PERIYAR UNIVERSITY
SALEM – 636 011

PERIYAR INSTITUTE OF DISTANCE EDUCATION
(PRIDE)

DIPLOMA IN TRAFFIC EDUCATION AND ROAD SAFETY
ONE YEAR

REGULATION AND SYLLABUS
(Effective from the Academic Year 2015 - 2016)
ACADEMIC ELIGIBILITY FOR ADMISSION

Diploma in Traffic Education And Road Safety: +2 (10 + 2 Stream), Diploma, any Graduate

DURATION OF COURSE: One Year

COURSE OF STUDY AND SCHEME OF EXAMINATIONS:

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Title Of The Subject</th>
<th>Duration</th>
<th>Maximum Marks</th>
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<tr>
<td>1.</td>
<td>Transportation Planning</td>
<td>3 Hours</td>
<td>100</td>
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<td>2.</td>
<td>Traffic Education</td>
<td>3 Hours</td>
<td>100</td>
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<td>3.</td>
<td>Road Safety System</td>
<td>3 Hours</td>
<td>100</td>
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<td>4.</td>
<td>Environmental Impact Assessment Of Transportation Projects</td>
<td>3 Hours</td>
<td>100</td>
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<td>5.</td>
<td>Transport Economics &amp; Management</td>
<td>3 Hours</td>
<td>100</td>
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<td><strong>Total Marks</strong></td>
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<td><strong>500</strong></td>
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PASSING CRITERIA: The candidates shall be declared to have passed the examination, if they secure not less than 40 marks in each examination.

QUESTION PAPER PATTERN:

THEORY

Duration : 3 Hours

Maximum Marks : 100

Part – A (5 x 5 = 25 Marks)

Answer any 5 Questions

(Eight Questions to be asked)

1, 2, 3, ....8.

Part – B (5 x 15 = 75 Marks)

Answer any 5 Questions

(Eight Questions to be asked)

1, 2, 3, ....8.
OBJECTIVE:

The objective of the course is to educate the students on the various components of Highway and Transportation Planning. It exposes the students to highway planning and surveys for highway alignment, Geometric Elements of Highways and Urban roads, Rigid and Flexible pavements design. This course enables the students to develop skill on evaluation of the pavements and to decide appropriate types of maintenance.

UNIT I: INTRODUCTION

History of Road construction, Highway development in India – Jayakar Committee Recommendations and Realizations, Twenty Year Road Development Plans – Indian Roads Congress- Highway Research Board , National Highway Authority of India, Ministry Of Road Transport and Highways(MORTH), Central Road Research Institute.

UNIT II: HIGHWAY ALIGNMENT

Requirements of ideal alignment – Factors controlling highway alignment, Engineering Surveys for Alignment – Classification and Cross section of Urban and Rural roads.

UNIT III: HIGHWAY CROSS SECTIONAL ELEMENTS

Right of way , Carriageway , Camber, Kerbs, Shoulders, Footpath, Cross section of different class of roads, Design of horizontal alignment – Horizontal curves, Super elevation, Widening of pavements on Horizontal Curves and Transition Curves, Design of Vertical Alignment – Rolling , Limiting , Exceptional and Minimum gradients, Summit and Valley curves

UNIT IV: SIGHT DISTANCES

Factors affecting Sight Distance , PIEV Theory, Stopping Sight Distance (SSD), Overtaking Sight Distance(OSD), Sight Distance at Intersection, Intermediate Sight Distance- Problems in SSD and OSD. Geometric Design of Hill roads (IRC standards only)
UNIT V: FLEXIBLE AND RIGID PAVEMENTS & HIGHWAY MAINTENANCE

Rigid and Flexible pavements, Factors affecting Design of pavements – ESWL, Climate, Sub-grade Soil, Types of Defects in Flexible pavements – Surface defects, Cracks, Deformation, Disintegration, Symptoms, Causes and Treatments, Types of Pavement, failures in Rigid Pavements, Scaling, Shrinkage, Warping, Structural Cracks, Spalling of Joints and Mud Pumping and Special Repairs.

OUTCOME:

Students would be aware of the various components of the Highway and Transportation Planning, Basic Principles and Design, Planning and Management of Transportation System.

TEXT BOOKS:


REFERENCES:


7. Bureau of Indian Standards (BIS) Publications on Highway Materials

8. MORTH Guidelines for Highway Engineering


PAPER II: TRAFFIC EDUCATION

OBJECTIVE:
Provides a basic understanding on Traffic Education – Planning, Design, Operation and Management

UNIT I: TRAFFIC CHARACTERISTICS
Road Characteristics, Road User characteristics - Physical, Physiological, Environmental Characteristics, Traffic stream Characteristics, Vehicle characteristics – Static and Dynamic, Urban road and Rural road Characteristics

UNIT II: SURVEYS AND STUDIES IN TRAFFIC ENGINEERING
Traffic Surveys and studies – Volume and Capacity – Headway concepts and applications – Speed and Delay, Origin and Destination, Parking, Accident-Level of Services (LOS)

UNIT III: DESIGN OF TRANSPORT INFRASTRUCTURE

UNIT IV: ROAD INTERSECTION
At Grade Intersection – Uncontrolled, Channelization, Rotary, Traffic Signal Control, Signal Co-Ordination, GradeSeparated Intersection and Types.

UNIT V: TRAFFIC OPERATION
Traffic Sign, Road Markings, Traffic Control Aids, Hand Signals and Driving Techniques, Traffic Regulation,

OUTCOME:
Students would be aware of the basic Principles and Design, Planning and Traffic operation of Transportation system.
TEXT BOOKS:


REFERENCES:


5. Indian Roads Congress (IRC) specifications: Guidelines and special publications on Traffic Planning and Management


PAPER III: ROAD SAFETY SYSTEM

OBJECTIVES:
Helps in identifying the reasons for Road Accidents and Scientific Investigation. Provides knowledge on safety audit and its methodology.

UNIT I: DESCRIPTION OF PROBLEMS

UNIT II: ACCIDENT ANALYSIS TECHNIQUES
Collision Diagram – Preparation, Spatial Analysis of accidents – Methods and GIS in Accident Analysis – Black Spot Black Route and Area Identification.

UNIT III: BEFORE AND AFTER STUDIES

UNIT IV: ROAD SAFETY EQUIPMENTS & SAFETY AUDIT

UNIT V: ACCIDENT STUDIES AND INVESTIGATION

OUTCOME:
The students would have gained knowledge on different aspects of road safety audit and its methodology.

TEXT BOOKS:
REFERENCES:

1. Ministry of Surface Transport, "Accident Investigation and Prevention


PAPER IV: ENVIRONMENTAL IMPACT ASSESSMENT OF TRANSPORTATION PROJECTS

OBJECTIVE:
Provides an exposure to various Environmental Laws and importance of EIA on Transportation Projects with respect to noise, air pollution, visual intrusion etc.

UNIT :I ENVIRONMENTAL STANDARDS IN URBAN AREAS AND EIA
Laws concerned with protection of the environment such as Environmental Protection Act, Air and Noise Pollution Act, Motor Vehicle Act, Town and Country Planning Act, Development Control Regulation.

UNIT :II MEASUREMENT AND POLLUTION PREDICTION
Measurement of Air and Noise Pollution, Land Acquisition, Rehabilitation, Collection, Compilation and Presentation of Pollution and Impact Data, Measuring Impact before construction, at the time of construction and after construction

UNIT :III ENVIRONMENTAL QUALITY AND MANAGEMENT
Importance of EIA, Environmental Appraisal, EIA Statement, Vehicle and Traffic Noise, Ambient Noise Level, Heath Effects, Vibration – Damage to building, Exhaust Emission – Pollutant, Health effects, Air Pollution, Urban Ambient Air Quality Standards, Effects on Human being, Vegetation and Animals

UNIT :IV ENVIRONMENTAL MAINTENANCE AND LEGAL SYSTEMS

UNIT :V MITIGATIVE MEASURES AND POLICIES
Mitigative Measures for Air and Noise Pollution Policies and Strategies, Involvement of Stakeholders, Public Participation, Institutional Arrangements.

OUTCOME:
Students would have understood the impact of Transportation projects on the environment and to adopt mitigative measures in the planning stage.
**TEXT BOOKS:**


**REFERENCES:**


2. David Banister; "Transport Policy and Environment" E&FN Spain, 1999


PAPER V: TRANSPORT ECONOMICS & MANAGEMENT

OBJECTIVE:

Provides knowledge in economic evaluation and Public private partnership in developing road infrastructure projects and application of systems simulation techniques in modeling transport economic systems.

UNIT I ECONOMIC EVALUATION

Need for Economic Evaluation of Urban Transport Projects – Principles of Economic Analysis – Methods of Economic Evaluation – Comparison of various methods

UNIT II MODELING OF ROAD USER COSTS

Components of Vehicle Operating Cost – Factors affecting Vehicle Operating Cost – Value of Travel Time Saving - Accident Cost

UNIT III TRANSPORT DEMAND SUPPLY CONCEPT

Transport Demand and Supply Concepts - Status of Transport Demand Supply in Metropolitan Cities – Demand and Supply equilibrium - Subsidy in Transport demand – Supply Augmentation and Saturation Consideration

UNIT IV TRANSPORT PRICING


UNIT V FINANCING TRANSPORT SYSTEM

UNIT V: TRAFFIC MANAGEMENT


OUTCOME:
Students would be equipped with the economic principles in dealing with transport supply and demand.

TEXT BOOKS:

REFERENCES:

