

CVX7346 Ground Improvement Techniques

Level	7
Course Code	CVX7346
Course Title	Ground Improvement Techniques
Credit value	3
Core/Optional	Elective (Civil Engineering)
Course Aim/s	To introduce various types of improvement methods of engineering properties of soils and to introduce the application of engineering methods to ground improvement projects.
Course Learning Outcomes (CLO):	<p>At the completion of this course student will be able to:</p> <p>CLO1: Identify the problems of soft soils and methods of improving their behavior. [Uni-structural]</p> <p>CLO2: Analyze problematic situations and recommend the most suitable ground improvement method for a range of problematic soils. [Multi-structural]</p> <p>CLO3: Conduct detailed design calculations for different ground improvement techniques and communicate the ground improvement design through a detailed calculation report. [Multi-structural]</p> <p>CLO4: Recommend the method of construction for different ground improvement techniques. [Multi-structural]</p> <p>CLO5: Conduct tests to assess the performance of ground improvement methods. [Multi-structural]</p>
Content (Main topics, sub topics)	<p>Outline Syllabus:</p> <p>Unit 1: Introduction Session 01: Introduction to Ground Improvement Techniques Session 02: Typical methods of ground improvement</p> <p>Unit 2: Compaction Session 03: Surface compaction: Construction Method Session 04: Surface compaction: Monitoring & Testing Session 05: Deep compaction: Construction Method Session 06: Deep compaction: Monitoring & Testing</p> <p>Unit 3: Mixing Session 07: Surface mixing: Construction Method Session 08: Surface mixing: Monitoring & Testing Session 09: Deep mixing: Construction Method Session 10: Deep mixing: Monitoring & Testing</p> <p>Unit 4: Preloading Session 11: Preloading: Construction Method Session 12: Preloading: Monitoring & Testing</p> <p>Unit 5: Vertical Drains Session 13: Vertical Drains: Theory Session 14: Vertical Drains: Construction Method Session 15: Vertical Drains: Monitoring & Testing</p> <p>Unit 6: Granular Piles Session 16: Granular Piles: Theory Session 17: Granular Piles: Construction Method Session 18: Granular Piles: Monitoring & Testing</p> <p>Unit 7: Jet Grouting Session 19: Jet Grouting: Theory Session 20: Jet Grouting: Construction Method Session 21: Jet Grouting: Monitoring & Testing</p> <p>Unit 8: Reinforced Earth Session 22: Reinforced Earth: Theory</p>

Session 23: Reinforced Earth: Construction Method
Session 24: Reinforced Earth: Monitoring & Testing

Design Class:

Design exercises to cover all aspects of ground improvement techniques and Case studies on real projects done in Sri Lanka and elsewhere