Module No.	Unit No.	Topics	Hrs.
1.0		**Introduction to Static fields**	**06**
	1.1	Charge, Coulomb's law, Charge configurations, Electric field intensity, Electric flux density, Gauss's law and applications, Current density, and Continuity equation	
	1.2	Scalar Electric Potential, Potential gradient, Laplace's and Poison's equations	
	1.3	Biot Savart Law, Ampere Circuit law, Gauss's law for magnetic field, Vector magnetic potential	
2.0		**Electromagnetic Field and Maxwell's Equations**	**09**
	2.1	Faraday's Law, Displacement current density, Maxwell's equation for time varying filed, Boundary conditions.	
	2.2	EM wave propagation through lossy, perfect dielectric and conducting medium.	
	2.3	Power in EM Wave: Poynting theorem and Poynting vector	
3.0		**Basic of Antennas**	**08**
	3.1	Basic concepts: Radiation mechanism, Near field and far field radiation, retarded potential	
	3.2	Antenna Parameters: Isotropic antenna, Radiation pattern, radiation intensity, Beamwidth, directivity, Gain, beam efficiency, bandwidth, polarization, Input impedance, Antenna efficiency, Radiation resistance, Loss resistance, aperture concept, FRII's transmission formula	
	3.3	Wire Elements: Infinitesimal dipole, Wire dipole, Monopole antennas: radiation field derivations and related parameters, Introduction to loop antenna	
4.0		**Antenna Arrays**	**06**
	4.1	Linear arrays of two isotropic point sources, linear arrays of N elements, Principle of pattern multiplication	
	4.2	Introduction to Planner and circular arrays Introduction to array synthesis using Binomial array	
5.0		**Types of antennas**	**06**
	5.1	Yagi antenna, Broadband antenna like Helical and Log Periodic antenna Horn Antennas**:** E-Plane Sectoral Horn, H-Plane Sectoral Horn, Pyramidal Horn and Conical Horn	
	5.2	Reflector Antennas: Plane Reflectors, Corner Reflectors and Parabolic Reflector	
	5.3	Patch Antenna: Microstrip antenna, Feeding Techniques, Introduction to design of Microstrip antenna (Rectangular and circular patch)	
6.0		**Electromagnetic Wave Propagation**	**04**
	6.1	Ground Wave Propagation, Sky Wave Propagation and Space Wave Propagation	
		Total	**39**