University of Macau
Faculty of Science and Technology
Department of Computer and Information Science
SFTW496 Project
Syllabus
2nd Semester 2010/2011
Part A – Course Outline

Compulsory course in Computer Science

Catalog description:
13.5 credits. This course provides a chance to demonstrate what the students have learnt during the time in the University. It provides a platform to create an original application/research work with novel idea that make use of the skills the students have developed whilst studying for the degree. In addition, the projects are group based projects so that the students learn how to collaborate with others effectively.

This course forms a significant part of the degree programme and is conducted in last semester of the study. It is therefore important to participant in a project that the student is interested in. The student should be enthusiastic enough about to complete to a good quality project.

Prerequisites:
- Final year level

Textbook(s) and other required material:
None

References:
None

Major prerequisites by topic:
- Programming languages and algorithms.
- Software project management.
- Information systems analysis and design
- Applied mathematics and scientific computing

Course objectives:
- To provide students with an excellent opportunity of in-depth exploration of a particular topic in computer and information science. [a,b,c,e,f,h,i,j,k,l]
- To teach students how to apply the general knowledge of engineering & sciences and the emerging technology to solve an open-ended real-world problem with a critical manner. [a,j,k,l]
- To further develop student's creativity and overall skills of problem formulation, development of appropriate methodologies, design and implementation of a well-designed solution. [b,c,e,h,j]
- To practice data collection and analysis using different software packages and libraries. [b,k]
- To complete an engineering project via a team work or contribution from the peers. [d,g]
- To teach how to make good oral presentation of the project findings and write a technical report. [b,e,g]
- To let students understand the professional practices in computer and information science and the impact of diverse solutions to the society. [f,h]

Topics covered:
One or more topics from the following areas:
- Graphics and Visual Computing
- Image Processing and Pattern Recognition
- Programming Languages

- Software Engineering
- Databases and Data Mining
- Information Retrieval and Web Mining
- Machine Translation and Natural Language Processing
- Distributed Computing
- Geographic Information System
- Bioinformatics
- Business Intelligence
- Other Topics in Computer and Information Science

Class/laboratory schedule:

Timetabled work in hours per week			No of teaching weeks	Total hours	Total credits	No/Duration of exam papers
Lecture	**Tutorial**	**Practice**				
Nil	Nil	Nil	14	Nil	13.5	Nil

Student study effort required:

Other study effort	
Meeting and discussion	50 hours
Project and literature survey	100 hours
Self-study	100 hours
Implementation	150 hours
Total student study effort	400 hours

Course assessment:
The assessment of course objectives will be determined on the basis of:
- Project evaluation
- Report
- Presentation

Project allocation procedures
At the beginning of spring semester, students may contact faculty members for the details and with a view to joining a project. After a faculty member and students agree to pair up for a project, the students will report their project title and members list to final year project coordinator by email. The allocation process is no longer than 4 weeks.

Overall mark distribution
- Part (A) Project & Report (given by supervisor): 55%
- Part (B) Project & Presentation (given by all faculty members): 45%

Part (A) is marked by the supervisor.
Every supervisor must return the evaluation form(s) to DCIS Final Year Projects Quality Assurance Committee on or before the presentation.

Part (B) is marked by all faculty members present (including the supervisor).
If there are more than six supervisors present, then the highest and lowest marks are discarded. Otherwise, the highest and lowest marks are counted with a 50% weight. All other marks are calculated with a 100% weight. The Project & Presentation mark is the average of the weighted marks.

Quality assurance
In order to provide better monitoring of the final year projects, we establish a Final Year Projects Quality Assurance Committee which is responsible to DCIS for ensuring that the projects have rigorous and responsive quality assurance. Tentatively, only those projects being marked as outstanding (A-, A) or fail (F) will be sent to the committee. The final grade will be decided upon by the committee.

Contribution of course to meet the professional component:
This course prepares students with advanced knowledge in project design and various techniques in computer science.

Relationship to CS program objectives and outcomes:
This course primarily contributes to Computer Science program outcomes that develop student abilities to:
(a) an ability to apply knowledge of computing, mathematics, science, and engineering.
(b) an ability to design and conduct experiments, as well as to analyze and interpret data.
(c) an ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
(d) an ability to function effectively on multi-disciplinary teams.
(e) an ability to analyze a problem, and identify, formulate and use the appropriate application requirements for obtaining its computing solution.
(f) an understanding of professional, ethical, legal, security and social issues and responsibilities.
(g) an ability to communicate effectively.
(h) the broad education necessary to understand the impact of computing solutions in a global, economic, environmental, and societal context.
(j) a knowledge of contemporary issues.
(k) an ability to use the techniques, skills, and modern computer tools necessary for engineering practice.
(l) an ability to use the computer/IT tools relevant to the discipline along with an understanding of their processes and limitations.

The course secondarily contributes to Computer Science program outcomes that develop student abilities to:
(i) a recognition of the need for, and an ability to engage in life-long learning.

Relationship to CS program criteria:

Criterion	DS	PF	AL	AR	OS	NC	PL	HC	GV	IS	IM	SP	SE	CN
Scale: 1 (highest) to 4 (lowest)	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Discrete Structures (DS), Programming Fundamentals (PF), Algorithms and Complexity (AL), Architecture and Organization (AR), Operating Systems (OS), Net-Centric Computing (NC), Programming Languages (PL), Human-Computer Interaction (HC), Graphics and Visual Computing (GV), Intelligent Systems (IS), Information Management (IM), Social and Professional Issues (SP), Software Engineering (SE), Computational Science (CN).

Course content distribution:

Percentage content for			
Mathematics	Science and engineering subjects	Complementary electives	**Total**
5%	80%	15%	100%

Coordinator:
Dr. Leong Hou U

Persons who prepared this description:
Dr. Leong Hou U, Dr. Fai Wong
