

Precision Engineering Laboratory – Single Point Diamond Turning

CO-ORDINATOR : Dr Paul Comley
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PRE-REQUISITES: Basic engineering principles

RATIONALE:

To provide the student with an insight into the manufacture of high quality surfaces through the application of diamond turning. A laboratory based session with a strong emphasis on practical aspects and associated metrology, students will participate in the generation and assessment of diamond turned surfaces. The session will cover the physical principles, operating characteristics and practical applications of the processes.

OBJECTIVES/LEARNING OUTCOMES/COMPETENCES: (Numbered list)

1. Introduction to "state of the art" high precision machines.
2. Provide insight into parameters and influences that effect surface generation
3. Gain insight into programming of machine tools
4. Introduction to methods for surface assessment

SYLLABUS/RANGE:

- Surfaces
 - Surface structure
 - Material selection
- Machine
 - Outline configuration and performance of machine tool
 - Programming and parameter selection
 - Surface generation
- Metrology
 - Introduction to measurement instrumentation
 - Assessment of surfaces

Reference Material:

- (1) Precision Engineering Module, UPT MSc Cranfield University 2012
- (2) Metal Cutting Principles, Milton Shaw, Oxford University Press 2005, ISBN 0-19-514206-3.

STUDENT WORKLOAD: Hours

Staff/Student Contact Time:	Laboratory	4
Independent Learning Time:	Private Study	2
Total		6