



# GIET(POLY),JAGATPUR,CUTTACK

## LESSON PLAN

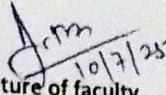
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|---------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Discipline:ETC            | Semester:5 <sup>th</sup>            | Name of the teaching Faculty: Ananya Ranjan Das                                                                                                                                                                      |
| Subject: W.P&B.C.E.(TH-4) | No.of days/ week class Allotted: 04 | Semester From:14.07.2025 To:15.11.2025<br><br>No.of weeks:15                                                                                                                                                         |
| Week                      | ClassDay                            | TheoryTopic                                                                                                                                                                                                          |
| 1 <sup>st</sup> week      | 1 <sup>st</sup>                     | <b>UNIT-1:WAVE PROPAGATION AND ANTENNA</b><br>1.1:Effect of environments such as reflection,refraction , interference, diffraction,absorption and attenuation (Definition only) . (contd....)                        |
|                           | 2 <sup>nd</sup>                     | 1.1:Effect of environments such as reflection,refraction , interference, diffraction,absorption and attenuation (Definition only).                                                                                   |
|                           | 3 <sup>rd</sup>                     | 1.2:Classification based on modes of propagation-Ground wave, ionosphere,sky wave propagation,space wave propagation.                                                                                                |
|                           | 4 <sup>th</sup>                     | 1.3:Definition-Critical frequency,max-useable frequency,skip distance, fading,Duct propagation & Troposphere scatter propagation ,actual height and virtual height. (contd....)                                      |
| 2 <sup>nd</sup> week      | 1 <sup>st</sup>                     | 1.3:Definition-Critical frequency,max-useable frequency,skip distance, fading,Duct propagation & Troposphere scatter propagation ,actual height and virtual height.                                                  |
|                           | 2 <sup>nd</sup>                     | 1.4:Radiation mechanism of an antenna-Maxwell equation.                                                                                                                                                              |
|                           | 3 <sup>rd</sup>                     | 1.5:Definition-Antenna gains,Directive gain,Directivity, effective aperture polarization,input impedadance,efficiency, Radiator resistance, Bandwidth,Beam width,Radiation pattern. (contd....)                      |
|                           | 4 <sup>th</sup>                     | 1.5:Definition-Antenna gains,Directive gain,Directivity, effective aperture polarization,input impedadance,efficiency, Radiator resistance, Bandwidth,Beam width,Radiation pattern.                                  |
| 3 <sup>rd</sup> week      | 1 <sup>st</sup>                     | 1.6:Antenna-types of antenna:Mono pole &dipole antenna and Omni directional antenna.                                                                                                                                 |
|                           | 2 <sup>nd</sup>                     | 1.7:Operation of the following antenna with advantages&applications.<br>a)Directional high frequency antenna:Yagi and Rombus only.                                                                                   |
|                           | 3 <sup>rd</sup>                     | B)UHF & microwave antenna:Dish antenna (with parabolic reflector)&Horn antenna.                                                                                                                                      |
|                           | 4 <sup>th</sup>                     | 1.8:Basic Concepts of Smart antennas-concept and benefits of smart antennas.                                                                                                                                         |
| 4 <sup>th</sup> week      | 1 <sup>st</sup>                     | <b>UNIT-2:TRANSMISSION LINES</b>                                                                                                                                                                                     |
|                           | 2 <sup>nd</sup>                     | 2.1:Fundamentals of transmission line.                                                                                                                                                                               |
|                           | 3 <sup>rd</sup>                     | 2.2:Equivalent circuit of transmission&vRF equivalent circuit.                                                                                                                                                       |
|                           | 4 <sup>th</sup>                     | 2.3:Characteristics impedance,methodsofcalculation,& simple numerical .(contd....)                                                                                                                                   |
| 5 <sup>th</sup> week      | 1 <sup>st</sup>                     | 2.3:Characteristics impedance,methodsofcalculation,& simple numerical.                                                                                                                                               |
|                           | 2 <sup>nd</sup>                     | 2.4:Losses in transmissionline.                                                                                                                                                                                      |
|                           | 3 <sup>rd</sup>                     | 2.5:Standing wave-SWR,VSWR Reflection coefficient,simple numerical (contd....)                                                                                                                                       |
|                           | 4 <sup>th</sup>                     | 2.6:Quarter wave & half wave length line.                                                                                                                                                                            |
| 6 <sup>th</sup> week      | 1 <sup>st</sup>                     | 2.7:Impedance matching & stubs-single & double.                                                                                                                                                                      |
|                           | 2 <sup>nd</sup>                     | 2.8:Primary&secondary constant of x-mission line.                                                                                                                                                                    |
|                           | 3 <sup>rd</sup>                     | <b>UNIT-3:TELEVISION ENGINEERING</b><br>3.1:Define aspect ratio,Rectangular switching,flicker,horizontal resolution, video band width,interlaced scanning,composite video signal,synchronization pulses. (contd....) |
|                           | 4 <sup>th</sup>                     | 3.1:Define aspect ratio,Rectangular switching,flicker,horizontal resolution, video band width,interlaced scanning,composite video signal,synchronization pulses.                                                     |

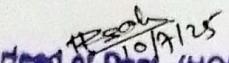
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|                       |                 | <b>3.2.1.V Transmitter-block diagram and function of each block.</b>                                                                                                                                                                                                                   |
| 7 <sup>th</sup> week  | 1 <sup>st</sup> | <b>3.3:Monochrome T.V receiver block diagram and function of each block.</b>                                                                                                                                                                                                           |
|                       | 2 <sup>nd</sup> | <b>3.4:Color T.V signals(Luminance signal &amp;chrominance signal (I&amp;Q,U&amp;V Signal).</b>                                                                                                                                                                                        |
|                       | 3 <sup>rd</sup> | <b>3.5:Types of Televisions by technology:cathode-ray tubeTVs,Plasma Display panels,Digital light processing(DLP),Liquid crystal display(LCD) Organic light-Emitting Diode (OLED) Display,Quantum Light-emitting diode(QLED). Only comparision based on application . (contd.....)</b> |
|                       | 4 <sup>th</sup> | <b>3.5:Types of Televisions by technology:cathode-ray tubeTVs,Plasma Display panels,Digital light processing(DLP),Liquid crystal display(LCD) Organic light-Emitting Diode (OLED) Display,Quantum Light-emitting diode(QLED). Only comparision based on application . (contd.....)</b> |
| 8 <sup>th</sup> week  | 1 <sup>st</sup> | <b>3.5:Types of Televisions by technology:cathode-ray tubeTVs,Plasma Display panels,Digital light processing(DLP),Liquid crystal display(LCD) Organic light-Emitting Diode (OLED) Display,Quantum Light-emitting diode(QLED). Only comparision based on application . (contd.....)</b> |
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|                       | 4 <sup>th</sup> | <b>3.6:Discuss the principle of operation _LCD display,large screen display.</b>                                                                                                                                                                                                       |
| 9 <sup>th</sup> week  | 1 <sup>st</sup> | <b>3.7:CATV systems and types and networks.</b>                                                                                                                                                                                                                                        |
|                       | 2 <sup>nd</sup> | <b>3.8:Digital TV technology-Digital TV signals,Transmission of digital TV signal &amp;Digital TV receiver,video programme processor unit. . (contd.....)</b>                                                                                                                          |
|                       | 3 <sup>rd</sup> | <b>3.8:Digital TV technology-Digital TV signals,Transmission of digital TV signal &amp;Digital TV receiver,video programme processor unit.</b>                                                                                                                                         |
| 10 <sup>th</sup> week | 4 <sup>th</sup> | <b>UNIT-4:MICRO WAVE ENGINEERING</b><br><b>4.1:Define micro wave wave guides.</b>                                                                                                                                                                                                      |
|                       | 1 <sup>st</sup> | <b>4.2:Operation of rectangular wave guides and its advantage.</b>                                                                                                                                                                                                                     |
|                       | 2 <sup>nd</sup> | <b>4.3:Propagation of EM wave through wave guide with TE&amp;TM modes. (contd.....)</b>                                                                                                                                                                                                |
|                       | 3 <sup>rd</sup> | <b>4.3:Propagation of EM wave through wave guide with TE&amp;TM modes.</b>                                                                                                                                                                                                             |
|                       | 4 <sup>th</sup> | <b>4.4:circular wave guide.</b>                                                                                                                                                                                                                                                        |
| 11 <sup>th</sup> week | 1 <sup>st</sup> | <b>4.5:Operation of Cavity resonator.</b>                                                                                                                                                                                                                                              |
|                       | 2 <sup>nd</sup> | <b>4.6:Working of Directional coupler, Isolator and circulator.</b>                                                                                                                                                                                                                    |
|                       | 3 <sup>rd</sup> | <b>4.7:Microwave tubes-principle of operation of two cavity klystron. (contd.....)</b>                                                                                                                                                                                                 |
|                       | 4 <sup>th</sup> | <b>4.7:Microwave tubes-principle of operation of two cavity klystron.</b>                                                                                                                                                                                                              |
| 12 <sup>th</sup> week | 1 <sup>st</sup> | <b>4.8:Principle of operation of Travelling wave Tubes. (contd.....)</b>                                                                                                                                                                                                               |
|                       | 2 <sup>nd</sup> | <b>4.8:Principle of operation of Travelling wave Tubes.</b>                                                                                                                                                                                                                            |
|                       | 3 <sup>rd</sup> | <b>4.9:Principle of operation of cyclotron (contd.....)</b>                                                                                                                                                                                                                            |
|                       | 4 <sup>th</sup> | <b>4.9:Principle of operation of cyclotron .</b>                                                                                                                                                                                                                                       |
| 13 <sup>th</sup> week | 1 <sup>st</sup> | <b>4.10:Principle of operation of Tunnel Diode and Gunn diode. (contd.....)</b>                                                                                                                                                                                                        |
|                       | 2 <sup>nd</sup> | <b>4.10:Principle of operation of Tunnel Diode and Gunn diode.</b>                                                                                                                                                                                                                     |
|                       | 3 <sup>rd</sup> | <b>UNIT-5:BROAD BAND COMMUNICATION</b><br><b>5.1:Broad band communication system-Fundamentals of components and network-architecture. (contd.....)</b>                                                                                                                                 |
|                       | 4 <sup>th</sup> | <b>5.1:Broad band communication system-Fundamentals of components and network-architecture.</b>                                                                                                                                                                                        |
| 14 <sup>th</sup> week | 1 <sup>st</sup> | <b>5.2:Cable broad band data network-architecture, importance &amp; future of broad band Tele communication,internet based network. (contd.....)</b>                                                                                                                                   |
|                       | 2 <sup>nd</sup> | <b>5.2:Cable broad band data network-architecture, importance &amp; future of broad band Tele communication,internet based network. (contd.....)</b>                                                                                                                                   |
|                       | 3 <sup>rd</sup> | <b>5.2:Cable broad band data network-architecture, importance &amp; future of broad band Tele communication,internet based network.</b>                                                                                                                                                |
|                       | 4 <sup>th</sup> | <b>5.3:SONET(Synchronous Optical Net work)-signal frame components topologies advantages,applications, and disadvantages. (contd.....)</b>                                                                                                                                             |
|                       | 1 <sup>st</sup> | <b>5.3:SONET(Synchronous Optical Net work)-signal frame components topologies advantages,applications, and disadvantages. (contd.....)</b>                                                                                                                                             |

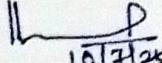
15<sup>th</sup> week

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| 2 <sup>nd</sup> | 5.3:SONET(Synchronous Optical Net work)-signal frame components topologies advantages,applications, and disadvantages. |
| 3 <sup>rd</sup> | 5.4:ISDN-ISDN Devices interfaces,services,Architecture,applications.                                                   |
| 4 <sup>th</sup> | 5.5:BISDN-interfaces &Terminals,protocol architecture applications.                                                    |

Signature of faculty

  
10/7/25

  
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Signature of HOD  
Electrical & ETC Engg.  
G.I.E.T (POLYI), C. M. R.

  
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