GANDHI SCHOOL OF ENGINEERING
BHABANDHA, BERHAMPUR
SESSION PLAN
3RD SEMESTER, BRANCH-MECHANICAL(GROUP 1)

ENGINEERING MATERIAL(TH-3)

Name of the Faculty –ER. JAGNYA PRASAD BEHERA

Topics to be taken				Actually taken		
SL NO & CHAPTER	**No. of Periods assigned by SCTE & VT**	**Details of the topics**	**PLANNED DATE**	**Details of the topics**	**ACTUAL DATE**	**Remarks**
1. Engineering materials and their properties	**5**	1.1 Material classification into ferrous and non ferrous category and alloys 1.2 Properties of Materials: Physical and Chemical 1.3 Performance requirements 1.4 Material reliability and safety	**15/09/2022 TO 22/09/2022**	1.1 Material classification into ferrous and non ferrous category and alloys 1.2 Properties of Materials: Physical and Chemical 1.3 Performance requirements 1.4 Material reliability and safety	**15/09/2022** **16/09/2022** **19/09/2022** **20/09/2022** **22/09/2022**	
2. Ferrous Materials and alloys	**5**	2.1 Characteristics and application of ferrous materials 2.2 Classification, composition and application of low carbon steel, medium carbon stell and High carbon steel 2.3 Alloy steel: Low alloy steel, high alloy steel, tool steel and stainless steel 2.4 Tool steel: Effect of various alloying elements such as Cr, Mn, Ni, V,Mo, W	**23/09/2022 TO 30/09/2022**	2.1 Characteristics and application of ferrous materials 2.2 Classification, composition and application of low carbon steel, medium carbon stell and High carbon steel 2.3 Alloy steel: Low alloy steel, high alloy steel, tool steel and stainless steel 2.4 Tool steel: Effect of various alloying elements such as Cr, Mn, Ni, V,Mo, W	**23/09/2022** **26/09/2022** **27/09/2022** **29/09/2022** **30/09/2022**	

3. Iron – Carbon system	**8**	3.1 Concept of phase diagram and cooling curves 3.2 Features of Iron-Carbon diagram with salient micro-constituents of Iron and Steel	**11/10/2022 TO 27/10/2022**	3.1 Concept of phase diagram and cooling curves 3.2 Features of Iron-Carbon diagram with salient micro-constituents of Iron and Steel	**11/10/2022** **13/10/2022** **14/10/2022** **17/10/2022** **18/10/2022** **20/10/2022** **21/10/2022** **27/10/2022**	
4. Crystal imperfections	**10**	4.1 Crystal defines, classification of crystals, ideal crystal and crystal imperfections 4.2 Classification of imperfection: Point defects, line defects, surface defects and volume defects 4.3 Types and causes of point defects: Vacancies, Interstitials and impurities 4.4 Types and causes of line defects: Edge dislocation and screw dislocation 4.5 Effect of imperfection on material properties 4.6 Deformation by slip and twinning 4.7 Effect of deformation on material properties	**28/10/2022 TO 18/11/2022**	4.1 Crystal defines, classification of crystals, ideal crystal and crystal imperfections 4.2 Classification of imperfection: Point defects, line defects, surface defects and volume defects 4.3 Types and causes of point defects: Vacancies, Interstitials and impurities 4.4 Types and causes of line defects: Edge dislocation and screw dislocation 4.5 Effect of imperfection on material properties 4.6 Deformation by slip and twinning 4.7 Effect of deformation on material properties	**28/10/2022** **1/11/2022** **3/11/2022** **4/11/2022** **10/11/2022** **11/11/2022** **14/11/2022** **15/11/2022** **17/11/2022** **18/11/2022**	

5. Heat Treatment	**10**	5.1 Purpose of Heat treatment 5.2 Process of heat treatment: Annealing, normalizing, hardening, tampering, stress relieving measures 5.3 Surface hardening: Carburizing and Nitriding 5.4 Effect of heat treatment on properties of steel 5.5 Hardenability of steel	**21/11/2022 TO 8/12/2022**	5.1 Purpose of Heat treatment 5.2 Process of heat treatment: Annealing, normalizing, hardening, tampering, stress relieving measures 5.3 Surface hardening: Carburizing and Nitriding 5.4 Effect of heat treatment on properties of steel 5.5 Hardenability of steel	**21/11/2022 22/11/2022 24/11/2022 25/11/2022 28/11/2022 29/11/2022 2/12/2022 5/12/2022 6/12/2022 8/12/2022**	
6. Non-ferrous alloys	**10**	6.1 Aluminium alloys: Composition, property and usage of Duralmin, y-alloy 6.2 Copper alloys: Composition, property and usage of Copper-Aluminium, Copper-Tin, Babbit, Phosperous bronze, brass, Copper-Nickel 6.3 Predominating elements of lead alloys, Zinc alloys and Nickel alloys 6.4 Low alloy materials like P-91, P-22 for power plants and other high temperature services. High alloy materials like stainless steel grades of duplex, super duplex materials etc.	**9/12/2022 TO 26/12/2022**	6.1 Aluminium alloys: Composition, property and usage of Duralmin, y-alloy 6.2 Copper alloys: Composition, property and usage of Copper-Aluminium, Copper-Tin, Babbit, Phosperous bronze, brass, Copper-Nickel 6.3 Predominating elements of lead alloys, Zinc alloys and Nickel alloys 6.4 Low alloy materials like P-91, P-22 for power plants and other high temperature services. High alloy materials like stainless steel grades of duplex, super duplex materials etc.	**9/12/2022 12/12/2022 13/12/2022 15/12/2022 16/12/2022 19/12/2022 20/12/2022 22/12/2022 23/12/2022 26/12/2022**	

7. Bearing Material	**3**	7.1 Classification, composition, properties and uses of Copper base, Tin Base, Lead base, Cd base bearing materials	**27/12/2022 TO 30/12/2022**	7.1 Classification, composition, properties and uses of Copper base, Tin Base, Lead base, Cd base bearing materials	**27/12/2022 29/12/2022 30/12/2022**	
8. Spring materials	**3**	8.1 Classification, composition, properties and uses of Iron-base and Copper base spring material	**2/1/2023 TO 5/1/2023**	8.1 Classification, composition, properties and uses of Iron-base and Copper base spring material	**2/1/2023 3/01/2023 5/01/2023**	
9. Polymers	**3**	9.1 Properties and application of thermosetting and thermoplastic polymers 9.2 Properties of elastomers	**6/01/2023 TO 10/01/2023**	9.1 Properties and application of thermosetting and thermoplastic polymers 9.2 Properties of elastomers	**6/01/2023 9/01/2023 10/01/2023**	
10. Composites and Ceramics	**3**	10.1 Classification, composition, properties and uses of particulate based and fiber reinforced composites 10.2 Classification and uses of ceramics	**12/01/2023 TO 20/01/2023**	10.1 Classification, composition, properties and uses of particulate based and fiber reinforced composites 10.2 Classification and uses of ceramics REVISION-	**12/01/2023 13/01/2023 16/01/2023 19/01/2023 20/01/2023**	

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ENGINEERING MATERIAL(TH-3)

Name of the Faculty –ER. SANJAYA SAHU

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