CSCE 330 - Programming Language Structures
- **Credit Hours:** 3 hours
- **Contact Hours:** 3 lecture hours
- **Instructor:** Dr. Valtorta
- **Required Textbooks**
    - Hector J. Levesque. *Thinking as Computation*. The MIT Press, 2012.
    - Graham Hutton. *Programming in Haskell* (2nd Edition). Cambridge University Press, 2017.
- **Bulletin Description:** Formal specification of syntax and semantics; structure of algorithms; list processing and string manipulation languages; statement types, control structures, and interfacing procedures.
- **Prerequisites:** CSCE 240, MATH 174 or MATH 374 or MATH 574
- **Required Course** in CS; **Selective Elective** in CE
- **Course Outcomes:** Students will be able to:
    1. Categorize a language as imperative (procedural), functional (applicative) or declarative (logic).
    2. Generate and use syntax descriptions in EBNF.
    3. Write code in a functional language (e.g., Haskell).
    4. Write code in a logic language (e.g., Prolog).

- **Student Outcomes addressed by course**

Program	Student Outcomes Addressed
Computer Engineering	N/A
Computer Information Systems	N/A
Computer Science	2, 6

- **Topics covered**
    1. Evolution of major programming languages (2 hours)
    2. Formal description of programming language syntax (4 hours)
    3. Denotational semantics (1 hours)
    4. Interpreters, compilers, assemblers (2 hours)
    5. Data abstractions (2 hours)
    6. Control abstractions (2 hours)
    7. Run-time behavior of programs and procedural semantics (2 hours)
    8. Programming environments (3 hours)
    9. Functional languages (14 hours)
    10. Logic languages (10 hours)