

Guided Wave Circuit Theory

course for Dept. EEE & Dept. PE

Tokyo Institute of Technology

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Detailed lecture notes are available on my web site.

Class schedule

week topics included

- 1 Introduction to waveguide
- 2 Transmission line
- 3 Waveguide composed of conductor (coaxial line, micro-strip line, and metallic hollow waveguide)
- 4 Dielectric waveguide
- 5 Guided wave in an optical fiber (eigen mode and dispersion)
- 6 Coupled mode equation
- 7 Guided waves in periodic structures
- 8 Scattering matrix
- 9 Eigen excitation and eigen value
- 10 Coupled waveguide (directional coupler)
- 11 Resonators, filter and MUX/DEMUX
- 12 Nonreciprocal circuits (isolators and circulators)

References

D.Marcuse : “Theory of dielectric optical waveguides,” Academic Press

R.E.Collin : “Field theory of guided waves,” McGraw-Hill

J.Helszajn : “Passive and active microwave circuits,” John Wiley & Sons

Notes

Download the lecture note from my web site, and bring its printed matter in every class.

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