

Precision Engineering Laboratory – Roll to Roll Fabrication

CO-ORDINATOR : Mr Chris Williamson

PRE-REQUISITES: Basic engineering principles

RATIONALE:

To demonstrate how research can be scaled up to an automated production line using roll to roll fabrication methods. The laboratory sessions will be predominantly practical and demonstrate how a novel liquid crystal spatial light modulator can be fabricated. Students will work in a cleanroom environment and consider each stage of the production process. By linking each stage together, a working device will be manufactured.

OBJECTIVES/LEARNING OUTCOMES/COMPETENCES:

1. Introduction to roll to roll fabrication
2. Learn how to set up machinery according to the particular requirements of a task
3. Understand the effect of using different materials and approaches

SYLLABUS/RANGE:

- Material properties
- Roll to roll processing
- Testing devices

Reference Material:

- (1) Handbook of visual display technology (Available online (login required): <http://www.springerlink.com/content/978-3-540-79566-7/#section=1019248&page=3&locus=0>)
- (2) Flexible flat panel displays, Crawford, Wiley, 2005, ISBN 0470870486
- (3) Flexible electronics: materials and applications, Wong, Springer, 2009, ISBN 9780387743622
- (4) Transparent electronics, Wagner, Springer 2008, ISBN 9780387723419

STUDENT WORKLOAD: Hours

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|-----------------------------|---------------|----|
| Staff/Student Contact Time: | Laboratory | 14 |
| Independent Learning Time: | Private Study | 2 |
| Total | | 16 |