



DEPARTMENT OF BOTANY
Tentative Course Plan

Class: Semester-2nd **Session: Spring (2018-22)**

Instructor	Ms. Naba khaliq	Email: nabakhaliq@gmail.com	
Course Title	General chemistry	Program	BS
Course Number	CHEM-01205	Credit Hours	3(2+1)

Lecture Monday to Friday: period (08:30 a.m to 12: 30 p.m), Room# 00

Course Objective:

Chemistry is a central subject of science. It is also closely related to daily life. The broad aims are to help students to acquire some knowledge of the empirical world, ability to observe accurately and objectively, ability to solve problems, ability to think scientifically, independently and to make rational discussion, ability to communicate using language of chemistry, develop an appreciation of chemistry and its application in daily life, promote an awareness of social, economic, environmental and technological implication of chemistry.

Course Outcomes:

Capable to learn good laboratory practice and skills, teach students to be aware of the safety of oneself and others in the laboratory, to analyze data from experiments and from other sources, different titration methods for quantitative analysis.

Methods of Teaching

- Assigned readings
- Group activities & Discussion
- Audiovisual aids lectures
- Web-assisted instruction
- Student-Directed Teaching

Resource Material	1. Text Books			
	i. Physical chemistry by Sana Ullah's 2012 edition			
	ii. Physical chemistry by Dr. Haq Nawaz Bhatti, Dr. Zahoor Hussain Farooqi 2013 edition			
	iii. Physical chemistry by Arun bahl, B.s. Bahl, G.D. tuli			
	2.Reference Books		3.Research Papers	
	i		i	
	ii		ii	
	4.Hot Research Papers		5.Web Resources	
i		i		
ii		ii		

Office Help Hours

Grading Exam (Date to be announced)
Mid- Exam (30%) Final Exam (50%)
Problem Session/Assignments (20%)

Problem Sessionday: 00 and 00 periods (0:00-00:00am), Room# 00

SEQUENCE OF TOPICS TO BE COVERED

Lecturer #	Topics (outline of main topics and sub topics)	Chapter #	Tutorial /Laboratory
1&2	Introduction to thermodynamics, heat, work, 1 st law of thermodynamics, Internal energy, Enthalpy, kirchoff's equation.		Laboratory Ethics and safety measures
3&4	Heat capacity, Molar and specific heat capacity, Heat capacity at constant volume and at constant pressure.		Paper chromatography
5&6	Proof of relation $C_p - C_v = R$, $PV^{\gamma} = \text{Constant}$, relation between temperature and volume in case of adiabatic expansion.		-
7&8	Relation between temperature and pressure in case of adiabatic expansion, Work done in adiabatic expansion of gas, 2 nd law of thermodynamics.		TLC
9&10	Carnot cycle and its efficiency, entropy, entropy change of ideal gas in terms of temperature and volume. Entropy change of ideal gas in terms of pressure and volume, numerical problems		-
11&12	Introduction to chromatography.		Acid-base titrations

13&14	Paper chromatography		-
15&16	Thin layer chromatography		-
	Mid Term Exam	Course/Discussion from session 1 to 16	-
17&18	Concept of chemical bonding, localized and delocalized chemical bonding		Refractive index
19&20	Concept of hybridization leading to bond angles. Bond energies and geometry of simple organic molecules, dipole moment.		-
21&22	Inductive effect, resonance, resonance energy, rules of resonance		Beer-lambert law
23&24	Resonance effects, steric inhibition of resonance, hyper conjugation, types of organic reactions		-
25&26	Chemical bonding, types of bonds, VESPR theory		Determination of Ph by indicator method
27&28	VBT, MOT comparison between VBT and MOT		-
29&30	Applied chemistry, cement industry		Henderson-hasselbach equation
31&32	Fertilizers industry		-
	Final Term Exam	Course/Discussion from session 1- 32	

Student Evaluation criteria:

Attendance	5%
Workshop / Assignments/Case study	5%
Surprise Test/Sudden Test , Quizzes	5%
Class Participation	5%
Mid Term Paper	30%
Final Term paper	50%
Total	100%

Student Responsibilities:

Students must attend class. Failure to attend class may result in failure in the course. Students must also arrive on time and remain in class for the entire period. Cellular Phones and Beeper must be Turned off (Proper classroom decorum [behavior] adopts, Course outlines and calendars explain requirements and assignments, students are responsible for knowing what they say. Students are also responsible for doing all assigned work on time. Excessive absences (more than 03) will result in "F Grade". Students may prepare Sketchbook for taking notes and for references.

Instructor / Tutor

Approved by:

Chairman