Motivation
The motivation behind teaching this course is to prepare you for better programming and writing compilers, and to prepare you for tomorrow since languages keep changing while the basic principle and design philosophy does not alter. This course will provide basic understanding of general design issues and behavior of different class of programming languages. No specific programming language syntax will be discussed. Although, examples will use syntax of popular languages in a specific class of languages. In addition, the student will be taught latest concepts in multimedia languages such as synchronization issues, multimedia archival and retrieval issues, and multimedia formats.

Prerequisites
Intermediate programming, Data structures, Symbolic programming, Knowledge of at least couple of programming languages

Contents
Introduction and properties of a good programming language (75 minutes), control flow diagrams (20 minutes), syntax and Backus Naur form (120 minutes), introduction to semantics (45 minutes), parameter passing, side-effect, aliasing (200 minutes)

Pre-First Mid Term tutorial (45 minutes)

First Mid Term (1 lecture)
Implementation of Heap Based Languages and Garbage Collection (135 minutes lectures) Types as sets (100 minutes), use of types and abstract implementation (45 minutes), polymorphism (45 minutes), Data dependency, concurrency and synchronization (120 minutes),

Pre-Second Mid Term tutorial (45 minutes)

Second Mid Term (1 lecture)
Deterministic and non-deterministic programming and languages (80 minutes). Fundamentals of functional programming paradigm (90 minutes), Fundamentals of logic programming paradigm (135 minutes), Fundamentals of object oriented programming
paradigm (45 minutes), Implementation Models of object oriented languages (45 minutes)

Pre-Final tutorial (45 minutes)

**Last three lectures (not covered in the examination)** Agent Based Languages (45 minutes), Introduction to Multimedia Languages such as XML and SMIL (45 minutes) Introduction to theory of multimedia systems such as synchronization, multimedia archival and retrieval.

**Assignments**: Last assignment will be a bonus assignment, and will be counted to promote border line students to a higher grade

1. Control flow diagrams, Syntax, and semantics
2. Behavior of languages, parameter passing, and side effects
3. Type theory, concurrency, and non-deterministic programming
4. Heap and Garbage collection
5. Functional and logic programming paradigm, Object Oriented programming paradigm - 2 assignments

For each assignment you will be given exactly one week. Departmental policy will be followed regarding copying. Two very similar text (to be decided by the instructor) will be treated as case of copying. However, group discussion to understand the problem is encouraged. A student will lose 10% of grade for every working day of late submission. Without proper explanation, late assignment submission is discouraged.

**Text Book and Reference Material**

1. Concepts of Programming Languages by Robert Sebesta, Eighth Edition, Publisher: Addision Wesley,
2. Arvind Bansal, transparencies from the class

**Other Reference Books**

1. Material for garbage collection and functional programming will be augmented during the semester.

**Grading Policy**

There will be three examinations: first midterm (20 %), second midterm (20 %), and third midterm (30%), and six assignments. First Five assignments will be counted. Last assignment will be a bonus assignment to help students who are at the border of two grades. Each assignment carries 6% of the grade. A student must attend 85% of the classes.

**Grading System**: 

- **A > 85%**, **B > 75%**, **C > 65%**, **D > 50%**
University Plagiarism Policy

ADMINISTRATIVE POLICY AND PROCEDURES REGARDING STUDENT CHEATING AND PLAGIARISM

Condensed Version
For complete policy and procedure go to www.kent.edu/policyregister 3342-3-01.8.

Cheating and plagiarism constitute fraudulent misrepresentation for which no credit can be given and for which appropriate sanctions are warranted and will be applied. The university affirms that acts of cheating and plagiarism by students constitute a subversion of the goals of the institution, have no place in the university and are serious offenses to academic goals and objectives, as well as to the rights of fellow students. “Cheat” means to intentionally misrepresent the source, nature, or other conditions of academic work so as to accrue undeserved credit, or to cooperate with someone else in such misrepresentation.

Cheating includes, but is not limited to:
1. Obtaining or retaining partial or whole copies of examinations, tests or quizzes before these are distributed for student use;
2. Using notes, textbooks or other information in examinations, tests and quizzes except as expressly permitted;
3. Obtaining confidential information about examinations, tests or quizzes other than that released by the instructor;
4. Securing, giving or exchanging information during examinations;
5. Presenting data or other material gathered by another person or group as one’s own;
6. Falsifying experimental data or information;
7. Having another person take one’s place for any academic performance without the specific knowledge and permission of the instructor;
8. Cooperating with another to do one or more of the above;
9. Using a substantial portion of a piece of work previously submitted for another course or program to meet the requirements of the present course or program without notifying the instructor to whom the work is presented; and
10. Presenting falsified information in order to postpone or avoid examinations, tests, quizzes or other academic work.

“Plagiarize” means to take and present as one’s own a material portion of the ideas or words of another person or to present as one’s own an idea or work derived from an existing source without full and proper credit to the source of the ideas, words, or works. As defined, plagiarize includes, but is not limited to:

a. The copying of words, sentences and paragraphs directly from the work of another without proper credit;
b. The copying of illustrations, figures, photographs, drawings, models, or other visual and nonverbal materials, including recordings of another without proper credit; and
c. The presentation of work prepared by another in final or draft form as one’s own without citing the source, such as the use of purchased research papers.

STUDENT CHEATING AND PLAGIARISM

Academic Sanctions
The following academic sanctions are provided by this rule for offenses of cheating or plagiarism. Kent campus instructors shall notify the department chairperson and the student conduct office each time a sanction is imposed. Regional campus instructors shall notify the regional campus dean and the student conduct officer each time a sanction is imposed. Regional campus student conduct officer shall notify the Kent student conduct office each time a sanction is imposed by a regional campus Instructor. The following academic sanctions are provided by this rule for offenses of cheating or plagiarism. In those cases the instructor may:

1. Refuse to accept the work for credit; or
2. Assign a grade of “F” or zero for the project, test, paper, examination or other work in which the cheating or plagiarism takes place; or
3. Assign a grade of “F” for the course in which the cheating or plagiarism took place; and/or;
4. Recommend to the department chair or regional campus dean that further action specified in the rule be taken. The department chairperson or regional campus dean shall determine whether or not to forward to the academic dean or to the vice president for the extended university a recommendation for further sanction under this rule.

For information regarding the academic appeals procedure, please refer to page 107 of the 2008-2009 FlashGuide