EEE6009: Advanced Instrumentation Course (unit EM1-3) 3 March 2009

Title: Advanced Instrumentation – Electron Microscopy

Question: Assume a secondary electron image shows a high density of ~20nm small bright, almost round objects on the surface of a silicon wafer in a standard scanning electron microscope (SEM). You want to analyse these small objects further, in particular you want to know whether they are (partly) crystalline and what chemical elements they consist of. Suggest two procedures to make a specimen ready for investigation in a transmission electron microscope (TEM) and explain the basic experiments that you would want to conduct. Describe at least one method of imaging, one method of spectroscopy and one method of diffraction and briefly discuss their possible outcomes and specific problems. Please write only 1 A4 page of text. Include sketches if appropriate.

Deadline for submission to TurnItIn: **6 May 2009**