

14P1WPH114 Antenna Theory

Subject Code	14P1WPH114		
Subject Name	Antenna Theory		
Credits	3	Contact Hours	3
Module No.	Subtitle of the Module	Topics	
1.	Fundamental Concepts:	Physical concept of radiation, Radiation pattern, near- and far-field regions, reciprocity, directivity and gain, effective aperture, polarization, input impedance, efficiency, Friis transmission equation, radiation integrals and auxiliary potential functions.	
2.	Radiation from Wires and Loops:	Infinitesimal dipole, finite-length dipole, linear elements near conductors, dipoles for mobile communication, small circular loop.	
3.	Aperture Antennas:	Huygens' principle, radiation from rectangular and circular apertures, design considerations, Babinet's principle, Radiation from sectoral and pyramidal horns, design concepts.	
4.	Broadband Antennas:	Broadband concept, Log-periodic antennas, frequency independent antennas.	
5.	Microstrip Antennas:	Basic characteristics of microstrip antennas, feeding methods, methods of analysis, design of rectangular and circular patch antennas.	
6.	Antenna Arrays:	Analysis of uniformly spaced arrays. Excitation of arrays, Linear, Planer and Circular array.	
7.	Basic Concepts of Smart Antennas:	Concept and benefits of smart antennas, Fixed weight beamforming basics, Adaptive beamforming	

Recommended Reading (Books/Journals/Reports/Websites etc.: Author(s), Title, Edition, Publisher, Year of Publication etc. in IEEE format)	
1.	C.A.Balanis, "Antenna Theory and Design", John Wiley & Sons.,
2.	W. L.Stutzman, and G.A. Thiele, "Antenna Theory and Design",,, John Wiley & Sons.,
3.	R.S.Elliot, "Antenna Theory and Design", Revised edition, Wiley-IEEE Press.,