

Batch – (D9 & D10) IJE							
2nd Session: 13-01-2025 to 22-03-2025, (Workshop 23, C&W 16)							
Class Teacher: Avadhesh Kumar							
Days/Period	I (09:40-10:40)	II (10:40-11:40)	III (11:55-12:55)	12:55 to 01:45 LUNCH	IV (01:45-02:45)	V (02:45-03:45)	VI (04:00-05:00)
Monday	Anurag	AY	MK		AdS	RCS	Alok
Tuesday	MK	NCJ	AKS		RCS	Alok	Anurag
Wednesday	NCJ	AdS	RCS		Anurag	AY	DK
Thursday	Alok	RCS	PR		AY	Anurag	AS
Friday	RCS	Alok	DK		AY	AKS	PR
Saturday	9:40-10:35 AKS	10:35-11:30 AY	11:40-12:35 Alok	12:35-01:30 AdS			

MET-06 --- Shri. NCJ (Ch. 1 to 6), Shri. Alok (7 to 9).

MET-07 --- Shri. Dipesh Kumar (Ch. 1 to 6), Shri. Anuj (Ch. 7 to 16)

MET-09 --- Shri. AKS (Ch. 1 to 5), Shri. AdS (Ch. 6 to 9).

MET-10 --- Shri. MK (Ch. 1 to 12), Shri. Anurag (Ch. 13 to 16).

MET-11 --- Shri. RCS.

MRT-13 --- Shri. Alok (Ch. 1 to 5), Shri. AS (Ch. 6, 7, 8), Shri PR (Ch. 9 to 12),

Shri. MK (Ch. 13, 14), Shri. Anurag (Ch. 15, 16), Shri Ads (Ch. 17, 18), Shri AS (Ch. 19)

MRT-10 --- Shri. NCJ (Ch. 1 to 5), Shri Anuj (Ch. 6 to 11).

Avadhesh  
Kumar

Sr. Lecturer (I/c)

STC/CB/LKO

Digitally signed by

Avadhesh Kumar

Date: 2025.01.11

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<b>SUBJECT NAME</b>	<b>STRENGTH OF MATERIALS</b>
<b>SUBJECT CODE</b>	<b>MET-06</b>
<b>MODULE</b>	<b>MJI</b>

<b>SL NO.</b>	<b>TOPIC</b>	<b>TIME IN HRS</b>
1	Introduction about materials & its properties	02
2	Simple stress and strain	12
3	Elastic constants	06
4	Centre of gravity	03
5	Moment of inertia	07
6	Shear force & bending Moment of beams	20
7	Stresses in beams	08
8	Torsion of shafts	08
9	Review	06
	<b>Total</b>	<b>72</b>

Shri NCJ

Shri Alok

*Aradhya*

SUBJECT NAME HEAT ENGINES & THERMODYNAMICS, REFRIGERATION & AIR CONDITIONING  
 SUBJECT CODE MET-07  
 MODULE MJI

SL NO.	TOPIC	TIME IN HRS
1	Introduction	02
2	Properties of Gases, Laws of Thermodynamics	06
3	Thermodynamic process of perfect gases	04
4	Heat and mass transfer	06
5	Steam	03
6	Air cycles	03
7	Internal combustion engines	06
8	IC Engine Systems	04
9	Testing of IC Engine	02
10	Compressors	04
11	Refrigerants	04
12	Refrigeration Cycles	06
13	Properties of moist air	06
14	Psychrometry of Air-Conditioning Process, Load calculation	08
15	Application of Air-conditioning in Railways	04
16	Reviews.	04
<b>Total</b>		<b>72</b>

Shri Dipesh Kumar

Shri Anuj

Anandh

SUBJECT NAME MATERIAL SCIENCE  
SUBJECT CODE MET-09  
MODULE MJI

SL NO.	TOPIC	TIME IN HRS
1	Introduction	02
2	Solid phases, phase diagrams and phase transformation, Iron carbon equilibrium diagram Heat treatment	03
3		06
4		02
5	Types of alloy steels	02
6	Non-ferrous metals	02
7	Paint, Enamel, Varnishes and lacquers	02
8	Classification of railway materials	02
9	Plastic and synthetic materials	02
	Review	03
	<b>Total</b>	<b>24</b>

*Aradhya*  
*9/11/2025*

SUBJECT NAME	MACHINE DESIGN AND DRAWING
SUBJECT CODE	MET-10
MODULE	MJI

SL NO.	TOPIC	TIME IN HRS
1	Introduction about Design principle	02
2	Design of keys	02
3	Design & Drawing of screw thread	04
4	Design of coupling	04
5	Design of welded joints	03
6	Design & Drawing of cotter & knuckle joints	04
7	Design & Drawing of Riveted joint	04
8	Design & Drawing of CAM profile	04
9	Design of Coil springs	03
10	Design of Laminated springs	02
11	Limits, Fits & Tolerance	04
12	Orthographic & Isometric Drawing of machine components	02
13	Assembly Drg of Foot Step Bearing	02
14	Assembly Drg of Plummer Block	02
15	Assembly Drg of Screw Jack	02
16	Assembly Drg of Tail Stock	02
17	Review	02
	<b>Total</b>	<b>48</b>

Shri  
MK

Shri Anurag

Anurag  
9/11/2025

SUBJECT NAME	INDUSTRIAL ENGINEERING
SUBJECT CODE	MET-11
MODULE	MJI
	Shri RCS

SL NO.	TOPIC	TIME IN HRS
1	Introduction	02
2	Method Study	04
3	Principle of Motion Economy	02
4	Plant Layout	02
5	Work Measurement	06
6	Network Techniques	06
7	Exercise on Network	02
8	Incentive Schemes in Railway Workshops	06
9	Job Evaluation and Merit Rating	03
10	Review	03
	<b>Total</b>	<b>36</b>

Aradhya  
9/11/2021

SUBJECT NAME	INTRODUCTION TO ROLLING STOCK
SUBJECT CODE	MRT-13
MODULE	MJI

SL NO.	TOPIC	TIME IN HRS
Shri Alok	1 Types of Coach and their nomenclature, Codal life, Transportation Codes, Coach numbering system	03
	2 Introduction of Coach Shell, ICF and LHB Coach	02
	3 Wheel set- wheel, axle & bearings	04
	4 Introduction of Different types of Bogie for Rolling Stock and Suspension system including Air Suspension	06
	5 Types of Draw and Buffing Gears in Coaches and Wagons. An Introduction	06
Shri AS	6 Air & EP Brake system, Brake riggings	09
	7 Furnishing items: ICF and LHB, EMU/MEMU coaches, Safety & amenity fittings	04
	8 Maintenance practice in coaching stock	03
Shri PR	9 Types of wagon stock, their nomenclature, Codal life, Transportation Codes, Wagon Numbering System	03
	10 Types of bogies in wagon stock	03
	11 Features of special wagons/latest wagons	03
	12 Pattern of freight train examination	03
Shri MK	13 Diesel locomotives - types, Introduction of Electric Loco, EMU/MEMU & Train-Sets	03
	14 Important systems in a diesel locomotive: Fuel oil, lube oil, cooling water, turbo supercharging & brake system	15
Shri Anurag	15 Electrical control system in Locomotives and Train-Sets/EMU/MEMU	06
	16 Latest development in Rolling Stock including Locomotives and Train-Sets	06
Shri AdS	17 DEMU: Power and Trailing cars, important features and systems	05
	18 SPART- Introduction, Basic arrangements, importance.	01
Shri AS	19 Weighbridge, WILD and other way side monitoring systems. Overview	03
	20 Visit to model room/coaching/wagon depot/workshop & loco shed	14
	21 Review	06
<b>Total</b>		<b>108</b>

Avad W  
 9/11/2023

SUBJECT NAME	Welding and Non-Destructive Testing
SUBJECT CODE	MRT-10
MODULE	MJR & MJI-W

SL NO.	TOPIC	TIME IN HRS
1	Welding - Principle and applications in various fabrication work, different types of Welding Processes, Weldability of material (MS & SS) and Welding metallurgy	03
2	Arc welding process and principle, tools required for Arc welding, Setting welding current & voltage, Maintenance of welding machine, SS Welding, Welding of dissimilar metals	06
3	Job preparation, Electrodes, Electrode selection for difference welding work, Types of Joints, Welding Symbols used in Drawings	03
4	Safety precautions, Do's & Don'ts	02
5	Special Welding Techniques: CO <sub>2</sub> welding- Method, precautions etc.; C.I. welding; MIG & TIG welding work; seam welding; submerged arc welding; flash butt welding	06
6	Different Cutting and Gauging Processes, Plasma Cutting Electrode Arc Cutting, OA Cutting, Laser Cutting	03
7	Introduction to NDT, Various types of NDT method like LPT, Magna flux, Radiography, Ultra Sonic Flaw Detection etc	04
8	Defects & remedies in welding	02
9	Robotic Welding, Welding Automation	02
10	ISO 3834, WPS Preparation and Welder Qualification	03
11	Review	02
	<b>Total</b>	<b>36</b>

Sheet  
NET

Sheet  
Anuj

Aradhya  
9/11/2023