COURSE OUTLINE

Course Code: MCB1163
Course Name : Hardware, Software & Creative Content
Total Contact Hours: 42 hours
Course Pre-requisite: None

SYNOPSIS

To introduce the technological knowledge in hardware, software and creative contents. Students will be exposed to various kinds of designs, developments, maintenance of hardware and software technology products and applications which include telecommunications, photonics, sensors and transducer. Business activities which cover multimedia content creation, processing, packaging and aggregation, post production, animation and virtual reality applications are also covered. By the end of this subject, it is hoped that students have much clearer picture of the technology involves in hardware, software and creative contents which would enable the advancement of their proposed idea.

LEARNING OUTCOMES

By the end of the course, students should be able to:

No.	Subject LO	Related Program LO	Evaluation Method
1.	Ability to understand and appreciate hardware, software and creative contents technology	L01- Acquire different state-of-the-art ICT knowledge. L02- Possess various related state-of-the-art ICT skills.	A, Prs
2.	Ability to understand the various state-of-the-art Wireless Communication Technologies and Applications	L01- Acquire different state-of-the-art ICT knowledge. L02- Possess various related state-of-the-art ICT skills.	A, Prs
3.	Ability to understand and appreciate the principles and applications of Photonics Technology, Sensors and Transducers	L01- Acquire different state-of-the-art ICT knowledge. L02- Possess various related state-of-the-art ICT skills.	A, Prs
4.	Ability to understand various software platforms for specialized applications	L01- Acquire different state-of-the-art ICT knowledge. L02- Possess various related state-of-the-art ICT skills.	A, Prs
5.	Ability to appreciate service oriented software engineering and aspect oriented software development	L01- Acquire different state-of-the-art ICT knowledge. L02- Possess various related state-of-the-art ICT skills.	A, Prs
6.	Ability to understand various multimedia and creative content development and applications	L01- Acquire different state-of-the-art ICT knowledge. L02- Possess various related state-of-the-art ICT skills.	A, Prs
(**E** – Exam ; **PR** – Project ; **Q** – Quiz ; **A** – Assignment; **Prs** – Presentation ; **FA** – Final Exam)			

STUDENT LEARNING TIME

Teaching and Learning Activities	Student Study Hours (Hours)
Lecture, Talk, Seminar and Workshop	40
Laboratory Activities	20
Assignment	40
Presentation	20
TOTAL HOURS	120

TEACHING METHODS

- Lecture by lecturers and guest speakers
- Assignments & Presentations
- Laboratory Hands-on Activities.

WEEKLY SCHEDULE

Week	Topics	Activities/hours
Week 1	**1.0 Introduction to Software Product & Software Process** 1.1 Software 1.2 Software Product & Marketing of Software Products 1.3 Software Process: Design, Development, Maintenance	Lecture : 2 hours Student Centered Learning: 1 hour
Week 2	**2.0 Software System** 2.1 Embedded Systems 2.2 Critical Systems 2.3 Characteristics & Challenges 2.4 Trends 2.5 Impact on Industries	Lecture : 1 hour Student Centered Learning: 2 hours
Week 3	**3.0 Software Engineering** 3.1 Rapid Software Development 3.2 Software Reuse 3.3 Component-Based Software Engineering 3.4 Service-Oriented Software Engineering	Lecture : 1 hour Student Centered Learning: 2 hours
Week 4	**4.0 Software Technologies & Application** 3.1 Wireless Communication Technologies 3.2 Photonics Technology 3.3 Mobile Applications 3.4 Software Platform Applications	Assessment: Assignment 1 & Presentation
Week 5	**5.0 Introduction to Hardware** 4.1 Microcontroller 4.2 Input and output 4.4 Interfacing 4.5 Transducers: Sensors & Actuators	Lecture : 3 hours
Week 6-7	**6.0 Practical Hardware & Software Development** 5.1 Simple hardware design 5.2 Embedded software development	Lecture : 1 hour Lab Work: 5 hours

Week 8	7.0 Interfacing Case-Study	Assessment: Assignment 2 & Presentation 2
Week 9	Introduction to Multimedia Content Creation and Delivery Activities	
Week 10 -11	Digital Content Development, Aggregation and Packaging	
Week 12	Games, Animation and Virtual Reality Applications	
Week 13	Business Opportunities for Hardware, Software & Creative Content	
Week 14 – 15	**Study Week and Final Exam**	

REFERENCES :

1. Lessard, A. R., & Lampropoulos, G. A., *Applications of Photonic Technology 6: Closing the Gap Between Theory, Development, and Application*, SPIE, 2003
2. Sinclair, I., *Sensors and Transducers*, Newnes, 2001
3. Sommerville, I., *Software Engineering*, Addison-Wesley, 2006
4. Lee, V., Scheneider, A., & Schell, R., *Mobile Applications: Architecture, Design and Development*, Prentice Hall, 2004
5. Dave, A. & Kevin, H., *Beginning OpenGL Game Programming, Thomson Course Technology,* 2004
6. Kenneth, C.F., *3D Game Programming All in One, Thomson Course Technology*, 2004.
7. Rabin, S., *Introduction to Game Development (Game Development Series),* 1st Edition, Charles River Media, USA, 2005
8. Ze, N. L, & Drew, M. S., *Fundamentals of Multimedia*, Pearson Prentice Hall, 2003