School of Engineering & Applied Science **Module Description**
Engineering Systems and Management

Module Code:	ME3023
Module Title:	Energy Efficiency
Module Credit:	10
School / Subject Group:	School of Engineering & Applied Science Engineering Systems & Management Subject Group
Staff Responsible:	Dr T N Oliver (t.n.oliver@aston.ac.uk)
Aims and Objectives:	On satisfactory completion of this module students will be able to describe the key issues associated with energy efficiency at international, national and local levels. The module provides grounding in the technologies of energy efficiency and through case studies will enable students to analyse energy problems and synthesise appropriate solutions.
Content:	*Energy Topics:* Active and passive heat recovery; Heat exchangers and heat pumps; Energy efficiency technologies *Energy Economics:* Benchmarks; Combined heat & power, renewable energy sources, Demand Side Management (DSM) and process integration; Role of the energy regulator and privatised energy markets. Political initiatives. *Case Studies:* Heat pumps for process drying applications Energy from waste Photovoltaics within an integrated building scheme. DSM through incentive schemes.
Format:	One 2 hr lecture per week for 11 weeks. Teaching Period 1. Approximately 4 x 1 hr tutorials/revision classes weeks 21 to 24 Teaching period 2
Assessment:	2 hr Examination (May/June) contributes 70% of module mark. Continuous assessment, 4000 word research report, contributes 30% of module mark. Assignment set in week 1, submission end week 9.

Reading List:	**Essential** Beggs, C., *Energy: Management, Supply & Conservation*, , Butterworth-Heinemann, 2002. **Indicative** R Hinrichs & L Kleinbach, *Energy: Its Uses and the Environment*, Thomson Learning, 3rd Edition, 2001. T D Eastop and D R Croft, *Energy Efficiency for Engineers & Technologists*, Longman 1980. D A Reay & D B A MacMichael, *Heat Pumps*, Pergamon, 1988
Virtual Learning Environment:	Blackboard 8 – log on at http://bb.aston.ac.uk/
Programme(s) using this module:	BSc Bioscience Processes (Environmental) BEng/MEng Chemical Engineering BEng Chemical Engineering (Management Studies) BEng Electromechanical Engineering BEng Mechanical Engineering BEng Design Engineering BSc Automotive Product Design BSc Engineering Product Design BSc Sustainable Product Design BSc Technology & Enterprise Management BSc Health, Safety and Environmental Management Combined Honours BSc Environmental Science & Technology
Date:	8 August 2008