

## HCT-Sharjah Colleges, Engineering Department, Course Delivery Plan

(Faculty Name: Dr. Haris M. Khalid )

Code: **EEL 2023/ELE 2303** Course Title: **Power Generation and Transmission**

Credit Hours: **3**

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W	Topic Covered		Assessment
1	Day 1 Representation Day 2 <b>LO1</b> Sub-outcome 1: Explain the demand of base - power stations, intermediate - power stations, and peak- generation power stations.	LO1	
2	Day 1 Sub-outcome 2: Describe the layout of thermal, hydropower, nuclear, solar and wind power generation plants. Day 2 layout of thermal, hydropower, nuclear, solar and wind power plants.	LO1	
3	Day 1 Sub-outcome 3: Identify the size, efficiency, availability and capital of generation for electrical power generation plants. Day 2 <b>LO2</b> Sub-outcome 1: Identify the structure and the main components of thermal power plants.	LO1	Quiz 1 LO1
4	Day 1 Sub-outcome 1: Identify the structure and the main components of thermal power plants. Day 2 Sub-outcome 2: Describe various types of boilers and combustion process.	LO1 LO2	
5	Day 1 Sub-outcome 3: List types of turbines, explain the efficiency of turbines, impulse turbines, reaction turbines, operation and maintenance, and speed regulation, and describe turbo generator. Day 2 Sub-outcome 4: Explain the condenser cooling - water loop.	LO2	
6	Day 1 Sub-outcome 5: Discuss thermal power plants and the impact on the environment. Day 2 Sub-outcome 5: Discuss thermal power plants and the impact on the environment.	LO2	
7	Day 1 Exam 1 LO1&2 Day 2 <b>LO3</b> Sub-outcome 1: Describe the components of an electrical power system.	LO2 LO3	Exam 1+ Quiz II
8	Day 1 Sub-outcome 2: Identify types of power lines, standard voltages, and components of high-voltage transmission lines (HVTL). Day 2 Sub-outcome 3: Describe the construction of a transmission line, galloping lines, corona effect, insulator pollution, and lightning strikes.	LO3	
9	Day 1 Sub-outcome 4: Explain transmission system stability in regards to power transfer, power flow division, and transfer impedance. Day 2 Quiz 3 LO3	LO3	
10	Day 1 <b>LO4</b> Sub-outcome 1: List the types of conductors used in power transmission line. Day 2 Sub-outcome 1: List the types of conductors used in power transmission line.	LO4	
11	Day 1 Sub-outcome 2: Develop the expression for the inductance and capacitance of a simple, single-phase, two wire transmission line composed of solid round conductors. Day 2 Quiz 4 LO4	LO4	
12	Day 1 Sub-outcome 3: Deduce the expression for the inductance and capacitance of a simple, single-phase composite (stranded) conductor line. Day 2 Sub-outcome 4: Derive the expression for the inductance and capacitance of three-phase lines having symmetrically and asymmetrically spacing and for bundled conductors.	LO4	
13	Day 1 Sub-outcome 4: Derive the expression for the inductance and capacitance Day 2 Sub-outcome 5: Discuss the effect of earth on the capacitance of three-phase transmission lines.	LO4	
14	Exam 2 LO3&4	LO4	Exam 2/Quiz 3
15	Rev	LO1-4	

**Assessment Strategy:**

Final Exam: 30 %

Quiz 1,2,3: 12 %

Labs 1,2,3,4,5: 12%

Project Presentation: 6%

Midterm I: 20 %

Midterm II: 20 %