

Faculty of Engineering & Technology
P.K. University
Shivpuri (MP)



**Evaluation Scheme & Syllabus for
Department Of Civil Engineering**

M.Tech (Transportation Engineering)

(I to IV Semester)

(Effective from session 2019-20)

EVALUATION SCHEME

M.TECH TRANSPORTATION ENGG.

Semester-I

		THEORY		PRACTICAL		TOTAL
SUBJECT CODE	SUBJECT NAME	SESS.(30)	EXT.(70)	SESS.(25)	EXT.(25)	
MTTP-101	Analysis and design of pavement structure	30	70	NA	NA	100
MTTP-102	Traffic Engg. And Management	30	70	NA	NA	100
MTTP-103	Transport planning	30	70	NA	NA	100
MTTP-104	Concrete Technology	30	70	NA	NA	100
MTTP-105	Environmental Impact Assessment	30	70	NA	NA	100
MTTP-106	Construction Management	30	70	NA	NA	100
MTTP-107	Lab Practice-I	NA	NA	25	25	50
MTTP-108	Seminar-I	NA	NA	25	25	50

Semester-II

		THEORY		PRACTICAL		TOTAL
SUBJECT CODE	SUBJECT NAME	SESS.(30)	EXT.(70)	SESS.(25)	EXT.(25)	
MTTP-201	Highway Construction and Maintenance	30	70	NA	NA	100
MTTP-202	Public Transport System	30	70	NA	NA	100
MTTP-203	Highway Geometrical Design	30	70	NA	NA	100
MTTP-204	Bridge and Tunnel Engineering	30	70	NA	NA	100
MTTP-205	Planning and Design of Airports	30	70	NA	NA	100
MTTP-206	Engineering Economics & Project Management	30	70	NA	NA	100
MTTP-207	Lab Practice-II	NA	NA	25	25	50
MTTP-208	Seminar-II	NA	NA	25	25	50

Semester-III

		THEORY		PRACTICAL		TOTAL
SUBJECT CODE	SUBJECT NAME	SESS.(30)	EXT.(70)	SESS.(25)	EXT.(25)	
MTTP-301	Dissertation Phase-I	NA	NA	300	300	600

Semester-IV

		THEORY		PRACTICAL		TOTAL
SUBJECT CODE	SUBJECT NAME	SESS.(30)	EXT.(70)	SESS.(25)	EXT.(25)	
MTTP-401	Dissertation Phase -II	NA	NA	300	300	600

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I Year I Semester***

MTTP-101: ANALYSIS AND DESIGN OF PAVEMENT STRUCTURES

Introduction , Importance and Functions of Various Components of Pavement Structures, Analysis of Stresses in Flexible and Rigid Pavements, Methods for Design of Flexible and Rigid Pavements, Design and Construction of Joints.

References

1. Highway Engineering- S.K. Khanna & C.E.G. Justo. Nem Chand & Bros;
2. Pavement Deign- Yoder & Witczak, John Wiley & Sons
3. Principles of Transportation Engineering- Chakroborti and Das, PHI Learning Pvt. Ltd.
4. IRC: 37-2012 “Guidelines for Design of Flexible Pavements
5. IRC: 58-2011 “Guidelines for Design of Rigid Pavements

MTTP-102: TRAFFIC ENGINEERING AND MANAGEMENT

Introduction, Traffic Characteristics, Traffic Studies, Urban Travel Characteristics, Design, Operation and Control of Traffic Facilities, Techniques for Traffic Management. Road Safety. Advance topic like Road Safety, traffic forecasting etc.

References

1. Traffic Engineering and Transport Planning- L.R. Kadiyali, Khanna Publisher.
2. Principles of Transportation Engineering- Chakroborti and Das, PHI Learning Pvt. Ltd.
3. Traffic Engineering- Matson, Smith and Hurd, McGraw-Hill Inc

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MTTP-103: TRANSPORT PLANNING

Hierarchical Levels of Planning, General Concept and Process, Travel Demand Estimation and Forecasting, Regional Transport Planning, Trip Generation Methods, Modal Split Analysis, Behavioral Approach, Two Stage Model Split Models. Trip Distribution, Growth Factor Method, Gravity Models, Intervening Opportunity and Competing Opportunity Models, Land Use Transport Planning Models, Network Assignment.

References

1. Traffic Engineering and Transport Planning, L.R. Kadiyali, Khanna Publisher.
2. Principles of Transportation Engineering, Chakroborti and Das, PHI Learning Pvt. Ltd.
3. Traffic Engineering - Matson, Smith and Hurd, McGraw-Hill Inc

MTTP-104: CONCRETE TECHNOLOGY

Introduction, Concrete Making Materials, Types of Concrete, Properties and Test of Fresh and Hardened Concrete, Concrete Mix Design Methods, Concrete Paving Mix Etc.

References

1. Concrete Technology- ,M.S. Shetty, S. Chand Publishers.
2. Concrete Technology- M.L. Ghambhir, McGraw Hill Education
3. Building Material - S. C. Rangwala, Charotar Publishing

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MTTP-105: ENVIRONMENTAL IMPACT ASSESSMENT

Nature of the problem, Impact analysis procedure for processing EIA and EIS, elements of EIA: air, water, noise etc, various methodology of EIA, case histories for transportation infrastructure projects.

References

1. Introduction to EIA - John Glasson, Taylor and Francis.
2. Environment Engineering - P. V Rao, Prentis Hall India Pvt. Ltd.

MTTP-106: CONSTRUCTION MANAGEMENT

Construction Management: Principle and Function of Management, Construction Site Management, Organization Charts and Manuals, Personnel in Construction, Welfare Facilities, Labor Laws and Human Relation, Safety Engineering, Specification and Types of Specification, Types of Contracts, Notice Inviting Tenders, Departmental Method of Construction, Security Deposit, Earnest Money, Administrative Approval, Technical Sanction, Condition of Contract and Arbitration, Accountancy & Book Keeping Cash Book Profit Bills and Loss Accounts Auditing of Bills and Vouchers, Various Forms Used in Construction Work, Measurement Book, Material at Site Account, Imprested Account, Stock Tools and Plants, Various Types of Bills

References

1. Construction Engineering and Management- P.S Ghalot, New Age International
2. Principal Of Construction Management- Roy Pilcher, McGraw-Hill Book Co
3. Estimation and Costing- B.N Datta, Sangam Books

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MTTP-107: LAB PRACTICE – I

Testing of Highway Materials and Pavement: Testing of Materials like Aggregates, Bitumen, Bituminous Mixes, Modified Bitumen, Emulsion, Benkelman Beam Studies.

References

1. Highway materials and pavement testing- Khanna, Justo and Veeraragavan, Nemchand & Bro.
2. Principle of Transportation Engineering- Chakroborti and Das PHI Learning Pvt. Ltd

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MTTP-201 HIGHWAY CONSTRUCTION AND MAINTENANCE

Sub-grade analysis and design, type of highway construction: WBM, WMM, DLC, type of bituminous construction: construction techniques and quality control, type of cement concrete construction, joints etc. highway maintenance.

References

1. Highway Engineering- S.K.Khanna& C.E.G. Justo, Nem Chand and Bro.
2. Principles of Transportation Engineering- Chakroborti and Das, PHI Learning Pvt. Ltd
3. MORTH Specification “Specification for Bridge and Roads Works”

MTTP-202 PUBLIC TRANSPORT SYSTEM

Mass Transportation Characteristics, Urban Public Transportation Planning, Terminals and their Functions, Basic Concepts for Analysis and Design of Public Transport Routes, Economic Evaluation Methods.

References

1. Traffic Engineering and Transport Planning- L.R. kadiyali, khanna Publishers.
2. Public Transportation Planning, Operation ,& Management- Gray, GE Hoel, L.A, Prentice Hall.

MTTP-203 HIGHWAY GEOMETRICAL DESIGN

Design Controls and Criterion, Cross Sectional Elements, Sight Distance, Horizontal and Vertical Alignment, Intersection Geometrics.

References

1. Principles of Transportation Engineering- Chakroborti and Das-PHI Learning Pvt. Ltd
3. Principles & Practice of Highway Engg.- L.R. Kadiyali, Khanna Publishers
4. Highway Engineering- S.K. Khanna & C.E.G. Justo, Nem Chand & Bros

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MTTP-204 BRIDGE AND TUNNEL ENGINEERING

Bridge Engineering; Introduction, Types of Bridges, Site Selection, IRC and Railway Loadings, Component Parts of Bridge Structure, Inspection and Maintenance of Bridges, Testing and Rehabilitation, Tunnel Engineering: Introduction, Terminology, Types of Tunnels, Tunnel Lining, Preliminary Investigations, Ground Improvement Techniques, Ventilation and Lighting, Tunnels in Difficult Ground Conditions.

References

1. Bridge Engineering- S.P. Bindra, Dhanpat Rai Publication
2. Railway, Bridge and Tunnel - B.L. Gupta, Standard Publications

MTTP-205 PLANNING AND DESIGN OF AIRPORTS

Basic Principles and Concepts Of Planning, Design Of Airports, Air Craft Characteristics, Runway Design, Modern Evaluation Techniques, Airport Marking and Lighting, Air Traffic.

References

1. Airport Planning and Design - S.K Khanna, Arora and Jain, Nem Chand Brothers
2. Planning and Design of Airports - Robert Horonjeff and Francis X. Mc, McGraw-Hill Education
3. Airport Engineering- G.V. Rao, McGraw-Hill Education.

**MTTP-206 ENGINEERING ECONOMICS AND PROJECT
MANAGEMENT**

Introduction Of Engineering Economics, Its Application & Principles, Economics Problems, Demand and Supply, Demand Forecasting Methods, Cost Estimation, Time Value of Money, Present Worth , Future Worth, Capitalized Cost and Annual Worth, Rate of Return Analysis Principal and functions of Project management, construction management of projects, project Planning, Bar Chart, CPM And PERT Analysis, Difference between CPM and PERT Analysis, Crashing of Network, Resource Leveling and Probability in PERT Analysis.

References

1. Basics of Engineering Economy- Leland Blank, P. E., McGraw-Hill Education.
2. CPM And PERT Analysis- K.R. Arora

Construction Engineering and Management- S. Seetharaman, Umesh Publications

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MTTP-207 LAB PRACTICE –II

Traffic Studies, Speed Studies, Traffic Volume Studies, O & D Studies, Parking and Accident Studies.

References

1. Traffic Engineering and Transport Planning- .R. Kadiyali, Khanna Publisher.
2. A Course in Traffic planning and Design- S.C Saxena, CBS, Publishers
3. Highway Engineering- S.K.Khanna& C.E.G. Justo, Nem Chand & Bros

