



COLLEGE of COMPUTER STUDIES
CENTRAL PHILIPPINE UNIVERSITY
ILOILO CITY, PHILIPPINES
Tel Nos (033) 329 1971 (to79) local 2119, 2120



COURSE SYLLABUS

GENERAL COURSE INFORMATION

Course No. CS 318
Course Title Methods of Research in Information Technology

Course Description This course is designed to expose the student to research in computer science, information technology or information science. Students will develop a concept paper which can be pursued as thesis or capstone project proposal. Topics include the basic of research, methodologies, frameworks and models, system analysis and design, data collection strategies, validation and analysis, statistical treatment, report writing, supporting skills, ethical and professional considerations as applied to computing.

Effective Semester/School year : 1st Semester 2011-12

Class Schedule :

Prerequisites : CS 321 (BSCS and BSIT), 3rd year standing (BSIS)

Course Objectives :

Unit Credit : 3 units

Room No. :

Total No. of Hours/Sem : 54 hours

At the end of the course, the students are expected to be able to:

1. Choose area of study and identify research problem in the area of specialization;
2. apply scientific approaches and methodologies in developing a research proposal or research concept paper;
3. acquire supporting skills including ethical and professional for doing research in the area of specialization; and,
4. Present a research proposal or concept paper for evaluation.

INSTRUCTOR DETAILS

Name : Mary O' Territorio Penetrante, DMBM
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Office Room no. : Thesis Room, 2nd Floor, Mary Thomas Building, CPU
Counseling Hours :

COURSE REQUIREMENTS/GRADING SYSTEM

Lecture		100 %
HW/SW/Board Work	10%	
Quizzes	20%	
Prelim Exam	15%	
Midterm Exam	15%	
Prefinal Exam	15%	
Final Exam	25%	

TRANSMUTATION TABLE

$96 \leq FA \leq 100$	----	1.0
$91 \leq FA < 96$	----	1.25
$86 \leq FA < 91$	----	1.5
$80 \leq FA < 86$	----	1.75
$74 \leq FA < 80$	----	2.0
$68 \leq FA < 74$	----	2.25
$62 \leq FA < 68$	----	2.5
$56 \leq FA < 62$	----	2.75
$50 \leq FA < 56$	----	3.0
$FA < 50$	----	5.0

Passing Mark **50%**

MATERIALS NEEDED

Textbook, Thesis Guideline and Policies, Notebook

TEXTBOOK**PRINTED REFERENCES**

1. Schwalbe, K. Management of Information Technology Projects, Cengage Learning Asia Pte. Ltd., Singapore, 2011
2. Thesis Guidelines and Policies, College of Computer Studies, Iloilo, Philippines 2011
3. Reynolds, G. Information Technology Management, Cengage Learning Asia Pte. Ltd., Singapore, 2010
4. Duquenoy, P., Jones, S., and Blundell, B. Ethical, Legal, and Professional Issues in Computing. Cengage Learning Asia Pte. Ltd., Singapore, 2008
5. Rob, P., Coronel C. Database Systems, Thomson Course Technology, 2007
6. Schwalbe, K. IT Project Management. Thomson Course Technology 2007
7. Cooper, D., Schindler, P. Business Research Methods, 9th Edition, McGraw Hill International, New York, USA, 2006
8. David, Fely P. Handouts in Methods of Research, School of Graduate Studies, Central Philippine University, Iloilo City 2006
9. Writing a research paper / Lionel Menasche (CPU Henry Luce Library), 2006
10. Hoffer, J., George J. and Valacich, J. Modern Systems Analysis and Design, Pearson Prentice Hall, 2004
11. Mann, P. Introductory Statistics, 5th Edition. John Wiley & Sons (Asia) Pte. Ltd., Singapore, 2004
12. Anderson, D., Sweeney, D., Williams, T. An Introduction to Management Science, Quantitative Approaches to Decision Making, 6th Edition, West Publishing co., Minnesota, USA, 1992

ONLINE REFERENCES AND JOURNALS

1. <http://courseweb.xu.edu.ph/courses/msit134/syllabus.html2>
2. http://www.dcs.gla.ac.uk/~johnson/teaching/research_skills/research.html
3. <http://cs.joensuu.fi/pages/suhonen/RM2010/index.html>
4. <http://www.cs.orst.edu/~tgd/classes/519.html>
5. <http://www.cs.iastate.edu/~honavar/research-methods-workshop.html>

LECTURE TOPICS

TOPIC	OBJECTIVES	TERMS AND CONCEPTS TO REVIEW	METHODS AND STRATEGIES	LEARNING OUTCOMES*	EVALUATION TECHNIQUES	REF. NO.	WEEK NO.
1.Introduction to Methods of Research in Computer Science: 1.1. What is research? 1.2. What are the uses of research? 1.3. What is role of research in development? 1.4. Uses and importance of research in development 1.5. The Functions of Research in Planning and Decision-Making 1.6. Research as a Scientific Inquiry 1.7. Classifications of Research 1.8. The Research Process	1.Understand and appreciate the need for and use of research in development, the value of scientific process and critical thinking in problem solving and decision making. 2.Learn the uses and importance of research in development, planning and decision making 3.Understand what is scientific inquiry 4.Identify the different classification of research 5.Explain the research process	Research Development Research process Scientific thinking Scientific inquiry Decision making Problem solving Basic research Applied research Experimental research Technical research	Short lecture Discussion Field/library research	a, k, g, j,l	Assignment Quiz	1	1
2. The Research Process and Paradigms 2.1. Understanding and qualifying IT problem 2.2. Characteristics of a ‘good’ IT research problem 2.3. Sources of IT Research problems	1. Identify IT research problem 2. Validate the existence of a problem 3. Prioritize IT research problems 4. Define current state of technology 5. Develop proposed solution to	Researchable problem Data gathering methods Information technology Computer Science Information Science Diagrams Business models and modelling	Short lecture Discussion Field/library research	b, c, d,e,f,g	Assignment Quiz	1, 2	2-4

TOPIC	OBJECTIVES	TERMS AND CONCEPTS TO REVIEW	METHODS AND STRATEGIES	LEARNING OUTCOMES*	EVALUATION TECHNIQUES	REF. NO.	WEEK NO.
2.4. Identification/Selection of a IT Research problem 2.5. Probing IT research problems 2.6. Defining current state of technology 2.7. Defining the desired state of technology	the identified problems	Business Process UML					
3. Research Objectives and Theoretical Perspective 3.1. Problem statements and Research Objectives 3.2. SMARTER Principle of defining specific objectives 3.3. Thesis on possible solutions to the identified problems	1. Formulate the general objective 2. Formulate the specific objectives 3. Test specific objectives using the SMARTER principle 4. Define proposal to address the identified problems	General Objectives Specific Objectives SMARTER Principles Diagrams Flowchart	Short lecture Discussion Field/library research	a, b, c, d, e, f, g, h, i, j,k,l	Problem Proposal Quiz		5
4. Theoretical and Conceptual Frameworks 4.1. Theoretical Framework 4.2. Theory Defined 4.3. Functions of a theoretical Framework 4.4. Sources of Theoretical framework 4.5. Sample theories used in research 4.6. Conceptual Framework 4.7. Relating Theory With Concepts	1. Formulating theoretical framework of the study 2. Designing conceptual framework of the study	Theory Framework Concept Construct Conceptual Framework Model Modelling Process Flow	Short lecture Discussion Field/library research	a, b, c, d, e, f, g, h, i, j,k,l	Study Framework Design Quiz		6-7
5. Definition of Terms, Scope and Limitation and	1. Identify terms to define 2. Define the scope and	Scope Limitation	Short lecture Discussion	a, b, c, d, e, f, g, h, i, j,k,l	Draft of Chapter 1 Proposal		8

TOPIC	OBJECTIVES	TERMS AND CONCEPTS TO REVIEW	METHODS AND STRATEGIES	LEARNING OUTCOMES*	EVALUATION TECHNIQUES	REF. NO.	WEEK NO.
Significance of the Study 5.1. Operational definition of terms 5.2. Scope and Limitation of the Study 5.3. Significance of the Study 5.4. Relevance and timeliness of the study 5.5. Other issues to consider	limitation of the study 3. Describe the significance of the study 4. Identify development and implementation issues that needs to be considered	Constraints Significance of the Study Benefits Timeliness Relevance	Field research		Preliminary Examination		
6. Review of Related Literature and Studies 6.1. Review of related literature and studies 6.2. Sources of related literature and studies 6.3. Citations and references	1. Understand the importance of related literature and studies developing concept paper 2. Develop the review of related literature and studies 3. Apply proper citations of sources and references	Literature Studies Citation Graphs APA References	Short lecture Discussion Field/Library research	a, b, c, d, e, f, g, h, i, j,k,l	Draft of Chapter II Proposal		9
7. Methodology 7.1. Research design and System Development Life Cycle (SDLC) 7.2. Validity and reliability of research designs 7.3. Selecting an appropriate SDLC model 7.4. Use of research design in establishing extent/reach of problems 7.5. The need for statistical analysis 7.6. Ethical issues and technical issues	Understand the use of research design in scientific inquiry and system development 2. Select appropriate SDLC model to use 3. Learn when to use statistical analysis 4. Examine the ethical, technical, practical, administrative and implementation issues	Methodology Method System Development Life Cycle SDLC Models Traditional Agile Statistics Ethics Implementation Issues	Short lecture Discussion Field/Library research	a, b, c, d, e, f, g, h, i, j,k,l	Quiz		10-12

TOPIC	OBJECTIVES	TERMS AND CONCEPTS TO REVIEW	METHODS AND STRATEGIES	LEARNING OUTCOMES*	EVALUATION TECHNIQUES	REF. NO.	WEEK NO.
7.7. Practical and administrative issues. 7.8. Implementation issues							
8. References, Work Schedules and Budget 8.1. References 8.2. Time frame and schedules 8.3. Project monitoring tools 8.4. Resources allocation	1. Prepare the references and annexes 2. Develop Gantt chart and work schedules 3. Allocate resources	Referencing Charts Budgeting Resource Allocation	Short lecture Discussion Field/Library research	a, b, c, d, e, f, g, h, i, j,k,l	Midterm Examination Draft of Chapter III		13-15
9. Writing and Formatting the Report 9.1. Writing the concept paper 9.2. Parts of a concept paper 9.3. Form and style of a concept paper 9.4. Technical language and grammatical structures 9.5. Organizational and Development		APA Format CPU Format Formatting Pagination Presentation Slides Presentation Guidelines	Short lecture Discussion Presentation of Concept Paper	a, b, c, d, e, f, g, h, i, j,k,l	Prefinal and Final Examinations		16-18

RESEARCH PAPER OUTPUT

OUTPUT NO.	TITLE	WEEK NO.
1	CHAPTER I	8
2	CHAPTER II	9
3	CHAPTER III	12
4	FINAL CONCEPT PAPER	18

CLASSROOM POLICIES

1. Accessibility. Everyone has an equal right to be educated efficiently and comfortably. Students with disabilities are encouraged to discuss their individual needs and accommodations (e.g. sitting in front for those with visual or hearing problems, objection to coloured visual aids for the colour blind.)
2. Collaboration. You are encouraged to do group study since it is usually more effective than studying alone. However, try to do homeworks and individual laboratories by yourself first. After all, you're all by yourself during exams. If you're stuck for 30 to 45 minutes or so, get help from your classmates, and make sure to acknowledge them in your deliverable. This will not affect your grade, but it's the professional and polite thing to do. Strictly no collaboration of any form during quizzes and major exams (obviously). Likewise, asking other people to do your work for you is not considered as a collaborative effort, but is a form of academic dishonesty.
3. Absences. Absences are counted starting with absence from the first day of class for the semester. You are required to submit an excuse slip for every absence made. However, you cannot be readmitted to class after the fourth absence unless you present an approved readmission slip. If you report to class 15 minutes after the second bell, you will be marked absent. Allowed number of absences is not more than 20% of the required number of class hours.
4. Make-up Works. Make-up works are only possible on major exams and laboratories. Make sure the reason for not taking exams or attending laboratory sessions on time is acceptable (e.g. illness, family emergency), and is supported by valid proof. You will not be allowed to take make-up exams without excuse slips or exam permits.
5. Deadlines. Deliverables not submitted on or before the deadline due to unacceptable reasons (e.g. poor time management) will not be considered for giving incomplete grade. Late work will receive a 10% deduction for each day late after the deadline, not including weekends and holidays. In a way, you'll receive a zero if your work is 10 days late, since you'll be having a 100% penalty.
6. Group Grade. For group work, your individual grade is a percentage of your group grade. The group leader and instructor will collaboratively grade the individual members. The instructor will assess your contribution during the defense of your laboratories and projects. Example, your group grade is 90, a top contributor may get 100% of the grade, which is 90, while a less performing member may only get 30% of the total, which is 27.
7. Dress Code. Students must come to class following the university guidelines on dress code or the college schedule of uniform.
8. Examinations. Use short-size bond paper or newsprint. Write or print solutions and answers on one side of the paper only (portrait). Use only either black or blue ink ball pens or sign pens that don't blot.
9. Plagiarism. Don't copy material (e.g. text, images, source codes, videos for presentations) from any website or printed materials such as books, and submit them as if they were your own work. Always cite your sources. Not doing so is unethical, and is a form of academic dishonesty. If you borrow someone else's idea, and rephrase them with your own words, it's still not your idea, and you should still cite your sources.
10. Academic Dishonesty. All forms of dishonest work will have corresponding sanctions. It's possible that such works will not be graded at all.
11. Cell Phones and other Gadgets. Cell phones and other gadgets must be turned off or put in silent mode while in class and during exams.
12. Exam Papers. All exam papers will be returned to students within ten (10) days from the day of examinations.
13. Exam Permits. Students should submit examination permits to the proctor during examination periods.
14. Faculty Attendance. Late (15 minutes after the second bell) and absent faculty members must be reported immediately to the Office of the Dean.

PROGRAM OUTCOME

A graduate of the Bachelor of Science in Computer Science (BSCS) program must attain:

- a. An ability to apply knowledge of mathematics, business and management, physical, engineering, social and information sciences appropriate to the field of practice;
- b. An ability to design and develop experiments, as well as to analyze and interpret data;
- c. An ability to design a system, component, or process to meet desired needs within identified constraints;
- d. An ability to work effectively in multi-disciplinary and multicultural teams;

- e. An ability to recognize, formulate, and solve computing and engineering problems;
- f. Recognition of professional, social, and ethical responsibility;
- g. An ability to effectively communicate orally and in writing using the English and other languages;
- h. An understanding of the effects of computing and engineering solutions in a comprehensive context;
- i. An ability to engage in life-long learning and an understanding of the need to keep current of the developments in the specific field of practice;
- j. A knowledge of contemporary issues;
- k. An ability to use the techniques, skills, and modern computing and engineering tools, necessary for computing and engineering practice; and
- l. An ability to exemplify Central Philippine University core values of faith, character, justice, stewardship and excellence.

Prepared by:

Reviewed/Recommending Approval:

Approved by:

Printed Name/ Signature/ Date

Curriculum Committee Chair/ Date

Dean/ Signature/ Date