Form 2B

City University of Hong Kong

Information on a Course
offered by Department of Mechanical and Biomedical Engineering
with effect from Semester A in 2013/2014

Part I

Course Title: **Micro Systems Technology**

Course Code: **MBE6005**

Course Duration: **One Semester**

No. of Credit Units: **3**

Level: **P6**

Medium of Instruction: **English**

Prerequisites: **Nil**

Precursors: **Nil**

Equivalent Courses: **MEEM6005 Micro Systems Technology**

Exclusive Courses: **Nil**

Note: Students may repeat a course, or an equivalent course, to improve course grade only if the previous course grade obtained is C or below.

Part II

1. Course Aims:

The aim of the course is to introduce the state-of-the-art knowledge of micro systems technologies for modern manufacturing. It will enable students to understand the basic principles and develop skills in the areas of micro manufacturing, micro-electronic-mechanical systems (MEMS), sensors and actuators, micro electronics such as VLSI (very-large-scale-integration) and semiconductor manufacturing.

2. Course Intended Learning Outcomes (CILOs)

Upon successful completion of this course, students should be able to:

No.	CILOs	Weighting* (if applicable)
1.	Identify the basic principles of micro systems technology and micro manufacturing;	3
2.	Apply micro manufacturing process for MEMS and sensor and actuator technologies;	3
3.	Design a micro systems relating to basic mechanics and micro electronics of VLSI (very-large-scale-integration);	2
4.	Investigate modern manufacturing and related business.	1

***Weighting ranging from 1,2,3 to indicate the relative level of importance in an ascending order.**

3. Teaching and Learning Activities (TLAs)

(Indicative of likely activities and tasks designed to facilitate students' achievement of the CILOs. Final details will be provided to students in their first week of attendance in this course)

Activity Type	Timetabled Activity (Hours per week)
Lecture/Tutorial/Laboratory Mix	Lecture / Tutorial (3)

TLAs	Large Class Activities	Small Group Activities	Total (hrs)
CILO 1	9	5	14
CILO 2	9	5	14
CILO 3	5	2	7
CILO 4	3	1	4
Total (hrs)	**26**	**13**	**39**

Large class activities mainly include lectures, and small group activities comprise of tutorial or discussion in groups. Up to four hours of time would be used for discussions on assignments and projects to be undertaken by the students.

4. Assessment Tasks/Activities (ATs)

(Indicative of likely activities and tasks designed to assess how well the students achieve the CILOs. Final details will be provided to students in their first week of attendance in this course)

ILO No	Assignments (2)	Project Report (one per group)	Presentation (one per group)	Total (%)
CILO 1	17	12	8	37
CILO 2	19	11	8	38
CILO 3	9	4	2	15
CILO 4	5	3	2	10
Total (%)	**50**	**30**	**20**	**100**

Students will be required to submit two homework assignments. In addition, students (working in pairs) are required select a project at the beginning of the course. A final report is required at the end of the course. Finally, each group must deliver a 15 minute formal presentation to the entire class at the end of the course.

5. Grading of Student Achievement:

Grade Table

Letter Grade	Grade Point	Grade Definitions
A+ A A-	4.3 4.0 3.7	Excellent
B+ B B-	3.3 3.0 2.7	Good
C+ C C-	2.3 2.0 1.7	Adequate
D	1.0	Marginal
F	0.0	Failure
P	-	Pass

Please refer to the SGS's website for details.

Part III

Keyword Syllabus:

Micro manufacturing, MEMS, sensor and actuator, micro electronics, VLSI, semiconductor

Recommended Reading:

Liu, C., Foundations of MEMS, Prentice Hall, 2005
ISBN-10: 0131472860

Microchip Manufacturing
Stanley Wolf
Lattice Press (www.latticepress.com)
ISNB 0-9616721-8-8

Understanding Fabless IC Technology
Jeorge Hurtarte
Evert Wolsheimer
Lisa Tafoya, Fabless Semiconductor Association
Elsevier
Paperback, 296 pages, publication date: AUG-2007
ISBN-13: 978-0-7506-7944-2
ISBN-10: 0-7506-7944-1
Imprint: NEWNES

Online Resources:

Online learning material is provided via University computer network.