✯ The University of Texas at Tyler ✯
Bachelor of Science in Computer Science

COSC 4340 Syllabus	
Course Number:	COSC 4340
Course Title:	Comparative Study of Programming Languages
Course Description: Introduction, analysis, and evaluation of the important concepts found in a variety of programming language paradigms; formalisms useful in specifying language syntax and semantics; programming language paradigms including algorithmic, functional, logic, object-oriented, visual, etc.	
Pre-requisites:	COSC 2336
Credits:	3
Text(s):	*Comparative Programming Languages*, 3rd Edition Leslie B. Wilson and Robert G. Clark Addison-Wesley, 2001
Languages Used: (if applicable)	Pascal, C, C++, Java, Ada

Topics:	**HOURS**
Preliminary Considerations about Programming Languages:	4
Evaluation Criteria	
Design Influences	
Evolution	
PL Constructs and Concepts:	
Syntax and Semantics	
Names, Bindings, Type Checking, and Scopes	
Structured Data Types and Pointers	
Expressions and the Assignment Statement	
Statement-Level Control Structures	
Subprograms	
Data Abstraction	
Concurrency	
Exception Handling	
In Imperative PLs (as applicable)	12
In Traditional and block-structured (as applicable)	12
In Functional PLs (as applicable)	6
In Logic PLs (as applicable)	6
TOTAL HOURS	**40**

Evaluation Method: (only items in dark print apply)	
1. Examination/Quiz	**2. Homework**
3. Paper/Report	**4. Computer Program**
5. Project	6. Presentation
7. Class Participation	8. Peer Review

Course Objectives: By the end of this course students are expected to:
1. Describe the significant commonly-accepted criteria for evaluating programming languages (PLs).
2. Identify a large variety of design issues associated with many different PL features.
3. Describe PL design principles.
4. Describe evolutionary progress of the major PLs.
5. Describe the PL paradigms—imperative (procedural), object-oriented, functional (applicative), and logic (declarative).
6. Identify many of the constructs and concepts of a number of PLs in all the paradigms.
[1] *Numbers in bracket refer to method(s) used to evaluate the course objective.*

Relationship to Program Outcomes: (only items in dark print apply) This course supports the following Computer Science Program Outcomes, which state that our students at the time of graduation are expected to:
1. **Posses knowledge of the fundamentals of mathematics, science, and technology.** [1-6]
2. **Be able to use modern computational tools and techniques in the practice of computer science.** [1-6]
3. Be able to develop logically sound and efficient algorithms.
4. Be prepared to implement algorithms in multiple programming languages, on multiple hardware platforms, and in multiple operating system environments. [1-6]
5. Be able to perform analysis, design, implementation, testing, and maintenance of computer-based systems, stressing software engineering principles.
6. Be prepared to seek continuing professional development, graduate studies, or professional certifications related to computer science.
7. Possess a knowledge of computer security and computer security management.
8. Demonstrate effective written, visual and oral communication skills.
9. Posses an educational background to understand the global context in which computer science is practiced, including: a. Knowledge of contemporary issues related to computer science; b. The impact of computers on society; c. The role of ethics in the practice of computer science.
10. Be able to contribute effectively as members of a project development team.
11. Recognize need to pursue continued learning throughout their professional careers.
[2]Numbers in brackets refer to course objective(s) that address the Program Outcome.

Academic Year 2008-2009	
Prepared By:	Date:
Reviewed By:	Date:
Instructional Actions:	
Syllabus Changes:	

Academic Year 2009-2010	
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Academic Year 2010-2011	
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Syllabus Changes:	

Academic Year 2011-2012	
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Syllabus Changes:	

Academic Year 2012-2013	
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