



RC13: Advanced Manufacturing Technologies

Leader: Professor Bill O'Neill

Organiser: Sophie Fuller (sg525@eng.cam.ac.uk)

Timing: Michaelmas and early Lent Term

Structure: 6 two-hour sessions, plus a one-hour introductory session

Mode of Assessment: Coursework

AIMS

1. To introduce a range of leading edge manufacturing technology topics.
2. To introduce key literature in those topics.
3. To encourage critical review and reflection about the technologies and relevance to modern manufacturing enterprises.
4. To provide experience of synthesising arguments based on the literature.

APPROACH

Approximately one week before each session you will be presented with a pack of key readings and questions to be prepared for the following week. During the session you may be asked to open the discussion on any of the questions posed and will be expected to contribute to the discussion on all questions.

Your contributions should demonstrate:

- Identification of the key issues and technologies in each paper and the ability to express the impact they could have on future manufacturing operations.
- Understanding of the real world implication of the technologies including technological limitations; resource implications; new business models; societal impact.
- Ability to position the arguments within the recognised body of knowledge relating to state-of-the-art manufacturing technologies.
- Critical review - particularly the limitations of the technologies and the research which would be necessary to further develop them.

Attendance at all sessions is expected. If it is impossible for you to join a session with a legitimate reason, you will be expected to deliver written responses (approximately one page per question) to the session supervisor within one week of the session taking place.

PROGRAMME

2-3pm, Friday 10 October 2014 Seminar Room 1	Introduction <i>(Prof Bill O'Neill)</i>
2-4pm, Wednesday 15 October 2014 Seminar Room 3	<i>Session 1:</i> <i>(Prof Bill O'Neill)</i>
2-4pm, Friday 31 October 2014 Seminar Room 1	<i>Session 2: Wonder materials – what future in mainstream applications</i> <i>(Dr Martin Sparkes)</i>
2-4pm, Friday 14 November 2014 Seminar Room 1	<i>Session 3: Considerations of Resource Availability in Technology Development Strategies</i> <i>(Dr Andrew Cockburn)</i>
2-4pm, Friday 5 December 2014 Seminar Room 1	<i>Session 4: Direct Writing</i> <i>(Prof Ian Hutchings)</i>
2-4pm, Friday 9 January 2015 Seminar Room 2	<i>Session 5: Liquid crystal lasers</i> <i>(Dr Wen-Kai Hsiao)</i>
2-4pm, Friday 16 January 2015 Seminar Room 2	<i>Session 6:</i> <i>(Dr Andrew Cockburn)</i>

ASSESSMENT

Assessment will be by means of a single piece of coursework to be submitted to Sophie Fuller by **4pm, Friday 27th February 2015** entitled

‘A research proposal to..... ‘

The piece should be a maximum of 2,000 words and set out clearly the research question to be addressed, the context and rationale based on the literature and a proposed research methodology and expected outcomes.

Please note:

- *The piece may NOT be based on your own research area and the supervisor should be from a different research group at the IfM.*
- *You MUST contact the supervisor of the subject on which you wish to write the coursework and agree the title in advance with him/her.*