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| **Discipline**:- Mechanical Engg. | **Semester**:- **3rd** | Name of the Teaching Faculty:-  **Er. RABINDRA DASH** |
| **Subject**:-  **ENGG. MATERIAL** | **No. Of days/week class allotted** - **05** | Semester from **01.08.2023 to 30.11.2023** |
| No. Of weeks:- **17** |
| **Week** | **No. Of Period** | **Theory Topics** |
| 01.08.2023  To  05.08.2023 | 1st | Introduction to Engineering materials |
| 2nd | Material classification into ferrous and non ferrous category |
| 3rd | Material classification into Alloys |
| 4th | Properties of Materials: Physical , Chemical |
| 07.08.2023  To 12.08.2023 | 1st | Mechanical Properties of Materials: Physical , Chemica |
| 2nd | Performance requirements |
| 3rd | Material reliability and safety |
| 4th | Characteristics and application of ferrous materials |
| 5th | Classification, composition and application of low carbon steel, medium carbon steel |
| 14.08.2023  To 19.08.2023 | 1st | Classification, composition and application of High carbon steel |
| 2nd | INDEPENDENCE DAY |
| 3rd | Alloy steel: Low alloy steel, |
| 4th | high alloy steel, |
| 5th | tool steel and stainless steel |
| 21.08.2023  To  26.08.2023 | 1st | Tool steel: Effect of various alloying elements such as  Cr, Mn, Ni, V, Mo, |
| 2nd | Revision Of Chapter |
| 3rd | Concept of phase diagram and cooling curves |
| 4th | Features of Iron-Carbon diagram with salient micro-  constituents of Iron and Steel |
| 5th | Continue the topic and revision |

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| **Week** | **No. Of Period** | **Theory Topics** |
| 28.08.2023  To 02.09.2023 | 1st | Crystal defines, classification of crystals, |
| 2nd | ideal crystal and crystal imperfections |
| 3rd | RAKSHA BANDHAN |
| 4th | Point defects |
| 5th | line defects |
| 04.09.2023  To  09.09.2023 | 1st | surface defects |
| 2nd | volume defects |
| 3rd | JANMASTAMI |
| 4th | Types and causes of point defects: Vacancies |
| 5th | Interstitials and impurities |
| 11.09.2023  To  16.09.2023 | 1st | Types and causes of line defects: Edge dislocation |
| 2nd | screw dislocation |
| 3rd | Effect of imperfection on material properties |
| 4th | Deformation by slip |
| 5th | Twinning |
| 18.09.2023  To  23.09.2023 | 1st | Revision the chapter |
| 2nd | **GANESH CHATURTHI** |
| 3rd | NUAKHAI |
| 4th | Purpose of Heat treatment |
| 5th | Process of heat treatment: Annealing, normalizing, |

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| **Week** | **No. Of period** | **Theory Topics** |
| 25.09.2023  To 30.09.2023 | 1st | hardening, tampering |
| 2nd | stress relieving measures |
| 3rd | Surface hardening: Carburizing |
| 4th | Nitriding |
| 5th | BIRTHDAY OF MAHAMMUD |
| 02.10.2023  To 07.10.2023 | 1st | **GANDHIJAYANTI** |
| 2nd | Effect of heat treatment on properties of steel |
| 3rd | Hardenability of steel |
| 4th | Revision of the chapter |
| 5th | Aluminum alloys: Composition, property |
| 09.10.2023  To 14.10.2023 | 1st | usage of Duralmin, y- alloy. |
| 2nd | Copper alloys: Composition, property and |
| 3rd | usage of Copper- Aluminum, |
| 4th | Copper-Tin, Babbit |
| 5th | Phosperous bronze, brass, Copper- Nickel |
| 16.10.2023  To  21.10.2023 | 1st | Predominating elements of lead alloys, Zinc alloys  and Nickel alloys |
| 2nd | Low alloy materials like P-91, P-22 for power plants  and other |
| 3rd | high temperature services |
| 4th | High alloy materials like stainless steel grades of duplex |
| 5th | super duplex materials |
| 23.10.2023  To 28.10.2023 |  | DURGA PUJA HOLIDAYS |
| 30.10.2023  To  04.11.2023 | 1st | Questions disscussions on copper and alluminium alloys |
| 2nd | Revision of the chapter |
| 3rd | Classification, composition, of copper base bearing material |
| 4th | properties and uses of copper base bearing materials |
| 5th | Tin Base bearing materials |

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| **Week** | **No.of period** | **Theory Topics** |
| 06.11.2023  To 11.11.2023 | 1st | Lead base bearing materials |
| 2nd | Cadmium base bearing materials |
| 3rd | Previous year questions discussion on bearing materials |
| 4th | Introduction to spring materials |
| 5th | Classification, composition of Iron base spring material |
| 13.11.2023  To  18.11.2023 | 1st | properties and uses of Iron base spring material |
| 2nd | Classification, composition of Copper base spring material |
| 3rd | properties and uses of Copper base spring material |
| 4th | Previous year questions discussion on spring material |
| 5th | Introductions to plastic, application and classification |
| 20.11.2023  To 25.11.2023 | 1st | Properties and application of thermosetting polymers |
| 2nd | ANLA NAVAMI |
| 3rd | Properties and application of thermoplastic polymers |
| 4th | Properties of elastomers |
| 5TH | Classification, composition, properties and uses of fiber reinforced composites |
| 27.11.2023  To  30.11.2023 | 1st | RAHAS PURNIMA |
| 2nd | Classification, composition, properties and uses of particulate based and fiber composites |
| 3rd | Classification and uses of ceramics |
| 4th | Revision and previous year question discussion |
|  | CLOSING OF ATTENDENCE |