The University Of Sheffield.

Electronic & Electrical Engineering.

EEE6226 FUTURE ELECTRONIC AND ELECTRICAL ENGINEERING TRENDS

Credits: 5

Course Description including Aims

This module aims to provide students with an opportunity to carry out research into the future of any topic in the electronic or electrical fields. The teaching style will be seminar based and will cover developing basic research/technology ideas, literature reviewing techniques, social, economical and environmental impact of future technology. Expert lectures on specific topics will be provided. Students will be expected to present their opinions of the future trends of their chosen topic via an oral presentation.

Specifically the aims are

1. To allow students to choose their own research/technology topic which is of interest to them
2. Students will carry out a literature review of the topic and summarise this to their peers in group sessions.
3. Students will carry out research and discuss in groups the social, economical and environmental impact of the technology.
4. To give expert opinions of research and technology trends via academic or industrial lectures and Q&A sessions.
5. Students will present their findings and opinions to their peers and staff

Outline Syllabus

Literature review skills and techniques. Expert lectures on technology areas. Seminar based group discussions/ feedback sessions. Social, economical and environmental impact of research/technology. Presentation of student findings via oral presentations.

Time Allocation

3-4 two hour seminars/workshops, 3-4 expert lectures, and presentation seminars. To be held from weeks 1-18.

Recommended Previous Courses

Previous undergraduate modules.

Assessment

A coursework assessment covering objectives 1-3 (35%), group research into a particular technology, plus a presentation of the chosen research topic and the future trends in this area (55%), attendance at peer group talks, external speaker talks and group discussion sessions (10%).

Recommended Books

None

Objectives

By the end of the unit a successful student will be able to

1. Demonstrate ability to collate and critically review literature on an electronic and electrical engineering (EEE) topic of the student's choice.
2. Analyse constraints on the technology including economic, environmental, sustainability, health and safety, design risks and aesthetics.
3. Propose how the engineering life cycle {production, operation, maintenance and disposal} can drive or limit technological development.
4. Present ideas on future trends, in both written and oral formats, using evidence from previous literature research.

Outline Syllabus

Advanced methods for researching current state-of-the-art technology likely to influence future trends in EEE technology; combining data from academic research search engines with other on-line data (group homepages, conference series, government funding sites, company newsletters, etc.) to identify leading researchers and commercial entities in a particular field of technology; methods to locate authoritative review articles and trade journals; critical assessment of future predictions in the light of historical errors in futurology.

UK-SPEC/IET Learning Outcomes

Outcome Code	Supporting Statement
SM4m	This will be covered by objectives 1 and 4, and assessed in an individual student coursework report and group presentation.
SM6m	This will be covered when students evaluate the wider context of the technological development relating to non-EEE constraints and will be assessed in an individual student coursework report and group presentation.
EA1m	This will be covered by all the objectives of the course and assessed by individual coursework and group presentation.
EA5m	This will be covered by all the objectives and assessment components of the course.
D1p/D1m	This will be covered when students discuss the wider constraints of technological advancement (objectives 3 and 4) and assessed in an individual student coursework report and group presentation.
D2p/D2m	These will be covered when students evaluate the wider context of the technological development relating to non-EEE constraints and will be assessed in the individual coursework report and group presentation (objective 2)
D4p/D4m	This will be covered by objective 3 and assessed in the group presentation.
D6p/D6m	This is be covered by object 4: a group presentation of state-of-the-art technology together with an analysis of likely future trends to their peer group.
ET2p/ET2m	This is covered by objectives 2 and 3, assessed by individual coursework and group research and presentation.
ET6m/ET7m	This is covered by objectives 2-4, assessed by individual coursework and group

	research and presentation.
ET6p	This is be covered by objectives 2 and assessed by a group presentation
EP1p/**Ep1m**	This is covered by objectives 2 and 3, assessed by individual coursework and group research and presentation.
EP4m	This is covered by objective 1 and is assessed by individual coursework
EP9m	This will be covered by objective 4 and assessed by oral presentation
EP10m	This will be covered by objectives 2 and 3, and assessed by group oral presentation.