
	<b>LESSON PLAN</b>	
	<b>Sub Code &amp; Name: U14EC733 MICROWAVE ELECTRONICS</b> <b>Unit : I</b> <b>Semester :VII</b> <b>Branch : ECE</b>	

**UNIT I TWO PORT NETWORKS THEORY**  
Syllabus:

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Session No.	Topics to be covered	Time	Ref	Teaching Method
1.	Introduction .	50m	1	BB
2.	Low frequency parameters-impedance or Z-parameters, admittance or Y- parameters.	50m	1	BB
3.	Hybrid or h-parameters	50m	1,2	BB
4.	Transmission or ABCD parameters	50m	1,2	BB
5.	High frequency parameters, Formulation of S parameters.	50m	1,2	BB
6.	Properties of S parameters	50m	1,2	BB
7.	Reciprocal and lossless networks.	50m	1,2	BB
8.	Transmission Matrix, Generalized Scattering parameters.	50m	1,2	BB
9.	Introduction to component basics, wire, resistor, capacitor and inductor,	50m	1,2	BB
10.	Applications of RF	50m		BB
11.	Tutorial	50m		BB
	Screening Test -1			

**UNIT II RF AMPLIFIERS DESIGN AND MATCHING NETWORKS 9**

Session No.	Topics to be covered	Time	Ref	Teaching Method
12	Introduction to RF Amplifiers, Characteristics	50m	1,2	BB
13	Amplifier power relations- RF source, Transducer power gain, Additional power relations	50m	1,2	BB
14	Stability Considerations- Stability circles	50m	1,2	BB
15	Unconditional Stability, Stabilization Methods	50m	1,2	BB
16	Noise Figure & Constant VSWR	50m	1,2	BB
17	High Power and Multistage Amplifiers	50m	1,2	BB
18	Impedance matching networks	50m	1,2	BB
19	Forbidden regions, frequency response, Quality factor	50m	1,2	BB
20	T and Pi matching networks	50m	1,2	BB
21	Microstrip line matching networks ( single stub & Double stub matching)	50m	1,2	BB
22	Tutorial	50m		BB
	Screening Test -2			

**UNIT III PASSIVE AND ACTIVE MICROWAVE DEVICES****9**

<b>Session No.</b>	<b>Topics to be covered</b>	<b>Time</b>	<b>Ref</b>	<b>Teaching Method</b>
23	Terminators, Attenuators Phase Shifters	50m	1,3	BB
24	Directional Couplers , hybrid junctions	50m	1,3,	BB
25	Power Dividers	50m	1,3,	BB
26	Circulators, Isolator	50m	1,2	BB
27	Impedence Matching Devices-Tuning screw, stud – quarter wavve transformers	50m	1,3,	BB
28	Crystal and Schottkey diode detector and mixer	50m	1,3,	BB
29	PIN diode switch	50m	1	BB
30	Gunn diode oscillator	50m	1	BB
31	IMPATT diode oscillator and amplifier	50m	1	BB
33	Varactor Diode, Introduction to MIC	50m	1	PPT
	Screening Test -3			

**UNIT IV MICROWAVE GENERATION****9**

<b>Session No.</b>	<b>Topics to be covered</b>	<b>Time</b>	<b>Ref</b>	<b>Teaching Method</b>
33	High Frequency effects in tubes	50m	1,5	BB
34	Two cavity klystron amplifier	50m	1,5	BB
35	Reflex klystron	50m	1,5	BB
36	TWT amplifer Backwards wave oscillator	50m	1,5	BB
37	Magnetron amplifier theory & applications	50m	1,5	BB
38	Solid state devices Gunn diode oscillator	50m	1,5	BB
39	BARITT TRAPATT and IMPATT diode oscillators	50m	1,5	BB
40	BARITT TRAPATT and IMPATT diode amplifiers	50m	1,5	BB
41	YIG Devices	50m	1,5	BB
	Screening Test -4			

**UNIT V MICROWAVE MEASUREMENTS****9**

<b>Session No.</b>	<b>Topics to be covered</b>	<b>Time</b>	<b>Ref</b>	<b>Teaching Method</b>
42	Measuring Instruments	50m	1	BB
43	Principles of operation and application of VSWR	50m	1	BB
44	Power Meter	50m	1	BB
45	Spectrum Analyzer	50m	1	BB
46	Network Analyzer, Measurement of Impedence	50m	1	BB
47	Frequency, Power, VSWR	50m	1	BB
48	Q factor, Dilectric Constant	50m	6	BB
49	Scattering Coefficients	50m	6	BB
50	Attenuation S- Parameters	50m	6	BB
		50m	6	BB
	Screening Test -5			

1. Reinhold.Ludwig and Pavel Bretshko ‘RF Circuit Design”, Pearson Education, Inc., 2006.
2. Robert .E. Collin: Foundations for Microwave Engg- Mc Graw Hill. (2001)

**REFERENCES**

3. David M.Pozar: Microwave Engg. - John Wiley & Sons - 2<sup>nd</sup> Edition (2006)
4. M.M.Radmanesh, RF & Microwave Electronics Illustrated, Pearson Education, 2007.
5. Annapurna Das and Sisir K.Das: Microwave Engineering - Tata McGraw-Hill (2004)
6. Samuel Y. Liao: Microwave Devices and Circuits - Prentice Hall of India, 2006

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