SUBJECT DESCRIPTION FORM

Subject Title: Consumer Electronics

Subject code: EIE545

Credit value: 3

Responsible staff and department:
Dr Martin H.L. Chow, EIE

Pre-requisite:
Nil

Recommended background knowledge:
Knowledge of basic electronics of an engineering or science degree level.

Mutual Exclusions: Nil

Learning Approach:
Lecture/Tutorial 24 hours
Non-Lecture Activities 18 hours

Assessment:
Continuous Assessment 100%

Objectives:
To acquaint students with the practical knowledge of designing and developing consumer electronic systems and products and introduce the latest trends and technologies.
Keyword Syllabus:

1. **Product Development for Consumer Electronics**
   - Product policy; product life cycle; product classification; new product development systems; generation of new product ideas; consumer based concept screening and evaluation; economic evaluation.

2. **Compliance**
   - Product safety and liability issues; standards related to electrical safety and standards related to fire hazards, e.g., UL and VDE. EMI/EMC requirements and design techniques for compliance, e.g. ESD, RF interference and immunity, line current harmonics and mains voltage surge.

3. **Video Systems & Products**
   - Analogue and digital video standards, component video and composite video, NTSC and PAL standards; video recording systems: camera, video tape/cassette recorder and video disc; Display systems: LCD panels, Plasma panels, Home theatre projectors; Video processing systems: mixer and computer systems.

4. **Audio Systems & Products**
   - Audio quality and standards: toll, broadcast, CD; compression of audio signal; recording of audio signal; over-sampling; computer generated audio signal; surround sound, home audio systems, portable audio systems and THX systems; interactive voice response systems.

5. **Semiconductor Technologies for Consumer Electronics**
   - International Technology Roadmap for Semiconductors; System-on-Chip (SoC); Design Automation; Mixed-Signal-Design.

6. **Design Case Studies**
   - Audio and video systems and products; domestic appliances and office automation equipment; SoC.

Indicative Reading List and References:


Non-Lecture Activities

1. Reverse engineering study of the design of an audio product.
2. Reverse engineering study of the design of a video product.
3. Experiment and demonstration on EMC measurement.

*June 2009*