

SEMESTER <i>Fifth</i>	DEPARTMENT <i>Power Engineering</i>	COURSE TITLE <i>Transmission Systems</i>
COURSE CODE <i>EP507</i>	HOURS: 3 UNITS: 3	COURSE SPECIFICATIONS <i>Theoretical Content</i>
<p>1. Describes the Layout of the Transmission System & Calculates the R, L And C of the Overhead Transmission Line.</p> <ul style="list-style-type: none"> ➤ Define the main components of the transmission system. ➤ Calculate the line parameters used in estimating the transmission line constants; A, B, C and D. 		
<p>2. Classify the Transmission Line According to Its Length and Studies the Characteristics of Each.</p> <ul style="list-style-type: none"> ➤ Explains the operating characteristics of the short, medium, and long transmission lines (such as the voltage drop, voltage regulation, power factor, and transmission efficiency). 		
<p>3. Determines the Main Features of the Mechanical Design of the Transmission System and Its High Voltage Considerations.</p> <ul style="list-style-type: none"> ➤ Define types of supports (towers and poles), types of conductors, types of insulators, maintenance of insulators, voltage division on an insulator. ➤ Define flashover voltage and insulator chain efficiency. ➤ Calculate: <ul style="list-style-type: none"> • Sag and clearance in the overhead line (at the same support level and at different levels). • Effect of wind and snow on sag calculation. • Ferranti effect. • Corona losses. • Selection of transmission voltage level. • Bundle conductors. 		
<p>4. Studies the Characteristics of the High Voltage Cables.</p> <ul style="list-style-type: none"> ➤ Define types of high voltage cables. Types of insulating materials used in cables. ➤ Derive comparison between cables and overhead lines. 		

- Calculate capacitance and dielectric resistance. Dielectric loss and loss angle, and electric stress in cables

5. Study the Features of the High Voltage DC Transmission.

- Know the main characteristics of the high voltage transmission with DC voltage and the types of stations used in connection with the main grid.
- Explain the boundary conditions for circular waveguides.

References:

1. Dr.Asir and Dr. Megahed, Book, *Electrical Power System*.