

## GRADUATE DIPLOMA IN ENGINEERING (HIGHWAYS)

### BRIEF COURSE OVERVIEW

Code	Course	Course Outline
GEH7.301	<b>Wearing Surface Technology</b>	Wearing Surfaces: Types, properties, selection, materials. Surfacing Design & Construction: Chipseals, AC, Emulsions. Safety. Asphalt Plant production; Pavement Marking, Materials & Practice
GEH6.101	<b>Engineering Management</b>	Project Planning and project management fundamentals cost estimates;tender and contract documentation;administration and supervision of contracts;professional practice principles
GEH5.204	<b>Highway Engineering I</b>	Road material fundamentals, road construction practices, road maintenance techniques; road drainage desing principles
GEH6.203	<b>Traffic Engineering</b>	Traffic surveys; principles of traffic flow theory;traffic management;intersection design fundamentals;at-grade intersection design;road safety analysis principles and procedures, traffic facilities for non-vehicle road users
GEH7.311	<b>Road Asset Management</b>	Project Evaluation: Specific, Simplified, Full Procedures, Accident Analysis, Risk Analysis, Project Feasibility Report, Scheme Assessments. Quality Management: Concepts, Systems, Quality Plans. Asset and Maintenance Management: Lifecycle Asset Management, Contract types, Asset & Maintenance Management systems, Optimised Decision Making, Risk assessment, Maintenance Management.
GEH7.321	<b>Project Management</b>	Project Management: Principles & Functions. Cost, Time & Risk Management. Contract Management: Conditions of Contract, Costing, Tendering, Pricing Procedures, Variations, Time Extensions, Disputes.
GEH7.331	<b>Management Fundamentals</b>	Leadership; Operations Management; Planning & Control; Decision-making; Marketing; Employment Relations; Human Resource Management; Change Management; Establishing a Business; Office Functions.
GEH7.381	<b>Engineering Economics</b>	Accounting: Principles; Financial Statements; Costing & Budgeting. Economics: Concepts; Principles; Resources; Supply & Demand; GDP.
GEH7.341	<b>Geometric Design</b>	Geometric Design Criteria and Standards; Horizontal & Vertical Alignment Design and Coordination; Speed Environment Concept; Safety;
GEH7.351	<b>Drainage Design</b>	Road Drainage Components & Hydraulics; Surface Drainage; Urban Storm-water Drainage Systems; Subsurface Drainage Systems; Culvert Design; External Loadings on Pipes; Environmental Impact Assessment & Management
GEH7.361	<b>Pavement Design</b>	Pavement Design: Fundamentals; Material Properties & Characterisation; Design Traffic Determination; Mechanistic Analysis; Pavement Rehabilitation Design; Computer Applications
GEH7.371	<b>Traffic Operations &amp; Planning</b>	Traffic Surveys; Traffic Flow Theory; Capacity Analysis; Intersection Design; Parking; Traffic & Transportation Planning; Road Crash Investigations