**LESSION PLAN**

**NAME OF THE FACULTY** : - HIMANSHU YADAV

**DISCIPLINE** : - ECE

**SEMESTER** : - FOURTH

**SUBJECT** : - INST.

**LESSON PLAN DURATION** : - 15 weeks (from JULY 2019 to DEC. 2019)

WORK LOAD (LECTURE/PRACTICAL) PER WEEK (IN HOURS):- LECTURE-**03**, PRACTIACL-**03**

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| **WEEK** | **THEORY** | | **PRACTICAL** | |
| **LECTURE DAY** | **TOPIC**  **(including assignment/test)** | **PRACTICAL DAY** | **TOPIC** |
| 1st | 1st | Importance of measurement | 1st  Group-1 | To measure the level of a liquid using a transducer |
| 2nd | basic measuring systems |  |  |
| 3rd | Advantages and limitations of each  measuring systems and display devices   * **assignments** | 2nd  Group-2 | To measure the level of a liquid using a transducer |
| 2nd | 4th | Transducers:  Theory, construction | 3rd  Group-1 | To measure temperature using a thermo-couple |
| 5th | use of various transducers  (resistance type) |  |  |
| 6th | use of various transducers  (inductance type) | 4th  Group-2 | To measure temperature using a thermo-couple |
| 3rd | 7th | use of various transducers  (capacitance type), | 5th  Group-1 | Study and use of digital temperature controller |
| 8th | use of various transducers  (electromagnetic type) |  |  |
| 9th | use of various transducers  (piezo electric type)   * **assignments** | 6th  Group-2 | Study and use of digital temperature controller |
| 4th | 10th | Displacement Measuring Devices: wire wound potentiometer | 7th  Group-1 | Use of thermistor in ON/OFF transducer |
| 11th | LVDT, |  |  |
| 12th | strain gauges and their  different types such as inductance type, resistive type, wire and foil type etc. | 8th  Group-2 | Use of thermistor in ON/OFF transducer, |
| 5th | 13th | Gauge factor,  Gauge materials and their selections. | 9th  Group-1 | Study of variable capacitive transducer |
| 14th | Use of electrical strain gauges |  |  |
| 15th | Strain gauge bridges andamplifiers.   * **assignments** | 10th  Group-2 | Study of variable capacitive transducer |
| 6th | 16th | Different types of force measuring devices and their principles | 11th  Group-1 | Draw the characteristics of a potentiometer |
| 17th | load measurements by using  elastic transducers |  |  |
| 18th | load measurements by using  elastic transducers and electrical strain gauges. | 12th  Group-2 | Draw the characteristics of a potentiometer |
| 7th | 19th | Load cells | 13th  Group-1 | To measure linear displacement using LVDT |
| 20th | measurements of torque by brake,  dynamometer, electrical strain gauges, |  |  |
| 21th | Speed measurements; different methods, devices. | 14th  Group-1 | To measure linear displacement using LVDT |

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| 8th | 22th | * **assignments** * **Class Test** | 15th  Group-1 | **Revision** |
| 23th | Pressure Measurement:  Bourdon pressure gauges, |  |  |
| 24th | electrical pressure pick-ups and their principle, construction and application | 16th  Group-2 | **Revision** |
| 9th | 25th | electrical pressure pick-ups and their principle,construction and application | 17th  Group-1 | To study the use of electrical strain gauge |
| 26th | Use of pressure cells   * **assignments** |  |  |
| 27th | Flow Measurement: introduction | 18th  Group-2 | To study the use of electrical strain gauge |
| 10th | 28th | Basic principles of magnetic flow meters | 19th  Group-1 | To study weighing machine using load cell |
| 29th | Basic principles of ultrasonic flow meters |  |  |
| 30th | * **assignments** * **Class Test** | 20th  Group-2 | To study weighing machine using load cell |
| 11th | 31th | Measurement of Temperature: introduction | 21th  Group-1 | To study pH meter. |
| 32th | Bimetallic thermometer |  |  |
| 33th | Thermoelectric thermometers | 22th  Group-2 | To study pH meter. |
| 12th | 34th | Resistance thermometers | 23th  Group-1 | **Revision** |
| 35th | Thermocouple |  |  |
| 36th | Thermistors | 24th  Group-2 | **Revision** |
| 13th | 37th | Pyrometer. | 25th  Group-1 | **Test** |
| 38th | Temperature recorders   * **assignments** |  |  |
| 39th | Measurement of other non-electrical quantities :- introduction | 26th  Group-2 | **Test** |
| 14th | 40th | Humidity | 27th  Group-1 | **Revision** |
| 41th | pH level |  |  |
| 42th | Vibrations | 28th  Group-2 | **Revision** |
| 15th | 43th | * **assignments** * **Class Test** | 29th  Group-1 | **Revision** |
| 44th | * **Class Test** |  |  |
| 45th | * **Class Test** | 30th  Group-2 | **Revision** |