**GVP COLLEGE OF ENGINEERING FOR WOMEN**

**MADHURAWADA: VISAKHAPATNAM**

Department of Electronics and Communication

**LECTURE SCHEDULE**

Subject: ELECTRONIC MEASUREMENTS AND INSTRUMENTATION

Branch: E.C.E

Year: IV B.Tech (II Semester) Sections: 1, 2 Academic Year: 2017-18.

Faculty: N. ROOPA VATHI

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| Unit | Topic | No. of Classes | Schedule |
| UNIT -I | Performance characteristics of instruments, Static characteristics, Accuracy, Resolution | 2 | 3 weeks  27-11-17 to 16-12-17 |
| Resolution, Precision, Expected value, Error, Sensitivity. Errors in Measurement. | 2 |
| Dynamic Characteristics-speed of response, Fidelity, Lag and Dynamic error | 2 |
| DC Voltmeters- Multi-range, Range extension/Solid state and differential voltmeters, AC voltmeters- multi range, range extension, shunt. | 4 |
| Thermocouple type RF ammeter, Ohmmeters series type, shunt type, Multimeter for Voltage, Current and resistance measurements. | 2 |
| UNIT- II | Signal Generator- fixed and variable, AF oscillators. | 2 | 2 weeks  18-12-17 to 30-12-17 |
| Standard and AF sine and square wave signal generators. | 2 |
| Function Generators, Square pulse, Random noise, sweep, Arbitrary waveform | 2 |
| Wave Analyzers, Harmonic Distortion Analyzers. | 2 |
| UNIT- III | Oscilloscopes CRT features, vertical amplifiers, horizontal deflection system, sweep, trigger pulse, delay line, sync selector circuits, simple CRO, triggered sweep CRO, Dual beam CRO. Dual trace oscilloscope, sampling oscilloscope, storage oscilloscope, digital readout oscilloscope, digital storage oscilloscope, Lissajous method of frequency measurement, standard specifications of CRO, probes for., | 3 | 3 weeks  01-01-18 to 20-01-18 |
| sweep, trigger pulse, delay line, sync selector circuits, simple CRO, triggered sweep CRO, Dual beam CRO. Dual trace oscilloscope, sampling oscilloscope | 3 |
| storage oscilloscope, digital readout oscilloscope, digital storage oscilloscope, | 2 |
| Lissajous method of frequency measurement, standard specifications of CRO. | 2 |
| probes for CRO- Active & Passive, attenuator type. | 2 |
| **I Mid Examinations from** 22-01-2018 to 27-01-2018. **1 week** | | | |
| UNIT- IV | AC Bridges Measurement of inductance- Maxwell’s bridge | 2 | 2 weeks  29-01-18 to 10-02-18 |
| Anderson bridge. Measurement of capacitance | 2 |
| Shearing Bridge. Wheat stone bridge. Wien Bridge, Errors and precautions in using bridges. Q-meter | 4 |
| UNIT- V | Transducers- active & passive transducers Resistance. | 2 | 3weeks  12-02-18 to 03-03-18 |
| Resistance, Transducers- active & passive transducers | 3 |
| Resistance, Capacitance, inductance; Strain gauges, LVDT | 3 |
| Piezo Electric transducers, Resistance Thermometers. Thermocouples, Thermistors, Sensistors. | 4 |
| UNIT- VI | Measurement of physical parameters force. | 2 | 3weeks  05-03-18 to 24-03-18 |
| pressure, velocity, humidity, moisture | 2 |
| speed, proximity and displacement | 3 |
| Data acquisition systems. | 2 |
| Problems | 1 |
| Decoding using Viterbi algorithm. | 2 |
| **II Mid Examinations from** 26-03-2018 to 31-03-2018. **1 week** | | | |

**TEXTBOOKS:**

**1. Electronic instrumentation, second edition - H.S.Kalsi, Tata McGraw Hill, 2004.**

**2. Modern Electronic Instrumentation and Measurement Techniques – A.D. Helfrick and W.D. Cooper, PHI, 5th Edition, 2002**.

**REFERENCES:**

**1. Electronic Instrumentation & Measurements - David A. Bell, PHI, 2nd Edition, 2003. 2. Electronic Test Instruments, Analog and Digital Measurements - Robert A.Witte, Pearson Education, 2nd Ed., 2004. 3. Electronic Measurements & Instrumentations by K. Lal Kishore, Pearson Education - 2005**