Lesson Plan

Name of the Subject: Production technology (TH 1)

Name of the Faculty: Mr. Somanatha jena

Semester: 3rd Sem (Mechanical)

1-01	Lecturer	Topics Plan to be Covered	Chapter	Reference
Log	L-01			
1-94 Septian Impact testrusion process 1-95 Define rolline, Classify cit. 1-96 Explain to foot for line process 1-96 Explain to foot for line process 1-97 Explain to foot for line process 1-98 List the different types of rolline mills used in Rolline process 1-99 Design for line widding and classify various welding process 1-11 Define welding and classify various welding process 1-12 Explain fuerous types of fames used in Oxy-acetylene welding 1-15 Explain fare welding process 1-16 Specify are welding electrodes 1-17 Define resistance welding process 1-18 Describe various resistance welding process 1-19 Explain fare welding process 1-10 Explain fare welding process 1-10 Explain fare welding electrodes 1-10 Explain fare welding defects 1-10 Explain fare welding defects 1-12 State different welding classify it 1-12 Explain fare welding defects 1-12 Explain fare welding well foot 1-12 Explain fare well fare	L-02	Extrusion: Definition & Classification		
L-05	L-03	Explain direct, indirect .		Production Technology, Vol- I& II
L-06 Excitain cold for foliog process	L-04	Explain Impact extrusion process.	CH-1	5 ,,
L-07 Explain Hot rolling process. L-08 List the different posters of rolling mills used in Rolling process L-09 Discuss about all the tooiss L-10 Welding L-11 Define welding and classify various welding processes. L-12 Explain flavor used in welding L-13 Esplain Development of State Stat	L-05	Define rolling. Classify it.		Page-(1-29)
Li-98 List the different types of rolling mills used in Rolling process	L-06	Explain cold rolling process.		
L-09 Discuss about all the topics	L-07	Explain Hot rolling process.		
L-10 Welding L-12 Explain fluxes used in welding and classify various welding processes. L-12 Explain fluxes used in welding L-13 Explain fluxes used in Medical process L-14 Explain fluxes used of fluxes used in Oxy-acetylene welding L-15 Explain various types of fluxes used in Oxy-acetylene welding L-15 Explain various types of fluxes used in Oxy-acetylene welding L-15 Explain various types of fluxes used in Oxy-acetylene welding L-15 Explain rules welding process L-16 Specify are welding electrodes. L-17 Define resistance welding processes L-19 Explain Till welding process L-19 Explain Till welding process L-10 Mile welding process L-10 Mile welding process L-10 Mile welding process L-11 State different welding defects. L-12 State different welding causes and remedies. L-12 Define Casting and Classify the various Casting processes. L-12 Explain the procedure of Sand mould castling. L-12 Explain the procedure of Sand mould castling. L-12 Explain different types of molding sands with their composition L-12 Explain different types of molding sands with their composition L-13 Describe construction and working of crucible frumace L-13 Explain described and working of crucible frumace L-13 Explain true centrifugal casting, L-14 State advantages of powder metallurgy technology technique L-14 State advantages of powder metallurgy process. L-14 Exposer the methods of producting components by powder L-14 State advantages of de and punch L-14 Explain simple, dies L-15 Explain simple, dies L-15 Compound & Prozressive dies L-15 Compound & Prozressive dies L-15 State advantages of iosa dins selection L-15 State advantages of iosa dins selection with respect to 3-2-1 point L-15 State advantages of iosa dins selection with respect to 3-2-1 point L-15 State advantages of iosa plan flutures L-15 State advantages of iosa plan flutures L-15 State advantages of iosa plan flutu		List the different types of rolling mills used in Rolling process		
L-11 Define welding and classify various welding processes. L-12 Esplain Dave sacetylene welding process L-13 Esplain Acc welding process. L-14 Esplain acc welding process. L-15 Specify are welding electrodes. L-16 Specify are welding electrodes. L-17 Define resistance welding and classify it. L-18 Describe various resistance welding process L-10 Milk welding process L-10 Milk welding process L-10 Milk welding process L-10 Specify are welding electrodes. L-12 State different welding defects. L-12 State different welding defects. L-13 State different welding causes and remedies. L-14 State different welding causes and remedies. L-15 Define Casting and Classify the various Casting processes. L-16 Esplain the procedure of Sand mould casting. L-17 Explain different types of molding sands with their composition L-18 Classify core L-29 State various patient allowances L-20 Classify core L-31 Describe construction and working of crueble Furnace L-32 Describe construction and working of crueble Furnace L-33 Esplain the casting method. L-34 Esplain the contribute casting. L-35 Esplain the contribute casting. L-36 Esplain rentropial casting. L-37 With their causes and remedies L-38 Discuss about all the tooks L-39 Powder Metalluray L-40 Describe construction and working of the process	L-09			
L-12 Explain fluxes used in welding L-13 Explain Dava cettylene welding process L-14 Explain narious tones of flames used in Dav-acetylene welding L-15 Explain narious tones of flames used in Dav-acetylene welding L-16 Specify acr welding electrodes. L-17 Define resistance welding and classify it. L-18 Describe various resistance welding processes L-19 Explain ITIC welding process L-19 Explain ITIC welding process L-19 Explain ITIC welding process L-12 State different welding defects. L-21 State different welding causes and remedies. L-22 Specific according and classify the various Casting processes. L-23 Discuss about all the tonics L-24 Costina L-25 Explain and Classify the various Casting processes. L-26 Explain the procedure of Sand mould casting. L-27 Explain different vives of molding sands with their composition L-28 Classify different pattern. L-29 State various battern allowances L-20 Describe construction and working of cupola Furnace. L-20 Describe construction and working of crucible Furnace L-21 Describe construction and working of crucible Furnace L-23 Explain different pattern. L-24 Explain the procedure metallurgy technology technique L-24 Explain verticular casting. L-25 Explain true centrifusal casting. L-26 Explain true centrifusal casting. L-27 Explain true centrifusal casting. L-28 Explain verticular process. L-29 Describe the methods of producing components by powder L-29 Describe the methods of producing components by powder L-20 Describe the methods of producing components by powder L-21 Describe press Works: blanking. L-22 Describe the methods of producing components by powder L-24 Describe the methods of producing components by powder L-25 Describe the methods of producing components by powder L-26 Describe the methods of producing components by powder L-27 Describe the principle of focations L-28 Describe the methods of locations with respect to 3-2-1 point L-29 Describe the methods of locations L-29 Describe the methods of locations with respect to 3-2-1 point L-29 Describe the metho		Welding		
L-13 Explain Day-acetylene welding process L-14 Explain Day-acetylene welding process L-15 Explain Are welding process L-16 Specify are welding electrodes. L-17 Define resistance welding and classify it. L-18 Describe various resistance welding processes L-20 Mig welding process L-20 Mig welding process L-20 Mig welding process L-21 State different welding defects. L-22 State different welding defects. L-23 Discuss about all the tonics L-24 Costina L-25 Define Casting and Classify the various Casting processes. L-26 Explain in the recedure of Sand mould casting. L-27 Explain inferent types of molding sands with their composition L-28 Classify different pattern. L-29 State various pattern. L-29 State various day and the process of the various casting processes. L-20 State various day and the procedure of Sand mould casting. L-27 Explain interferent vipes of molding sands with their composition L-28 Classify different pattern. L-29 State various day of the various casting processes. L-20 Classify different pattern. L-21 Describe construction and working of cupola Furnace. L-23 Describe construction and working of crubble Furnace L-23 Explain intrue centrifugal casting. L-24 Explain die casting method. L-25 Explain true centrifugal casting. L-26 Explain true centrifugal casting. L-27 With their causes and remedies L-28 Discuss about all the toxics L-29 Describe the methods of producing components by powder L-40 Define powder metallurgy process. L-44 Economics of powder metallurgy. L-45 Discuss about all the toxics L-46 Press Work L-47 Describe Press Works: blanking. L-48 Describe the methods of locations with respect to 3-2-1 point L-49 Discuss about all the toxics L-50 Explain sinterine. L-51 Compound & Progressive dies L-52 Describe the methods of locations L-53 Discuss about all the toxics L-54 Jiss and fixtures L-55 State advantages of idig and fixtures L-55 State advantages of liga and fixtures L-56 State advantages of liga and fixtures L-57 State the microbia of locations L-58 Describe the methods of locatio		Define welding and classify various welding processes.		
L-14 Explain various types of flames used in Oxy-acetylene welding		Explain fluxes used in welding		
L-15 Explain Are welding process L-16 Specify are welding electrodes. L-17 Define resistance welding and classify it. L-18 Describe various resistance welding processes L-19 Explain ITG welding process L-20 MIG welding process L-21 State different welding defects. L-22 State different welding defects. L-23 Disuss about all the boils: L-24 Casting L-25 Explain the procedure of Sand mould casting L-27 Explain file melling based on the processes L-28 Casting L-29 State various pattern L-29 State various pattern allowances L-20 State various nature allowances L-20 State various nature allowances L-21 State various pattern allowances L-22 State various pattern allowances L-23 Explain true centrifugal casting L-24 Explain centrifugal casting L-25 Explain true centrifugal casting L-26 Explain true centrifugal casting L-27 With their causes and remedies L-28 Discuss about all the topics L-29 Define powder metallurgy technology technique L-20 Define powder metallurgy process L-21 State various casting defects L-22 State various casting defects L-23 Discuss about all the topics L-24 Describe press works L-25 Discuss about all the topics L-26 Discuss about all the topics L-27 State various casting defects L-28 Discuss about all the topics L-29 Discuss about all the topics L-29 Discuss about all the topics L-20 Describe press works L-21 Describe press works L-22 Describe press works L-23 Discuss about all the topics L-24 Describe press works L-25 Define plain sintering L-26 Discuss about all the topics L-27 Describe press works L-28 Discuss about all the topics L-29 Discuss about all the topics L-20 Describe press works L-21 Discuss about all the topics L-22 Describe press works L-23 Discuss about all the topics L-24 Describe press works L-25 Defen pliss and foliating L-26 Describe the methods of locations L-27 Sate th				
L-16 Specify arc welding electrodes. L-17 Define resistance welding and classify it. L-18 Describe various resistance welding processes L-19 Explain Tile welding process L-10 Mik welding process L-20 Mik welding process L-21 State different welding causes and remedies. L-22 State different welding causes and remedies. L-23 Discuss about all the tonics L-26 Explain the procedure of Sand mould casting. L-27 Explain the procedure of Sand mould casting. L-28 Explain the procedure of Sand mould casting. L-29 State various pathers allowances. L-30 Classify core L-31 Describe construction and working of cuoola Furnace. L-32 Describe construction and working of cuoola Furnace. L-33 Explain true centrifusal casting. L-34 Explain true centrifusal casting. L-35 Explain true centrifusal casting. L-36 Explain true centrifusal casting. L-37 With their causes and remedies. L-38 Discuss about all the tonics L-39 Powder Metalluray L-40 Define powder metallurgy process. L-41 State advantages of nowder metallurgy technology technique L-42 Describe the methods of producing components by powder L-43 Explain strienting. L-44 Economics of powder metallurgy. L-45 Discuss about all the topics L-46 Press Work L-47 Describe Press Work: blanking. L-48 Describe Piercing and trimming. L-49 List various types of die and punch L-50 Explain simple. L-41 State advantages of suise lius and fixtures L-51 Compound & Progressive dies L-52 Describe the methods of locations with respect to 3-2-1 point L-53 Discuss about all the topics L-54 Jigs and fixtures L-55 Define jigs and fixtures L-55 State the principle of locations with respect to 3-2-1 point L-55 Lix various types of jig and fixtures.				
L-17 Define resistance welding and classify it. L-18 Describe various resistance welding processes L-19 Explain ITG welding process L-20 MIG welding process L-21 State different welding defects. L-22 State different welding describes. L-23 Discuss about all the topics L-24 Costina L-25 Define Casting and Classify the various Casting processes. L-26 Explain the procedure of Sand mould casting. L-27 Explain different types of molding sands with their composition L-28 Classify different pattern L-29 State various pattern allowances L-30 Classify core L-31 Describe construction and working of couple Furnace. L-32 Describe construction and working of crucible Furnace L-33 Explain decasting method. L-34 Explain decasting method. L-35 Explain various casting defects L-37 With their causes and remedies L-38 Discuss about all the topics L-39 Powder Metallurary L-40 Define powder metallurgy process. L-41 State advantages of powder metallurgy technology technology L-43 Explain intering. L-44 Economics of powder metallurgy components by powder L-43 Explain sintering. L-44 Describe the methods of producing components by powder L-45 Discuss about all the topics L-46 Describe Press Work: blanking. L-47 Describe Type State State advantages of above dies L-51 Compound & Progressive dies L-52 Describe the methods of post of sign and fixtures L-55 Define jigs and fixtures L-56 State advantages of jusine lius and fixtures L-57 State the principle of locations with respect to 3-2-1 point L-59 Describe the methods of fication with respect to 3-2-1 point L-59 Describe the methods of fication with respect to 3-2-1 point L-59 Describe the methods of fication with respect to 3-2-1 point L-59 Describe the methods of fication with respect to 3-2-1 point L-59 Describe the methods of fication with respect to 3-2-1 point L-59 Describe the methods of fication with respect to 3-2-1 point L-59 Describe the methods of fication with respect to 3-2-1 point L-59 Describe the methods of fication with respect to 3-2-1 point L-59 Describe the methods				Production Technology, Vol- I& II
L-18 Describe various resistance welding processes L-19 Explain Tick welding process L-21 State different welding edects. L-22 State different welding edects. L-23 Discuss about all the topics L-24 Costina L-25 Define Casting and Classify the various Casting processes. L-26 Explain the procedure of Sand mould casting. L-27 Explain the procedure of Sand mould casting. L-28 Classify core L-29 State various pattern allowances L-29 State various pattern allowances L-30 Classify core L-31 Describe construction and working of cupola Furnace. L-32 Describe construction and working of crucible Furnace L-33 Explain interection and working of crucible Furnace L-34 Explain different pattern L-35 Explain true centrifugal casting. L-36 Explain true centrifugal casting. L-37 With their causes and remedies L-38 Discuss about all the topics L-39 Powder Metalluray L-40 Define powder metalluray process. L-41 State advantages of powder metalluray. L-42 Describe the methods of producing components by powder L-43 Explain sintering. L-44 Explain sintering. L-45 Discuss about all the topics Press Work L-47 Describe Press Works: blanking. L-48 Describe Press Works: blanking. L-49 List various types of die and punch L-49 Describe the warious advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jigs and fixtures L-55 State the methods of productions. L-58 Describe the methods of using lies and fixtures L-59 State the methods of ploation with respect to 3-2-1 point L-59 Discribe the methods of ploation with respect to 3-2-1 point L-59 Discribe the methods of ploation with respect to 3-2-1 point L-59 Discribe the methods of ploation with respect to 3-2-1 point L-59 Discribe the methods of ploation with respect to 3-2-1 point L-59 Discribe the methods of ploation with respect to 3-2-1 point L-59 Discribe the methods of ploation with respect to 3-2-1 point L-59 Discribe the methods of ploation with respect to 3-2-1 point L-59 Discribe the methods of ploation with respect to 3-2-1 point			CH-2	O.P. Khanna
L-19 Explain TIG welding process L-20 Mifs welding process L-21 State different welding defects. L-22 State different welding defects. L-23 Discuss about all the toolics L-24 Casting L-25 Describe Press Works: blanking. L-27 Explain different types of moding sands with their composition L-28 Classify different pattern. L-29 State various pattern allowances. L-29 State various pattern allowances. L-30 Classify construction and working of cupola Furnace. L-31 Describe construction and working of crucible Furnace L-32 Describe construction and working of crucible Furnace L-33 Explain die casting method. L-34 Explain rus centrifugal casting. L-35 Explain rus centrifugal casting. L-36 Explain rus centrifugal casting. L-37 With their causes and remedies L-38 Discuss about all the toolics L-39 Powder Metalluray Describe the retallurgy process. L-40 Define powder metallurgy process. L-41 State advantaces of powder metallurgy. L-45 Discuss about all the toolics L-46 Press Work: L-47 Describe Press Works: blanking. L-48 Explain streting. L-49 List various types of die and punch L-50 Describe her various advantages & disadvantages of above dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-55 Define jigs and fixtures L-56 State advantaces of using ities and fixtures L-57 State the methods of location with respect to 3-2-1 point L-59 Describe the methods of location with respect to 3-2-1 point L-59 Describe the methods of location with respect to 3-2-1 point L-59 Describe the methods of location with respect to 3-2-1 point L-59 Describe the methods of location with respect to 3-2-1 point L-50 Describe the methods of location with respect to 3-2-1 point				Page-(30-45)
L-20 MIG welding process L-21 State different welding defects. L-22 State different welding causes and remedies. L-23 Discuss about all the tooics L-24 Casting L-25 Define Casting and Classify the various Casting processes. L-26 Explain the procedure of Sand mould casting. L-27 Explain different types of molding sands with their composition L-28 Classify different pattern. L-29 State various sattern allowances L-30 Classify core L-31 Describe construction and working of cupola Furnace. L-32 Describe construction and working of crucible Furnace L-33 Explain disc casting method. L-34 Explain centrifugal casting. L-35 Explain true centrifugal casting. L-36 Explain various casting defects L-37 With their causes and remedies L-38 Discuss about all the tooics L-39 Describe the methods of producing components by powder L-40 Define powder metallurgy process. L-41 State advantages of powder metallurgy technology technology technology technology. Vol-1& II O.P. Khanna Page-(63-78) CH-4 Production Technology, Vol-1& II O.P. Khanna Page-(63-78) CH-5 Production Technology, Vol-1& II O.P. Khanna Page-(79-90) CH-5 Production Technology, Vol-1& II O.P. Khanna Page-(79-90) L-50 Explain simple, dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the tooics L-54 Jiss and fixtures L-55 Define jigs and fixtures L-56 State advantages of usine iiles and fixtures L-57 State the principle of locations L-58 Describe the methods of locations L-59 List various types of jig and fixtures				
L-21 State different welding defects. L-22 State different welding causes and remedies. L-23 Discuss about all the toolics L-24 Costina L-25 Define Casting and Classify the various Casting processes. L-26 Explain the procedure of Sand mould casting. L-27 Explain different types of molding sands with their composition L-28 Classify different pattern. L-29 State various pattern allowances L-30 Classify core L-31 Describe construction and working of cupola Furnace. L-32 Describe construction and working of crucible Furnace L-33 Explain centrifugal casting. L-34 Explain de casting method. L-35 Explain various casting defects L-37 With their causes and remedies L-38 Discuss about all the toolics L-39 Powder Metallurgy L-40 Define powder metallurgy recess. L-41 State advantages of powder metallurgy technology technique L-42 Describe the methods of producing components by powder L-43 Explain sintering. L-44 Economics of powder metallurgy. L-45 Discuss about all the toolics L-47 Describe Press Works: blanking. L-48 Describe Press Works: blanking. L-49 List various types of die and punch L-50 Explain sintering. L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jigs and fixtures L-55 State advantages of usine iigs and fixtures L-57 State the methods of locations with respect to 3-2-1 point L-59 List various types of lig and fixtures				
L-22 State different welding causes and remedies. L-23 Discuss about all the tonics Casting L-24 Casting L-25 Define Casting and Classify the various Casting processes. L-26 Explain the procedure of Sand mould casting. L-27 Explain different types of molding sands with their composition L-28 Classify, different pattern. L-29 State various pattern allowances L-30 Classify core L-31 Describe construction and working of cupola Furnace. L-32 Describe construction and working of crucible Furnace L-33 Explain die casting method. L-34 Explain centrifugal casting. L-35 Explain true centrifugal casting. L-36 Explain various casting defects L-37 With their causes and remedies L-38 Discuss about all the tonics L-39 Describe the methods of producing components by powder L-40 Define powder metallurgy process. L-41 State advantages of powder metallurgy. L-42 Describe the methods of producing components by powder L-43 Explain sintering. L-44 Economics of powder metallurgy. L-45 Discuss about all the tonics L-46 Press Work L-47 Describe Press Works: blanking. L-48 Describe Press Works: blanking. L-49 List various types of die and punch L-50 Explain simple, ciles L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jiga and fixtures L-55 Define jigs and fixtures L-56 State advantages of using jigs and fixtures L-57 State the principle of locations with respect to 3-2-1 point L-59 List various types of jig and fixtures				
L-23 Discuss about all the topics L-24 Casting L-25 Define Casting and Classify the various Casting processes. L-26 Explain the procedure of Sand mould casting. L-27 Explain the procedure of Sand mould casting. L-28 Classify different pattern L-29 State various pattern allowances L-30 Classify core L-31 Describe construction and working of cupola Furnace. L-32 Describe construction and working of cupola Furnace. L-33 Explain die casting method. L-34 Explain neentrifugal casting. L-35 Explain various casting defects L-37 With their causes and remedies L-38 Discuss about all the topics L-39 Powder Metalluray L-40 Define powder metallurgy process. L-41 State advantages of powder metallurgy technology technique L-42 Describe the methods of producing components by powder L-44 Economics of powder metallurgy. L-45 Discuss about all the topics L-46 Press Work L-47 Describe Press Works: blanking. L-48 Describe Press Morks: blanking. L-49 List various types of die and punch L-50 Explain simple, dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jigs and fixtures L-55 Define jigs and fixtures L-56 State advantages of fusions ligs and fixtures L-57 State the principle of locations with respect to 3-2-1 point L-59 List various types of ig and fixtures				
L-24 Casting L-25 Define Casting and Classify the various Casting processes. L-26 Explain the procedure of Sand mould casting. L-27 Explain different types of molding sands with their composition L-28 Classify different pattern. L-29 State various pattern allowances L-30 Classify core L-31 Describe construction and working of cupola Furnace. L-32 Describe construction and working of cupola Furnace. L-33 Explain die casting method. L-34 Explain die casting method. L-35 Explain true centrifugal casting. L-36 Explain various casting defects L-37 With their causes and remedies L-38 Discuss about all the topics L-39 Powder Metalluray L-40 Define powder metallurgy process. L-41 State advantages of powder metallurgy technology technique L-42 Describe the methods of producing components by powder L-43 Explain sintering. L-44 Economics of powder metallurgy. L-45 Discuss about all the topics L-46 Press Work L-47 Describe Press Works: blanking, L-48 Describe be remembed of producing components with respect to 3-2-1 point L-50 Explain sintering. CH-5 State the principle of locations with respect to 3-2-1 point L-59 List various types of lig and fixtures L-55 State the principle of locations with respect to 3-2-1 point L-59 List various types of lig and fixtures L-59 List various types of lig and fixtures L-59 List various types of lig and fixtures L-50 List various types of lig and fixtures L-51 State the principle of locations with respect to 3-2-1 point L-59 List various types of lig and fixtures L-59 List various types of lig and fixtures L-50 List various types of lig and fixtures L-51 State the principle of locations with respect to 3-2-1 point L-50 List various types of lig and fixtures				
L-25 Define Casting and Classify the various Casting processes. L-26 Explain the procedure of Sand mould casting. L-27 Explain different types of motiding sands with their composition L-28 Classify different pattern. L-29 State various pattern allowances L-30 Classify core L-31 Describe construction and working of cupola Furnace. L-32 Describe construction and working of cupola Furnace L-33 Explain die casting method. L-34 Explain centrifugal casting. L-35 Explain true centrifugal casting. L-36 Explain true centrifugal casting. L-37 With their causes and remedies L-38 Discuss about all the topics L-39 Powder Metalluray L-40 Define powder metallurgy process. L-41 State advantages of powder metallurgy technology technique L-42 Describe the methods of producing components by powder L-43 Explain interesting. L-44 Economics of powder metallurgy. L-45 Discuss about all the topics L-46 Press Work L-47 Describe Press Works: blanking. L-49 Ust various types of die and punch L-49 Ust various types of die and punch L-50 Explain simple, dies L-51 Opiscus about all the topics L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jias and fixtures L-55 Define jigs and fixtures L-56 State advantages of location with respect to 3-2-1 point L-59 Less the principle of location with respect to 3-2-1 point L-59 List various types of jig and fixtures				
L-26 Explain the procedure of Sand mould casting. L-27 Explain different types of molding sands with their composition L-28 Classify different pattern. L-29 State various pattern allowances L-30 Classify core L-31 Describe construction and working of cupola Furnace. L-32 Describe construction and working of crucible Furnace L-33 Explain die casting method. L-34 Explain centrifugal casting. L-35 Explain true centrifugal casting. L-36 Explain true centrifugal casting. L-37 With their causes and remedies L-38 Discuss about all the topics L-39 Powder Metallurgy L-40 Define powder metallurgy process. L-41 State advantages of powder metallurgy technology technique L-42 Describe the methods of producing components by powder L-43 Explain sintering. L-44 Economics of powder metallurgy. L-45 Discuss about all the topics L-46 Press Work L-47 Describe Press Works: blanking. L-48 Describe the Percing and trimming. L-49 List various types of die and punch L-40 Describe Press works: blanking. L-41 Compound & Progressive dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-55 State the principle of locations L-56 State advantages of using liss and fixtures L-57 State the principle of locations with respect to 3-2-1 point L-59 List various types of lig and fixtures L-50 Explain simple. L-51 Cheff Production Technology, Vol- 1& II O.P. Khanna Page-(91-105)				
L-27 Explain different types of molding sands with their composition L-28 Classify different pattern L-29 State various pattern allowances L-30 Classify core L-31 Describe construction and working of cupola Furnace L-32 Describe construction and working of crucible Furnace L-33 Explain die casting method. L-34 Explain centrifugal casting, L-35 Explain use centrifugal casting, L-36 Explain various casting defects L-37 With their causes and remedies L-38 Discuss about all the topics L-39 Powder Metallurgy L-40 Define powder metallurgy technology technique L-41 State advantages of powder metallurgy technology technique L-42 Describe the methods of producing components by powder L-43 Explain intering, L-44 Economics of powder metallurgy. L-45 Discuss about all the topics L-46 Press Work L-47 Describe Piercing and trimming, L-48 Describe Piercing and trimming, L-49 List various types of die and punch L-50 Explain simple, dies L-51 Compound & Progressive dies L-53 Discuss about all the topics L-54 Ilgs and fixtures L-55 State the dispandistures L-56 State advantages & disadvantages of above dies L-57 State the principle of locations L-58 Describe the methods of location with respect to 3-2-1 point L-59 List various types of jig and fixtures				
L-28 Classify different pattern L-29 State various pattern allowances L-30 Classify core L-31 Describe construction and working of cupola Furnace. L-32 Describe construction and working of crucible Furnace L-33 Explain de casting method. L-34 Explain centrifugal casting. L-35 Explain true centrifugal casting. L-36 Explain true centrifugal casting. L-37 With their causes and remedies L-38 Discuss about all the topics L-39 Powder Metalluray L-40 Define powder metallurgy process. L-41 State advantages of powder metallurgy technology technique L-42 Describe the methods of producing components by powder L-43 Explain sintering. L-44 Exponents of powder metallurgy. L-45 Discuss about all the topics L-46 Press Work L-47 Describe Press Works: blanking. L-49 List various types of die and punch L-40 Describe Press Works: blanking. L-40 Describe Press Works: blanking. L-41 Staplain single, dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jias and fixtures L-55 State advantages of using igs and fixtures L-56 State advantages of using igis and fixtures L-57 State the principle of locations L-58 Describe the methods of location with respect to 3-2-1 point L-59 List various types of lig and fixtures		·		
L-29 State various pattern allowances L-30 Classify core L-31 Describe construction and working of cupola Furnace. L-32 Describe construction and working of crucible Furnace L-33 Explain die casting method. L-34 Explain indie casting method. L-35 Explain various casting defects L-36 Explain various casting defects L-37 With their causes and remedies L-38 Discuss about all the tooics L-39 Powder Metallurgy process. L-41 State advantages of powder metallurgy technology technique L-42 Describe the methods of producing components by powder L-43 Explain sintering. L-44 Economics of powder metallurgy. L-45 Discuss about all the tooics L-46 Press Work L-47 Describe Piercing and trimming. L-48 Describe Piercing and trimming. L-49 List various types of die and punch L-50 Explain simple, dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jias and fixtures L-55 State advantages of using ligs and fixtures L-56 State advantages of location with respect to 3-2-1 point L-59 List various types of gil and pfixtures L-59 List various types of gil and pfixtures L-50 Explain simple, dies L-51 Chefe pigs and fixtures L-52 Describe the methods of location with respect to 3-2-1 point L-59 List various types of gil and fixtures				
L-30 Classify core L-31 Describe construction and working of cupola Furnace. L-32 Describe construction and working of cupola Furnace. L-33 Explain flue casting method. L-34 Explain centrifugal casting. L-35 Explain true centrifugal casting. L-36 Explain true centrifugal casting. L-37 With their causes and remedies L-38 Discuss about all the topics L-39 Powder Metalluray L-40 Define powder metallurgy process. L-41 State advantages of powder metallurgy technology technology technique L-42 Describe the methods of producing components by powder L-43 Explain sintering. L-44 Economics of powder metallurgy. L-45 Discuss about all the topics L-46 Press Work L-47 Describe Press Works: blanking. L-48 Describe Press Works: blanking. L-49 List various types of die and punch L-50 Explain simple, dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jias and fixtures L-55 State advantages of using jigs and fixtures L-56 State advantages of using jigs and fixtures L-57 State the principle of location with respect to 3-2-1 point L-59 List various types of ijg and fixtures L-59 List various types of jig and fixtures L-59 List various types of jig and fixtures L-59 List various types of jig and fixtures		·		Production Technology, Vol- I& II
L-31 Describe construction and working of cupola Furnace. L-32 Describe construction and working of crucible Furnace L-33 Explain die casting method. L-34 Explain centrifugal casting. L-35 Explain true centrifugal casting. L-36 Explain various casting defects L-37 With their causes and remedies L-38 Discuss about all the topics L-39 Powder Metallurgy L-40 Define powder metallurgy process. L-41 State advantages of powder metallurgy technology technique L-42 Describe the methods of producing components by powder L-43 Explain sintering. L-44 Economics of powder metallurgy. L-45 Discuss about all the topics L-46 Press Work L-47 Describe Press Works: blanking. L-48 Describe Precing and trimming. L-49 List various types of die and punch L-50 Explain simple, dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jigs and fixtures L-55 State advantages of using iigs and fixtures L-56 State advantages of using iigs and fixtures L-57 State the principle of locations L-58 Describe the methods of locations with respect to 3-2-1 point Describe the methods of locations with respect to 3-2-1 point Production Technology, Vol- I& II O.P. Khanna Page-(91-105)			CH-3	O.P. Khanna
L-32 Describe construction and working of crucible Furnace L-33 Explain die casting method. L-34 Explain centrifugal casting. L-35 Explain true centrifugal casting. L-36 Explain various casting defects L-37 With their causes and remedies L-38 Discuss about all the topics L-39 Powder Metallurgy L-40 Define powder metallurgy process. L-41 State advantages of powder metallurgy technology technique L-42 Describe the methods of producing components by powder L-43 Explain sintering. L-44 Economics of powder metallurgy. L-45 Discuss about all the topics L-46 Press Work L-47 Describe Press Works: blanking. L-48 Describe Piercing and trimming. L-49 List various types of die and punch L-50 Explain simple, dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jigs and fixtures L-55 State advantages of using iigs and fixtures L-56 State advantages of using iigs and fixtures L-57 State the principle of locations L-58 Describe the methods of location with respect to 3-2-1 point L-59 List various types of jig and fixtures		·		Page-(46-62)
L-33 Explain die casting method. L-34 Explain centrifugal casting. L-35 Explain true centrifugal casting. L-36 Explain true centrifugal casting. L-37 With their causes and remedies L-38 Discuss about all the topics L-39 Powder Metallurgy L-40 Define powder metallurgy process. L-41 State advantages of powder metallurgy technology technique L-42 Describe the methods of producing components by powder L-43 Explain sintering. L-44 Economics of powder metallurgy. L-45 Discuss about all the topics L-46 Press Work L-47 Describe Press Works: blanking. L-48 Describe Press Works: blanking. L-49 List various types of die and punch L-50 Explain simple, dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jias and fixtures L-55 Define jigs and fixtures L-56 State advantages of using tigs and fixtures L-57 State the principle of location with respect to 3-2-1 point L-59 List various types of ig and fixtures. L-59 List various types of ig and fixtures.				
L-34 Explain centrifugal casting . L-35 Explain true centrifugal casting . L-36 Explain various casting defects L-37 With their causes and remedies L-38 Discuss about all the topics L-39 Powder Metallurgy L-40 Define powder metallurgy process. L-41 State advantages of powder metallurgy technology technique L-42 Describe the methods of producing components by powder L-43 Explain sintering. L-44 Economics of powder metallurgy. L-45 Discuss about all the topics L-46 Press Work L-47 Describe Precis Work Describe Precis works: blanking. L-48 Describe Piercing and trimming. L-49 List various types of die and punch L-50 Explain simple, dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Sizes advantages of using iigs and fixtures L-55 State the principle of location with respect to 3-2-1 point L-59 List various types of jig and fixtures. L-59 List various types of jig and fixtures.				
L-35 Explain true centrifugal casting, L-36 Explain various casting defects L-37 With their causes and remedies L-38 Discuss about all the topics L-39 Powder Metallurgy L-40 Define powder metallurgy process. L-41 State advantages of powder metallurgy technology technique L-42 Describe the methods of producing components by powder L-43 Explain sintering. L-44 Economics of powder metallurgy. L-45 Discuss about all the topics L-46 Press Work L-47 Describe Press Works: blanking, L-48 Describe Piercing and trimming. L-49 List various types of die and punch L-50 Explain simple, dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jias and fixtures L-55 Define jigs and fixtures L-55 State the principle of location with respect to 3-2-1 point L-59 List various types of jig and fixtures. L-59 List various types of jig and fixtures.	L-34			
L-37 With their causes and remedies L-38 Discuss about all the topics L-39 Powder Metallurgy L-40 Define powder metallurgy process. L-41 State advantages of powder metallurgy technology technique L-42 Describe the methods of producing components by powder L-43 Explain sintering. L-44 Economics of powder metallurgy. L-45 Discuss about all the topics L-46 Press Work L-47 Describe Press Works: blanking. L-48 Describe Press Works: blanking. L-49 List various types of die and punch L-50 Explain simple, dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-54 Jias and fixtures L-55 State advantages of using ligs and fixtures L-56 State advantages of using ligs and fixtures L-57 State the principle of locations L-58 Describe the methods of location with respect to 3-2-1 point L-59 List various types of jig and fixtures.	L-35	Explain true centrifugal casting,		
L-38 Discuss about all the topics L-39 Powder Metallurgy L-40 Define powder metallurgy process. L-41 State advantages of powder metallurgy technology technique L-42 Describe the methods of producing components by powder L-43 Explain sintering. L-44 Economics of powder metallurgy. L-45 Discuss about all the topics L-46 Press Work L-47 Describe Prers Works: blanking. L-48 Describe Piercing and trimming. L-49 List various types of die and punch L-50 Explain simple, dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jigs and fixtures L-55 State advantages of using ligs and fixtures L-56 State advantages of using ligs and fixtures L-57 State the principle of locations L-58 Describe the methods of location with respect to 3-2-1 point L-59 List various types of jig and fixtures.	L-36	Explain various casting defects		
L-39 Powder Metalluray L-40 Define powder metallurgy process. L-41 State advantages of powder metallurgy technology technique L-42 Describe the methods of producing components by powder L-43 Explain sintering. L-44 Economics of powder metallurgy. L-45 Discuss about all the topics L-46 Press Work L-47 Describe Press Works: blanking, L-48 Describe Piercing and trimming. L-49 List various types of die and punch L-50 Explain simple, dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jigs and fixtures L-55 Define jigs and fixtures L-56 State advantages of using iigs and fixtures L-57 State the principle of locations L-58 Describe the methods of location with respect to 3-2-1 point L-59 List various types of jig and fixtures.	L-37	With their causes and remedies		
L-40 Define powder metallurgy process. L-41 State advantages of powder metallurgy technology technique L-42 Describe the methods of producing components by powder L-43 Explain sintering. L-44 Economics of powder metallurgy. L-45 Discuss about all the topics L-46 Press Work L-47 Describe Press Works: blanking, L-48 Describe Piercing and trimming. L-49 List various types of die and punch L-50 Explain simple, dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jigs and fixtures L-55 State advantages of using iigs and fixtures L-56 State advantages of using iigs and fixtures L-57 State the principle of locations L-58 Describe the methods of location with respect to 3-2-1 point L-59 List various types of jig and fixtures.	L-38	Discuss about all the topics		
L-41 State advantages of powder metallurgy technology technique L-42 Describe the methods of producing components by powder L-43 Explain sintering. L-44 Economics of powder metallurgy. L-45 Discuss about all the topics L-46 Press Work L-47 Describe Press Works: blanking, L-48 Describe Piercing and trimming. L-49 List various types of die and punch L-50 Explain simple, dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jigs and fixtures L-55 State advantages of using iigs and fixtures L-56 State advantages of locations L-57 State the principle of locations L-58 Describe the methods of location with respect to 3-2-1 point L-59 List various types of jig and fixtures. Production Technology, Vol- I& II O.P. Khanna Page-(91-105)	L-39			
L-42 Describe the methods of producing components by powder L-43 Explain sintering. L-44 Economics of powder metallurgy. L-45 Discuss about all the topics L-46 Press Work L-47 Describe Press Works: blanking, L-49 List various types of die and punch L-50 Explain simple, dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jigs and fixtures L-55 Define jigs and fixtures L-56 State advantages of using ligs and fixtures L-57 State the principle of locations L-58 Describe the methods of location with respect to 3-2-1 point L-59 List various types of jig and fixtures. CH-4 O.P. Khanna Page-(63-78) CH-5 O.P. Khanna Production Technology, Vol-1& II O.P. Khanna Production Technology, Vol-1& II O.P. Khanna Page-(91-105)	L-40	Define powder metallurgy process.		
L-43 Explain sintering. L-44 Economics of powder metallurgy. L-45 Discuss about all the topics L-46 Press Work L-47 Describe Press Works: blanking, L-48 Describe Piercing and trimming. L-49 List various types of die and punch L-50 Explain simple, dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jigs and fixtures L-55 Define jigs and fixtures L-56 State advantages of using iigs and fixtures L-57 State the principle of locations L-58 Describe the methods of location with respect to 3-2-1 point L-59 List various types of jig and fixtures.	L-41	State advantages of powder metallurgy technology technique		Production Technology, Vol- I& II
L-44 Economics of powder metallurgy. L-45 Discuss about all the topics L-46 Press Work L-47 Describe Press Works: blanking, L-48 Describe Piercing and trimming. L-49 List various types of die and punch L-50 Explain simple, dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jigs and fixtures L-55 Define jigs and fixtures L-56 State advantages of using iigs and fixtures L-57 State the principle of locations L-58 Describe the methods of location with respect to 3-2-1 point L-59 List various types of jig and fixtures.	-	Describe the methods of producing components by powder	CH-4	O.P. Khanna
L-45 Discuss about all the topics L-46 Press Work L-47 Describe Press Works: blanking, L-48 Describe Piercing and trimming. L-49 List various types of die and punch L-50 Explain simple, dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jigs and fixtures L-55 Define jigs and fixtures L-56 State advantages of using iigs and fixtures L-57 State the principle of locations L-58 Describe the methods of location with respect to 3-2-1 point L-59 List various types of jig and fixtures.				Page-(63-78)
L-46 Press Work L-47 Describe Press Works: blanking, L-48 Describe Piercing and trimming. L-49 List various types of die and punch L-50 Explain simple, dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jigs and fixtures L-55 Define jigs and fixtures L-56 State advantages of using iigs and fixtures L-57 State the principle of locations L-58 Describe the methods of location with respect to 3-2-1 point L-59 List various types of jig and fixtures. Production Technology, Vol- I& II O.P. Khanna Page-(91-105)				
L-47 Describe Press Works: blanking, L-48 Describe Piercing and trimming. L-49 List various types of die and punch L-50 Explain simple, dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jigs and fixtures L-55 Define jigs and fixtures L-56 State advantages of using iigs and fixtures L-57 State the principle of locations L-58 Describe the methods of location with respect to 3-2-1 point L-59 List various types of jig and fixtures. Production Technology, Vol- I& II O.P. Khanna Page-(91-105)				
L-48 Describe Piercing and trimming. L-49 List various types of die and punch L-50 Explain simple, dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jigs and fixtures L-55 Define jigs and fixtures L-56 State advantages of using iigs and fixtures L-57 State the principle of locations L-58 Describe the methods of location with respect to 3-2-1 point L-59 List various types of jig and fixtures. Production Technology, Vol- I& II O.P. Khanna Page-(91-105) CH-6		1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		
L-48 Describe Piercing and trimming. L-49 List various types of die and punch L-50 Explain simple, dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jigs and fixtures L-55 Define jigs and fixtures L-56 State advantages of using iigs and fixtures L-57 State the principle of locations L-58 Describe the methods of location with respect to 3-2-1 point L-59 List various types of jig and fixtures. CH-5 O.P. Khanna Production Technology, Vol-1& II O.P. Khanna Page-(91-105)				Production Technology. Vol- I& II
L-49 List various types of die and punch L-50 Explain simple, dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jigs and fixtures L-55 Define jigs and fixtures L-56 State advantages of using jigs and fixtures L-57 State the principle of locations L-58 Describe the methods of location with respect to 3-2-1 point L-59 List various types of jig and fixtures. Production Technology, Vol-1& II O.P. Khanna Page-(91-105)			CH-5	
L-50 Explain simple, dies L-51 Compound & Progressive dies L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jigs and fixtures L-55 Define jigs and fixtures L-56 State advantages of using jigs and fixtures L-57 State the principle of locations L-58 Describe the methods of location with respect to 3-2-1 point L-59 List various types of jig and fixtures. CH-6 CH-6				Page-(79-90)
L-52 Describe the various advantages & disadvantages of above dies L-53 Discuss about all the topics L-54 Jigs and fixtures L-55 Define jigs and fixtures L-56 State advantages of using iigs and fixtures L-57 State the principle of locations L-58 Describe the methods of location with respect to 3-2-1 point L-59 List various types of jig and fixtures. CH-6 Production Technology, Vol- I& II O.P. Khanna Page-(91-105)				
L-53 Discuss about all the topics L-54 Jigs and fixtures L-55 Define jigs and fixtures L-56 State advantages of using iigs and fixtures L-57 State the principle of locations L-58 Describe the methods of location with respect to 3-2-1 point L-59 List various types of jig and fixtures. CH-6 Production Technology, Vol- I& II O.P. Khanna Page-(91-105)				
L-54 Jigs and fixtures L-55 Define jigs and fixtures L-56 State advantages of using jigs and fixtures L-57 State the principle of locations L-58 Describe the methods of location with respect to 3-2-1 point L-59 List various types of jig and fixtures. CH-6 Production Technology, Vol-1& II O.P. Khanna Page-(91-105)				
L-55 Define jigs and fixtures L-56 State advantages of using jigs and fixtures L-57 State the principle of locations L-58 Describe the methods of location with respect to 3-2-1 point L-59 List various types of jig and fixtures. Production Technology, Vol- 1& II O.P. Khanna Page-(91-105)				
L-56 State advantages of using iigs and fixtures L-57 State the principle of locations L-58 Describe the methods of location with respect to 3-2-1 point L-59 List various types of jig and fixtures. Production Technology, Vol- 1& II O.P. Khanna Page-(91-105)				
L-57 State the principle of locations L-58 Describe the methods of location with respect to 3-2-1 point L-59 List various types of jig and fixtures. CH-6 O.P. Khanna Page-(91-105)				Production Technology, Vol. 19 11
L-58 Describe the methods of location with respect to 3-2-1 point L-59 List various types of jig and fixtures. Page-(91-105)			CH-6	
L-59 List various types of jig and fixtures.			Ciro	
	L-59			Page-(91-105)
	L-60			

Lesson Plan

Name of the Subject: Strength of Material (TH2) Name of the Faculty: Miss Shuvashree Paital

Semester: 3rd Sem. (Mechanical)

N <u>ame of t</u> h	ne Faculty: Miss Shuvashree Paital		
Lecturer	Topics Plan to be Covered	Chapter as per	Reference books/Chapter/Page
L-01	Types of load, stresses & strains,(Axial and tangential) Hooke's law		
L-02	Bulk modulus, Modulus of rigidity, Poisson's ratio, derive the relation		
L-02 L-03	Simple problems on above Topics, Principle of super position		
L-03 L-04	stresses in composite section		Strength Of Material 4 th
L-04 L-05	,		
	Simple problems on above Topics.		Edition
L-06 L-07	Temperature stress, determine the temperature stress in composite bar		bu
L-07 L-08	Simple problems on above Topics.		by
	Strain energy and resilience, Stress due to gradually applied		Dr.R.K. Bansal
L-09 L-10	Stress due to suddenly applied and impact load Simple problems on above Topics.		DI.K.K. Balisai
L-10 L-11			Page No (1-58),
	Simple problems on above Topics Revision of above Topics		r age 110 (1-30),
L-12			(59-84),(143-169)
L-13	Definition of hoop and longitudinal stress, strain, Derivation of hoop		(55 64),(145 105)
L-14	Derivation of hoop strain, longitudinal strain and volumetric strain		
L-15	Simple problems on above Topics.		
L-16 L-17	Computation of the change in length, diameter and volume		
	Simple problems on above Topics.	CH-1	
L-18	Simple problems on above Topics.	2 -	
L-19	Revision of above Topics		
L-20	Determination of normal stress, shear stress and resultant stress on		
L-21	Simple problems on above Topics.		
L-22	Determination of normal stress, shear stress and resultant stress on		
L-23	Simple problems on above Topics.		
L-24	Determination of normal stress, shear stress and resultant stress on		
L-25	Location of principal plane and computation of principal stress		
L-26	Simple problems on above Topics.		
L-27	Location of principal plane and computation of principal stress and Maximum shear		
L-28	Simple problems on above Topics.		
L-29	Simple problems on above Topics.		
L-30	Revision of above Topics		
L-31	Types of beam and load ,Concepts of Shear force and bending moment		
L-32	Shear Force and Bending moment diagram and its salient features		
L-33	Shear Force and Bending moment diagram and its salient features		
L-34	Shear Force and Bending moment diagram and its salient features		
L-35	Shear Force and Bending moment diagram and its salient features illustration in		
L-36	Simple problems on above Topics.		
L-37	Simple problems on above Topics.		
L-38	Simple problems on above Topics.		
L-39	Revision of above Topics		Strength Of Material 4 th
1.44	THEORY OF SIMPLE BENDING		0
L-41	Assumptions in the theory of bending, Bending equation.		Edition
L-42	Moment of resistance, Simple problems on above Topics.		
L-43	Section modulus& neutral axis, Simple problems on above Topics.		by
L-44	Simple problems on above Topics		D D K- D L
L-45	Simple problems on above Topics.		Dr.R.K. Bansal Strength Of Material 4 th
L-46	COMBINED DIRECT & BENDING STRESSES		
L-47	Direct stresses, Bending stresses, Maximum& Minimum stresses.		Edition
L-48	Simple problems on above Topics.		
L-49	Buckling load computation using Euler's formula (no derivation) in		by
L-50	Simple problems on above Topics		
L-51	Revision of above Topics		Dr.R.K. Bansal
L-52	TORSION		Strength Of Material 4 th
L-53	Assumption of pure torsion ,The torsion equation for solid circular shaft		Edition
L-54	Simple problems on above Topics.		
L-55	The torsion equation for hollow circular shaft		by
L-56	Simple problems on above Topics.		
L-57	Comparison between solid and hollow shaft subjected to pure torsion		Dr.R.K. Bansal
L-58	Revision of above Topics		
L-59	Simple problems on above Topics	O =	Page No(672-739)
L-60	Revision of above Topics	CH-7	

Semester: 3rd Sem.(Mech)

Name of the Subject: Engineering Material (TH3)
Name of the Faculty: Mr Debasis Barik

Lecturer	Topics Plan to be Covered	Chapter	Reference	
No L-01	Engineering materials and their properties			
L-02	Material classification into ferrous and non ferrous category		A Textbook of Material Science and	
L-03	Properties of Materials, Physical , Chemical and Mechanical	CH-1	Metallurgy By-O.P.Khanna	
L-04	Performance requirements Material Reliability and safety		(3.1-3.34)	
L-05	Discuss about all the topics			
L-06	Ferrous Materials and alloys			
L-07	Characteristics and application of ferrous materials			
L-08	Classification, composition and application of low carbon steel			
L-09	Medium carbon steel and High carbon steel		A Textbook of Material Science and	
L-10	Alloy steel: Low alloy steel, High alloy steel, tool steel	CH-2	Metallurgy By-O.P.Khanna	
L-11	Stainless steel High alloy steel, tool steel		(5.1-5.41)	
L-12	Stainless steel Tool steel: Effect of various alloying elements such as			
L-13	Tool steel: Effect of various alloying elements such as Cr, Mn, Ni,			
L-14	Discuss about all the topics			
L-15	Iron – Carbon system		A Tauthank of Matarial Calance and	
L-16	Concept of phase diagram and cooling curves	CU 2	A Textbook of Material Science and	
L-17	Features of Iron-Carbon diagram with salient micro-constituents	CH-3	Metallurgy By-O.P.Khanna (40.1-40.36)	
L-18	Micro-constituents of Iron and Steel		40.30)	
L-19	Discuss about all the topics			
L-20	Crystal imperfections			
L-21	Crystal defines, classification of crystals			
L-22	Ideal crystal and crystal imperfections			
L-23	Classification of imperfection		A Textbook of Material Science and	
L-24	Point defects, line defects, surface defects and volume defects	CH-4	Metallurgy By-O.P.Khanna (37.1-	
L-25	Types and causes of point defects, Edge dislocation		37.13)	
L-26	Screw dislocation, Effect of imperfection on material properties			
L-27	Deformation by slip and twinning			
L-28	Effect of deformation on material properties			
L-29	Discuss about all the topics			
L-30	Heat Treatment			
L-31	Purpose of Heat treatment, Process of heat treatment: Annealing,		A Textbook of Material Science and	
L-32	normalizing, hardening, tampering, stress relieving	CH-5	Metallurgy By-O.P.Khanna (43.1-	
L-33	Surface hardening: Carburizing and Nitriding Effect of heat		43.51)	
L-34	Effect of heat treatment on properties of steel Hardenability of steel			
L-35	Discuss about all the topics			
L-36	Non-ferrous alloys			
L-37	Aluminum alloys: Composition, property and usage of Duralmin,			
L-38	y- alloy. Copper alloys: Composition, property and usage of Copper-		A Textbook of Material Science and	
L-39	Aluminum, Copper-Tin, Babbit , Phosperous bronze, brass, Copper-	CH-6	Metallurgy By-O.P.Khanna	
L-40	Predominating elements of lead alloys, Zinc alloys and Nickel alloys		(6.1-6.29)	
L-41	Low alloy materials like P-91, P-22 for power plants and other			
L-42	High temperature services. High alloy materials like stainless steel			
L-43	Grades of duplex, super duplex materials			
L-44	Discuss about all the topics		A Textbook of Material Science and	
L-45 L-46	Bearing Material	CH-7	Metallurgy By-O.P.Khanna	
	Classification, composition, properties and uses of Copper base, Tin Base, Lead base, Cadmium base bearing materials	CH-/	(9.1-9.8)	
L-47 L-48	Discuss about all the topics		(5.1-5.0)	
L-48 L-49	Spring materials		A Textbook of Material Science and	
L-50	Classification, composition, , properties and uses of Iron- base and	CH-8	Metallurgy By-O.P.Khanna (10.1-	
L-51	Copper base spring material		10.4)	
L-52	Discuss about all the topics		,	
L-53	Polymers		A Textbook of Material Science and	
L-54	Properties and application of thermosetting and thermoplastic	CH-9	Metallurgy By-O.P.Khanna (20.1-	
L-55	Polymers properties of elastomers Properties of elastomers		20.38)	
L-56	Discuss about all the topics		ĺ	
	Composites and Ceramics			
1-5/	Composites and Cerannes		A Textbook of Material Science and CH-10 Metallurgy By-O.P.Khanna (23.1-	
L-57	Classification composition properties and uses of particulate			
L-57 L-58 L-59	Classification, composition, properties and uses of particulate Based and fiber reinforced composites	CH-10	Metallurgy By-O.P.Khanna (23.1- 23.31)	

Lesson Plan

Name of the Subject: Thermal Engineering-I (TH4) Semester: 3rd Sem.(Mech)

Name of the Faculty: Mr Subrat Kumar Ghosh

Lecturer No	Topics Plan to be Covered	Chapter	Reference	
L-01	Thermodynamic Systems (closed, open, isolated)			
L-02	Thermodynamic properties of a system pressure, volume, temperature			
L-03	Entropy,enthalpy, Internal energy and units of measurement .			
L-04	Intensive and extensive properties			
L-05	Define thermodynamic processes, path, cycle, state, path function, point		Thermodynamic concept	
L-06	Thermodynamic Equilibrium		& Terminology (R.S. Khurmi	
L-07	Quasi-static Process.	CH-1) (Page No-1-30)	
L-08	Conceptual explanation of energy and its sources		, , ,	
L-09	Work , heat and comparison between the two			
L-10	Mechanical Equivalent of Heat.			
L-11	Work transfer, Displacement work			
L-12	Numerical Problems			
L-13	State & explain Zeroth law of thermodynamics			
L-14	State & explain First law of thermodynamics			
L-15	Limitations of First law of thermodynamics			
L-16	Application of First law of Thermodynamics			
L-17	Steady flow energy equation			
L-17	Its application to turbine and compressor		Laws of Thermodynamics	
L-18 L-19	Second law of thermodynamics	CH-2	(R.S. Khurmi) (Page No-1-	
L-20	Claucius & Kelvin Plank statements		30)	
	Application of second law in heat engine			
L-21				
L-22	Heat pump, refrigerator			
L-23	determination of efficiencies & C.O.P			
L-24	Solve simple numerical			
L-25	Solve simple numerical			
L-26	Solve simple numerical			
L-27	Laws of perfect gas: Boyle's law, Charle's law, Avogadro's law,			
L-28	Dalton's law of partial pressure, Guy lussac law			
L-29	General gas equation, characteristic gas constant, Universal gas			
L-30	Explain specific heat of gas (Cp and Cv)		Properties Processes of perfect gas	
L-31	Relation between Cp & Cv.	CH-3	(R.S. Khurmi) (Page No-103-	
L-32	Enthalpy of a gas.	CIT 5	152)	
L-33	Work done during a non- flow process			
L-34	Application of first law of thermodynamics to various non flow Pprocess			
L-35	Isothermal, Isobaric, Isentropic and polytrophic process.			
L-36	Solve simple problems on above.			
L-37	Solve simple problems on above.			
L-38	Solve simple problems on above.			
L-39	Explain & classify I.C engine.			
L-40	Terminology of I.C Engine such as bore, dead centers			
L-41	Stroke volume, piston speed &RPM.		Internal combustion engine	
L-42	Explain the working principle of 2-stroke & 4- stroke engine	CH-4	(R.S. Khurmi) (Page No-582-	
L-43	C.I & S.I engine.		610)	
L-44	Differentiate between 2-stroke & 4- stroke engine C.I & S.I engine			
L-45	Solve simple problems on above.			
L-46	Carnot cycle			
L-47	Otto cycle.		Air Standard Cycle (R.S. Khurmi)	
L-48	Diesel cycle.	CH-5	(Page No5821-637)	
L-48	Dual cycle.	5113	(1 age 1105021 051)	
L-50	Solve simple numerical			
L-50	Solve simple numerical			
L-51	Solve simple numerical			
L-52 L-54	Define Fuel.			
L-55	Types of fuel.	 	.	
L-56	Application of different types of fuel.		Fuels and Combustion	
L-57	Heating values of fuel.	CH-6	(R.S. Khurmi) (Page No5821-637)	
L-58	Quality of I.C engine fuels Octane number, Cetane number.			
L-59	Quality of I.C engine fuels Octane number, Cetane number.			
L-60	Solve simple numerical			

MITS School Of Engineering, Bhubaneswar

Name of the Faculty:- Mrs.Anima Sahoo (TH5)

LESSON PLAN Sem: 3rd (Civil/Electrical/Mechanical Engg)

Subject: -Environmental Studies

Lect no	Topic to be Covered	Chapter as Syllabus	Reference book
	The multidisciplinary structure of Environment		Concepts in Environmental
L-01	Definition and scope	Ch:1	Studies, D.D. Mishra, S.Chand
L-02	Importance of environment	CII.1	, , , , , , , , , , , , , , , , , , , ,
L-03	Needs for public awarness		Page 5 - 35
	Natural Resources		
L-04	Renewable and non-renewable resources		Concepts in Environmental
L-05	Forest resources, Water resources, Mineral resources		Studies, D.D. Mishra, S.Chand
L-06	use of alternate energy sources, case studies	Ch-2	
L-07	Land resources-land as a resources.land degradation.	CII Z	
L-08	man induces land slides, soil erosion, and desertification		
L-09	Role of individual in conservation of natural resources		Page 37 - 53
L-10	Equitable use of resources and sustainable life style.		1 4ge 37 33
	Systems		
L-11	Concept of an eco system.		Concepts in Environmental
L-12	Structure of an eco system.		Studies, D.D. Mishra, S.Chand
L-13	function of an eco system.		Stadies, B.B. Wilsina, S.Chana
L-14	Producers, consumers, decomposers.	Ch-3	
L-15	Energy flow in the eco systems.		
L-16	Energy flow in the eco systems.		Page FC 7F
L-17	Ecological succession.	_	Page 56 - 75
L-18	Food chains, food webs.	_	
L-19	Ecological Pyramids.		
	Biodiversity and it's Conservation		
L-20	Introduction-Definition: genetics, species and ecosystem diversity.		
L-21	Biogeographically classification of India.		
L-27	Value of biodiversity.		
L-28	consumptive use, productive use.		Concepts in Environmental
L-29	Social,ethical,aesthetic,optim value.		Studies, D.D. Mishra, S.Chand
L-30	Biodiversity at global, national and local level.	Ch-4	
L-31	Threats to biodiversity: Habitats loss.	CII 4	
L-32	poaching of wild life, man wildlife conflicts.		
	Environmental Pollution		Page 80 - 105
L-33	Definition Causes of Air pollution.		
L-34	effects and control measures of Air pollution.		
L-36	Definition Causes of water pollution.		
L-37	effects and control measures of water pollution.		
L-38	Definition Causes of soil pollution.		
L-39	Effects and control measures of soil pollution.		Concepts in Environmental
L-40	Definition Causes of marine pollution.	Ch-5	Studies, D.D. Mishra, S.Chand
L-41	effects and control measures of marine pollution.		
L-42	Definition Causes of thermal pollution.		
	Social issues and the Environment		
L-43	Form unsustainable to sustainable development.	_	
L-44	Urban problems related to energy.	_	Constants in F
L-45	Water conservation.	_	Concepts in Environmental
L-46	rain water harvesting, water shed management.	_	Studies, D.D. Mishra, S.Chand
L-47	Environmental ethics: issue and possible solutions.	Ch-6	
L-48	Climate change, global warming.		
L-49	acid rain, ozone layer depletion.		
L-50	Nuclear hazards.		Page 139 - 165
L-51	Air prevention and control pollution act.		_
L-52	Waterprevention and control pollution act.	1	
L-53	Public awareness.	┪	
	Human population and the environment	1	Concepts in Facility and 1
L-54	Population growth and variation among nations.	╡	Concepts in Environmental
L-55	Population explosion.	1	Studies, D.D. Mishra, S.Chand
L-55 L-56	family welfare program.	Ch-7	
L-56 L-57	Environment and human health.	-	
L-57 L-58	Human rights.	┥	
	Value education	╡	Page 169 - 201
L-59		-	
L-60	Role of information technology		1

Name of the Subject: -MECHANICAL ENGINEERING DRAWING (PR1)

Name of the Faculty: - Mr Debasis Barik

Semester:-3rd

VENUE: MED Lab

Experiment	Name of the Experiment	Name of the Equipment	Venue
No			
01	Bolt, nut and threads	Drawing Board	Drawing Hall
02	Cotter joint	Drawing Board	Drawing Hall
03	Knuckle joint	Drawing Board	Drawing Hall
04	Rigid pedestal bearing	Drawing Board	Drawing Hall
05	Foot step bearing	Drawing Board	Drawing Hall
06	Simple Screw jack	Drawing Board	Drawing Hall
07	Connecting rod of IC Engine	Drawing Board	Drawing Hall
08	Boiler safety valve	Drawing Board	Drawing Hall
09	Spring loaded valve	Drawing Board	Drawing Hall
10	Hydraulic non return valve	Drawing Board	Drawing Hall
11	Flat belt pulley	Drawing Board	Drawing Hall

Name of the Subject: - MECHANICAL ENGINEERING LABORATORY (PR2)

Name of the Faculty: - Miss Shuvashree Paital

Semester:-3rd

VENUE: ME Lab

Experiment No	Name of the experiment	Name of the Equipment	Venue
01	Determine end reactions in a simply supported beam using parallel force apparatus.	Searle's apparatus	ME Lab
02	Determination of Young's modulus using Searle's apparatus	Universal testing machine	ME Lab
03	Determination of torsional rigidity of the shaft using torsion testing machine	Screw Jack with its handle	ME Lab
04	Determination of salient points (Young's modulus, yield point, fracture point) from stress- strain curve using Universal Testing Machine	Piezometer & Manometer	ME Lab
05	Determination of hardness number by Rockwell/Vickers hardness testing machine	Bernoulli's Apparatus with venturi-meter	ME Lab
06	Determination of toughness using Impact testing machine (Charpy/Izod)	Bernoulli's Apparatus	ME Lab
07	Determination of Flash point and fire point.	Centrifugal pump & Pelton Turbine	ME Lab
08	Joule's experiment	Cochran Boiler	ME Lab

MITS School of Engineering, Bhubaneswar Department of Mechanical Engg.

Lab Lesson Plan

Name of the Subject: - Workshop Lab (PR3)
Name of the Faculty: - Mr. Somanatha Jena

Semester:-3rd

VENUE: Workshop Lab

Experiment	Name of the experiment	Name of the Equipment	
No			Venue
01	Preparation of caliper		Yes
02	Preparation of try square		Yes
03	Preparation of hammer, square, Hexagonal	Steel Rule, Scribbler, Marking	Yes
04	Preparation of door ring with hook	Gauge, Try Square, Hand drill,	Yes
05	Preparation of hexagonal head bolt	Hammer, Punch, Safety Goggle, Divider, C-Clamp, Claw	Yes
06	Preparation of octagonal flat chisel	hammer, Lathe Machine, Angle Plate, Bench Vice, Vernier	Yes
07	Cutting of slot, botch, mortise and Tenon Joint	Caliper, Files, Anvil, Sledge Hammer, Welding Machine, Electrode, Tongue,	Yes
08	Preparation of single dove tail joint	Electrode, Tongue,	Yes
09	Lap & Butt Joint using Arc Welding		Yes
10	Joining Two non-ferrous parts through		Yes
11	Lap Joint using Gas Welding	Oxygen & Ecetelyne Cylinder Pressure Gauge, Pressure regulator, Hose Pipe, Welding Torch	Yes

Lesson Plan

Semester: 4th Sem. (Mechanical)

Name of the Subject: Fluid Mechanics
Name of the Faculty: Er. Subrat Kumar Ghosh

Lecturerer No.	Topics Plan to be Covered	Chapter as per syllabus	Reference books.
	PROPERTIES OF FLUID	·	R.K BANSAL
L-01	Define fluid, Description of fluid properties		
L-01	like Density, Specific weight.		
L-02	Description of fluid properties like specific		
L-02	gravity, specific volume.		
L-03	Solve simple problems.	CH-1	
L-04	Definitions and Units of Dynamic viscosity.		
L-05	Definitions and Units of kinematic viscosity.		
L-06	Solve simple problems.		
L-07	Surface tension Capillary phenomenon		
L-08	Solve simple problems.		
L-09	Revision of above Topics		
	FLUID PRESSURE AND ITS		R.K BANSAL
	MEASUREMENTS		
L-10	Definitions and units of fluid pressure,		
L-10	pressure intensity and pressure head.		
L-11	Statement of Pascal's Law.		
	Concept of atmospheric pressure, gauge		
L-12	pressure, vacuum pressure and absolute		
	pressure.		
T 12	Pressure measuring instruments Manometers		
L-13	(Simple and Differential).		
T 14	Description of different types of Simple		
L-14	Manometer: Piezometer, U-Tube Manometer.		
	Solve simple problems on Simple		
L-15	Manometer: Piezometer &U-Tube		
	Manometer.		
	Description of different types of Simple	CILA	
L-16	Manometer: Single Column Manometer (U-	CH-2	
	Tube Differential Manometer).		
	Description of different types of Simple		
L-17	Manometer: Single Column Manometer		
	(Inverted U-Tube Differential Manometer).		
	Solve simple problems on Simple		
L-18	Manometer: Single Column Manometer (U-		
	Tube Differential Manometer).		
	Solve simple problems on Simple		
L-19	Manometer: Single Column Manometer		
	(Inverted U-Tube Differential Manometer).		
L-20	Description of Bourdon tube pressure gauge.		
L-21	Solve simple problems on Bourdon tube		
L-21	pressure gauge.		
L-22	Revision of above Topics		
	HYDROSTATICS		R.K BANSAL
L-23	Definition of hydrostatic pressure, Total		
L-23	pressure and centre of pressure.		
L-24	Description of centre of pressure on: Vertical	CII 2	
L-24	immersed bodies.	CH-3	
1.25	Solve simple problems on centre of pressure		
L-25	on: Vertical immersed bodies.		
L-26	Description of centre of pressure on:		

	Horizontal immersed bodies.		
	Solve simple problems on centre of pressure		
L-27	on: Vertical immersed bodies.		
	Description of Archimedes 'principle,		
L-28	concept of buoyancy, meta center and meta		
L 20	centric height (Definition only).		
	Solve simple problems on meta center and		
L-30	meta centric height.		
L-31	Concept of floatation.		
L-32	Solve simple problems on floatation.		
L-33	Revision of above Topics		
L 33	KINEMATICS OF FLOW		R.K BANSAL
L-34	Types of fluid flow.		WILL BILL BILL
	Continuity equation (Statement and proof for		
L-35	one dimensional flow).		
L-36	Solve simple problems		
L-37	Bernoulli's theorem (Statement and proof).		
L-38	Solve simple problems.		
	Applications and limitations of Bernoulli's	CH-4	
L-39	theorem: Venturimeter.		
	Applications and limitations of Bernoulli's		
L-40	theorem: Pitot tube.		
I 41			
L-41 L-42	Solve simple problems.		
L-42	Revision of above Topics		D IZ DANICAT
1 42	ORIFICES, NOTCHES & WEIRS		R.K BANSAL
L-43	Define orifice & Flow through orifice.		
L-44	Orifices coefficient & the relation between the orifice coefficients.		
L-45			
L-43	Solve simple problems. Classifications of notches & weirs &	CH-5	
L-46	Discharge over a rectangular notch or weir.	Cn-5	
L-47	Solve simple problems.		
L-48	Discharge over a triangular notch or weir		
L-49	Solve simple problems.		
L-49 L-50	Revision of above Topics.		
L-30	FLOW THROUGH PIPE		R.K BANSAL
L-51	Definition of pipe & Loss of energy in pipes.		K.K DANSAL
	Head loss due to friction: Darcy's and		
L-52	Chezy's formula (Expression only).		
	Solve Problems using Darcy's and Chezy's		
L-53	formula.		
L-54	Hydraulic gradient and total gradient line.	CH-6	
L-55	Solve simple problems.		
L-56	Revision of above Topics.		
	IMPACT OF JETS		R.K BANSAL
	Impact of jet on fixed vertical flat plates:		IWIL DIN WILL
L-56	Case-1.		
L-57	Solve simple problems.		
	Impact of jet on fixed vertical flat plates:		
L-58	Case-2.		
L-59	Solve simple problems.		
	Impact of jet on fixed vertical flat plates:		
L-60	Case-3.		
L-61	Solve simple problems.		
	Impact of jet on moving vertical flat plates:		
L-62	Case-1.	CH-7	
L-63	Solve simple problems.		
	r r r		

L-64	Impact of jet on moving vertical flat plates:
L-04	Case-2.
L-65	Solve simple problems.
L-66	Impact of jet on moving vertical flat plates:
L-00	Case-3.
L-67	Solve simple problems.
L-68	Derivation of work done on series of vanes.
L-69	Condition for maximum efficiency series of
L-03	vanes.
L-70	Solve simple problems.

MITS SCHOOL OF ENGINEERING, BHUBANESWAR

Lesson Plan

Name of the Subject: manufacturing technologySemester: 4th.(Mech)

Name of the Faculty: Mr. Somanatha jena

Lecturerer No.	Topics Plan to be Covered	Chapter as per syllabus	Reference books/Chapter/Page No.
	SIMPLE STRESS& STRAIN		Workshop technology
L-01	Tool Materials	Ch-1	(Virender Narula)
L-02	Composition of various tool materials		(24-49)
L-03	Physical properties& uses of such tool materials		
L-04	Cutting Tools		
1.05	Cutting action of various and tools such as		
L-05	Chisel, hacksaw blade, dies and reamer		
L-06	Turning tool geometry and purpose of tool angle	Ch2	Manufacturing technology
1.07	Machining process parameters (Speed, feed and		(Dr.P.C. Sharma)
L-07	depth of cut)		(55-73)
1.00	Coolants and lubricants in machining and		
L-08	purpose		
L-09	Lathe Machine		
I 10	Construction and working of lathe and CNC		
L-10	lathe	Ch-3	
L-11	Major components of a lathe and their function		
	Operations carried out in a lathe(Turning, thread		
L-12	cutting, taper turning,		
L-12	internal machining, parting off, facing,		
	knurling)		
L-13	Safety measures during machining		Workshop technology
L-14	Capstan lathe		(Virender Narula)
L-15	Difference with respect to engine lathe		(253-264)
L-16	Major components and their function		
L-17	Define multiple tool holders		
L-18	Turret Lathe		
L-19	Difference with respect to capstan lathe		
L-20	Major components and their function		
L-21	Draw the tooling layout for preparation of a		
L-21	hexagonal bolt &bush		
L-22	Shaper		
L-23	Potential application areas of a shaper machine		
L-24	Major components and their function		
L-25	Explain the automatic able feed mechanism		Workshop technology
L-26	Explain the construction & working of tool head	Ch-4	(Virender Narula)
L-27	Explain the quick return mechanism through		(268-273)
	sketch		
L-28	State the specification of a shaping machine.		
L-29	Planning Machine		
L-30	Application area of a planer and its difference		
	with respect to shaper	~ -	Workshop technology
L-31	Major components and their functions	Ch-5	(Virender Narula)
L-32	The table drive mechanism		(275-278)
L-33	Working of tool and tool support		
L-34	Clamping of work through sketch.		
L-35	Milling Machine		Workshop technology
	Types of milling machine and operations		(Virender Narula)
L-36	performed by them and also same for		(279-286)
	CNC milling machine		
L-37	Explain work holding attachment	Ch-6	

L-38	Construction & working of simple dividing head, universal dividing head		
L-39	Construction & working of simple dividing head, universal dividing head	-	
L-40	Procedure of simple and compound indexing		
L-41	Illustration of different indexing methods		
L-42	Slotted (I)Major components and their function (ii)Construction and working of slotter machine (iii) Tools used in slotter	Ch-7	Workshop technology (Virender Narula)
L-43	Grinding Significance of grinding operations (i) Manufacturing of grinding wheels (ii) Criteria for selecting of grinding wheels (iii) Specification of grinding wheels with example Working of □ Cylindrical Grinder □ Surface Grinder □ Centreless Grinder	Ch-8	Workshop technology (Virender Narula) (287-294)
L-44	Internal Machining operations		
L-44 L-45	Classification of drilling machines		
L-45 L-46	Bench drilling machine		
L-47	Pillar drilling machine		Workshop technology
L-48	Radial drilling machine		(Virender Narula)
L-49	Boring Boring		, i
L-50	Basic Principle of Boring	Ch-09	
L-51	Different between Boring and drilling	1	
L-52	Broaching	1	
L-53	Types of Broaching(pull type, push type)	-	
L-54	Advantages of Broaching and applications	_	
L-55	Surface finish, lapping (i)Definition of Surface finish (ii)Description of lapping& explain their specific cutting.	Ch-10	Workshop technology (Virender Narula)

Semester: 4th Sem. (Mechanical)

Name of the Subject: Thermal Engineering-II
Name of the Faculty: Miss Shuvashree Paital

Lecturerer No.	Topics Plan to be Covered	Chapter as per syllabus	Reference books/Chapter/Page No.
	PERFORMANCE OF I.C ENGINE	v	
T 01	Define mechanical efficiency, Indicated		
L-01	thermal efficiency, Relative Efficiency.		
	Define brake thermal efficiency overall		
L-02	efficiency Mean effective pressure &specific		Thermal Engineering
	fuel consumption.	CH-1	6 th Edittion
L-03	Define air-fuel ratio & calorific value of fuel.		By
L-04	Work out problems to determine efficiencies		R.K Rajput
L-04	& specific fuel consumption.		
L-05	Work out problems to determine efficiencies		
L-03	& specific fuel consumption.		
L-06	Revision of above Topics.		
	AIR COMPRESSOR		
1.07	Explain functions of compressor & industrial		
L-07	use of compressor air.		
1 00	Classify air compressor & principle of		
L-08	operation.		
1.00	Describe the parts of reciprocating Air		
L-09	compressor.		
I 10	Describe the working principle of		
L-10	reciprocating Air compressor.		
	Explain the terminology of reciprocating		
T 11	compressor such as bore, stroke, pressure		
L-11	ratio free air delivered &Volumetric		
	efficiency.		
L-12	Derive the work done of single stage		Thermal Engineering
L-12	compressor with clearance.		
L-13	Solve simple problems on single stage	CH-2	6 th Edittion
L-13	compressor with clearance.		By
L-14	Derive the work done of single stage		R.K Rajput
L-14	compressor without clearance.		
L-15	Solve simple problems on single stage		
L-13	compressor without clearance.		
L-16	Derive the work done of two stage		
L-10	compressor with clearance		
L-17	Solve simple problems on two stage		
L-17	compressor with clearance.		
L-18	Derive the work done of two stage		
L 10	compressor without clearance		
L-19	Solve simple problems on two stage		
	compressor without clearance.		
L-20	Revision of above Topics.		
	PROPERTIES OF STEAM		
L-21	Difference between gas & vapours.		
221	Formation of steam.		
L-22	Representation on P-V, T-S, H-S, & T-H		
	diagram.		
L-23	Definition & Properties of Steam.	СН-3	
L-24	Use of steam table & mollier chart for finding		
221	unknown properties.		Thermal Engineering

	Solve simple problems on steam table &		6 th Edittion
L-25	mollier chart.		Ву
L-26	Define Non flow & flow process of vapour.		R.K Rajput
L-27	Representation on P-V, T-S & H-S, diagram		
L-21	of Non flow process.		
L-28	Solve simple problems of Non flow process		
	on steam table & mollier chart. Representation on P-V, T-S & H-S, diagram		
L-29	of flow process.		
L-30	Solve simple problems of flow process on steam table & mollier chart.		
L-31	Determine the changes in properties & solve simple numerical.		
L-32	Revision of above Topics		
	STEAM GENERATOR		
L-33	Classification & types of Boiler.		
L-34	Important terms for Boiler.		
L-35	Description & working of fire tube Boiler.		
L-36	Description & working of Water tube Boiler.		
L-37	Comparison between fire tube & Water tube Boiler.		
L-38	Description & working of common boilers Cochran & Lancashire Boiler.		
L-39	Description & working of common boilers Babcock & Wilcox Boiler.	CH-4	Thermal Engineering 6 th Edittion
	Description & working of Boiler Draught	Cn-4	By
L-40	(Forced, induced & balanced).		R.K Rajput
	Comparison between Forced induced & balanced Draught.		
L-41	Description & working of Boiler mountings.		
L-42	Description & working of Boiler accessories		
L-43	Revision of above Topics		
	STEAM POWER CYCLES		
L-44	Carnot cycle with vapour.		
L-45	Derive work & efficiency of the Carnot cycle.		
L-46	Solve simple problems on Carnot cycle.		
L-47	Derive Rankine cycle Representation in P-V, T-S & h-s diagram.		Thermal Engineering
L-48	Derive Work & Efficiency of the Rankine		6 th Edittion
	cycle.	CH-5	By R.K Rajput
	Solve simple problems on Rankine cycle.		к.к кајри
L-49	Effect of Various end conditions in Rankine cycle.		
L-50	Describe Reheat Rankine cycle.		
L-51	Describe Regenerative Rankine cycle.		
L-52	Solve simple problems on Reheat Rankine		
	cycle & Regenerative Rankine cycle.		
L-53	Revision of above Topics.		
	HEAT TRANSFER Describe Modes of Heat Transfer		
L-54	(Conduction, Convection & Radiation).		
	Derive Fourier law of heat conduction and		
L-55	thermal conductivity (k).		
L-56	Derive Newton's laws of cooling& Heat		
L-30	transfer co-efficient (h).	СН-6	Thermal Engineering

L-57	Solve simple problems Conduction, Convection.	6 th Edittion By
L-58	Derive Radiation of heat transfer (Stefan, Boltzmann & Kirchhoff's law) only statement.	R.K Rajput
L-59	Describe Black body Radiation. Definition of Emissivity, absorptivity, & transmissibility.	
L-60	Revision of above Topics.	

Semester: 4th Sem. (Mechanical)

Name of the Subject: Theory of Machine Name of the Faculty: Mr. Debasis Barik

Lecturerer No.	Topics Plan to be Covered	Chapter as per syllabus	Reference books	
L-01	Link, kinematic chain, mechanism.			
L-02	Machine, Its Function, Inversion.			
L-03	Four bar link mechanism.			
L-04	Lower pair and higher pair.		Simple Mechanism	
L-05	Cam and followers.	СН-1	(R.S Khurmi)	
L-06	Driver & Driven.			
L-07	Bar mechanism and its inversion.			
L-08	Discussion of bar with neat sketch.			
L-09	Numerical of above.			
L-10	Friction between nut and screw for			
	square thread.			
L-11	Screw jack, Bearing.			
L-12	Bearing and its classification.			
L-13	Description of roller, needle roller& ball bearings.			
L-14	Torque transmission in flat pivot& conical pivot bearings.		Friction	
L-15	Flat collar bearing of single and multiple types.	СН-2	(R.S Khurmi)	
L-16	Torque transmission for single and multiple clutches.			
L-17	Working of simple frictional brakes.			
L-18	Working of Absorption type of dynamometer.			
L-19	Numerical of above.			
L-20	Numerical of above.			
L-21	Numerical of above.			
L-22	Concept of power transmission.			
L-23	Type of drives, belt, gear and chain drive.			
L-24	Computation of velocity ratio, length of belts (open and cross) with and without slip.			
L-25	Ratio of belt tensions, centrifugal tension and initial tension.	СН 3	Power Transmission	
L-26	Power transmitted by the belt.	СН-3	(R.S Khurmi)	
L-27	Determine belt thickness and width for given permissible stress for open.			
L-28	Crossed Belt considering centrifugal tension.			
L-29	V-belts and V-belts pulleys.			
L-30	Concept of crowning of pulleys.			
L-31	Gear drives and its terminology.			

L-32	Gear trains, working principle of		
	simple.		
L-33	Compound, reverted and		
	epicyclic gear trains.		
L-34	Function of governor.		
L-35	Classification of governor.		
L-36	Working of Watt, Porter, Proel and Hartnell governors.		
L-37	Conceptual explanation of sensitivity, stability and isochronisms.		
L-38	Function of flywheel.		Governors and
L-39	Comparison between flywheel &governor.	СН-4	Flywheel (R.S Khurmi)
L-40	Comparison between flywheel &governor.		
L-41	Fluctuation of energy and coefficient of fluctuation of speed.		
L-42	Concept of static and dynamic balancing.		
L-43	Static balancing of rotating parts.		Balancing of Machine
L-44	Principles of balancing of reciprocating parts.		
L-45	Causes and effect of unbalance.	CH-5	(R.S Khurmi)
L-46	Difference between static and dynamic balancing.		
L-47	Causes and effect of unbalance.		
L-48	Causes and effect of unbalance.		
L-49	Numerical of above.		
L-50	Concept of static and dynamic balancing.		_
L-51	Static balancing of rotating parts.		
L-52	Principles of balancing of reciprocating parts.	СН-6	Vibration of machine parts
L-53	Causes and effect of unbalance.	- 011-0	(R.S Khurmi)
	Difference between static and dynamic		, , , , ,
L-54	balancing.		
L-55	Difference between static and dynamic balancing.		
L-56	Numerical of above.		

Lesson Plan

Name of the Subject: Entrepreneurship and Mgt & Smart Technology (TH1)

Name of the Faculty: Mr. Debasis Sahoo

SEM: 5th Sem (All Branch)

L-18 Project Viability L-19 Management Principles: Definitions of management L-20 Principles of management L-21 Functions of management (planning, organizing, staffing, directing and controlling etc.) L-22 Level of Management in an Organization L-23 Functional Areas of Management: Production management, Functions, Activities L-24 Productivity, Quality control Production Planning and control L-25 Inventory Management, Neaf for Inventory management Models/Techniques of Inventory L-26 Financial Management, Functions of Financial management, Management of Working L-27 Costing (only concept), Break even Analysis, Accounting Terminologies: Book Keeping, L-28 Jurual entry, Petty Cash book, P&L Accounts, Balance Sheets L-29 Marketing Management, Concept of Marketing and Marketing Management L-30 Marketing Techniques, Concept of 4Ps (Price, Place, Product, Promotion) L-31 Human Resource Management: Functions of Personnel Management L-33 Methods of Training & Development, Payment of Wages L-34 Leadership and Motivation: Leadership, Definition and Need/Importance L-35 Qualities and functions of a leader, Manager Vs Leader, Style of Leadership L-36 Motivation: Definition and characteristics, Importance of motivation L-37 Factors affecting motivation, Theories of motivation, Methods of Improving Motivation L-38 Importance of Communication in Business, Types and Barriers of Communication L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-44 Features of Factories Act 1948 with Amendment (only salient points) L-45 Features of Payment of Wages Act 1936 (only salient points) L-46 Samat Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications o	Lect	Topics Plan to be Covered.	Chapter	Reference.
L-04 Barriers in entrepreneurship & Entrepreneurs vix. Manager -05 Forms of Business Comership: Sole proprietorship, partnership forms and others -06 Types of Industries, Concept of Start-ups -07 Types of Industries, Concept of Start-ups -08 Types of Industries, Concept of Start-ups -09 Technology Business Concept of Start-ups -09 Technology Business Incubators (TBI) and Science and Technology Entrepreneur Parks -09 Technology Business Incubators (TBI) and Science and Technology Entrepreneur Parks -10 Market Survey and Opportunity Identification: Business Planning -11 Sil, Ancillary Units, Tiny Units, Service sector Units -12 Time Shedule Plan, Agencies to be contacted for Project Implementation -13 Assessment of Demand and supply and Potential areas of Growth -14 Identifying Business Opportunity -15 Final Product selection -16 Project Report Preparation: Preliminary project report -17 Detailed project report, Techno economic Feasibility -18 Project Viability -19 Principles of management -10 Principles of management -10 Principles of management -11 Punctions of management -12 Punctions of management (planning, organizing, staffing, directing and controlling etc.) -12 Leventrons of management -12 Productivity, Quality control Production management, Functions, Activities -12 Leventrony Management, Need for Inventory management following -12 Sunctional Amagement, Functions of Financial management, Management of Working -12 Marketing Management, Concept of Marketing and Manketing Management -13 Methods of Training & Development, Payment of Wages -14 Leventry Management, Concept of Marketing and Manketing Management -15 Marketing Management, Concept of Marketing and Management -15 Project Nation -16 Project Nation -16 Project Nation -17 Project Nation -18 Project Nation -19 Project Nation -10 Project Nation -11 Project Nation -	L-01	Entrepreneurship: Concept / Meaning of Entrepreneurship		
L-05 Forms of Business Ownership: Sole proprietorship, parmership forms and others	L-02	Need of Entrepreneurship		
L-06 Forms of Business Ownership: Sole proprietorship, partnership forms and others	L-03	Characteristics, Qualities and Types of entrepreneur, Functions		
Log	L-04	Barriers in entrepreneurship & Entrepreneurs vrs. Manager		Industrial Engg. &
L-08 Entrepreneurial support agencies at National, State, District Level (Sources): -09 Inc. NSIC, (SSIC, SIBIA, NABARD, Commercial Banks, KVIC etc. -09 Technology Business Incubaros (TBI) and Science and Technology Entrepreneur Parks. -10 Market Survey and Opportunity Identification: Business Planning -11 SSI, Ancillary Units, Tiny Units, Service sector Units -12 Time schedule Plan, Agencies to be contacted for Project Implementation -13 Assessment of Demand and supply and Potential areas of Growth -14 Identifying Business Opportunity -15 Final Product selection -16 Project Report Preparation: Preliminary project report -17 Detailed project report, Techno economic Feasibility -18 Project Visibility -19 Management Principles: Definitions of management -10 Project Visibility -10 Project Visibility -11 Punctions of management management -12 Punctions of management principles: Definitions of management principles of management production management principles of management management models/Techniques of Inventory -12 Eventoins of Management: Production management, Functions, Activities -12 Productivity, Quality control Production Planning and control -12 Financial Management, Functions of Financial management, Management of Working -12 Productivity, Quality control Production Planning and control -12 Productivity, Quality control Production Planning and control -12 Productivity, Quality control Production Planning and control -13 Human Resource Management, Functions of Financial management, Management of Working -13 Marketing Techniques, Concept of 4Ps (Price, Place, Product, Promotion) -14 Management, Concept of 4Ps (Price, Place, Product, Promotion) -15 Productivity, Quality on Production of Personnel Management -16 Marketing Techniques, Concept of 4Ps (Price, Place, Product, Promotion) -15 Management -16 Marketing Techniques, Concept of 4Ps (Price, Place, Product, P	L-05	Forms of Business Ownership: Sole proprietorship, partnership forms and others	CH-1	Management by O.P
L-09 Technology Business Incubators (TBI) and Science and Technology Entreprensur Parks	L-06	**		Khanna/Ch-32
L-09 Technology Business Incubators (TBI) and Science and Technology Entrepreneur Parks	L-07	Entrepreneurial support agencies at National, State, District Level (Sources):		
L-10 Market Survey and Opportunity Identification: Business Planning L-11 SSI, Ancillary Units, Tiny Units, Service sector Units L-12 Time schedule Plan, Agencies to be contacted for Project Implementation L-13 Assessment of Demand and supply and Potential areas of Growth L-14 Identifying Business Opportunity L-15 Final Product selection L-16 Project Report Preparation: Preliminary project report L-17 Detailed project report, Techno economic Feasibility L-18 Project Viability L-19 Management Principles: Definitions of management L-20 Principles of management L-21 Functions of management L-22 Ievel of Management (planning, organizing, staffing, directing and controlling etc.) L-23 Functional Areas of Management: Production management, Functions, Activities L-24 Productivity, Quality control Production Planning and control L-25 Inventory Management, Functions of Financial management of Models/Techniques of Inventory L-26 Financial Management, Functions of Financial management of Models/Techniques of Inventory L-29 Marketing Management, Functions of Financial management of Models/Techniques of Inventory L-29 Marketing Management, Concept of Marketing and Marketing Management L-20 Marketing Management, Functions of Financial management of Models/Techniques of Inventory L-29 Marketing Management, Functions of Presonnel Management L-20 Marketing Management, Functions of Presonnel Management L-21 Human Resource Management of Marketing and Marketing Management L-22 Methods of Training & Development, Punctions of Personnel Management L-23 Mapower Planning, Recruitment, Sources of manpower, Selection process, Method of L-33 Methods of Training & Development, Punctions of Personnel Management L-34 Cacidents and Microsons of a leader, Manager Vel Leader, Style of Leadership L-35 Qualities and functions of a leader, Manager Vel Leader, Style of Leadership L-36 Motivation: Definition and characteristics, Importance of Communication in Business, Types and Barriers of Communication L-39 Work Cultur	L-08	DIC, NSIC,OSIC, SIDBI, NABARD, Commercial Banks, KVIC etc		
L-11 SSI, Ancillary Units, Tiny Units, Service sector Units L-12 Time schedule Plan, Agencies to be contacted for Project Implementation L-13 Assessment of Demand and supply and Potential areas of Growth L-14 Identifying Business Opportunity L-15 Final Product selection L-16 Project Report Preparation: Preliminary project report L-17 Detailed project report, Techno economic Feasibility L-18 Project Viability L-19 Management Principles: Definitions of management L-20 Principles of management L-21 Functions of management Principles: Definitions of management L-22 Evel of Management in an Organization L-23 Functional Areas of Management: Production management, Functions, Activities L-24 Productivity, Quality control Production Planning and control L-25 Inventory Management, Need for Inventory management Models/Techniques of Inventory L-26 Financial Management, Functions of Financial management of Working L-27 Costing (only concept), Break even Analysis, Accounting Terminologies: Book Keeping, L-28 Journal entry, Petty Cash book, Peth Accounts, Balance Sheets L-30 Marketing Management, Concept of Marketing and Marketing Management L-31 Human Resource Management: Protections of Personnel Management L-32 Manpower Planning, Recruitment, Sources of manpower, Selection process, Method of L-33 Methods of Training & Development, Payment of Wages L-34 Ledership and Motivation: Leadership, Definition and Need/Importance L-35 Qualities and functions of a leader, Manager Vs Leader, Style of Leadership L-36 Motivation: Definition and characteristics, Importance of motivation L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-30 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-34 Features of Payment of Wages Act 1936 (only salient points) L-44 Productions with Peers, Superiors and Subordinates, L-45 Features of Payment of Wages Act 1936 (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Cate	L-09	Technology Business Incubators (TBI) and Science and Technology Entrepreneur Parks		
Time schedule Plan, Agencies to be contacted for Project Implementation	L-10			
L-13	L-11	SSI, Ancillary Units, Tiny Units, Service sector Units		
L-14 Identifying Business Opportunity	L-12	Time schedule Plan, Agencies to be contacted for Project Implementation	CII A	-
L-15 Final Product selection L-16 Project Report Preparation: Preliminary project report L-17 Detailed project treport, Techno economic Feasibility L-18 Project Viability L-19 Management Principles: Definitions of management L-20 Principles of management L-21 Functions of management (planning, organizing, staffing, directing and controlling etc.) L-22 Level of Management in an Organization L-23 Functional Areas of Management: Production management, Functions, Activities L-24 Productivity, Quality control Production Planning and control L-25 Inventiory Management, Functions of Financial management Models/Techniques of Inventory L-26 Financial Management, Functions of Financial management Models/Techniques of Inventory L-27 Costing (only concept), Break even Analysis, Accounting Terminologies: Book Keeping, L-28 Journal entry, Petty Cash book, P&L Accounts, Balance Sheets L-29 Marketing Management, Concept of Marketing and Marketing Management L-30 Marketing Techniques, Concept of Pals (Price, Place, Product, Promotion) L-31 Human Resource Management: Functions of Personnel Management L-32 Manpower Planning, Recruitment, Sources of manpower, Selection process, Method of L-33 Methods of Training & Development, Payment of Wages L-34 Leadership and Motivation: Leadership, Definition and Need/Importance L-35 Qualities and functions of a leader, Manager Vs Leader, Style of Leadership L-36 Motivation: Definition and characteristics, Importance of motivation L-38 Importance of Communication in Business, Types and Barriers of Communication L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-39 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(PR), Patents, Trademarks, Copyrights L-	L-13	Assessment of Demand and supply and Potential areas of Growth	CH-2	8
L-16 Project Report Preparation: Preliminary project report Detailed project report, Techno economic Feasibility L-18 Project Viability L-19 Project Viability L-19 Management Principles: Definitions of management L-20 Principles of management (planning, organizing, staffing, directing and controlling etc.) L-21 Functions of management in an Organization L-22 Functional Areas of Management: Production management, Functions, Activities L-24 Productivity, Quality control Production management, Functions, Activities L-25 Inventory Management, Need for Inventory management Models/Techniques of Inventory L-26 Financial Management, Functions of Financial management, Management of Working L-27 Costing (only concept), Break even Analysis, Accounting Terminologies: Book Keeping, L-28 Journal entry, Petty Cash book, P&L Accounts, Balance Sheets L-29 Marketing Management, Concept of Marketing and Marketing Management L-30 Marketing Techniques, Concept of 4P s (Price, Place, Product, Promotion) L-31 Human Resource Management: Functions of Personnel Management L-32 Manpower Planning, Recruitment, Sources of manpower, Selection process, Method of L-33 Methods of Training & Development, Payment of Wages L-34 Leadership and Motivation: Leadership, Definition and Need/Importance L-35 Qualities and functions of a leader, Manager Vs Leader, Style of Leadership L-36 Motivation: Definition and characteristics, Importance of motivation L-38 Importance of Communication in Business, Types and Barriers of Communication L-34 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(PR), Patents, Trademarks, Copyrights L-44 Features of Pactories Act 1948 with Amendment (only salient points) Prod & Operation Mgt by Panneerselvam/	L-14	Identifying Business Opportunity		
L-17 Detailed project report, Techno economic Feasibility L-18 Project Viability L-19 Management Principles: Definitions of management L-20 Principles of management L-20 Principles of management L-21 Functions of management (planning, organizing, staffing, directing and controlling etc.) L-22 Level of Management in an Organization L-23 Functional Areas of Management: Production management, Functions, Activities L-24 Productivity, Quality control Production Planning and control L-25 Inventory Management, Need for Inventory management Models/Techniques of Inventory L-26 Financial Management, Functions of Financial management, Management of Working L-27 Costing (only concept), Break even Analysis, Accounting Terminologies: Book Keeping, L-28 Journal entry, Petty Cash book, P&L Accounts, Balance Sheets L-29 Marketing Management, Concept of Marketing and Marketing Management L-30 Marketing Techniques, Concept of Marketing and Marketing Management L-31 Human Resource Management: Functions of Personnel Management L-32 Manpower Planning, Recruitment, Sources of manpower, Selection process, Method of L-33 Methods of Training & Development, Payment of Wages L-34 Leadership and Motivation: Leadership, Definition and Need/Importance L-35 Qualities and functions of a leader, Manager Vs Leader, Style of Leadership L-36 Motivation: Definition and characteristics, Importance of motivation L-37 Factors affecting motivation, Theories of motivation, Methods of Improving Motivation L-38 Importance of Communication in Business, Types and Barriers of Communication L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts; Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-44 Features of Payment of Wages Act 1936 (only salient points) L-45 Features of Payment of Wages A	L-15	Final Product selection		
L-18 Project Viability L-19 Management Principles: Definitions of management L-20 Principles of management L-21 Functions of management (planning, organizing, staffing, directing and controlling etc.) L-22 Level of Management in an Organization L-23 Functional Areas of Management: Production management, Functions, Activities L-24 Productivity, Quality control Production Planning and control L-25 Inventory Management, Neaf for Inventory management Models/Techniques of Inventory L-26 Financial Management, Functions of Financial management, Management of Working L-27 Costing (only concept), Break even Analysis, Accounting Terminologies: Book Keeping, L-28 Jurual entry, Petty Cash book, P&L Accounts, Balance Sheets L-29 Marketing Management, Concept of Marketing and Marketing Management L-30 Marketing Techniques, Concept of 4Ps (Price, Place, Product, Promotion) L-31 Human Resource Management: Functions of Personnel Management L-33 Methods of Training & Development, Payment of Wages L-34 Leadership and Motivation: Leadership, Definition and Need/Importance L-35 Qualities and functions of a leader, Manager Vs Leader, Style of Leadership L-36 Motivation: Definition and characteristics, Importance of motivation L-37 Factors affecting motivation, Theories of motivation, Methods of Improving Motivation L-38 Importance of Communication in Business, Types and Barriers of Communication L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-44 Features of Factories Act 1948 with Amendment (only salient points) L-45 Features of Payment of Wages Act 1936 (only salient points) L-46 Samat Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications o	L-16	Project Report Preparation: Preliminary project report		Production and
L-20 Principles of management L-20 Principles of management L-21 Functions of management (planning, organizing, staffing, directing and controlling etc.) L-22 Level of Management in an Organization L-23 Functional Areas of Management: Production management, Functions, Activities L-24 Productivity, Quality control Production Planning and control L-25 Inventory Management, Functions of Financial management of Working L-26 Financial Management, Functions of Financial management of Working L-27 Costing (only concept), Break even Analysis, Accounting Terminologies: Book Keeping, L-28 Journal entry, Petty Cash book, P&L Accounts, Balance Sheets L-29 Marketing Management, Concept of Marketing and Marketing Management L-30 Management (Concept of 4P's (Price, Place, Product, Promotion) L-31 Human Resource Management: Functions of Personnel Management L-32 Manpower Planning, Recruitment, Sources of manpower, Selection process, Method of L-33 Methods of Training & Development, Payment of Wages L-24 Leadership and Motivation: Leadership, Definition and Need/Importance L-35 Qualities and functions of a leader, Manager Vs Leader, Style of Leadership L-36 Motivation: Definition and characteristics, Importance of motivation L-37 Factors affecting motivation, Theories of motivation, Methods of Improving Motivation L-38 Importance of Communication in Business, Types and Barriers of Communication L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-39 Work Culture, TQM & Safety; Human relationship and Performance in Organization L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-44 Features of Factories Act 1948 with Amendment (only salient points) L-45 Features of Factories Act 1948 with Amendment (only salient points) L-46 Smart Technology: Concept of IOT,	L-17	Detailed project report, Techno economic Feasibility	СН-3	Operation Management
L-20 Principles of management L-21 Functions of management (planning, organizing, staffing, directing and controlling etc.) L-22 Level of Management in an Organization L-23 Functional Areas of Management: Production management, Functions, Activities L-24 Productivity, Quality control Production Planning and control L-25 Inventory Management, Need for Inventory management Models/Techniques of Inventory L-26 Financial Management, Functions of Financial management of Working L-27 Costing (only concept), Break even Analysis, Accounting Terminologies: Book Keeping, L-28 Journal entry, Petty Cash book, P&L Accounts, Balance Sheets L-29 Marketing Management, Concept of Marketing and Marketing Management L-30 Marketing Management, Concept of 4P's (Price, Place, Product, Promotion) L-31 Human Resource Management: Functions of Personnel Management L-32 Manpower Planning, Recruitment, Sources of manpower, Selection process, Method of L-33 Methods of Training & Development, Payment of Wages L-34 Leadership and Motivation: Leadership, Definition and Need/Importance L-35 Qualities and functions of a leader, Manager Vs Leader, Style of Leadership L-36 Motivation: Definition and characteristics, Importance of motivation L-37 Factors affecting motivation, Theories of motivation, Methods of Improving Motivation L-38 Importance of Communication in Business, Types and Barriers of Communication L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-44 Features of Factories Act 1948 with Amendment (only salient points) L-45 Features of Factories Act 1948 with Amendment (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applic	L-18	Project Viability		by Panneerselvam/Ch-
L-21 Functions of management (planning, organizing, staffing, directing and controlling etc.) L-22 Level of Management in an Organization L-23 Functional Areas of Management: Production management, Functions, Activities L-24 Productivity, Quality control Production Planning and control L-25 Inventory Management, Need for Inventory management Models/Techniques of Inventory L-26 Financial Management, Functions of Financial management of Working L-27 Costing (only concept), Break even Analysis, Accounting Terminologies: Book Keeping, L-28 Journal entry, Petty Cash book, P&L Accounts, Balance Sheets L-29 Marketing Management, Concept of Marketing and Marketing Management L-30 Marketing Techniques, Concept of Aprice, Place, Product, Promotion) L-31 Human Resource Management: Functions of Personnel Management L-32 Manpower Planning, Recruitment, Sources of manpower, Selection process, Method of L-33 Methods of Training & Development, Payment of Wages L-34 Leadership and Motivation: Leadership, Definition and Need/Importance L-35 Qualities and functions of a leader, Manager Vs Leader, Style of Leadership L-36 Motivation: Definition and characteristics, Importance of motivation L-37 Factors affecting motivation, Theories of motivation, Methods of Improving Motivation L-38 Importance of Communication in Business, Types and Barriers of Communication L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-45 Features of Payment of Wages Act 1936 (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart	L-19	Management Principles: Definitions of management		
L-22 Level of Management in an Organization L-23 Functional Areas of Management: Production management, Functions, Activities L-24 Productivity, Quality control Production Planning and control L-25 Inventory Management, Need for Inventory management Models/Techniques of Inventory L-26 Financial Management, Functions of Financial management of Working L-27 Costing (only concept), Break even Analysis, Accounting Terminologies: Book Keeping, L-28 Journal entry, Petty Cash book, P&L Accountis, Balance Sheets L-29 Marketing Management, Concept of Marketing and Marketing Management L-31 Human Resource Management: Functions of Personnel Management L-32 Manpower Planning, Recruitment, Sources of manpower, Selection process, Method of L-33 Methods of Training & Development, Payment of Wages L-34 Leadership and Motivation: Leadership, Definition and Need/Importance L-35 Qualities and functions of a leader, Manager Vs Leader, Style of Leadership L-36 Motivation: Definition and characteristics, Importance of motivation L-37 Factors affecting motivation, Theories of motivation, Methods of Improving Motivation L-38 Importance of Communication in Business, Types and Barriers of Communication L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-45 Features of Factories Act 1948 with Amendment (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart	L-20	Principles of management	CTT 4	
L-23 Functional Areas of Management: Production management, Functions, Activities L-24 Productivity, Quality control Production Planning and control L-25 Inventory Management, Need for Inventory management Models/Techniques of Inventory L-26 Financial Management, Functions of Financial management of Working L-27 Costing (only concept), Break even Analysis, Accounting Terminologies: Book Keeping, L-28 Journal entry, Petty Cash book, P&L Accounts, Balance Sheets L-29 Marketing Management, Concept of Marketing and Marketing Management L-30 Marketing Techniques, Concept of Personnel Management L-31 Human Resource Management: Functions of Personnel Management L-32 Manpower Planning, Recruitment, Sources of manpower, Selection process, Method of L-33 Methods of Training & Development, Payment of Wages L-34 Leadership and Motivation: Leadership, Definition and Need/Importance L-35 Qualities and functions of a leader, Manager Vs Leader, Style of Leadership L-36 Motivation: Definition and characteristics, Importance of motivation L-37 Factors affecting motivation, Theories of motivation, Methods of Improving Motivation L-38 Importance of Communication in Business, Types and Barriers of Communication L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-44 Features of Factories Act 1948 with Amendment (only salient points) L-45 Features of Payment of Wages Act 1936 (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT Prod & Operation Mgt by Panneerselvam/	L-21	Functions of management (planning, organizing, staffing, directing and controlling etc.)	CH-4	
L-24 Productivity, Quality control Production Planning and control L-25 Inventory Management, Need for Inventory management Models/Techniques of Inventory L-26 Financial Management, Functions of Financial management, Management of Working L-27 Costing (only concept), Break even Analysis, Accounting Terminologies: Book Keeping, L-28 Journal entry, Petty Cash book, P&L Accounts, Balance Sheets L-29 Marketing Management, Concept of Marketing and Marketing Management L-30 Marketing Techniques, Concept of 4P s (Price, Place, Product, Promotion) L-31 Human Resource Management: Functions of Personnel Management L-32 Manpower Planning, Recruitment, Sources of manpower, Selection process, Method of L-33 Methods of Training & Development, Payment of Wages L-34 Leadership and Motivation: Leadership, Definition and Need/Importance L-35 Qualities and functions of a leader, Manager Vs Leader, Style of Leadership L-36 Motivation: Definition and characteristics, Importance of motivation L-37 Factors affecting motivation, Theories of motivation, Methods of Improving Motivation L-38 Importance of Communication in Business, Types and Barriers of Communication L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights((PR), Patents, Trademarks, Copyrights L-44 Features of Factories Act 1948 with Amendment (only salient points) L-45 Features of Payment of Wages Act 1936 (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart L-49 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart	L-22	Level of Management in an Organization		
L-25 Inventory Management, Need for Inventory management Models/Techniques of Inventory L-26 Financial Management, Functions of Financial management of Working L-27 Costing (only concept), Break even Analysis, Accounting Terminologies: Book Keeping, L-28 Journal entry, Petty Cash book, P&L Accounts, Balance Sheets L-29 Marketing Management, Concept of Marketing and Marketing Management L-30 Marketing Management, Concept of Marketing and Marketing Management L-31 Human Resource Management: Functions of Personnel Management L-32 Manpower Planning, Recruitment, Sources of manpower, Selection process, Method of L-33 Methods of Training & Development, Payment of Wages L-34 Leadership and Motivation: Leadership, Definition and Need/Importance L-35 Qualities and functions of a leader, Manager Vs Leader, Style of Leadership L-36 Motivation: Definition and characteristics, Importance of motivation L-39 Mork Culture, TQM & Safety: Human relationship and Performance in Organization L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights CH-8 Ind. Engg. & Mang Ind. Engg. & Mang Ind. Engg. & Mangement by V. Jayakumar /Ch-7 Jayakumar /Ch-7 Features of Factories Act 1948 with Amendment (only salient points) CH-8 Ind. Engg. & Mang Ind. Engg. & I	L-23	Functional Areas of Management: Production management, Functions, Activities		
L-26 Financial Management, Functions of Financial management of Working L-27 Costing (only concept), Break even Analysis, Accounting Terminologies: Book Keeping, L-28 Journal entry, Petty Cash book, P&L Accounts, Balance Sheets L-29 Marketing Management, Concept of Marketing and Marketing Management L-30 Marketing Techniques, Concept of 4P s (Price, Place, Product, Promotion) L-31 Human Resource Management: Functions of Personnel Management L-32 Manpower Planning, Recruitment, Sources of manpower, Selection process, Method of L-33 Methods of Training & Development, Payment of Wages L-34 Leadership and Motivation: Leadership, Definition and Need/Importance L-35 Qualities and functions of a leader, Manager Vs Leader, Style of Leadership L-36 Motivation: Definition and characteristics, Importance of motivation L-37 Factors affecting motivation, Theories of motivation, Methods of Improving Motivation L-38 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-44 Features of Payment of Wages Act 1936 (only salient points) L-45 Features of Payment of Wages Act 1936 (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart Industrial Engg. & Management Management Management by O.P. Khanna/Ch-824 Management by O.P. Khanna/Ch-824 Management by O.P. Khanna/Ch-824 Industrial Engg. & Management Management Management CH-5 Ind. Engg. & Mang O.P. Khanna/Ch-17 Total Quality Management by O.P. Ind. Engg. & Mang O.P. Khanna/Ch-22 Ind. Engg. & Mang O.P. Khanna/Ch-22 Ind. Engg. & Mang O.P. Khanna/Ch-22	L-24	Productivity, Quality control Production Planning and control		
L-27 Costing (only concept), Break even Analysis, Accounting Terminologies: Book Keeping, L-28 Journal entry, Petty Cash book, P&L Accounts, Balance Sheets L-29 Marketing Management, Concept of Marketing and Marketing Management L-30 Marketing Techniques, Concept of 4P s (Price, Place, Product, Promotion) L-31 Human Resource Management: Functions of Personnel Management L-32 Manpower Planning, Recruitment, Sources of manpower, Selection process, Method of L-33 Methods of Training & Development, Payment of Wages L-34 Leadership and Motivation: Leadership, Definition and Need/Importance L-35 Qualities and functions of a leader, Manager Vs Leader, Style of Leadership L-36 Motivation: Definition and characteristics, Importance of motivation L-37 Factors affecting motivation, Theories of motivation, Methods of Improving Motivation L-38 Importance of Communication in Business, Types and Barriers of Communication L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-44 Features of Factories Act 1948 with Amendment (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart Industrial Engg. & Management by O.P Khanna/Ch-824 Management by O.P Khanna/Ch-92 Ind. Engg. & Mang O.P Khanna/Ch-17 Total Quality Management by V. Jayakumar /Ch-7 Prod & Ope	L-25	Inventory Management, Need for Inventory management Models/Techniques of Inventory		
L-28 Journal entry, Petty Cash book, P&L Accounts, Balance Sheets L-29 Marketing Management, Concept of Marketing and Marketing Management L-30 Marketing Techniques, Concept of 4P s (Price, Place, Product, Promotion) L-31 Human Resource Management: Functions of Personnel Management L-32 Manpower Planning, Recruitment, Sources of manpower, Selection process, Method of L-33 Methods of Training & Development, Payment of Wages L-34 Leadership and Motivation: Leadership, Definition and Need/Importance L-35 Qualities and functions of a leader, Manager Vs Leader, Style of Leadership L-36 Motivation: Definition and characteristics, Importance of motivation L-37 Factors affecting motivation, Theories of motivation, Methods of Improving Motivation L-38 Importance of Communication in Business, Types and Barriers of Communication L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-44 Features of Factories Act 1948 with Amendment (only salient points) L-45 Features of Payment of Wages Act 1936 (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart CH-5 Management by O.P Khanna/Ch-22 Prod & Operation Mgt by Panneerselvam/	L-26	Financial Management, Functions of Financial management, Management of Working		
L-28 Journal entry, Petty Cash book, P&L Accounts, Balance Sheets L-29 Marketing Management, Concept of Marketing and Marketing Management L-30 Marketing Techniques, Concept of 4P s (Price, Place, Product, Promotion) L-31 Human Resource Management: Functions of Personnel Management L-32 Manpower Planning, Recruitment, Sources of manpower, Selection process, Method of L-33 Methods of Training & Development, Payment of Wages L-34 Leadership and Motivation: Leadership, Definition and Need/Importance L-35 Qualities and functions of a leader, Manager Vs Leader, Style of Leadership L-36 Motivation: Definition and characteristics, Importance of motivation L-37 Factors affecting motivation, Theories of motivation, Methods of Improving Motivation L-38 Importance of Communication in Business, Types and Barriers of Communication L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-44 Features of Factories Act 1948 with Amendment (only salient points) L-45 Features of Payment of Wages Act 1936 (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart CH-5 Management by O.P Khanna/Ch-22 Prod & Operation Mgt by Panneerselvam/		Costing (only concept), Break even Analysis, Accounting Terminologies: Book Keeping,		Industrial Enga &
L-29 Marketing Management, Concept of Marketing and Marketing Management L-30 Marketing Techniques, Concept of 4P s (Price, Place, Product, Promotion) L-31 Human Resource Management: Functions of Personnel Management L-32 Manpower Planning, Recruitment, Sources of manpower, Selection process, Method of L-33 Methods of Training & Development, Payment of Wages L-34 Leadership and Motivation: Leadership, Definition and Need/Importance L-35 Qualities and functions of a leader, Manager Vs Leader, Style of Leadership L-36 Motivation: Definition and characteristics, Importance of motivation L-37 Factors affecting motivation, Theories of motivation, Methods of Improving Motivation L-38 Importance of Communication in Business, Types and Barriers of Communication L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-44 Features of Factories Act 1948 with Amendment (only salient points) L-45 Features of Payment of Wages Act 1936 (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart Khanna/Ch-8&24 Khanna/Ch-8&24 Khanna/Ch-8&24 Ind. Engs. & Mang O.P Khanna/Ch-17 Ind. Engs. & Mang O.P Khanna/Ch-22 Ind. Engs. & Mang O.P Khanna/Ch	L-28		CH-5	
L-30 Marketing Techniques, Concept of 4P s (Price, Place, Product, Promotion) L-31 Human Resource Management: Functions of Personnel Management L-32 Manpower Planning, Recruitment, Sources of manpower, Selection process, Method of L-33 Methods of Training & Development, Payment of Wages L-34 Leadership and Motivation: Leadership, Definition and Need/Importance L-35 Qualities and functions of a leader, Manager Vs Leader, Style of Leadership L-36 Motivation: Definition and characteristics, Importance of motivation L-37 Factors affecting motivation, Theories of motivation, Methods of Improving Motivation L-38 Importance of Communication in Business, Types and Barriers of Communication L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-44 Features of Factories Act 1948 with Amendment (only salient points) L-45 Features of Payment of Wages Act 1936 (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart CH-9 Prod & Operation Mgt by Panneerselvam/		Marketing Management, Concept of Marketing and Marketing Management		
L-31 Human Resource Management: Functions of Personnel Management L-32 Manpower Planning, Recruitment, Sources of manpower, Selection process, Method of L-33 Methods of Training & Development, Payment of Wages L-34 Leadership and Motivation: Leadership, Definition and Need/Importance L-35 Qualities and functions of a leader, Manager Vs Leader, Style of Leadership L-36 Motivation: Definition and characteristics, Importance of motivation L-37 Factors affecting motivation, Theories of motivation, Methods of Improving Motivation L-38 Importance of Communication in Business, Types and Barriers of Communication L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-44 Features of Factories Act 1948 with Amendment (only salient points) L-45 Features of Payment of Wages Act 1936 (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart Human Resource Management, Payment of Wages Act 1036 (only salient points) L-46 Smart Technology: Concept of IOT, Applications of IOT- Smart Cities, Smart CH-6 Ind. Engg. & Mang O.P Khanna/Ch-17 Total Quality Management by V. Jayakumar /Ch-7 Ind. Engg. & Mang O.P Khanna/Ch-22 Prod & Operation Mgt by Panneerselvam/	-			
L-32 Manpower Planning, Recruitment, Sources of manpower, Selection process, Method of L-33 Methods of Training & Development, Payment of Wages L-34 Leadership and Motivation: Leadership, Definition and Need/Importance L-35 Qualities and functions of a leader, Manager Vs Leader, Style of Leadership L-36 Motivation: Definition and characteristics, Importance of motivation L-37 Factors affecting motivation, Theories of motivation, Methods of Improving Motivation L-38 Importance of Communication in Business, Types and Barriers of Communication L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-44 Features of Factories Act 1948 with Amendment (only salient points) L-45 Features of Payment of Wages Act 1936 (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart CH-5 Ind. Engg. & Mang O.P Khanna/Ch-17 Total Quality Management by V. Jayakumar /Ch-7 Ind. Engg. & Mang O.P Khanna/Ch-22 Ind. Engg. & Mang O.P Khanna/Ch-22	L-31			
L-33 Methods of Training & Development, Payment of Wages L-34 Leadership and Motivation: Leadership, Definition and Need/Importance L-35 Qualities and functions of a leader, Manager Vs Leader, Style of Leadership L-36 Motivation: Definition and characteristics, Importance of motivation L-37 Factors affecting motivation, Theories of motivation, Methods of Improving Motivation L-38 Importance of Communication in Business, Types and Barriers of Communication L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-44 Features of Factories Act 1948 with Amendment (only salient points) L-45 Features of Payment of Wages Act 1936 (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart Tind. Engg. & Mang by O.P Khanna/Ch-17 Total Quality Management by V. Jayakumar /Ch-7 Total Quality Management by V. Jayakumar /Ch-7 Ind. Engg. & Mang o.P Khanna/Ch-12 Total Quality Management by V. Jayakumar /Ch-7 Ind. Engg. & Mang o.P Khanna/Ch-12	-	Manpower Planning, Recruitment, Sources of manpower, Selection process, Method of		
L-34 Leadership and Motivation: Leadership, Definition and Need/Importance L-35 Qualities and functions of a leader, Manager Vs Leader, Style of Leadership L-36 Motivation: Definition and characteristics, Importance of motivation L-37 Factors affecting motivation, Theories of motivation, Methods of Improving Motivation L-38 Importance of Communication in Business, Types and Barriers of Communication L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-44 Features of Factories Act 1948 with Amendment (only salient points) L-45 Features of Payment of Wages Act 1936 (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart CH-6 Ind. Engg. & Mang O.P Khanna/Ch-17 Total Quality Management by V. Jayakumar /Ch-7 Ind. Engg. & Mang O.P Khanna/Ch-22 CH-8 O.P Khanna/Ch-22	L-33	Methods of Training & Development, Payment of Wages		
L-35 Qualities and functions of a leader, Manager Vs Leader, Style of Leadership L-36 Motivation: Definition and characteristics, Importance of motivation L-37 Factors affecting motivation, Theories of motivation, Methods of Improving Motivation L-38 Importance of Communication in Business, Types and Barriers of Communication L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-44 Features of Factories Act 1948 with Amendment (only salient points) L-45 Features of Payment of Wages Act 1936 (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart CH-6 Ind. Engg. & Mang O.P Khanna/Ch-17 Total Quality Management by V. Jayakumar /Ch-7 Ind. Engg. & Mang O.P Khanna/Ch-22 CH-8 Prod & Operation Mgt by Panneerselvam/				
L-36 Motivation. Definition and characteristics, Importance of motivation L-37 Factors affecting motivation, Theories of motivation, Methods of Improving Motivation L-38 Importance of Communication in Business, Types and Barriers of Communication L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-44 Features of Factories Act 1948 with Amendment (only salient points) L-45 Features of Payment of Wages Act 1936 (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart CH-6 O.P Khanna/Ch-17 O.P Khanna/Ch-17 CH-7 Prod & Operation Mgt by Panneerselvam/	-	Qualities and functions of a leader, Manager Vs Leader, Style of Leadership		
L-37 Factors affecting motivation, Theories of motivation, Methods of Improving Motivation L-38 Importance of Communication in Business, Types and Barriers of Communication L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-44 Features of Factories Act 1948 with Amendment (only salient points) L-45 Features of Payment of Wages Act 1936 (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart CH-6 O.P Khanna/Ch-1/ Under Ch-1/ CH-7 O.P Khanna/Ch-1/ CH-8 O.P Khanna/Ch-1/ CH-9 Prod & Operation Mgt by Panneerselvam/	-		٠	
L-38 Importance of Communication in Business, Types and Barriers of Communication L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-44 Features of Factories Act 1948 with Amendment (only salient points) L-45 Features of Payment of Wages Act 1936 (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart Total Quality Management by V. Jayakumar /Ch-7 Ind. Engg. & Mang O.P Khanna/Ch-22 Prod & Operation Mgt by Panneerselvam/		: 1	CH-6	O.P Khanna/Ch-17
L-39 Work Culture, TQM & Safety: Human relationship and Performance in Organization L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-44 Features of Factories Act 1948 with Amendment (only salient points) L-45 Features of Payment of Wages Act 1936 (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart Total Quality Management by V. Jayakumar /Ch-7 Long. & Mang O.P Khanna/Ch-22 Prod & Operation Mgt by Panneerselvam/	-			
L-40 Relations with Peers, Superiors and Subordinates, L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-44 Features of Factories Act 1948 with Amendment (only salient points) L-45 Features of Payment of Wages Act 1936 (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart CH-7 Management by V. Jayakumar /Ch-7 Lnd. Engg. & Mang O.P Khanna/Ch-22 Prod & Operation Mgt by Panneerselvam/		*		Total Quality
L-41 TQM concepts: Quality Policy, Quality Management, Quality system L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-44 Features of Factories Act 1948 with Amendment (only salient points) CH-8 CH-8 CH-8 CH-9 Prod & Operation Mgt by Panneerselvam/	-	· · · · · · · · · · · · · · · · · · ·	CH-7	Management by V.
L-42 Accidents and Safety, Cause, preventive measures, General Safety Rules, (PPE) L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-44 Features of Factories Act 1948 with Amendment (only salient points) L-45 Features of Payment of Wages Act 1936 (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart CH-8 CH-8 CH-8 CH-9 Prod & Operation Mgt by Panneerselvam/	-	*	C11-7	Jayakumar /Ch-7
L-43 Legislation: Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights L-44 Features of Factories Act 1948 with Amendment (only salient points) L-45 Features of Payment of Wages Act 1936 (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart CH-8 Ind. Engg. & Mang O.P Khanna/Ch-22 Prod & Operation Mgt by Panneerselvam/	-			
L-44 Features of Factories Act 1948 with Amendment (only salient points) L-45 Features of Payment of Wages Act 1936 (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart CH-8 O.P Khanna/Ch-22 CH-9 by Panneerselvam/			-	Ind. Engg. & Mang
L-45 Features of Payment of Wages Act 1936 (only salient points) L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart CH-9 Prod & Operation Mgt by Panneerselvam/	-		CH-8	
L-46 Smart Technology: Concept of IOT, How IOT works, Components of IOT L-47 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart CH-9 Prod & Operation Mgt by Panneerselvam/	-			
L-47 Characteristics of IOT, Categories of IOT, Applications of IOT- Smart Cities, Smart CH-9 by Panneerselvam/				Prod & Operation Mgt
C1 0	-		СН-9	by Panneerselvam/
L-48 Smart Home, Smart Healthcare, Smart Ind, Smart Agri, Smart Energy Magt etc.	L-48	Smart Home, Smart Healthcare, Smart Ind, Smart Agri, Smart Energy Magt etc.		Ch-8

Name of the Subject: Design of Machine Element (TH2)

Semester: 5th Sem (Mechanical)

Name of the Faculty: Mr Debasis Barik

Lecture	Topics Plan to be Covered	Chapter as per	Reference
L-01	Introduc⊖on to Machine Design and Classifyit		
L-02	Different mechanical engineering materials used in design with their uses		
L-03	Mechanical and physical properOes designmaterials		
L-04	Define working stress, yield stress, ul0matestress & factor of safety		Machine Design by R.S. KHURMI & J.K. GUPTA Page No(1-
L-05	Simple problems on above Topics.		
L-06	stress –strain curve for M.S & C.I	CH-1	
L-07	Modes of Failure (By elasθc deflecθon,general yielding & fracture)		15), (16-52),(87-119)
L-08	State the factors governing the design ofmachine elements.	_	13), (10-32),(87-113)
L-09	Describe design procedure.		
L-10	Revision of above Topics		
L-11	Simple problems on above Topics.		
L-12	Joints and their classification		
L-13	State types of welded joints, State advantages of welded joints over other joints		
L-14	Design of welded joints for eccentric loads		
L-15	Simple problems on above Topics.		
L-16	State types of riveted joints and types ofrivets		
L-17	Important Terms Used in Riveted Joints		Machine Design by
L-18	Caulking and Fullering, Describe failure ofriveted joints.		R.S. KHURMI & J.K.
L-19	Determine strength & efficiency of rivetedjoints	CH-2	GUPTA Page No
L-20	Simple problems on above Topics.		(341-376),(281-340)
L-21	Design riveted joints for pressure vessel		
L-22	Simple problems on above Topics.		
L-23	Solve problems on Welded Joint and RivetedJoints		
L-24	Revision of above Topics		
L-25	Simple problems on above Topics.	7	
L-26	Introduction ,State function of shafts, State materials for shafts		
L-27	Design solid & hollow shaŌs to transmit agiven power at given rpm based on Strengt		
L-28	Case-1 ShaŌs subjected to twisOng momentor torque only & Case-2 ShaŌs subjecte		
L-29	Case-3 ShaŌs subjected to combinedtwisOng and bending moments		
L-30	Simple problems on above Topics		Machine Design by R.S. KHURMI & J.K.
L-31	Case-4 ShaŌs subjected to axial loads in addi⊖on to combined torsional and bendingl		
L-32	Simple problems on above Topics		
L-33	Design solid & hollow shaŌs to transmit agiven power at given rpm based on Rigidity,		
L-34	Simple problems on above Topics.	CH-3	GUPTA Page No
L-35	State funcθon of keys, types of keys &material of keys		(509-557)-(470-478)
L-36	Describe failure of key, effect of key way		, , , , , , , , , , , , , , , , , , , ,
L-37	Design rectangular sunk key considering its failure against shear & crushing. Simplepr		
L-38	Design rectangular sunk key by usingempirical rela0on for given diameter of shaŌ. Si		
L-39	State specification of parallel key, gib-headkey, taper key as per I.S		
L-40	Revision of above Topics		
L-41	Simple problems on above Topics.		
L-42	Design of ShaŌ Coupling, Requirements of agood shaŌ coupling, Types of Coupling		
L-43	Design of Sleeve or Muff-Coupling.		
L-44	Simple problems on above Topics		Machine Design by
L-45	Design of Clamp or Compression Coupling	CH-4	R.S. KHURMI & J.K.
L-46	Simple problems on above Topics	_	GUPTA
L-47	Revision of above Topics		Page No(478-508)
L-48	Simple problems on above Topics.		
L-48 L-49	Introduction, Types of Springs.	+	
L-49 L-50	Material for Helical Springs, Standard Size of Spring Wire	=	
L-50	Terms used in Compression Springs	+	
L-51 L-52	Stresses in Helical Springs of Circular Wire	CH-5	
L-52 L-53	Simple problems on above Topics		Machine Design by
			R.S. KHURMI & J.K.
L-54	Deflection of Helical Springs of Circular Wire.		GUPTA
L-55	Simple problems on above Topics		Page No(820-884)
L-56	Surge in Spring		
L-57	Simple problems on above Topics	-	
L-58	Solve numerical on design of closed coil helical compression spring.	_	
L-59	Revision of above Topics		

Lesson Plan

Name of the Subject: Hydraulic Machines & Industrial Fluid Powe(TH3)
Name of the Faculty: Mr. Subrat Kumar Ghosh **Semester:** 5th Sem(Mech.)

Lecturer	Topics Plan to be Covered	Chapter as per	Reference books/Chapter/Page No.	
L-01	Definition and classification of hydraulic turbines	Simples as per		
L-02	Construction and working principle of impulse turbine	1		
L-03	Velocity diagram of moving blade work doneof impulse turbine.	1		
L-04	Derivation of various efficiencies of impulse turbine.	1		
L-05	Velocity diagram of moving blades, work done of Francis Turbine	CH-1		
L-06	Various efficiencies of Francis turbine.	1	HYDRAULIC TURBINES	
L-07	Velocity diagram of moving blades, work done		(R K BANSAL)	
L-08	Derivation of various efficiencies of Kaplan turbine		Page No- 853-944	
L-09	Distinguish between impulse turbine and reaction turbine cont			
L-10	Distinguish between impulse turbine and reaction turbine			
L-11	Turbine,Pump,Hydraulic turbine,mixed flow			
L-12	Hydraulic system, its merit and demerits			
L-13	Hydraulic system, its merit and demerits			
L-14	Hydraulic accumulators			
L-15	Pressure control valves	1		
L-16	Pressure relief valves	1	HYDRAULIC CONTROL SYSTEM	
L-17	Pressure regulation valves cont		(R K BANSAL)	
L-18	Pressure regulation valves	CH-2	https://www.slidesh	
L-19	Flow control valves		are.net/nagarajukon	
L-20	Throttle valves		drasi/hydrauliccontrol-system-	
L-21	Operation of double acting cylinder		139261041	
L-22	Operation of double acting cylinder			
L-23	Comparison of hydraulic and pneumatic system			
L-24	Numerical on above			
L-25	Elements –filter-regulator-lubrication unit			
L-26	Pressure control valves			
L-27	Pressure relief valves			
L-28	Pressure regulation valves			
L-29	Direction control valves			
L-30	Flow control valves			
L-31	Throttle valves			
L-32	ISO Symbols of pneumatic components			
L-33	Pneumatic circuits	a	PNEUMATIC CONTROL SYSTEM	
L-34	Direct control of single acting cylinder	CH-3	(R K BANSAL)	
L-35	Operation of double acting cylinder	1	https://en.wikipedia.org/wiki/Pneumatic	
L-36	Operation of double acting cylinder	1		
L-37	Schematic diagram of Pneumatic control system with all parts.			
L-38	Schematic diagram of Pneumatic control system with all parts.	1		
L-39	Schematic diagram of Pneumatic control system with all parts.	1		
L-40	Pressure relief valve all parts .	1		
L-41	Pressure regulation valves all parts	1		
L-42	Numerical on above	1		
L-43	Throttle valves Function.	1		
L-44	Construction and working principle of centrifugal pumps			
L-45	Work done and derivationvarious efficiencies ofcentrifugal pumps.	1		
L-46	Work done and derivation various efficiencies of centrifugal pumps.	CH-4	CENTRIFUGAL PUMPS	
L-47	Numerical on above	- Cn-4	(R K BA	(R K BANSAL)
L-48	Numerical on above		Page No- 945-992	
L-49	Numerical on above Numerical on above			
	I INUITIETEAL OIT ADOVE		<u> </u>	

MITS SCHOOL OF ENGINEERING, BHUBANESWAR Lesson LESSON PLAN

Name of the Subject: Mechatronics (TH4) Semester: 5th Sem.(Mech)

Name of the Faculty: Mr Debasis Barik

	Topics Plan to be Covered	Chapter as	Reference
L-01	INTRODUCTION TO MECHATRONICS	3ap.30. 40	
L-02	Definition of Mechatronics		
L-03	Advantages & disadvantages of Mechatronics		MECHATRONICS (M. Rollow) Dogg (4 30)
L-04	Application of Mechatronics	CH-1	MECHATRONICS (W. Bolton) Page-(1-28)
L-05	Discuss about the topic		
L-06	Scope of Mechatronics in Industrial Sector		
L-07	Discuss about the industrial sector		
L-08	Components of a Mechatronics System		
L-09	Importance of mechatronics in automation		
L-10	Revision		
L-11	SENSORS AND TRANSDUCERS		
L-12	Defination of Transducers		
L-13	Classification of Transducers		
L-14	Electromechanical Transducers	CH-2	MECHATRONICS (W. Bolton) Page-(29-43)
L-15	Transducers Actuating Mechanisms	CIT-Z	
L-16	Discuss about the topic		
L-17	Displacement Sensors		
L-18	Positions Sensors		
L-19	Velocity, motion		
L-20	Force and pressure sensors.		
L-21	Temperature and light sensors.		
L-22	ACTUATORS-MECHANICAL, ELECTRICAL		
L-23	Mechanical Actuators		
L-24	Machine, Kinematic Link, Kinematic Pair		
L-25	Mechanism, Slider crank Mechanism		
L-26	Gear Drive, Spur gear		
L-27	Bevel gear, Helical gear		
L-28	Worm gear		MECHATRONICS (W. Bolton) Page-(44-57)
L-29	Discuss about the topic	CH-3	
L-30	Belt & Belt drive		
L-31	Bearings		
L-32	Electrical Actuator		
L-33	Switches and relay		
L-34	Solenoid		
L-35	D.C Motors		
L-36	A.C Motors		
L-37	Stepper Motors		
L-38	Specification and control of stepper motors		
L-39	Servo Motors D.C & A.C		
L-40	Discuss about the topic		
L-41	PROGRAMMABLE LOGIC CONTROLLERS(PLC)		
L-42	Introduction		
L-43	Advantages of PLC		
L-44	Selection and uses of PLC	CH-4	MECHATRONICS (W. Bolton) Page-(58-73)
L-45	Discuss about the topic		
L-46	Architecture basic internal structures		
L-47	Input/output Processing		
L-48	Input/output Programming		
L-49	Mnemonics		
L-50	Master and Jump Controllers		
L-51	Discuss about the topic		227 (2
L-52	ELEMENTS OF CNC MACHINES		CAD/CAM/CIM
L-53	Introduction to Numerical Control	CH-5	(R.RADHAKRISHNA/S,SUBRAMANIAN) Page-(1-53)
L-54	Numerical Control of machines and CAD/CAM	511 5]
L-55	NC machines		CAD/CAM/CIM

Lesson Plan

Semester: 5th Sem (Mechanical)

Name of the Subject: Refrigeration & Air conditioning. (TH5)

Name of the Faculty: Miss Shuvashree Paital

Lecturer **Topics Plan to be Covered** Chapter Reference REFRIGERATION & AIR-CONDITIONING AIR REFRIGERATION CYCLE:: -Definition of Refrigeration & unit of Refrigeration. L-01 Definition of COP, Refrigerating effect (R.E) L-02 CH-1 R.S.KHURMI. Principle of working of open and closed air system of refrigeration. L-03 (PAGE NO:: 38-67) L-04 Numerical on above L-05 Numerical on above L-06 Calculation of COP of Bell-Coleman cycle and numerical on it. **SIMPLE VAPOUR COMPRESSION REFRIGERATION SYSTEM::-** Diagram & its Types. L-07 Cycle with dry saturated vapors after compression. L-08 Cycle with wet vapors after compression. L-09 REFRIGERATION & AIR-CONDITIONING L-10 Cycle with superheated vapors after compression. CH-2 RV Cycle with superheated vapors before compression. L-11 R.S.KHURMI. Cycle with sub cooling of refrigerant. L-12 (PAGE NO:: 108-160) Representation of above cycle on temperature entropy and pressure enthalpy diagram. L-13 Numerical on above (determination of COP, mass flow) L-14 Numerical on above L-15 Numerical on above L-16 **REFRIGERATION & AIR-CONDITIONING** VAPOUR ABSORPTION REFRIGERATION SYSTEM::-Working Principle SVARS. L-17 L-18 Practical vapor absorption refrigeration system. CH-3 R.S.KHURMI . L-19 Numerical on above (PAGE NO:: 238-249) COP of an ideal vapor absorption refrigeration system& Numerical on COP. L-20 L-21 **REFRIGERATION EQUIPMENTS::-**Important term of Refrigerant Compressor. L-22 working and constructional details of reciprocating and rotary compressors. Numerical on above L-23 **REFRIGERATION & AIR-**Numerical on above L-24 CH-4 CONDITIONINGBY Centrifugal, Hermetically & Semi Hermetically Sealed compressor only theory. L-25 R.S.KHURMI. **CONDENSERS::-** Cooling tower and spray pond. , Heat rejection Ratio. L-26 (PAGE NO:: 312-315,330-337,352-361) working and constructional details of air cooled and water cooled condenser. L-27 L-28 Numerical on above **EVAPORATORS::-** Working, Construction and Types of Evaporators. L-29 L-30 Bare tube coil evaporator, finned evaporator, shell and tube evaporator. REFRIGERANTS & APPLICATION::-Capillary tube, Automatic & Thermostatic Expansion Valve. L-31 **REFRIGERATION & AIR-CONDITIONING REFRIGERANTS::-** Classification and Designation of Refrigerant. L-32 BY Thermodynamics and Chemical properties of Refrigerant. L-33 CH-5 R.S.KHURMI. commonly used refrigerants(R-11,R-12,R-22,R-134a,R-717),Substitute for CFC. L-34 (PAGE NO:: 250-269) Numerical on above L-35 Applications of refrigeration::-Cold storage, Dairy Refrigeration, Ice plant, water cooler. L-36 Numerical on above L-37 PSYCHOMETRICS &COMFORT AIR CONDITIONING SYSTEMS::-Terms, chart & use. L-38 L-39 Psychometric processes::-L-40 Heating and Humidification. Total heating of a cooling process. L-41 SHF, BPF. L-42 Adiabatic mixing. **REFRIGERATION & AIR-CONDITIONING** L-43 Adiabatic cooling with humidification. BY L-44 R.S.KHURMI. Cooling and Dehumidification. L-45 CH-6 (PAGE NO:: 421-481) L-46 Sensible heating and cooling. L-47 Problems on above. Effective temperature and Comfort chart. L-48 Numerical on above L-49 L-50 Numerical on above L-51 Adiabatic saturation of air by evaporation of water. Numerical on above L-52 AIR CONDITIONING SYSTEMS::-L-53 Factors affecting comfort air conditioning. L-54 **REFRIGERATION & AIR-CONDITIONING** Equipment used in an air-conditioning. L-55 BY Classification of air-conditioning system. L-56 R.S.KHURMI. CH-7 L-57 Winter Air Conditioning System. (PAGE NO:: 497-532) Summer Air Conditioning System. L-58 Numerical on above. L-59

Name of the Subject: - RAC LAB (PR1)

Name of the Faculty: - Miss Shuvashree Paital

Semester:-5th

Experiment No	Name of the experiment	Name of the Equipment	Venue
01	Study the construction features of Domestic Refrigerator.	Domestic Refrigerator test rig	ME Lab
02	Study the construction features of water cooler.	water cooler test rig	ME Lab
03	Study the construction features of window air conditioner	Window Air Conditioner test rig	ME Lab
04	Study the construction features of split air conditioner	Split Air Conditioner test rig	ME Lab
05	Determine the capacity and cop of vapour compression Refrigerator test rig	Vapour compression test rig	ME Lab
06	Determine the capacity and cop of water cooler	Water cooler test rig	ME Lab
07	Determine the capacity and cop of window air conditioner	Window Air Conditioner test rig	ME Lab
08	Determine the capacity and cop of split air conditioner	Split Air Conditioner test rig	ME Lab
09	Determine the capacity and cop of vapour absorption Refrigerator test rig	Vapour absorption test rig	ME Lab
10	Complete charging of a domestic refrigerator and its leak test	Domestic Refrigerator test rig	ME Lab

Semester:-5th

Name of the Subject: - HM & IFP Lab (PR2)
Name of the Faculty: - Mr Subrat Kumar Ghosh

Experiment	Name of the experiment	Name of the Equipment	Venue
No			
01	Performance test on impulse turbine and to find out the efficiency	Impulse Turbine Test Rig	ME Lab
02	Performance test on kaplan turbine and to find out the efficiency	Kaplan turbine Test Rig	ME Lab
03	Performance test on Francis turbine and to find out the efficiency	Francis turbine Test Rig	ME Lab
04	Performance test on centrifugal pump and to find out the characteristic curves	Centrifugal pump Test Rig	ME Lab
05	Direct operation of single &double acting pneumatic cylinder.	Pneumatic Trainer Kit	ME Lab
06	Operating double acting pneumatic cylinder with quick exhaust valve	Pneumatic Trainer Kit	ME Lab
07	Speed control double acting pneumatic cylinder using metering in and metering out circuits.	Hydraulic Trainer Kit	ME Lab
08	Direct operation of single &double acting hydraulic cylinder	Hydraulic Trainer Kit	ME Lab
09	Direct operation of hydraulic motor	Hydraulic Trainer Kit	ME Lab
10	Speed control double acting hydraulic cylinder using metering in & metering out circuits.	Hydraulic Trainer Kit	ME Lab

Name of the Subject: - CAD/CAM Lab (PR3)

Name of the Faculty: - Mr Debasis Barik

Semester:-5th

Experiment No	Name of the experiment	Name of the Equipment	Venue
01	Drawings of Rectangle, circle, polygon and its dimensioning	DESKTOP COMPUTER with UPS AUTOCAD SOFTWARE 2D/3D	YES
02	Gib and cutter joint & Print the orthographic view of the assembled 3Ddrawing	DESKTOP COMPUTER with UPS AUTOCAD SOFTWARE 2D/3D	YES
03	Screw Jack & Print the orthographic view of the assembled 3Ddrawing	DESKTOP COMPUTER with UPS AUTOCAD SOFTWARE 2D/3D	YES
04	Connecting Rod & Print the orthographic view of the assembled 3Ddrawing	DESKTOP COMPUTER with UPS AUTOCAD SOFTWARE 2D/3D	YES
05	Bearing Block & Print the orthographic view of the assembled 3Ddrawing	DESKTOP COMPUTER with UPS AUTOCAD SOFTWARE 2D/3D	YES
06	Study of CNC lathe, milling	CNC TURNING MACHINE/ CNC MILLING MACHINE	NO
07	Study of international codes; G-Codes and M –Codes	CNC APPLICATION	NO
08	Format –Dimensioning methods	CNC APPLICATION	NO
09	Programme writing –Turning Simulator-Milling simulator IS practice-commands menus	CNC TURNING MACHINE/CNC MILLING MACHINE	NO
10	Editing the programme in the CNC MACHINES	CNC TURNING MACHINE/CNC MILLING MACHINE	NO
11	Execute the programme in the CNC machines	CNC TURNING MACHINE/CNC MILLING MACHINE	NO
12	Print the programme and make the component in the CNC machine	CNC TURNING MACHINE/CNC MILLING MACHINE	NO
13	Using canned cycle-create a part programme for thread cutting, grooving and produce component in the CNC Turning Machine	CNC TURNING MACHINE	NO
14	Using Linear interpolation and Circular Interpolation-Create a part programme for grooving and produce component in the CNC Milling Machine	CNC MILLING MACHINE	NO

MITS SCHOOL OF ENGINEERING, BHUBANESWAR

Lesson Plan

Name of the Subject: Automobile Engineering & Hybrid Vehicles
Name of the Faculty: Miss Shuvashree Paital

Semester: 6th Semester: 6^t **Semester:** 6th Sem.(Mech)

Lecturerer No.	Topics Plan to be Covered	Chapter as per syllabus	Reference books/Chapter/Page No.
	INTRODUCTION & TRANSMISSION SYSTEM		
L-01	Automobiles Definition, need and classifications.		
L-02	Layout of automobile chassis with major components (Line diagram).		
L-03	Clutch system & their needs.		
L-04	Clutch types (single & multiple) and their working principle with sketch.		Automobile
L-05	Gear Box & Purpose of gear box.	CH-1	Engineering
L-06	Construction and working of a 4 speed gear box.		By R.B.Gupta
L-07	Concept of automatic gear changing mechanisms.		
L-08	Propeller shaft & Constructional features.		
L-09	Differential & their needs, Types Differential.		
L-10	Working principle of Differential.		
L-11	Revision of above Topics		
	BRAKING SYSTEM		
L-12	Braking systems in automobiles& their needs, types Braking systems in automobiles.		
L-13	Describe the working principle of Mechanical Brake with sketch.	CH-2	Automobile Engineering
L-14	Describe the working principle of Hydraulic Brake with sketch.		Ву
L-15	Describe the working principle of Air Brake with sketch.		R.B.Gupta
L-16	Describe the working principle of Air assisted Hydraulic Brake with sketch.		
L-17	Describe the working principle of Vacuum Brake with sketch.		
L-18	Revision of above Topics		
	IGNITION & SUSPENSION SYSTEM		
L-19	Describe the Battery ignition system.		
L-20	Describe the Magnet ignition system.		
L-21	Spark plugs: Purpose, construction and specifications.		
L-22	State the common ignition troubles and its remedies.		
L-23	Description of the conventional suspension system for Rear axle.		Automobile
L-24	Description of the conventional suspension system for Front axle.	CH-3	Engineering By
L-25	Description of independent suspension system used in cars (coil spring and tension		R.B.Gupta

	bars.		
	Constructional features of a telescopic		
L-26	shock absorber.		
L-27	Working of a telescopic shock absorber.		
L-28	Revision of above Topics.		
2 20	COOLING AND LUBRICATION		
L-29	Engine cooling systems & their needs.		
L-30	Classification of Engine cooling systems.		
L-31	Describe defects of cooling systems.		Automobile
	Describe the remedial measures of cooling	CH-4	
L-32	systems.		Engineering
L-33	Describe the Function of lubrication.		By D. Courte
	Describe the lubrication System of I.C.		R.B.Gupta
L-34	engine		
L-35	Revision of above Topics.		
	FUEL SYSTEM		
L-36	Describe Air fuel ratio.		
1 27	Describe Carburetion process for Petrol		
L-37	Engine.		Automobile
1 20	Describe Multipoint fuel injection system	CH-5	Engineering
L-38	for Petrol Engine		By
L-39	Describe the working principle of fuel		R.B.Gupta
L-39	injection system for multi cylinder Engine		R.B.Gupta
L-40	Filter for Diesel engine		
L-41	Describe the working principle of Fuel feed		
	pump and Fuel Injector for Diesel engine		
L-42	Revision of above Topics.		
	ELECTRIC AND HYBRID VEHICLES		
L-43	Introduction, Social and Environmental		
	importance of Hybrid and Electric Vehicles.		
L-44	Description of Electric Vehicles.		Automobile
L-45	Description the operational advantages of	СН-6	Engineering
L-43	Electric Vehicles.	CH-0	By
L-46	Description the present performance and		R.B.Gupta
L-40	applications of Electric Vehicles		•
L-47	Battery for Electric Vehicles.		
T 40	Classify the Battery types for Electric		
L-48	Vehicles.		
L-49	Describe the fuel cells for Electric Vehicles.		
L-50	Hybrid vehicles & their types.		
	Describe Electric Vehicles: Parallel, Series,		
L-51	Parallel and Series configurations		
L-52	Drive train		
L-53	Solar powered vehicles		
L-54	Revision of above Topics.		
レーンサ	revision of above ropies.		

Semester: 6th Sem.(Mech.) **Academic year:** 2021-22 Name of the Subject: Advance Manufacturing Processes Name of the Faculty: Mr. DEBASIS ABRIK

Lecturerer No.	Topics Plan to be Covered	Chapter as per syllabus	Reference books/Chapter/Page No.
	Modern Machining Processes	CH-1	Production technology –
	Comparison of advanced manufacturing process		Vol-II
L-01	with traditional machining		O.P.KHANNA
L-02	Ultrasonic Machining: principle		CH- Modern Machining
	Ultrasonic Machining: Description of		Processes
L-03	equipment, applications.		
I 04	Electric Discharge Machining: Principle,		
L-04	Description of equipment,		
L-05	Dielectric fluid, tools (electrodes), Process		
L-03	parameters, Output characteristics, applications.		
L-06	Wire cut EDM: Principle, Description of		
L 00	equipment,		
L-07	Wire cut EDM: controlling parameters;		
207	applications.		
L-08	Abrasive Jet Machining: principle, description		
2 00	of equipment,		
L-09	Abrasive Jet Machining: Material removal		
	rate, application.		
L-10	Electro Chemical Machining: principle,		
	description of equipment		
L-11	Electro Chemical Machining: Material removal rate, application.		
	Plasma Arc Machining – principle,		
L-12	description of equipment.		
	Plasma Arc Machining: Material removal		
L-13	rate, Process parameters, performance		
	characterization, Applications		
T 14	Electron Beam Machining - principle,		
L-14	description of equipment, Material removal rate		
L-15	Electron Beam Machining: Process parameters,		
L-13	performance characterization, Applications.		
	Plastic Processing:	CH-2	Production technology -
L-16	Processing of plastics.		Vol-II
L-17	Moulding processes: Injection moulding		O.P.KHANNA
L-18	Compression moulding		CH- Plastic Processing:
L-19	Transfer moulding.		
L-20	Extruding		
L-21	Casting		
L-22	Calendering		
L-23	Fabrication methods		
L-24	Sheet forming		
L-25	Blow moulding		
L-26	Laminating plastics (sheets, rods & tubes)		
L-27	Reinforcing.		
L-28	Applications of Plastics.	CII 2	Duo du otton to de colore
1.20	Additive Manufacturing Process:	СН-3	Production technology –
L-29 L-30	Introduction, Need for Additive Manufacturing		Vol-II O.P.KHANNA
L-30 L-31	Fundamentals of Additive Manufacturing AM Process Chain		CH- Additive
L-31 L-32	<u> </u>		Manufacturing Process:
L-32	dvantages and Limitations of AM, Commonly		ivianuiacturing i i veess.

	used Terms		
L-33	Classification of AM process,		
L-34	Fundamental Automated Processes		
L-35	Distinction between AM and CNC		
L-36	other related technologies.		
	Application – Application in Design, Aerospace		
L-37	Industry, Automotive Industry, Jewelry		
L-37	Industry, Arts and Architecture. RP Medical and		
	Bioengineering Applications.		
L-38	Web Based Rapid Prototyping Systems.		
L-39	Concept of Flexible manufacturing process		
L-41	Concurrent engineering		
L-42	Production tools like capstan lathes		
L-43	Turret lathes		
L-44	Rapid prototyping processes.		
	Special Purpose Machines (SPM)	CH-4	Production technology –
L-45	Concept, General elements of SPM		Vol-II
L-46	General elements of SPM revision		O.P.KHANNA
L-47	Productivity improvement by SPM		CH- Special Purpose
L-48	Productivity improvement by SPM revision		Machines (SPM)
L-49	Principles of SPM design.		
L-50	Principles of SPM design. revision		
	Maintenance of Machine Tools	CH-5	Production technology –
L-51	Types of maintenance, ,.		Vol-II
L-52	Repair cycle analysis,		O.P.KHANNA
L-53	Repair complexity,		CH- Special Purpose
L-54	Maintenance manual		Machines (SPM)
L-55	Maintenance records		
L-56	Housekeeping		
L-57	Introduction to Total Productive Maintenance		
L-3/	(TPM)		

Name of the Subject: Power Station Engineering Name of the Faculty: Mr. Subrat Kumar Ghosh **Semester:** 6th Sem. (Mechanical)

Lecturerer No.	Topics Plan to be Covered	Chapter as per syllabus	Reference books/Chapter/Page No.
	INTRODUCTION	-	
L-01	Describe sources of energy & Explain concept of Central and Captive power station.	СН-1	Power Plant
L-02	Classify power plants.		Engineering
L-03	Importance of electrical power in day today life. Overview of method of electrical power generation.		By R.K Rajput
L-04	Revision of above Topics		
	THERMAL POWER STATIONS		
L-05	Layout of steam power stations.		
L-06	Explain Steam power cycle.		
L-07	Explain Carnot vapour power cycle with P-V, T-s diagram and determine thermal efficiency.		
L-08	Solve Simple Problems		
L-09	Explain Rankine cycle with P-V, T-S & H-s diagram.		
L-10	Determine thermal efficiency; Work done, work ratio, and specific steam Consumption of Rankine Cycle.		
L-11	Solve Simple Problems.		Power Plant Engineering By R.K Rajput
L-12	List of thermal power stations in the state with their capacities.	СН-2	
L-13	Boiler Accessories:Operation of Air pre heater, Operation of Economiser.		
L-14	Operation Electrostatic precipitator and Operation of super heater.		
L-15	Need of boiler mountings and operation of boiler.		
L-16	Explain the boiler mountings.		
L-17	Explain Draught systems: Natural draught, Forced draught.	CII-2	
L-18	Explain balanced draught & with their advantages & disadvantages.		
L-19	Advantages & disadvantages of Steam prime movers.		
L-20	Performance of steam turbine: Explain Thermal efficiency, Stage efficiency and Gross efficiency.		
L-21	Solve Simple Problems		
L-22	Steam condenser: Function of condenser.		
L-23	Classification of condenser.		
L-24	Function of condenser auxiliaries such as hot well.		
L-25	Function of Condenser extraction pump, air extraction pump, and circulating pump.		
L-26	Cooling Tower: Function and types of cooling tower, and spray ponds.		
L-27	Selection of site for thermal power stations.		
L-28	Revision of above Topics		
	NUCLEAR POWER STATIONS		Power Plant
L-29	Classify nuclear fuel (Fissile & fertile material).	СН-3	Engineering
L-30	Explain fusion and fission reaction.		

L-31	Explain working of nuclear power plants with		By
L-31	block diagram.		R.K Rajput
L-32	Explain the working of nuclear reactor.		Turr ragpat
L-33	Explain the construction of nuclear reactor.		
L-34	Compare the nuclear and thermal plants.		
L-35	Explain the disposal of nuclear waste.		
L-36	Selection of site for nuclear power stations		
L-37	List of nuclear power stations.		
L-38	Revision of above Topics		
	DIESEL ELECTRIC POWER STATIONS		
L-39	State the advantages and disadvantages of diesel		
L-39	electric power stations.		
L-40	Explain briefly different systems of diesel		
L 40	electric power stations.		
L-41	Explain briefly Fuel storage and fuel supply		
	system.		Power Plant
L-42	Explain briefly Fuel injection system.		Engineering
L-43	Explain briefly Air supply system, Exhaust	CH-4	By
	system, cooling system.		R.K Rajput
L-44	Explain briefly Lubrication system, starting		
	system, governing system.		
L-45	Selection of site for diesel electric power stations.		
L-46	Performance and thermal efficiency of diesel		
1 47	electric power stations.		
L-47	Revision of above Topics		
	HYDEL POWER STATIONS		
L-48	State advantages and disadvantages of		
	hydroelectric power plant. Classify and explain the general arrangement of		
L-49			Power Plant
L-50	storage type hydroelectric project. Explain operation of hydroelectric power plant.		
L-50 L-51	Selection of site of hydel power plant.	CH-5	Engineering
L-31	List of hydro power stations with their capacities		Ву
L-52	and number of units in the state.		R.K Rajput
L-53	Types of turbines and generation used.		
L-54	Slove simple problems.		
L-55	Revision of above Topics		
E 33	GAS TURBINE POWER STATIONS		
L-56	Selection of site for gas turbine stations.	СН-6	
L-57	Fuels for gas turbine.		Power Plant
L-58	Elements of simple gas turbine power plants.		
	Merits, demerits and application of gas turbine		Engineering
L-59	power plants.	By	•
L-60	Revision of above Topics		R.K Rajput
	1 1	l .	