NILASAILAINSTITUTEOF SCIENCE&TECHNOLOGY
SERGARH-756060, BALASORE (ODISHA)
(ApprovedbyAICTE&affiliatedtoSCTE&VT,Odisha)

LESSONPLAN

SUBJECT:TH-3(ENGINEERINGMATERIAL)

CHAPTERWISEDISTRIBUTIONOFPERIORDS

SLNO	NAMEOFTHECHAPTERASPERSYLLABUS	NOOFSYLLABUSASPERSYLLABUS	NOOFPERIODS ACTUALLYNEEDED
1	Engineering materials and their properties	5	5
2	Ferrous Materials and alloy	5	5
3	Iron–Carbon system	8	8
4	Crystal imperfections	10	10
5	Heat Treatment	10	10
6	Non-ferrousalloys	10	10
7	BearingMaterial	3	3
8	Springmaterials	3	3
9	Polymers	3	3
10	CompositesandCeramics	3	3
	TOTALPERIOD	60	60

Discipline: AUTOMOBILE ENGINEERING	Semester: 3rd	**Name of the Teaching Faculty:** Er. JYOTIRMAY BISWAS
Week	**Class Day**	**Theory/Practical Topics**
1st	1st	Introduction to Engineering Material.
	2nd	Engineering materials and their properties Material classification into ferrous and non-ferrous category and alloys
	3rd	1.2PropertiesofMaterials:Physical,ChemicalandMechanical
	4th	1.2PropertiesofMaterials:Physical,ChemicalandMechanical
	5th	1.3Performance requirements
2nd	1st	1.4Materialreliabilityandsafety
	2nd	2.0FerrousMaterialsand alloys 2.1Characteristicsandapplicationofferrous materials
	3rd	2.2Classification,compositionandapplicationoflowcarbonsteel,mediumcarbon steelandHighcarbon steel
	4th	2.2Classification,compositionandapplicationoflowcarbonsteel,mediumcarbon steelandHighcarbon steel
	5th	2.3Alloy steel:Lowalloy steel,highalloysteel,toolsteelandstainlesssteel
3rd	1st	2.4Toolsteel: EffectofvariousalloyingelementssuchasCr,Mn,Ni,V,Mo,
	2nd	CLASSTEST
	3rd	3.0Iron–Carbonsystem 3.1Conceptofphasediagramandcooling curves
	4th	3.1Conceptofphasediagramandcooling curves
	5th	3.1Conceptofphasediagramandcooling curves
4th	1st	3.2FeaturesofIron-Carbondiagramwithsalientmicro-constituentsofIronandSteel
	2nd	3.2FeaturesofIron-Carbondiagramwithsalientmicro-constituentsofIronandSteel
	3rd	3.2FeaturesofIron-Carbondiagramwithsalientmicro-constituentsofIronandSteel
	4th	3.2FeaturesofIron-Carbondiagramwithsalientmicro-constituentsofIronandSteel
	5th	3.2FeaturesofIron-Carbondiagramwithsalientmicro-constituentsofIronandSteel
5th	1st	MIDSEMEXAM
	2nd	MIDSEMEXAM
	3rd	4.0Crystalimperfections 4.1Crystaldefines,classificationofcrystals,idealcrystalandcrystal imperfections
	4th	4.0Crystalimperfections 4.1 Crystaldefines,classificationofcrystals,idealcrystalandcrystal imperfections
	5th	4.1Crystaldefines,classificationofcrystals,idealcrystalandcrystal imperfections

6th	1st	4.1Crystaldefines,classificationofcrystals,idealcrystalandcrystal imperfections
	2nd	4.2Classificationofimperfection:Pointdefects,linedefects,surfacedefectsand volumedefects
	3rd	4.2Classificationofimperfection: Pointdefects,linedefects,surface defectsand volume defects
	4th	4.3Typesandcausesofpointdefects:Vacancies,Interstitialsandimpurities
	5th	4.4Typesandcausesoflinedefects:Edgedislocationandscrewdislocation
7th	1st	4.5Effect ofimperfectiononmaterialproperties
	2nd	4.6Deformationbyslipandtwinning
	3rd	4.7 Effect ofdeformationonmaterial properties
	4th	CLASSTEST
	5th	5.0HeatTreatment 5.1PurposeofHeat treatment
8th	1st	5.1PurposeofHeat treatment
	2nd	5.2Processofheattreatment:Annealing,normalizing,hardening,tampering,stress relieving measures
	3rd	5.2Processofheattreatment:Annealing,normalizing,hardening,tampering,stress relievingmeasures
	4th	5.3Surfacehardening:CarburizingandNitriding
	5th	5.3Surfacehardening:CarburizingandNitriding
9th	1st	5.4Effect ofheattreatment onpropertiesof steel
	2nd	5.4Effect ofheattreatment onpropertiesof steel
	3rd	5.5Hardenabilityof steel
	4th	5.5Hardenabilityof steel
	5th	CLASSTEST
10th	1st	6.0Non-ferrousalloys 6.1Aluminumalloys:Composition,propertyandusageofDuralmin,y-alloy.
	2nd	6.0Non-ferrousalloys 6.1Aluminumalloys:Composition,propertyandusageof Duralmin,
	3rd	6.0Non-ferrousalloys 6.1Aluminumalloys:Composition,propertyandusageof Duralmin,
	4th	6.1Aluminumalloys:Composition,propertyandusageofDuralmin,y- alloy.
	5th	6.2Copperalloys:Composition,propertyandusageofCopper-Aluminum,Copper-Tin, Babbit , Phosperous bronze, brass, Copper- Nickel
11th	1st	6.2Copperalloys:Composition,propertyandusageofCopper-Aluminum,Copper-Tin, Babbit , Phosperous bronze, brass, Copper- Nickel
	2nd	6.2Copperalloys:Composition,propertyandusageofCopper-Aluminum,Copper-Tin, Babbit , Phosperous bronze, brass, Copper- Nickel
	3rd	6.3Predominatingelementsofleadalloys,ZincalloysandNickel alloys
	4th	6.3Predominatingelementsofleadalloys,ZincalloysandNickel alloys

11th	5th	6.4Lowalloy materialslikeP-91,P-22 forpowerplantsandotherhightemperature services. High alloy materials like stainless
12th	1st	6.4Lowalloy materialslikeP-91,P-22 forpowerplantsandotherhightemperature services. High alloy materials like stainless
	2nd	6.4Lowalloy materialslikeP-91,P-22 forpowerplantsandotherhightemperature services. High alloy materials like stainless
	3rd	CLASSTEST
	4th	7. BearingMaterial Classification,composition,propertiesandusesofCopperbase,TinBase,Lead base, Cadmium base bearing materials
	5th	Classification,composition,propertiesandusesofCopperbase,TinBase,Lead base, Cadmium base bearing materials
13th	1st	Classification,composition,propertiesandusesofCopperbase,TinBase,Lead base, Cadmium base bearing materials
	2nd	8.0Springmaterials 8.1 Classification,composition,propertiesandusesofIron-baseandCopperbase spring material
	3rd	8.1Classification,composition,propertiesandusesofIron-baseandCopperbase springmaterial
	4th	8.1Classification,composition,propertiesandusesofIron-baseandCopperbase springmaterial
	5th	CLASSTEST
14th	1st	9.0Polymers 9.1Propertiesandapplicationofthermosettingandthermoplastic polymers
	2nd	9.1Propertiesandapplicationofthermosettingandthermoplastic polymers
	3rd	9.2Propertiesof elastomers
	4th	10.0CompositesandCeramics 10.1 Classification,composition,propertiesandusesofparticulatebasedandfiber reinforced composites
	5th	10.1Classification,composition,propertiesandusesofparticulatebasedandfiber reinforcedcomposites
15th	1st	10.2Classificationandusesofceramics
	2nd	CLASSTEST
	3rd	Revision.