ESG 339 THIN FILM PROCESSING OF ADVANCED MATERIALS (REQUIRED)
Credit: 4

COURSE CATALOGUE 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.

PRE- OR COREQUISITE(S): ESG 332 Materials Science I: Structure And Properties Of Materials


COURSE LEARNING OUTCOMES | SOS | ASSESSMENT TOOLS
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Knowledge Of The Science And Engineering Of Vacuum Technology For Thin Films And Surface Analysis | a,b,c,d,e,f,g,h,i,j,k | Written Examinations Design Project
Design Of Processing Route For Thin Film Structures | a,b,c,d,e,f,g,h,i,j,k | Written Examinations Design Project
Knowledge Of Semiconductor Processing | a,b,c,d,e,f,g,h,i,j,k | Written Examinations Design Project

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:

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CURRICULUM

This course contributes 4 credit hours toward meeting the required 48 hours of engineering topics.

STUDENT OUTCOMES (SCALE 1-3):

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3 – Strongly Supported  2 – Supported  1-Minimally Supported

LEAD COORDINATOR(S) WHO PREPARED THIS DESCRIPTION AND DATE OF PREPARATION:

Clive Clayton 05/17/10