School and Subject Group		School of Engineering and Applied Science, Electronic Engineering	
Module Code		EE7007	
Module Title		Biological, Chemical and Medical Sensing	
Module Type		Taught	
Date of introduction of new module		2010	
Level		MSc	Credit Value: 10
Programme(s) in which module is available		MSc in Sensing	
Involvement of Other Schools		None	
Resource Split			
Name of Module Co-ordinator		Prof. Lin Zhang	
Name of Module Advisor		Dr. David Webb	
Related Modules	Pre-requisites	None	
	Co-requisites	None	
	Prohibited Combinations	None	
Minimum and Maximum Intake Sizes		None – None	

Aims of the Module

The field of biosensors has emerged as a topic of great interest because of the great need in medical diagnostics, drug discovery, food quality control, security surveillance and environmental monitoring. The students studying this module will gain fundamental knowledge of bio/chemical sensor and sensing technology with emphasis in optical techniques and learn the recent developments in photonics/nano biosensors.

Summary of Content

1. Introduction - Biosensors and Applications (2 hours)
2. Basics of Biology and Biospecific Analytical Techniques (6 hours)
3. Optical Biosensors (8 hours)
   (a) Fundamentals of light and matter
   (b) Principle of Optical Biosensing
   (c) Immobilisation of Biorecognition
   (d) Fibre-optic biosensors based on planar waveguide, evanescent wave, interferometric, surface plasmon resonance, and fibre grating structures
4. Recent Advances in Photonics/nano Biosensors (2 hours)

Summary of Methods and Frequency of Teaching

Lectures 18 hours.

Group Work 4 hours. Coursework

Summary of Methods of Assessment and Feedback including Formative Feedback

Assessment Type	*Status*	*%*	*Requirements*	*Due*
Coursework	Compulsory	20.0	Group presentation on sensor design	-
Coursework	Compulsory	20.0	Essay	-
Formal Examination	Compulsory	60.0	Formal Examination Marks released via local online grades page prior to examination board.	-

Module Outcomes - what the student should gain from successful completion of the module:	Learning and Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated

	Learning and Teaching Methods	Assessment Methods
A. Knowledge and Understanding		
bio/chemical sensor and sensing technology with emphasis in optical techniques and learn the recent developments in photonics/nano biosensors.	Group Work, Lectures	Coursework, Formal Examination
B. Intellectual Skills		
convey complex ideas in a structured scholarly manner and to perform independent work in problem solving	Group Work	Coursework
C. Professional Skills		
D. Transferable Skills		
communication skills	Group Work	Coursework

Please provide either or both of:	
(i) Introductory Learning Resources	1. Blackboard
(ii) Core Texts	TBA
Reading Lists	Attached
Specification completed by:	Prof. Lin Zhang
Date	07-Nov-2009
Date module approved by Teaching Committee(s)	
Date module approved by School Board(s)	