Gurukula Kangri Vishwavidyalaya, Haridwar
Faculty of Engineering & Technology
Computer Science & Engineering

BAC-C151/BAC-C251
ENGINEERING CHEMISTRY LAB

MM: 50   **Sessional: 15**

Time: 2 hrs   **ESE: 35**

L T P   **Credits 1**

0 0 2

LIST OF EXPERIMENTS

Choice of 10-12 experiments from the following:
1. Chemical analysis of a salt (mixture of one acidic radical and one basic radical).
2. Determination of relative surface tension of given liquid by Satalagmometer.
3. Determination of relative viscosity of given liquid by Ostwald's viscometer.
4. Separation of given binary mixture by thin layer chromatography.
5. Separation of given binary mixture by ascending paper chromatography.
6. Titration of a strong acid with a strong base.
7. Titration between potassium permanganate and ferrous ammonium sulphate solution.
8. Titration between potassium permanganate and oxalic acid solution.
9. Determination of turbidity of unknown sample by using turbiditimeter.
10. Determination of cell constant and conductance of solutions.
11. Determination of the pH of unknown solutions by pH meter.
12. Determination of redox potentials and emfs.
13. Determination of refractive index of unknown sample by using Abbe's refractometer.
14. Determination of chloride content in a water sample by Mohr's method.
15. Determination of molar mass of an unknown solid using the colligative property of freezing point depression.
16. Determination of the partition coefficient of a substance between two immiscible liquids.
17. Determination of moisture content present in hydrated copper sulphate.
18. Determination of saponification value of an oil.
19. Determination of acid value of an oil.

Laboratory Outcomes

The chemistry laboratory course will consist of experiments illustrating the principles of chemistry relevant to the study of science and engineering. The students will learn to:
Measure molecular/system properties such as surface tension, viscosity, conductance of solutions, redox potentials, pH, turbidity, refractive index, chloride content of water, etc.
Estimate concentration of an unknown sample via acid-base and oxidation – reduction titrations.
Synthesize a small drug molecule and analyze a salt sample.
Identify the acid base radicals.
Separate the components present in a mixture by TLC and ascending paper chromatography.

Suggested Books

(i) Advanced practical physical chemistry, by J. B. Yadav
(ii) Analytical chemistry Vol. I, II, III, by Subhash, Satish
(iii) Applied chemistry, by Virmani and Narula

NOTE
1. In practical examination, the student shall be required to perform one experiment which carries 40 marks and 30 marks shall be reserved for practical record and viva-voce examination.
2. The number of students in a batch allotted to an examiner for practical examination shall not exceed 30 students.

Engineering & Technology, GKV, Haridwar   *...nputer Science & Engineering*

BCE-C151/ BCE-C251
PROGRAMMING FOR PROBLEM SOLVING LAB

MM: 50   **Sessional: 15**

Time: 2 hrs   **ESE: 35**

L T P   **Credits 1**

0 0 2

LIST OF EXPERIMENTS

1. Conversion from one number system to another
2. Perform different arithmetic operations.
3. Greater of two numbers using logical operators
4. Check whether no. Is odd or even using arithmetic operators
5. Check whether no. Is prime or not.
6. Print Fibonacci series.
7. Print factorial of a no. Using recursion
8. Add two matrices.
9. Search a no. In array.
10. Reverse an array.
11. Find a leap year.
12. Multiply two matrices.
13. Pass by reference in functions
14. Find factorial of a number.
15. Create a menu function for all arithmetic operations using one program
16. Addition subtraction using call by functions.

NOTE
1. In practical examination the student shall be required to perform one experiment.
2. A teacher shall be assigned 20 students for daily practical work in laboratory.
3. No batch for practical class shall consist of more than 20 students.
4. The number of students in a batch allotted to an examiner for practical examination shall not exceed 20 students.
5. Addition/deletion in above list may be made in accordance with the facilities available with the approval of H.O.D.

BME-C153/BME-C253
ENGINEERING GRAPHICS AND DESIGN LAB

MM: 50	**Sessional: 15**
Time: 2 hrs	**ESE: 35**
L T P	**Credits 2**
0 0 2	

Unit 1: Introduction to Engineering Drawing
Principles of Engineering Graphics and their significance, usage of Drawing instruments, lettering and dimensioning, Conic sections including the Rectangular Hyperbola (General method only); Cycloid, Epicycloid, and Hypocycloid Scales – Plain, Diagonal and Vernier Scales;

Unit 2: Orthographic Projections and Projections of Regular solids
Principles of Orthographic Projections-Conventions – Principal planes, Auxiliary Planes, Introduction to first angle and third angle projection, Projections of Points, projection of lines- parallel to both the planes, parallel to one and inclined to other, inclined to both the planes, true length and traces of a line, and lines inclined to both planes, Projections of planes, traces of planes, angles of inclinations of planes, parallel planes.

Unit 3: Sections and Sectional Views of Right Angular Solids and Isometric Projections
Prism, Cylinder, Pyramid, Cone – Auxiliary Views; Development of surfaces of Right Regular Solids - Prism, Pyramid, Cylinder and Cone; Draw the sectional orthographic views of geometrical solids, objects from industry and dwellings (foundation to slab only)
Principles of Isometric projection – Isometric Scale, Isometric Views, Conventions; Isometric Views of lines, Planes, Simple and compound Solids; Conversion of Isometric Views to Orthographic Views and Vice-versa, Conventions;

Unit 4: Overview of Computer Graphics Customization and CAD Drawing
Computer technologies that impact on graphical communication, Demonstrating knowledge of the theory of CAD software (AUTOCAD) [such as: The Menu System, Toolbars (Standard, Object Properties, Draw, Modify and Dimension), Drawing Area (Background, Crosshairs, Coordinate System), Dialog boxes and windows, Shortcut menus (Button Bars), The Command Line (where applicable), The Status Bar, Different methods of zoom as used in AUTOCAD, Select and erase objects.; Isometric Views of lines, Planes, Simple and compound Solids.

Unit 5: AUTOCAD as a tool for design and drawing objects

Setting up and use of Layers, layers to create drawings, Create, edit and use customized layers; Changing line lengths through modifying existing lines (extend/lengthen); orthographic projection techniques; Drawing sectional views of composite right regular geometric solids CAD software (AUTOCAD) modeling of parts and assemblies. Parametric and non-parametric solid, surface, and wireframe models. Part editing and two-dimensional documentation of models. Planar projection theory, including sketching of perspective, isometric, Multiview, auxiliary, and section views. Spatial visualization exercises. Dimensioning guidelines, tolerancing techniques; dimensioning and scale multi views of dwelling. Use of solid-modeling software for creating associative models at the component and assembly levels; floor plans that include: windows, doors, and fixtures such as WC, bath, sink, shower, etc. Appling Color coding according to building drawing practices; Drawing sectional elevation showing foundation to ceiling; Introduction to Building Information Modelling (BIM).

Text Books / References

i. Bhatt N.D., Panchal V.M. & Ingle P.R., (2014), Engineering Drawing, Charotar Publishing House
ii. Shah, M.B. & Rana B.C. (2008), Engineering Drawing and Computer Graphics, Pearson Education
iii. Agrawal B. & Agrawal C. M. (2012), Engineering Graphics, TMH Publication (iv) Narayana, K.L. & Pannaiah (2008), Text book on Engineering Drawing, Scitech Publishers

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BEG-A151/BEG-A251
TECHNICAL COMMUNICATION

MM: 50   **Sessional: 15**
Time: 2 hrs   **ESE: 35**
L T P   **Credits 1**
0 0 2

Objective:

1. To expose the learners to English sound system and acquire phonetics skill and speech rhythm
2. To help the learners use grammar correctly
3. To train the learners to speak English, clearly, intelligently and effectively
4. To equip the learners to compete for a career, and enable them to function effectively in careers which demand good communicative skills
5. To impart moral values

Contents:

1.   Nonverbal communication
     - Use of hands
     - Posture of shoulders
     - Eye contact
     - Weight of the body
     - Movement of the body

2.   Applied phonetics
     - Sound of English – consonants and vowels
     - Phonemic transcription
     - Stress, Rhythm and intonation

3.   Remedial grammar
     - Some useful expression (introduction, greetings etc.) that are used frequently
     - Common mistakes in the use of nouns, pronouns, adjectives, adverbs, prepositions, conjunctions
     - Use of the who and whom, much and many, still and yet, so as and so that, make and do
     - Tense and their use
     - Confusion of participles
     - Tag questions

4.   Reading and speaking skills, listening and speaking skills
     - Presentation and addresses
     - Group discussions
     - Interviews
     - Role playing

5.   Reading and writing skill, listening and writing skills
     - Letter writing – formal and informal
     - Real life social situations
     - Curriculum vitae
     - Agenda, notice and minutes

6.   Case studies

Faculty of Engineering & Technology, GKV, Haridwar   *Computer Science & Engineering*

- Study of renowned speeches of famous personalities
  - Swami Vivekananda
  - Mahatma Gandhi
  - Jawaharlal Nehru
  - Swami Shraddhanand
  - Steve Jobs

Text Books / References

1) Balasubramaniam, T. *Phonetics for Indian Students*. Macmillan India Ltd.
2) Daniel, Jones. English Pronouncing Dictionary. Cambridge University Press.
3) Oxford Advanced Learners' Dictionary.
4) Taylor, Grant "conversation practice", Tata Mc Graw Hills, new Delhi
5) F.T.A. Wood, "Remedial English Grammar", macmillan India Ltd.
6) Berry, Thomas Elliot, "The Most Common Errors in English Usage" Tata Mc Graw Hills, New Delhi
7) Krishnaswamy, N. "*Modern English*. Macmillan India Ltd.
8) Desmond, "people watching"