Lesson Plan

Department of Metallurgical Engineering UGIE Rourkela

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| UTKALMANI GOPABANDHU INSTITUTE OF ENGINEERING, ROURKELA  Session: 2021-22 | | | |
| Discipline: **Metallurgical Engineering** | Semester: **3rd** | Name of the Teaching Faculty: **SUMEETA RANI SARAP** | |
| Subject: **Mineral processing(TH-03)** | No. of days/per week class allotted:**4** | Semester from Date: **1. 10. 2021** to Date: **8.01.2022**  No. of weeks: 15 | |
| **Week** | **Class No.** | **Module** | **Lecture Topics** |
| 1 | 1 | Chapter -1:  Unit Operations : Ore dressing | Introduction |
| 2 | Various mineral resources of  India |
| 3 | Distinction between Mineral and Ore |
| 4 | scope and objective of Ore dressing |
| 2 | 5 | Chapter -2: Crushing | crushing operations |
| 6 | Various type of crushers |
| 7 | -do- |
| 8 | -do- |
| 3 | 9 | -do- |
| 10 | Capacity and reduction ratio of crusher |
| 11 | -do- |
| 12 | Angle of nip of a crusher |
| 4 | 13 | Gyratory and roll crushers |
| 14 | Principle of operation of gyratory and roll crushers |
| 15 | -do- |
| 16 | Chapter-3: Grinding | Types of grinding equipment |
| 5 | 17 | -do- |
| 18 | Ball mill operations |
| 19 | -do- |
| 20 | -do- |
| 6 | 21 | Difference between open circuit and close circuit grinding |
| 22 | -do- |

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|  | 23 | Chapter-4: Laboratory Sizing Technique | methods of size analysis |
| 24 | types of standard screens |
| 7 | 25 | Rotap sieve shaker |
| 26 | -do- |
| 27 | Chapter-5: Industrial Screening | principle of screening |
| 28 | Types of screening |
| 8 | 29 | Industrial screens |
| 30 | -do- |
| 31 | classifiers and their applications |
| 32 | -do- |
| 9 | 33 | Chapter-6: Gravity Concentration | principles of flowing film concentration |
| 34 | wilfley table |
| 35 | -do- |
| 36 | Jigging |
| 10 | 37 | stratification in jigs |
| 38 | -do- |
| 39 | Types of jigs |
| 40 | Chapter-7: Heavy Media Separations : | principle of heavy media separations |
| 11 | 41 | different industrial process |
| 42 | -do- |
| 43 | Du - Pont process |
| 44 | chance process |
| 12 | 45 | Chapter-8: Flotation | froth and skin flotation |
| 46 | principle of froth flotation |
| 47 | -do- |
| 48 | practical utility |
| 13 | 49 | -do- |
| 50 | -do- |
| 51 | Chapter-9: Magnetic & Electrostatic Separator | Magnetic separator |
| 52 | -do- |
| 14 | 53 | Electrostatic Separator |
| 54 | -do- |
| 55 | Applications of Magnetic &  Electrostatic Separator |
| 56 | -do- |
| 15 | 57 |  | Revision class |
| 58 |  | Revision class |
| 59 |  | Revision class |
| 60 |  | Important question discussion |