

GEOMETRIC DESIGN OF URBAN AND RURAL ROADS TRAINING

"Design Safe, Efficient, and Sustainable Roadways for Urban and Rural Environments."

Schedule

Venue (InHouse)	Fees
At Your Organization Premises	Ask For The Quotation

► **Available delivery methods:** In-House Training

Introduction

Roadway design plays a critical role in ensuring safe, efficient, and sustainable transportation systems. The Geometric Design of Urban and Rural Roads Training provides participants with the theoretical knowledge and practical skills necessary to design roads that meet traffic, safety, and environmental requirements.

This course covers principles of horizontal and vertical alignment, cross-section design, intersections, sight distance, traffic considerations, drainage, and applicable design standards for both urban and rural settings. Participants will gain hands-on experience in applying design standards, optimizing layouts, and solving practical design challenges to deliver safe and functional road infrastructure.

Objectives

By the end of this course, participants will be able to:

- Understand the principles and importance of geometric road design.
- Design horizontal and vertical alignments for urban and rural roads.
- Develop cross-sections, road shoulders, and pavement structures.
- Apply sight distance, stopping distance, and superelevation calculations.
- Plan intersections, roundabouts, and access points effectively.
- Consider traffic volumes, speed, and vehicle types in design decisions.
- Incorporate safety, environmental, and sustainability considerations.
- Ensure compliance with national and international road design standards.

Why Attend

Well-designed roads enhance safety, reduce congestion, and improve travel efficiency. This training equips engineers, designers, and planners with practical skills to design urban and rural roads effectively, minimize design errors, and deliver cost-efficient and safe transportation infrastructure.

Target Audience

This course is suitable for:

- Civil and Highway Engineers
- Road Designers and Urban Planners
- Transportation and Traffic Engineers
- Project Managers and Construction Supervisors
- Consultants and Technical Staff involved in road infrastructure projects
- Professionals involved in planning, designing, and maintaining road networks

Individual Benefits

- Gain hands-on knowledge in geometric road design principles.
- Learn to apply design standards and calculations for urban and rural roads.
- Enhance problem-solving and analytical design skills.
- Improve technical expertise in road alignment, cross-sections, and intersections.
- Increase professional credibility and career advancement opportunities.
- Gain confidence in delivering safe, efficient, and sustainable road designs.

Organizational Benefits

- Deliver high-quality, safe, and efficient road infrastructure.
- Reduce design errors, rework, and project delays.
- Improve compliance with national and international standards.
- Enhance project planning, resource utilization, and cost-effectiveness.
- Build in-house expertise in road design and traffic engineering.
- Support sustainable and resilient urban and rural transportation networks.

Instructional Methodology

The training employs a practical, interactive approach, including:

- Case studies of urban and rural road projects
- Hands-on exercises in geometric design calculations and layout planning
- Step-by-step tutorials on alignments, cross-sections, and intersections
- Group discussions and problem-solving workshops
- Assignments focused on real-world road design challenges
- Continuous feedback and Q&A sessions for reinforced learning

Course Outline

- Module 1: Introduction to Geometric Road Design – Principles and Importance
- Module 2: Design Controls – Traffic, Speed, Environment, and Safety Considerations
- Module 3: Horizontal Alignment – Curves, Superelevation, and Transition Design
- Module 4: Vertical Alignment – Grades, Vertical Curves, and Sight Distance
- Module 5: Cross-Section Design – Lane Widths, Shoulders, and Pavement Structure
- Module 6: Intersections, Roundabouts, and Access Management
- Module 7: Drainage, Safety Features, and Environmental Considerations
- Module 8: Design Standards and Guidelines – National and International
- Module 9: Case Studies – Urban and Rural Road Projects
- Module 10: Capstone Project – Designing a Complete Urban or Rural Road Segment

Certification

Upon successful completion, participants will receive a Certificate in Geometric Design of Urban and Rural Roads, validating their expertise in road design principles, alignment planning, and the practical application of geometric standards for safe and efficient transportation infrastructure.

Why Choose MAWA Events

- **Global Expertise:** More than 17 years of experience in professional training and consulting.
- **Industry-Leading Faculty:** Courses delivered by seasoned professionals with hands-on experience.
- **Practical Insights:** Learn to turn theory into actionable strategies for real-world business impact.
- **Client-Focused Solutions:** Customized programs designed to achieve your organisation’s unique goals.

In-House / Customized Training

Interested in running this course for your team?

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