentals of science Laboratory					
Paper Title: Fundamentals of science Laboratory					
Nodal Department of HEI to run course			Department of Vocational studies		
Broad Area/Sector-			Science		
Sub Sector-			Biosciences		
Nature of course - Independent / Progressive			Progressive		
Name of suggestive Sector Skill Council			NSDC		
Aliened NSQF level					
Expected fees of the course –Free/Paid			As decided by College/University		
Stipend to student expected from industry					
Number of Seats-.....30.....					
Course Code-.....SL-01			Credits- 03 (1 Theory, 2 Practical)		
Max Marks...25..... Minimum Marks.....10...					
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 in (Please specify name/type of industry, company etc.)			Student will be able to get job in Research laboratories in various Colleges,institutes and Universities.		
Syllabus					
Unit	Topics	General/ Skill component	Theory/ Practical/ OJT/ Internship/ Training	No of theory hours (Total-15 Hours=1 credit)	No of Practical Hours (Total-60 Hours=2 credits)
I	Safety in science laboratory	Skill	Theory/Pra ctical	3	10
II	Elementary knowledge of chemistry	Skill	Theory/Pra ctical	5	10
III	Laboratory instruments	Skill	Theory/Pra ctical	4	20
IV	Reagents and Solutions	Skill	Theory/Pra ctical	3	20
Suggested Readings:					
S.N	Title	Author	Publisher		
1.	A guide to laboratory safety and microscale organic laboratory techniques	Kale M. A.	CBS		
2.	Wilson and Walkers principles and techniques of biochemistry and molecular biology	Hofmann A	Cambridge University press		
3.	Understanding Chemistry	C.N.R. Rao	Universities Press		
Suggested Digital platforms/ web links for reading-					
Suggested OJT/ Internship/ Training/ Skill partner					
Suggested Continuous Evaluation Methods:					
Total Marks: 25					

House Examination/Test: 10 Marks

Written Assignment/Presentation/Project / Term Papers/Seminar: 10 Marks

Class performance/Participation: 5 Marks

Course Pre-requisites:

- Student of science stream with biology
- To study this course, a student must have the subject Biology in class/12th/ certificate/diploma
- If progressive, to study this course a student must have passed previous courses of this series.

Suggested equivalent online courses:

Any remarks/ suggestions:

Notes:

- Number of units in Theory/Practical may vary as per need
- Total credits/semester-3 (it can be more credits, but students will get only 3credit/ semester or 6credits/ year
- Credits for Theory =01 (Teaching Hours = 15)
- Credits for Internship/OJT/Training/Practical = 02 (Training Hours = 60)

Syllabus for Fundamentals of science Laboratory

Unit	Topics	Syllabus
I	Safety in science laboratory	<ul style="list-style-type: none">• General Safety• Safe Handling of Chemicals and Glass wares• Working in BioSafety areas
II	Elementary knowledge of chemistry	<ul style="list-style-type: none">• Elementary knowledge of inorganic chemistry• Elementary knowledge of organic chemistry• Elementary knowledge physical chemistry
III	Laboratory instruments	<ul style="list-style-type: none">• Principle and working of basic laboratory instruments Autoclave, Hot air oven, Incubator, pH meter, water bath, centrifuge, Refrigerator, colorimeter, Balance, Flame photometer, Microscope, Electrophoresis etc.
IV	Reagents and Solutions	<ul style="list-style-type: none">• Molar solutions, normal solutions• Buffer solutions, percent solutions, saturated solutions, standard solutions. Dilution of the concentrated solution to desired concentration