Physics (Semester-VI)

(For examinations to be held in the years 2019, 2020, 2021)

Course No. : UPPE-602(Practical) **Title: Lab Course-VI**
Duration: 3 hours Credits : 2 **Maximum Marks: 50**
External Examination: 25 Marks **Internal Examination: 25 Marks**

Note: The candidates are required to complete atleast 5 practicals.

1. To find frequency response of series LCR Circuit.
2. To find frequency response of parallel LCR Circuit.
3. To Study RC coupled Amplifier.
4. To study Variation of Photocurrent with Intensity and Wavelength of Light.
5. Four-Probe energy graph.
6. To draw the BH curve of iron using a Solenoid and determine the energy loss from Hysteresis.
7. To design Wein Bridge Oscillator using an Operational Amplifier.
8. Half adder, Full adder and 4-bit Binary Adder.
9. To determine the ionization potential of mercury.

Instructions for Internal Assessment (25 marks)

(a) 20 percent attendance
(b) 40 percent practical work based on the practical done as per time table (Day to day performance)
(c) 20 percent internal test (to be conducted by the class teacher or a committee of subject teachers constituted by principal of the College)
(d) 20 percent Viva Voce

Instructions for External Examination (25 marks)

(a) 80 percent for practical paper
(b) 20 percent for Viva Voce
Note : Total marks (internal+external) in practical shall be 50 only
The concerned deptt. can add or delete practical's as per their need.

Reference Books

1. B. Sc Practical Physics - C. L. Arora.
2. Practical Physics - G L Squires Cambridge University Press
3. Practical Physics - R K Shukla
4. B.Sc Practical Physics - Harnam Singh

B.Sc. Semester --VI

Syllabus for Examinations to be held in May 2019, 2020, 2021

Subject: Physics (Skill Enhancement Course) Course Code/No: UPHTS-603

Title of the course: Weather Forecasting Duration 2.5 hours

Total Marks: 100 (Internal Assessment (Minor) 20 marks; External Examination (Major): 80 marks)

No of credits: 04

Unit-I

Introduction to atmosphere: Elementary idea of atmosphere: physical structure and composition; compositional layering of the atmosphere; variation of pressure and temperature with height; air temperature; requirements to measure air temperature; temperature sensors: types; atmospheric pressure: its measurement; cyclones and anti cyclones: its characteristics.

Unit-II

Measuring the weather: Wind; forces acting to produce wind; wind speed , its direction; measuring wind speed and direction; humidity, clouds and rainfall, radiation: absorption, emission and scattering in atmosphere; radiation laws.

Unit-III

Weather Systems: Global wind systems; airmasses and fronts; classifications; jet streams; local thunderstorms; tropical cyclones; classifications; tornadoes; hurricanes.

Climate and climate change: Climate: its classification; causes of climate change; global warming and its outcomes; air pollution; aerosols, ozone depletion, acid rain, environmental issues related to climate.

Unit-IV

Basics of weather forecasting: Weather forecasting: analysis and its historical background; need of measuring weather; types of weather forecasting; weather forecasting methods; criteria of choosing weather station; basics of choosing site and

exposure; satellites observations in weather forecasting; weather maps; uncertainty and predictability; probability forecasts.

Demonstrations and Experiments:

1. Study of synoptic charts and weather reports, working principle of weather station.
2. Processing and analysis of weather data.
   a) To calculate the sunniest time of the year
   b) To study the variation of rainfall amount and intensity by wind direction.
   c) To observe the sunniest/driest day of the week
   d) To examine the max and min temperature throughout the year.
   e) To evaluate the relative humidity of the day.
   f) To examine the rainfall amount month wise.
3. Exercises in chart reading: Plotting of constant pressure charts, surfaces charts, upper wind charts and its analysis.
4. Formats and elements in different types of weather forecasts/warning (both aviation and non aviation)

Reference Books:

1. Aviation Meteorology, I.C. Joshi, 3rd edition 2014, Himalayan Books
2. The Weather Observers Hand Book, Stephen Burt, 2012, Cambridge University Press.
3. Meteorology, S.R. Ghadekar, 2001, Agromet Publishers, Nagpur.
4. Text Book of Agrometeorology, S.R. Ghadekar, 2005, Agromet Publishers, Nagpur.
5. Why the Weather, Charls Franklin Brooks, 1924, Chpraman& Hall, London.
6. Atmosphere and Ocean, John G. Harvey, 1995, The Artemis Press.

Scheme for Internal Assessment(Minor) (20 marks; internal evaluation):

Setting of Question Paper and Evaluation of answer scripts by the teacher concerned:

The internal assessment shall comprise of two parts:

Part A: Test based on practical knowledge of the candidate/Subject tour (Total weightage: 10 marks)

Part B: Test based on Theoretical knowledge of the candidate (Total weightage: 10 marks)

Scheme for External Examination(Major) (80 marks; internal evaluation)

Setting of Question Paper by the concerned Subject Head of the College

The External Examination in theory shall consist of the following:

1. Five short answer questions representing all units/syllabi (without detail explanation, 70 to 80 words, 3 marks for each question) (All compulsory)
2. Five medium answer questions representing all units/syllabi (with explanation having 200-250 words, 7 marks for each question) (All compulsory)
3. Four/Five long answer questions representing whole syllabi (with detailed analysis/explanation/critical evaluation/ solution to problems within 400-500 words, 15 marks for each question) (The candidate have to attempt any two questions)