

**UTKALMANI GOPABANDHU INSTITUTE OF**  
**ENGINEERING,ROURKELA**



**LESSON PLAN**

**SESSION-2022-2023**

**DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING**

**UTKALMANI GOPABANDHU INSTITUTE OF ENGINEERING, ROURKELA**



**LESSON PLAN**

**DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING**

**SUBJECT CODE:** Th.4

**NAME:** wave propagation and Broadband Communication  
**BRANCH:** ELECTRONICS & TELECOMMUNICATION

**SEMESTER:** DIPLOMA -V

**PERIODS PER WEEK:** 4

**NAME OF THE FACULTY:** MANINI MONALISA PRADHAN

**No. of periods per week:** 4(As per AICTE)

**No of classes allotted per week offline mode:** 04(15/09/2022 to 22/12/2022)

Week/Date	Lecture	Topic to be covered	Remarks
1 <sup>st</sup> week 15/09/2022 to 17/09/2022	1 <sup>st</sup>	Effect of environments such as reflection, Interference, Diffraction	
2 <sup>nd</sup> week 19/09/2022 to 24/09/2022	1 <sup>st</sup>	Classification based on modes of propagation	
	2 <sup>nd</sup>	Ground wave	
	3 <sup>rd</sup>	Ionosphere	
	4 <sup>th</sup>	Sky wave	
3 <sup>rd</sup> week 26/09/2022 to 01/10/2022	1 <sup>st</sup>	Space wave propagation	
	2 <sup>nd</sup>	Critical frequency	
	3 <sup>rd</sup>	Maximum usable frequency	
	4 <sup>th</sup>	Skip distance	
4 <sup>th</sup> week 03/10/2022 to 08/10/2022	1 <sup>st</sup>	Fading	03/10/2022 to 08/10/2022(holiday) Need four extra classes for adjustment
	2 <sup>nd</sup>	Dot propagation	
	3 <sup>rd</sup>	Troposphere scatter, actual height , virtual height	
	4 <sup>th</sup>	Radiation mechanism and Maxwell equation	
5 <sup>th</sup> week 10/10/2022 to 15/10/2022	1 <sup>st</sup>	Antenna gain ,directivity, effective aperture, polarization	
	2 <sup>nd</sup>	Input impedance, efficiency, Radiator resistance	
	3 <sup>rd</sup>	Bandwidth, beam width, radiation pattern	
	4 <sup>th</sup>	Antenna types- monopole,dipole,omnidirectional	

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6 <sup>th</sup> week 17/10/2022 to 22/10/2022	1 <sup>st</sup>	Yagi, Rohmbus, Dish and smart antenna	
	2 <sup>nd</sup>	Fundamentals of transmission line	
	3 <sup>rd</sup>	Equivalent circuit of transmission line	
	4 <sup>th</sup>	Characteristics impedance, losses in transmission line	
7 <sup>th</sup> week 24/10/2022 to 29/10/2022	1 <sup>st</sup>	SWR, VSWR, Reflection coefficient	24/10/2022(holiday) Need one extra class for adjustment
	2 <sup>nd</sup>	Quarter wave and wavelength line	
	3 <sup>rd</sup>	Impedance matching	
	4 <sup>th</sup>	Stubs -single and double	
8 <sup>th</sup> week 31/10/2022 to 05/11/2022	1 <sup>st</sup>	Primary and secondary constant of transmission line	
	2 <sup>nd</sup>	Aspect ratio, Rectangular switching, flicker	
	3 <sup>rd</sup>	Horizontal Resolution, video bandwidth	
	4 <sup>th</sup>	Line scanning, Composite video signal, synchronisation pulses	
9 <sup>th</sup> week 07/11/2022 to 12/11/2022	1 <sup>st</sup>	Monochrome Tv Receiver block diagram and functions	08/11/2022(holiday) Need one extra class for adjustment
	2 <sup>nd</sup>	Colour Tv signal -Luminance and chrominance signal	
	3 <sup>rd</sup>	CRT TV, Plasma display panels	
	4 <sup>th</sup>	Digital light processing, LCD	
10 <sup>th</sup> week 14/11/2022 to 19/11/2022	1 <sup>st</sup>	OLED	
	2 <sup>nd</sup>	QLED	
	3 <sup>rd</sup>	LCD	
	4 <sup>th</sup>	Large screen display	

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11 <sup>th</sup> week 21/11/2022 to 26/11/2022	1 <sup>st</sup>	CATV system and type of Network	
	2 <sup>nd</sup>	Digital TV, Transmission of digital TV signal	
	3 <sup>rd</sup>	Define Microwave and waveguide	
	4 <sup>th</sup>	Operation of Rectangular Waveguide	
12 <sup>th</sup> week 28/11/2022 to 03/12/2022	1 <sup>st</sup>	Propagation of EM wave	
	2 <sup>nd</sup>	Circular waveguide	
	3 <sup>rd</sup>	Working of circular waveguide	
	4 <sup>th</sup>	Operational cavity resonator	
13 <sup>th</sup> week 05/12/2022 to 10/12/2022	1 <sup>st</sup>	Directional coupler	
	2 <sup>nd</sup>	Isolator, Circulator Coupler	
	3 <sup>rd</sup>	Principle of two cavity klystron	
	4 <sup>th</sup>	Traveling wave Tube	
14 <sup>th</sup> week 12/12/2022 to 17/12/2022	1 <sup>st</sup>	Cyclotron	
	2 <sup>nd</sup>	Tunnel diode ,Gun diode	
	3 <sup>rd</sup>	Broadband communication	
	4 <sup>th</sup>	Network architecture	
15 <sup>th</sup> week 19/12/2022 to 24/12/2022	1 <sup>st</sup>	Cable broadband data, Future of broadcast Telecommunication	
	2 <sup>nd</sup>	SONET,ISDN	
	3 <sup>rd</sup>	BISDN	

