1.1 Course Title: Course code: Human Computer Interaction

Semester Credit Hours: 3 (3, 0)

4.2.1 Course Overview

Computer technologies are becoming a common element of our everyday lives. We need them to work and study, and also to fulfill personal needs such as shopping and communicating with loved ones. The increasingly ubiquitous nature of computer technologies means that it is no longer sufficient to design them to be functional and efficient. They must also enable users to interact with them accurately, efficiently, and with a reasonable level of satisfaction. In this course we will learn how to design and implement computer technologies that take into account the needs and abilities of users in order to provide them with usable, useful, and enjoyable interactions.

1.2 PMU Competencies and Learning Outcomes

The goal of this course is to provide the student with a basic knowledge of human-computer interaction as a distinct discipline and to investigate specific issues involving human-computer interaction and user interface design.

The course provides opportunities for technical skill development as well as communication, collaboration and leadership skills through the maintenance of journals, detailing progress in group projects, and in-class presentations

This course makes extensive use of the PMU technology infrastructure to provide communication between faculty and students. The course includes individual as well as group projects and establishes both conceptual reasoning skills and technical communication skills.

1.3 Detailed Course Description

Modern computer technology requires professionals of every computing specialty to understand both hardware and software. The interaction between hardware and software at a variety of levels also offers a framework for understanding the fundamentals of computing. The performance of future software systems will be dramatically affected by how well software designers understand the basic hardware techniques at work in a system. Thus, compiler writers, operating system designers, database programmers, and most other software engineers need a firm grounding in the principles presented in this course.

1.4 Requirements Fulfilled

This course is required of all students pursuing a degree program within the College of Information Technology. It should be taken in the second semester of the junior year.

1.5 Required Prerequisites

GEIT 1411: Computer Science I
GEIT 1412: Computer Science II
COSC3402: Visual Programming Using VB.Net

1.6 Learning Outcomes

Upon completion of this course students are expected to:
Acquire knowledge of a) basic issues in user interface design and human-computer interaction (HCI); b) how HCI fits into the software design process, and c) basic techniques for user requirements data collection and analysis. They should be able to recognize and recall basic HCI terminology, concepts and principles.
Demonstrate understanding of a) the impact of interface design decisions on the outcome of the software product, b) implications of interface design decisions on the end users' ability to work with the software product, and c) the potential impact of the software on the users' performance.
Be able to apply basic techniques of requirements data collection and analysis, and to apply user-centered techniques to the engineering of software systems.
Learn how to evaluate "good" and "bad" interface designs, and how to apply particular metrics in this effort. They should also learn how to construct basic testing and evaluation metrics for their own software products.
Enhance their oral, written, creative and visual communication skills through interface design, presentation of those designs, as well as through reporting on other people's designs.
Know how to use basic textual, audio, and video instruments in the collection of user-centered data.
Develop basic awareness of the impact of interface design on supporting "universal access" – i.e., computer users with cultural, gender and/or physical ability differences.

1.7 Assessment Strategy

There will be individual homework assignments as well as one group project broken up into several phases. Some of the assignments will require programming. There will also be frequent in-class discussions and activities in which students are expected to actively participate. There will be a midterm and a final exam.
The final grade will be calculated this way:
Class Participation: 10%
Assignments: 10%
Group Project: 45%
Midterm: 15%
Final: 20%

Grading Scale

Letter grades will be assigned according to the following grading scale.

Letter Grade	Overall %
A+	95 – 100
A	90 – 94
B+	85 – 90
B	80 – 84
C+	75 – 79
C	70 – 74
D+	65 – 69
D	60 – 64
F	Below 60

1.8 Course Format

The course is primarily a lecture-based course in which the students are required to complete significant projects outside of class time. The course will include individual assignments as well as group projects and provide opportunities for the presentation and defense of designed solutions. At least once per week students should be prepared to make presentation on the design and implementation of a solution to a problem selected by the instructor and to take part in a discussion based on that presentation. Once a week students should have at least 30 minutes of collaborative problem solving activity.

Classroom Hours (3 hours per week)
Class: 3
Lab: 0

Web supplement: Course home page (the university's BLACKBOARD) should contain the following:
Course syllabus.
Course assignments.
Keys to exams (after students have completed them).
Model programmed solutions to programming assignments (once students have completed them)
Course calendar (an active utility).
Course e-mail (an active utility).
Course discussion list (an active utility).
Students course marks. (an active utility).

4.2.9 Topics to be covered

1. Understand basic HCI concepts and definitions
2. Understand the role of modeling
3. Study and design graphic interfaces
4. Study User-Centered Design, task analysis, GOMS, and other key HCI methods
5. Develop an understanding of needs analysis of user interactions
6. Perform rapid prototyping and evaluation
7. Understand design evolution
8. Perform creative problem solving in groups

1.10 Technology Component

A. In class, the instructor makes use of state-of-the art multimedia projection equipment and software. These are used to project slides and Web-based content relevant to the concepts of and use of OR techniques.
B. Outside class, the instructor uses Web-based course management software (for example WebCT, BLACKBOARD) to interact with students as described under course format section.
C. All skill-building exercise and case studies assigned in this class require students to use software packages available in Microsoft Excel or specialized OR software.
D. When working on case assignments, each team is set up an on-line discussion group and repository to facilitate collaboration among team members.

1.11 Special Projects/Activities

Students are required to keep a “reflective notebook” in which, after each class, they enter their own assessments of what they learned, and what questions remain from the class. From each exercise set, each student selects one problem, which the student thinks best reflects the way the topic is used in a technical context. A detailed solution to the problem is included in the student’s reflective notebook.

1.12 Textbooks and Teaching Aids

A. Required Textbook
Interaction Design: Beyond Human-Computer Interaction; Jennifer Preece, Yvonne Rogers, and Helen Sharp, Wiley and Son, Inc. 2002, ISBN: 0-471-49278-7.

B. Alternative Textbook
Human-Computer Interaction, Third Edition by Alan Dix et al, Prentice Hall (2004).

C. Supplemental Print Materials
As available from publisher.

D. Supplemental Online Materials
http://www.id-book.com/
http://hcibib.org/