Topics discussed beyond the syllabus:

Electro Magnetic Fields:

Beyond the syllabus:

Sl. No	Description	Source for Discussion	Relevance with POs	Relevance with PSOs
1	Establishment of communication between mind and Body through Neuro cells and through polarization	Electro magnetics by Gauss	PO1, PO2,PO3	PSO1, PSO2
2	Analytical calculations of magnetic field in air gap	NPTEL & M G Say	PO1, PO2,PO3	PSO1, PSO2
3	Effects of Electro Magnetic fields on Human Body and plants	Electro magnetics by Gauss	PO1, PO2,PO3	PSO1, PSO2

DESIGN BASED PROBLEMS:

1. Methods for the solution of open boundary electromagnetic field problems with translation symmetry.
2. Modeling of micro-wave circuit using electromagnetic field simulation.
3. In order to design power cable and related equipment and also normal joints and sealing ends, three electric field analysis techniques are required. Electrostatic field analysis takes into account the insulator's permittivity, solely to find the electric field distribution. The voltage distribution in electrical power equipment that is operated with commercial alternating current (AC current of 50 Hz or 60 Hz) is determined by the permittivity. Hence in order to design power cable electric field analysis due to conductor and dielectric must be taken into account.
4. Design of Machine winding (Generator/ Transformer by following Vector and Scalor magnetic potential.

Electrical Machines II

Beyond the syllabus:

Sl. No	Description	Source for Discussion	Relevance with POs	Relevance with PSOs
1	Design of Electrical machines	NPTEL	PO1, PO2,PO3	PSO1, PSO2
2	Ventilation of Generator and Transformer	M G Say	PO1, PO2,PO3	PSO1, PSO2
3	PLC based Control systems	MOOC courses	PO1, PO2,PO3	PSO1, PSO2

DESIGN BASED PROBLEMS:

1. Conditions in air gap between stator and rotor in the design of electrical machines.
2. Estimation of capacitance between turn to turn of a transformer winding to predict the winding insulation.

Computer Methods in Power Systems:

Beyond the syllabus:

Sl. No	Description	Source for Discussion	Relevance with POs	Relevance with PSOs
1	Load Flow Analysis graphical illustration using power world simulator.	www.power world.com	PO1, PO2,PO3, PO5	PSO1, PSO2
2	Admittance and Impedance matrix formation using MATLAB program	MATLAB software	PO1, PO2,PO3, PO5	PSO1, PSO2
3	SMIB analysis	NPTEL	PO1, PO2,PO3	PSO1, PSO2

DESIGN BASED PROBLEMS:

1. Load flow analysis for 3-bus power system for convergence with and without acceleration factor
2. Formation of Impedance bus matrix with mutual coupling between the lines
3. Stability analysis for SMIB systems

Power Systems – II

Beyond the syllabus:

Sl. No	Description	Source for Discussion	Relevance with POs	Relevance with PSOs
1	Corona phenomenon	NPTEL	PO1, PO2,PO3	PSO1, PSO2
2	Latest line insulators and supports for transmission line	NPTEL	PO1, PO2,PO3	PSO1, PSO2
3	Latest underground HV Cables	NPTEL	PO1, PO2,PO3	PSO1, PSO2

DESIGN BASED PROBLEMS:

1. EHV effects on corona.
2. Effects of pollution on line insulators.
3. Finding fault location in the underground cables.