**Background**

EN2705 is a 10 credit year 2 module which constitutes part of a spiral curriculum across all 3/4 years of the BEng/MEng degree in Electrical and Electronic Engineering.

The course has a curriculum packed with content and concentrates on didactic teaching styles.

There is little time for formative assessment, discussion, reinforcement or the development of higher level skills.

This review proposes phased changes to the module with phase 1 being implemented in spring 2014 and phase 2 in spring 2015 (following approval of the accreditation body)

**Phase 1**

Changes made to the module description, attached, as follows:

1. A rationalisation of the syllabus to reflect other modules in the power engineering theme and minimise repetition.
2. Analysis of ILOs to make them level appropriate and adjustment of teaching to reflect new ILOs
3. Use of non-contact time (through study guides and problem sheets) to gain formative assessment and free up 4 hours of lecture time which is used for tutorials and an industrial lecture

Original Module Description

|  |  |
| --- | --- |
| **ILO Verbs** | **Blooms Cognitive Levels** |
| Recall | 1 |
| Understand |  |
| Identify | 2 |
| Distinguish | 4 |
| State | 1 |
| Reproduce | 1 |
| Sketch | 3 |
| Sketch | 3 |
| State | 1 |
| Demonstrate | 3 |
| State | 1 |
| Describe | 1 |
| Understand |  |

Revised Module Description

|  |  |  |
| --- | --- | --- |
| **ILO Verbs** | **Blooms Cognitive Levels** | |
| Knowledge and Understanding | | |
| Describe | 2 | Section 1 |
| Differentiate | 4 |
| Compare | 4 |
| Design | 5 |
| Demonstrate | 3 | Section 2 |
| Explain | 2 |
| Calculate | 4 |
| Design | 4 |
| Classify | 2 | Section 3 |
| Demonstrate | 3 |
| Analyze | 4 |
| Intellectual Skills | | |
| Analyze | 4 | |
| Sketch | 3 | |
| Calculate | 4 | |
| Analyze | 4 | |
| Solve | 4 | |
| Design | 5 | |
| Synthesize | 6 | |
| Practical Skills | | |
| Characterize | 4 | |
| Experiment | 4 | |
| Transferable Skills | | |
| Analyze | 4 | |
| Evaluate | 6 | |
| Write | 5 | |

**Phase 2**

1. Align more closely with QAA benchmarks for engineering.
2. Fit into common second year programme
3. Make further adjustments to contact /non-contact time mix

Below taken from QAA Benchmarks for Engineering

“Curriculum design must be informed by research, scholarship and an

understanding of the potential destinations of graduates, and include the use of

industrially-relevant applications of engineering. For students to achieve a satisfactory

understanding of engineering, the expectation is that they will have significant exposure

to hands-on laboratory work and substantial individual project work. The curriculum

should include both design and research-led projects, which would be expected to

develop in graduates both independence of thought and the ability to work effectively in

a team. Teaching needs to be placed within the context of social, legal, environmental

and economic factors relevant to engineering.”

1. I propose to utilise the learning from industrial lecture and additional industrial visit to create a new group based assessment. For instance teams can take up alternative positions on the future energy mix and argue on the political, economic, environmental and social aspects of their group’s position. Presentations and discussion could be assessed through a mix of teacher and peer assessment.
2. We are currently discussing merging 2 degree schemes to make a common first and second year. In this case it would necessitate merging 2 power engineering modules. This would require a thorough overview of ILOs for years 1 and 2 taking the opportunity to align them with research expertise in Cardiff and industrial need.
3. I also propose reducing the number of contact hours by half and changing the focus of many of those to be student led encouraging in depth discussion and problem solving. Information transfer would come increasingly in the form of recorded lectures, home study guides, research and guest lectures. The teacher would deliver 4 to 6 lectures on key concepts.