King Fahd University of Petroleum & Minerals
Electical Engineering Department
EE 407-Microwave Engineering (**Term 062)**

Instructor: Dr. Sheikh Sharif Iqbal **Subject** : EE 407-1 **Room**: **59-2023**
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Office Hour: ***SMW*** **10:05-10:55 AM** and ***UT*** **11:05-11:45 AM** OR by appointment

TOPICS	Week	DATE	LAB Experiments
Ch 1: Introduction to Microwave Engg; Review of Maxwell's Equation, Plane wave, Guided wave	1	Feb. 17 -21	*No lab*
Ch 2: Transmission line, Characteristic Impedance, Input mpedance, Propagation constant,Reflection/Transmission coefficient	2	Feb. 24 - 28	1: Introduction to software pakage: CAEME
Ch 2: Power flow, Standing wave ratio, Impedance transformation.	3	March 3 - 7	*Tutorial 1*
Ch 2: λ/2 and λ/4 Impedance transformers, Smith Chart and its applications	4	March 10 -14	2: Transmission line analysis using 'CAEME' software
Ch 2: Impedance Matching network Single Stub matching (series and parallel) Problems - - - -	5	March 17 - 21	*No lab*
Ch 3: Planar Transmission lines (PP W/G, Striplines, Microstrips, Slotline, Coplanar lines etc); Characteristic of Microstrip line,	6	March 24 - 28	3: Measurement of return loss, reflection coefficient and VSWR of microwtrip circuit
Coupled Microstrip, Microstrip Components (Bends, Elbows, etc), **Ch 4:** S-Parameters, Two port microstrip network	7	Mar 31– Apr 4 **(Exam 1: April 2, Mon, 8:30-10 pm)**	4: Transmission line Stub mathcing using 'CAEME' software
** Introduction to passive microstrip components (capacitors, resistors, inductors) **Ch 8:** Microstrip Filters	8	April 7 - 11	5: Impedance measurements and microstrip matching networks
Mid semester Break (April 14 – 15)			
Ch 6: Microstrip resonators **Ch 7:** Microstrip Directional coupler Microstrip patch antennas	9	April 16 - 18	*No lab*
Microstrip Power divider (wilkinson, Rat-race etc) **Ch 9:** Microwave ferrite materials	10	April 21- 25	6: Insertion loss characteristics of microstrip low pass filter
Microwave ferrite circulators, phase shifters **Ch 10:** Microwave semiconductordevices Microwave Diodes …..	11	Apr 28– May 2	7: Properties of a microstrip directional coupler
Ch 11: Microwave Transistors Biasing of Microwave amplifiers	12	May 5 – 9 **(Exam 2: May 9, Wed, 8:30-10 pm)**	8: Properties of a Wilkinson power divider and hybrid ring coupler
Matching network for an amplifier Gain of an amplifier Noise in amplifiers	13	May 12 - 16	10: DC biasing and microwave amplifiers
Ch 12: Microwaver radio link and antennas **Ch 11:** Microwave tubes and oscillators	14	May 19 - 23	11: Microwave radio link and antennas
Introduction to microwave measurements (network analyser ….) and Review	15 16	May 26 – 30 June 1 - 3	*Lab final*

Textbook : Microwave Enginering by Pozar; **Refference :** Microwave Engg. by P.A. Rizzi & Microwaves by B. Fuller**Grading:** Attn./CW/Project/HW **20% ;** Major 1 **15% ;** Major 2 **15% ;** Final-exam **30% ;** Lab **20%**

Major Exams: **Exam 1; Monday**; **2nd April ; 8:30 - 10:00 PM** ; **Room:** 6-125
Exam 2; Wednessday; **9th May; 8:30 - 10:00 PM** ; **Room:** 6-125
Final exam: 7:00 PM; June 10 (Sun)

Absences: University rules: -- 6 unexcused absences ➔ **Warning ;** -- 9 unexcused absences ➔ **DN.**