| Course Type | Course Code | Name of Course | L | T | P | Credit |
|---|---|---|---|---|---|---|
| DP5 | MNC 210 | MINE VENTILATION PRACTICAL-I | 0 | 0 | 2 | 2 |

| Course Objective |
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| The primary objective of the course is to introduce students to assess the various mine environment parameters for efficient ventilation system design |
| **Learning Outcomes** |
| Upon completion of the course, students will be able to conduct various experiments related to detection of mine gases, temperature heat and humidity apart from pressure-quantity survey. |

| Sl. No. | Name of the practical | No. of Practicals | Learning Outcome |
|---|---|---|---|
| 1 | Constructional features and applications of Flame Safety Lamp | 1 | Students will learn about the various types of flame safety lamp, their constructional features and applications in mines. Also, they will know the assembly and disassembly of flame safety lamp. |
| 2 | Gas testing using Flame Safety Lamp | 1 | Students will learn the methods of conducting accumulation and percentage tests used for detecting the occurrence of methane in underground coal mines. |
| 3 | Detection of methane using Methanometer | 1 | Students will learn the construction and working of methanometer, and method of measurement of methane concentration in underground coal mines using it. |
| 4 | Detection of mine gases, viz. CO, $CO_2$, $O_2$, $CH_4$ using Multi-gas Detector | 1 | Students will learn the construction and working of sensor based multi-gas detector, and method of measurement of different mine gases using it. |
| 5 | Analysis of mine gases using Gas Chromatograph | 1 | Students will learn the constructional features, principle of working of gas chromatograph and analysis of mine gases using it. |
| 6 | Measurement of airflow using Velometer and Vane Anemometer | 1 | Students will learn the constructional features of anemometer and velometer, and the methods of measurement of air velocity using them. |
| 7 | Measurement of ventilation pressure and airflow using Pitot Tube | 1 | Students will learn how to measure the static pressure, velocity pressure, total pressure and airflow rate using pitot tube. |
| 8 | Determination of psychrometric properties of air. | 1 | Students will learn about the psychrometric properties of mine air and their method of determination using psychrometer. |
| 9 | Estimation of air cooling power using Kata Thermometer | 1 | Students will learn the methods of estimation of wet and dry Kata cooling powers using Kata thermometer. |
| 10 | Plotting of fan characteristic curves | 1 | Students will learn about fan characteristic curves of single fan, combination of fans in series and parallel, and the method of plotting their characteristic curves using experimental set up. |