

AGI4555 Irrigation and Drainage Engineering

<b>Level</b>	4
<b>Course Code</b>	AGI4555
<b>Course Title</b>	Irrigation and Drainage Engineering
<b>Credit value</b>	5
<b>Core/Optional</b>	Core (Agriculture)
<b>Course Aim/s</b>	To provide the knowledge on irrigation and drainage principles and applications for sustainable agriculture
<b>Course Learning Outcomes (CLO):</b>	<p>At the completion of this course student will be able to:</p> <p>CLO1: Estimate the irrigation water requirement based on crop evapo-transpiration [PLO12].</p> <p>CLO2: Design irrigation canal based on irrigation scheduling [PLO11, PLO12].</p> <p>CLO3: Understand the dams, hydraulic structure and management and maintenance [PLO11, PLO12].</p> <p>CLO4: Explain the soil management techniques and reclamation of saline and sodic soils [PLO11, PLO12].</p> <p>CLO5: Understand the importance of drainage in agricultural lands [PLO11, PLO12].</p> <p>CLO6: Design and maintain surface and sub surface drainage systems[PLO11, PLO12].</p>
<b>Content (Main topics, sub topics)</b>	<p><b>Outline syllabus</b></p> <p>Unit 01: Crop water and irrigation water requirement            Session 01: The practice of irrigation            Session 02: Evapo-transpiration            Session 03: Measurement of crop water requirement            Session 04: Estimation of crop water requirement            Session 05: Irrigation scheduling I            Session 06: Irrigation scheduling II            Session 07: Irrigation method I            Session 08: Irrigation method II            Session 09: Land preparations for irrigation practices            Session 10: Design canals</p> <p>Unit 02: Water for irrigation            Session 11 : Reservoirs for irrigation            Session 12 : Irrigation water distribution            Session 13 : Dams for irrigation            Session 14 : Hydraulic structures for water control            Session 15 : Irrigation scheme operation            Session 16 : Maintenance of irrigation scheme            Session 17 : Irrigation scheme and public health and environment            Session 18 : Saline, sodic soils and saline water            Session 19 : Management of rehabilitation works            Session 20 : Historical background of irrigation in Sri Lanka            Session 21 : Pre and Post-Independence Period</p> <p>Unit 3: Drainage for Agricultural Land            Session 22: Importance of drainage            Session 23: Theories of drainage I</p>

	<p>Session 24: Theories of drainage II</p> <p>Session 25: Drainage investigation and scope for improvement I</p> <p>Session 26: Drainage investigation and scope for improvement II</p> <p>Session 27: Drainage design Criteria I</p> <p>Session 28: Drainage design Criteria II</p> <p>Session 29: Drainage machinery I</p> <p>Session 30: Drainage machinery II</p> <p>Unit 4 Drainage Problems and Maintenance</p> <p>Session 31: Drainage problems and practices in Sri Lanka I</p> <p>Session 32: Drainage problems and practices in Sri Lanka II</p> <p>Session 33: Surface drainage I</p> <p>Session 34: Surface drainage II</p> <p>Session 35: Subsurface drainage systems I</p> <p>Session 36: Subsurface drainage systems II</p> <p>Session 37: Maintenance of drainage systems I</p> <p>Session 38: Maintenance of drainage systems II</p> <p><b>Laboratory work: Yes</b></p> <ol style="list-style-type: none"> <li>1. Determine the co-efficient of velocity, co-efficient of discharge and co-efficient of contraction – flow through the orifice.</li> <li>2. Determination of the distribution uniformity, uniformity co-efficiency of a sprinkler irrigation system.</li> <li>2. Identification of energy losses pipe line.</li> </ol>
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