## New Course proposal

## Program Areas ___BIOLOGICAL AND PHYSICAL SCIENCES, MATH AND COMPUTER SCIENCE

1. Catalog Description of the Course. [Include the course prefix, number, full title, and units. Provide a course narrative including prerequisites and corequisites. If any of the following apply, include in the description: Repeatability (May be repeated to a maximum of $\qquad$ units); time distribution (Lecture $\qquad$ hours, laboratory $\qquad$ hours); non-traditional grading system (Graded CR/NC, ABC/NC). Follow accepted catalog format.]

## COMP 232. PROGRAMMING LANGUAGES (3)

Three hours of lecture in the lab per week.
Prerequisite: COMP 151 and COMP 162.
Discussion of issues in the design, implementation, and use of high-level programming languages. Topics include: historical background; how languages reflect different design philosophies and user requirements; technical issues in the design of major imperative (procedural) programming languages; other approaches to programming: functional programming, logic programming, and object-oriented programming.

## 2. Mode of Instruction.


3. Justification and Learning Objectives for the Course. (Indicate whether required or elective, and whether it meets University Writing, and/or Language requirements) [Use as much space as necessary]

The course is a required course for Computer Science majors according to accreditation guidelines.
Through this course, students will be able to

- Explain how languages are designed and implemented
- Select the most appropriate language for solving a specific problem
- Assess the quality of a language
- Write a program in each of a imperative, applicative, rule-based, object-oriented language
- Organize and express ideas clearly and convincingly in oral and written forms.

This course is not designed to satisfy the University Writing or Language requirements.
4. Is this a General Education Course

NO
If Yes, indicate GE category:

| A (English Language, Communication, Critical Thinking) |  |
| :--- | :--- |
| B (Mathematics \& Sciences) |  |
| C (Fine Arts, Literature, Languages \& Cultures) |  |
| D (Social Perspectives) |  |
| E (Human Psychological and Physiological Perspectives) |  |

5. Course Content in Outline Form. [Be as brief as possible, but use as much space as necessary]

Introduction to Languages
Standardization and Internationalization
Language Translation and Grammar
Regular Grammar
Recursive Descent Parsing
Introduction to LISP
Perl
Parameter Transmission
Heap Storage
Garbage Collection
Overview of C and C++
Introduction to Java
6. References. [Provide 3-5 references on which this course is based and/or support it.]

Sebesta, Concepts of Programming Languages, Addison-Wesley $5^{\text {th }}$ edition ISBN: 02017529536
Pratt and Zelkowitz, Programming Languages - Design and Implementation, Prentice-Hall $4^{\text {th }}$ edition, ISBN: 0130276782
7. List Faculty Qualified to Teach This Course.

All Computer Science faculty.
8. Frequency.
a. Projected semesters to be offered: Fall __X_ Spring _X__ Summer __X_
9. New Resources Required.
a. Computer (data processing), audio visual, broadcasting needs, other equipment

Use of existing computer lab.
b. Library needs
none
c. Facility/space needs
none

## 10. Consultation.

Attach consultation sheet from all program areas, Library, and others (if necessary)
11. If this new course will alter any degree, credential, certificate, or minor in your program, attach a program modification.

