Sept. 19, 2005 **ICS 535-01 (051)** Dr. Mamdouh Najjar

Design and Implementation of Programming Languages

Language Design and Implementation Project (LDIP)
Design: Due Oct. 22, 2005

Part I: ***Language Design***

You are asked to design a programming language and to describe its syntax in BNF. The language must have at least the following primitive data types, constructs, and conventions:

- Identifier name specification
- Primitive data types: (Integer, Real, Boolean, Character)
- Enumeration type:
  - `type days is ( Sat , Sun, Mon, Tue, Wed, Thu, Fri);`
- Array type
- Operations and Expressions
  - Arithmetic
  - Boolean
  - Relational
- Type conversions (Integer , Real)
- Operator precedence rule

  ****, abs, not**
  ***, /, mod, rem**
  + , - (unary)
  + , - (binary)
  = , /= , < , > , <= , >= , in , not in
  and, or, xor
- Assignment statement (simple, mixed-mode)
- Compound statements (Blocks)
- Selection statement (Two-way, Multiple)
- Iterative statements
  - Counter-Controlled loops
  - Logically-Controlled loops
- I/O operations
- Nesting to any level for the selection and iterative statements

Deliverables:

1. BNF syntax description of your language
2. Semantic description and conventions of your language that can not be described in BNF

Note: Your design must first be approved by me before you start implementation.