

University of Waterloo
 Department of Electrical and Computer Engineering
E&CE 462 ELECTRIC DISTRIBUTION SYSTEMS
 Spring 2021
Lectures Schedule

Chapter	Start Date	Number of Weeks	Title	Topics
1	May 10,2021	1	Distribution System Overview	<ol style="list-style-type: none"> 1. Sub-transmission systems 2. Distribution Substation 3. Primary Distribution 4. Secondary distribution 5. Ontario LDCs
2	May 17, 2021	2	Load characteristics and metrics	<ol style="list-style-type: none"> 1. Individual Customer Load 2. Distribution Transformer Loading 3. Feeder Load
3	May 31, 2021	1	Distribution System Feeder Modelling	<ol style="list-style-type: none"> 1. Overhead lines modelling 2. Underground cables modelling
4	June 7, 2021	3	Voltage Drop and power loss Calculations	<ol style="list-style-type: none"> 1. Voltage-Drop Calculations Using Allocated Loads 3. Voltage-Drop Calculations Using the approximate method 4. Voltage-Drop Calculations Using the K factors 5. Voltage-Drop Calculations Using the uniformly distributed load model 4. Voltage-Drop Calculations Using the exact lumped load model 6. Voltage-Drop Calculations Using lumping the loads in geometric configurations 7. Power loss calculations 8. Load Flow analysis

Mid-term :

Time and Location TBA

5	June 28, 2021	1	Distribution System Reliability	<ol style="list-style-type: none">1. Distribution Reliability2. Standard Reliability Metrics3. Information Required for Reliability Evaluation4. Predictive Reliability Evaluation5. Methods to improve reliability
6	July 5, 2021	2	Application of Voltage regulators	<ol style="list-style-type: none">1. Quality of Service and Voltage Standards2. Voltage Regulation3. Step-Voltage Regulators4. Line Drop Compensators (LDC)5. Voltage Regulators Data and Ratings calculations6. Three-phase Voltage Regulators
7	July 19, 2021	2	Application of Capacitors	<ol style="list-style-type: none">1. Capacitor use in the Distribution network2. Capacitor Ratings3. Power Factor Correction4. Fixed Shunt Capacitors5. Approach for Sizing Fixed Capacitance6. Reducing Line Losses7. Optimum Capacitor Size and Location8. Capacitor banks switching control