

Course Outline

1. Document Information

Degree Program	Computer Science
Course Number	CS 511
Course Title	Formal Specification of Programming Languages
Semester Hours	3
Course Coordinator	Norman Carver
Revision Term	Fall 2020
Latest Revision	Spring 2021

2. Catalog Description

A survey of modeling techniques and Meta languages for the formal specification of the syntax and semantics of high-level programming languages.

3. Textbooks

4. References

5. Course Learning Outcomes

- To be able to read and comprehend formal definitions of programming languages
- To have a deeper understanding of the design and structure of programming languages
- To be aware of several diverse approaches to formal semantics
- To be aware of the potential applications of formal language specification, such as program verification and compiler generation

6. Assessment of the Contribution to Student Outcomes

Outcome	1	2	3	4	5	6	7
Assessed	X	X	X		X		

7. Prerequisites by Topic

CS 311.

8. Major Topics Covered in the Course

1. BNF and its variants.
2. Attribute grammars.
3. Two-level grammars.
4. Operational semantics and Vienna Definition Languages.
5. Denotational semantics.
6. Axiomatic semantics.
7. Programming languages as metalanguages.