Course Name: **Communication Skills Lab**

Course Code: **HS-102**

Contact Hours/Week: **2P** Course Credits: **01**

Course Objectives

- To provide skills for listening with understanding and speaking
- To provide skills 'correct' pronunciation of English language
- To enable the students to make oral and technically aided presentations

List of Experiments

Activities based on language software Sky Pronunciation/others:

1. Sky Pronunciation: Introduction to the Speech Sounds of English
2. Sky Pronunciation: Syllable and Organs of Speech
3. Sky Pronunciation: Vowel and Consonant Sounds
4. Sky Pronunciation: Similar sounds and test
5. Word Stress and Intonation using available software
6. Listening and Comprehension using available software
7. Listening to Native speakers of English language
8. Watching short talks for learning effective presentation skills
9. Presentation skills using technology enabled slides
10. Just a Minute (JAM) Sessions
11. Describing Objects/Situations/People
12. Interview skills using available software/interview videos

Course Outcomes

Upon successful completion of the course, the students will be able to

CO1: Speak coherently

CO2: Make effective Presentations

CO3: Listen and comprehend English language

Course Name: **Engineering Chemistry Lab**
Course Code: **CY-102**

Contact Hours/Week: **2P** Course Credits: **01**

Course Objectives

- To analyse water samples for different parameters like amount of chloride ions, residual chlorine, alkalinity and hardness
- To measure physical properties of liquids
- To estimate the percentage of a particular metal in its ore or alloy
- To familiarize students about the characterization method like absorption spectroscopy

List of Experiments

1. Estimation of residual Chlorine in a given sample of water
2. Estimation of chloride content in a given sample of water by Mohr's method (Argentometrically)
3. Estimation of concentration of hydroxyl, carbonate, bicarbonate and total alkalinity in a given sample of water
4. Estimation of Hardness (Temporary and Permanent) in a given sample of water
5. Determination of quantity of Ferrous ions in a sample of water by $KMnO_4$ titration
6. Estimation of concentration of iron in an iron ore by dichrometry.
7. Estimation of Cu in a given sample of brass
8. Determination of Viscosity of unknown liquid by Ostwald's viscometer
9. Determination of surface tension of unknown liquid by drop number method.
10. Estimation of calcium in Limestone or Dolomite
11. Verification of the absorption laws by using Colorimetric method
12. Determination of the concentration of nickel using Absorption technique

Note: *The concerned Course Coordinator will prepare the actual list of experiments/problems at the start of semester based on above generic list.*

Course Outcomes

Upon successful completion of the course, the students will be able to

CO1: Quantify different pollutants in water samples
CO2: Identify the unknown liquid from their surface tension and viscosity measurement.
CO3: Analytically measure the composition of alloy and ores

Course Name: **Electrical Engineering Lab**
Course Code: **EE-102**

Contact Hours/Week: **2P** Course Credits: **01**

Course Objectives

- To impart basic knowledge of electrical quantities such as current, voltage, power, energy etc.
- To familiarize students with basic circuit components and their connections.
- To explain working principle of electrical measuring instruments such as ammeter, voltmeter, wattmeter, energy meter, etc.

List of Experiments

1. To verify Ohm's law for BPLL (Bilateral Passive Linear Lumped) element.
2. To find for a filament lamp:
   i. Variation of resistance with voltage.
   ii. Variation of power with voltage.
3. To find minimum fusing current and fuse constant of a given fuse wire.
4. To calibrate a given voltmeter with the help of standard ammeter and resistance.
5. To calibrate a given ammeter with the help of standard voltmeter and resistance.
6. To find voltage current relationship in R-L series circuit and to determine power factor of the circuit.
7. To calibrate given wattmeter by direct loading.
8. To calibrate single phase energy meter by direct loading.
9. Verification of Kirchhoff's Laws:
   i. KVL (Kirchhoff's Voltage Law)
   ii. KCL (Kirchhoff's Current Law)
10. Determination of inductance of a coil using voltmeter, ammeter methods.
11. To verify total resistance R of the series connected resistances $R = R_1 + R_2 + R_3$

Course Outcomes

Upon successful completion of the course, the students will be able to

CO1: Verify fundamental laws like Ohm's Law, KCL, KVL, etc.

CO2: Use different meters and instruments for the measurement of common electrical quantities

CO3: Understand the importance of fuse as a safety device and study the parameters related with the selection of fuse wire