First Year 1st Semester Curriculum Structure for B.Tech. Course

Chemistry (Laboratory) (BSC102)	
Department: **Program:** **Course Code:** **Title of Course:** **Year of Study:** **Semester:**	Basic Science and Humanities B. Tech. BSC102 Chemistry (Laboratory) First Year First
Contact Hours: **Credits:** **Type of course:**	L-T-P: 0-0-3 1.5 Laboratory
Pre-requisites Courses:	• Basic knowledge of Chemistry in Class- XI and XII level. • Basic concepts of qualitative and quantitative analysis • Basic knowledge of algebraic calculation and graph plot .
Course Outcome (CO):	**CO1:**Estimate rate constants of reactions from concentration of reactants/products as a function of time **CO2:**Measure molecular/system properties such as surface tension, viscosity,conductance of solutions, redox potentials, chloride content of water, etc. **CO3:**Synthesize a small drug molecule and analyze a salt sample **CO4:**Operate the instruments properly, record and interpret data and also, learn to work effectively in teams to accomplish the assigned responsibilities

Listof the Experiments

Choose any 12 experiments from the following list

Expt. No.	Experiment	Link for the experiment

1	Determination of the concentration of strong acid by standardisedNaOH solution.	http://chemcollective.org/activities/autograded/124
2	Determination of the alkalinity present in water.	http://vlab.amrita.edu/?sub=2&brch=193&sim=1548&cnt=1
3	Determination of cell constant and conductance of solutions: Conductometric titration	http://vlab.amrita.edu/?sub=2&brch=193&sim=575&cnt=1
4	Determination of the pHof sample solutions by digital pH meter: pH metric titration	http://vlab.amrita.edu/?sub=2&brch=193&sim=575&cnt=1
5	Determination of surface tension	http://vlab.amrita.edu/?sub=2&brch=190&sim=339&cnt=1
6	Determination of viscosity	http://vlab.amrita.edu/?sub=2&brch=190&sim=339&cnt=1
7	Determination of chloride content of water	http://vlabs.iitb.ac.in/vlabs-dev/labs/nitk_labs/Environmental_Engineering_1/labs/determination-of-chloride-nitk/simulation.html
8	Determination of the partition coefficient of a substance between two immiscible liquids	
9	Determination of the rate constant of a reaction	
10	Thin layer chromatography	https://vlab.amrita.edu/?sub=3&brch=63&sim=154&cnt=2
11	Potentiometry - determination of redox potentials and emfs	https://vlab.amrita.edu/index.php?sub=2&brch=190&sim=361&cnt=4
12	Colligative properties using freezing point depression	1.https://vlab.amrita.edu/index.php?sub=2&brch=190&sim=1545&cnt=4 2. http://vlabs.iitb.ac.in/vlabs-dev/labs/nitk_labs/Environmental_Engineering_1/experiments/determination-of-chloride-nitk/simulation.html
13	Ion exchange column for removal of hardness of water	
14	Adsorption of acetic acid by charcoal	
15	Saponification/acid value of an oil	
16	Chemical analysis of a salt	
17	Synthesis of a polymer/drug	
18	Chemical oscillations- Iodine clock reaction	
19	Lattice structures and packing of spheres	

20	Use of the capillary viscosimeters to the demonstrate of the isoelectric point as the pH of minimum viscosity for gelatin sols and/or coagulation of the white part of egg	
21	Determination of the hardness of water	http://vlab.amrita.edu/?sub=2&brch=193&sim=1548&cnt=1
22	Determination of dissolved oxygen present in a given water sample	
23	Determination of the Chemical Oxygen Demand	http://vlab.amrita.edu/?sub=2&brch=193&sim=1548&cnt=1

Reference Book: An Advanced Course in Practical Chemistry by NadMahapatra&Ghosal