ESG 339 THIN FILM PROCESSING OF ADVANCED MATERIALS (ELECTIVE)
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

| 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