

## ESG 339 Thin Film Processing of Advanced Materials (Required)

### Course Catalog description:

Fundamental aspects of thin film materials design, fabrication, and characterization. Overviews of semiconductor fabrication, surface analysis, and vacuum system design. This course includes a design content of one credit, achieved through a design exercise related to thin film fabrication.

*4 credits*

**Pre- or Corequisite(s):** ESG 332 Materials Science I: Structure and Properties of Materials

**Text(s) or other required material:** Richard C. Jaeger, Introduction to Microelectronic Fabrication: Volume 5 of Modular Series on Solid State Devices, 2nd Ed., Prentice Hall Inc., 2001, ISBN: 0201444941

### Course learning outcomes:

#### Topics Covered:

Week 1: Effusion

Week 2 & 3: Evaporation

Week 4: Sputtering

Week 5: Ion Assisted Deposition

Week 6: Solid State Reactions

Week 7 & 8: Interdiffusion

Week 9: Surface Cleaning technology

Week 10 - 12: Surface Analysis (XPS, SAM, SEM, EDAX)

Week 13 & 14: Vacuum systems: their design and operation

### Class/ Laboratory Schedule:

ESG	339	Thin Film Proccsng Adv Materls	LEC	1	TUTH	9:50 AM	11:10 AM
			REC	R01	RECF	9:35 AM	10:30 AM
			REC	R02	RECF	10:40 AM	11:35 AM

**Contribution of Course to **meet requirement of Criterion 5:****

**Relationship of course to program outcomes:**

**Person(s) who prepared this description and date of preparation:**