

BHARATHIAR UNIVERSITY: COIMBATORE-641 046
POST GRADUATE DIPLOMA IN FLEET OPERATIONS AND
MANAGEMENT

(For the CPOP students admitted during the academic year 2012-2013 & Onwards)

Scheme of Examinations – CBCS Pattern

Title of the Paper	Ins. Hrs/week	Examinations				
		Duration. Hrs	CIA	Marks	Total	Credits
Semester - I						
1. PD FM 01 Elements of Fleet Management	5	3	25	75	100	4
2. PD FM 02 Motor Vehicle Act-I	5	3	25	75	100	4
3. PD FM 03 Safety and Security in Transportation	5	3	25	75	100	4
4. PD FM 04 Introduction to Over Dimensional Consignment	5	3	25	75	100	4
Semester - II						
5. PD FM 05 Motor Vehicle Act-II	5	3	25	75	100	4
6. PD FM 06 Operations Research Techniques for Fleet Management	5	3	25	75	100	4
7. PD FM 07 Vehicle Tracking System	5	3	25	75	100	4
8. PD FM 08 Elective Paper ODC Operations	5	3	25	75	100	4
Total	-	-	-	-	800	32

PD FM 01 Elements of Fleet Management

Unit-I

Fleet – functions of fleet management -Structures of fleet management-fleet manager-vehicle maintenance managers –key decision areas-data processing cost elements-Important areas in monitoring vehicle use -trip planning and routing-vehicle specifications– developing a sound vehicle management system.

Unit-II

Garage and fleet management - relationship between motor vehicle driver and mechanics - tools for garages- Vehicle maintenance organization chart, -tactical planning-centralized or Decentralized organizations.

Unit-III

Vehicle parts and supply management-the costs of inventory- price negotiation -price discounts -garage store -function of store keeping in garages-Layout of garage-organization of garage stores-maintenance and service schedules.

Unit-IV

Tyre selection and management-tyre types–retreading –basic process - retreading –tyre maintenance -economics of vehicle replacement .

Unit-V

Energy management-fuel economy - vehicle replacement strategies -shop management

References:

1. John Dolce, Fleet Maintenance, Mcgrawhill, Newyork, 1984
2. Analytical fleet maintenance management. John E.Dolce.
3. John Doke “Fleet Management” Mcgraw Hill Co.1984.
4. Automobile Engineering , MS Narang.

PD FM 02 Motor Vehicle Act - I**Unit I**

Definitions – necessity for driving licence – grant of learner's licence – grant of driving licence .

Unit - II

Renewal of driving licences – revocation of driving licence – power of court to disqualify – suspension of driving licence – effect of disqualification order – endorsement – maintenance of state registers of driving licences .

Unit - III

Registration of motor vehicle – assignment of new registration mark – no objection certificate – change of residence or place of business – transfer of ownership- alteration of motor vehicle – cancellation of registration – certificate of fitness .

Unit - IV

Control of transport vehicles – permits – grant of stage carriage permits – application for contract carriage permit - application for goods carriage permit – grant of goods carriage permit – procedure in applying for and granting permits – transfer permit.

Unit - V

Replacement of vehicles – general conditions attaching to all permits – general form of permits – cancellation and suspension of permit – temporary permits – validation of permits -- avoidance of contracts restrictive of liability .

References:

1. The Motor vehicles act by S. Pattabhiraman.
2. Motor vehicle act – 1988 by P K Sarkar
3. Law relating to compensation under the motor vehicles act by M R Sreenath.

PD FM 03 SAFETY AND SECURITY IN TRANSPORTATION**Unit - I**

Introduction to Safety , Need , Essence of Safety Management – Conventional Safety Programming - Occupational Safety Health Act – The Williams - Steiger Act- Safety Concepts – Types of Roads - Classification of Safety - Transport Safety – Road Safety- Goods Safety - Hazard Vehicle Safety - Road Safety - Material Handling Safety.

Unit - II

Introduction – Factors for Improving Transport Safety - Design, Selection, Operation and Maintenance of Motor Trucks - Preventive Maintenance - Check Lists- Motor Vehicles Act – Motor Vehicle Insurance , Carriers Act.

Unit - III

Introduction to Safety in Material Handling - Material Handling Equipment Safety - Crane Safety - Conveyer Safety – Fork Lift Truck Safety - Layout Design and Material Handling-Automotive Shop Safety - Shop Layout and Safety-Uses of Lashing Materials

Unit - IV

Transport Emergency Card (TREM) – Driver Training - Parking of Tankers/ODC Vehicle on the Highways - Speed of the Vehicle - Warning Symbols - Design of the Tanker /ODC Lorries -Static Electricity - Responsibilities of Driver - Inspection and Maintenance of Vehicles - Check List- loading and Decanting Procedures - Communication.

Unit - V

Supply Chain Security – Customs-Trade Partnership against terrorism – Container security Initiative – World Customs Organisation SAFE framework of standards – Operations Safe Commerce –LRIT or Long-Range Identification and Tracking of ships – SCS Technologies for Container Integrity: Track/Trace technologies – Advanced Inspection Technologies (AIT) .

References:

1. Popkes, C.A. "Traffic Control and Road Accident Prevention", Chapman and Hall Ltd, 1986.
2. Babkov, V.F., "Road Conditions and Traffic Safety", MIR Publications, Moscow, 1986.
3. Kadiyali, "Traffic Engineering and Transport Planning", Khanna Publishers, New Delhi, 1983.
4. Motor Vehicles Act, 1988, Government of India.
5. Stephen M.wagner, Christoph Bode – Managing Risk and Security – Hauph Verlay Publication

PD FM 04 INTRODUCTION TO OVER DIMENSIONAL CONSIGNMENT (ODC) CARRIERS

Unit -I

ODC – Prime mover- Trailer- Puller- MAN,FM -9, Volvo engine valve actuating mechanism, Turbo charger-Construction and operation, Diagnosis and service Maintenance - Intercooler- checks before starting the MAN engine –Inspection work and care procedures before starting the MAN engine.

Unit -II

ODC cooling and lubrication system - Engine cooling systems of various heavy vehicles-Cooling system troubleshooting Lubricating system components- Basic principles of Diesel fuel injection- Fuel system in MAN- Types - Fuel injection system.

Unit -III

Automotive mover clutches,Gears box,Drive line and suspension - Clutch components- troubleshooting – 9 speed gear box- Drive line,Propeller shaft- Final drive-Hypoid gear-Differential-Rear axle- Important rear axle drives- Suspension spring-Introduction -Types- Front wheel (dead axle) - Front axle steering-power steering.

Unit -IV

ODC Tyres and Brakes - Tyre-Introduction, types - MAN tyre specification- Wheel and tyre trouble shooting-Automotive brakes-Air brakes- Air brake Servicing-Brake system of MAN-Fifth wheel.

Unit -V

Automotive Electrical and electronic equipments - Automotive Electrical system – Electric circuit components-Starting system -Starting motor construction and operation- Charging system –operation and service-Electronic ignition systems-Sensor-Automotive application

References:

1. Automobile engineering, Dr.Kirpal singh;
2. Diesel Engineering, Sean Bennett;
3. Automobile Engineering, G.B.S NARANG
4. Owner's manual of MAN Force Trucks Pvt .Ltd.
5. [WWW.NTC](http://WWW.NTC.ODC.VEHICLES.COM) ODC VEHICLES.COM

PD FM 05 Motor Vehicle Act – II**Unit-I**

Constructions, equipments and maintenance of motor vehicles – control of traffic – limits of weight – power to restrict the use of vehicles – power to have vehicle weighted – power to erect traffic signs – parking places and halting stations.

Unit-II

Driving regulations duty to obey traffic signs –leaving vehicle in dangerous position – stationary vehicles – removal of motor vehicles abandoned or left unattended on a public place – safety measures for drivers and pillion riders – duty of owner of motor vehicle to give information – inspection of vehicle involved in accident.

Unit -III

Insurance of motor vehicle – necessity for insurance against third party risk – insurance claim settlement – effect of certificate of insurance – transfer of certificate of insurance .

Unit – IV

Offences, penalties and procedure – general provision for punishment of offence – driving dangerously– punishment for abetment of certain offences – racing and trials of speed – breath tests – power of police officer to impound document –restriction on conviction – courts to send intimation about conviction.

Unit – V

Power to levy fee – effect of appeal and revision on orders passed by original authority – repeal and savings -road safety councils and committees.

References:

- 1) The Motor vehicles act by S. Pattabhiraman.
- 2) Motor vehicle act – 1988 by P K Sarkar
- 3) Law relating to compensation under the motor vehicles act by M R Sreenath

PD FM 06 OPERATIONS RESEARCH TECHNIQUES**Unit – I**

Operations research, linear programme, and graphical method – definition – necessity of operations research in industry – scope – limitations – linear programming problems – graphical method – introduction – optimal solution – problems and solutions

Unit – II

Transportation model and assignment model – introduction – definition – methods – Uses of Transportation problem – Assignment problem – introduction – algorithm – Difference between the Transportation Model and Assignment Problem – problems and solutions

Unit – III

Sequencing models – introduction – definition – processing n jobs through 2 machines – processing n jobs through 3 machines – processing 2 jobs through m machines – processing n jobs through m machines – travelling salesman problem – problems and solutions

Unit – IV

Inventory models – introduction – deterministic inventory models – buffer stock – demand forecasting methods – inventory models with probabilistic demand – problems and solutions

Unit – V

PERT and CPM - Introduction – Planning – Scheduling – Control – Rules for Constructing a Project Network – Ford and Fulkerson's Rule – Critical Path – PERT Procedure – Basic Differences between PERT and CPM – Rules of Network Construction – Project – Network – Activity – Time cost Optimization Procedure – problems and solutions

References:

1. R. Panneerselvam, "Operations Research", Prentice Hall of India Private Limited, New Delhi 1 – 2005
2. P.K. Guptha and Man-Mohan, Problems in Operations Research – Sultan chand & Sons, 1994
3. Ravindran, Philips and Solberg, Operations Research Principles and Practice, John Wiley & Sons, Singapore, 1992
4. J.K.Sharma, Operations Research – Theory and Applications – Macmillan India Ltd., 1997

PD FM 07 VEHICLE TRACKING SYSTEM**Unit-I**

Introduction to vehicle tracking system - Active and Passive tracking system - Typical architecture - vehicle tracking system benefits - Advantages and disadvantages - common uses - unconventional uses.

Unit-II

Introduction to global positioning system - radio frequency identification tags - Received signal strength indication - Location based service - Inertial tracking devices - GPRS(general packet radio service).

Unit-III

GIS in vehicle tracking system - vehicle tracking system - GPS boon to fleet owners - practical uses of GPS - features and function of vehicle tracking system - positive and negative of vehicle tracking system.

Unit-IV

Methods of VTS in ancient era - modern VTS - GPS and GPRS - Types of GPRS units - Transportation law about VTS - Relation between GPRS and telecommunication - VTS hardware - GPRS accessories - VTS initialization and maintenance - VTS trouble shooting.

Unit-V

Introduction to sensors - Types of sensors - Vehicle tracking and traffic parameter collection - Alert monitoring via GPRS - intelligent of VTS - GPS manufactures, suppliers, vendors - criteria to select best VTS.

Reference:

1. "Comments to Access Board Docket Number 2007-1" (PDF). Office of Technical Information Services, APTA. January 20, 2009.
2. "Real-Time Muni Arrival Information Just a Free Call Away". San Francisco MTA. July 13, 2005.
3. "Cell phone bus tracking applications developed". Metro Magazine. April 2009.
4. Dr. Dennis D. McCrady. "The GPS Burst Detector W-Sensor". Sandia National Laboratories.

PD FM 08 ODC OPERATIONS

UNIT - I

ODC –functions of ODC- activities involved in ODC operations – leasing – approaches of leasing – operating lease, finance lease –structures of ODC management - forecasting in ODC operations - authority , delegation and decentralization –Training and development in ODC operation, performance appraisal - leadership styles in ODC operations.

UNIT - II

Hierarchy of ODC organization plans – safety precaution during ODC operations – planning of route survey- equipment purchasing – material handling equipments utilization – methods of loading and unloading of goods in trailers –type of trailer – type of roads-vehicle documents –selection of numbers of axles based on the weight of goods.

UNIT- III

Forecasting – classification of forecasting based on types of roads – travelling time to zero point – fuel requirements – traffic conditions –tractor and trailers requirements – forecasting enroute problems –driver Psychology.

Unit – IV

Delegation of Authority –Sources of formal authority - barriers to effective delegation – Guidelines for effective delegation to ODC in charges – responsibilities of ODC in charge , ODC drivers – responsibilities for material handling equipment operators, site in charge and flying squad.

Unit – V

Vehicle placement –assignment of drivers duty –Characteristics of Communication – Communication and ODC operation – Obstacle in communication –Training and development –induction Training – on the job training -refresher training.

References:

1. Dr.L.M.Prasad “Principles & Practice of Management” ,Sultan Chand & Sons
2. Hampton “Management” ,Tata McGraw Hill
3. J.S.Chandra “Management : Theory & Practice” ,Vikas Publications
4. John Cotton, “Employee Involvement”.