Software Engineering

- Engineering (according to Merriam Webster, ABET, ...)
  - Applying scientific and mathematical principles in the construction of useful artifacts

- Software Engineering
  - Applying scientific and mathematical principles in the construction of software
  - More typical: designing and developing software
  - Primary tool: mathematical logic
  - Current usage
    - Safety critical systems
      - NASA, Airbus, ...
    - Embedded systems
  - Goal
    - Provide educational foundation for practice of engineering in software development
Hardcore Software Engineering

**Math Courses**
- Diff’l Calculus
- Integral Calculus
- Infinite Series
- Multivariate Calc
- Discrete Math

**Diff’l Equations**
- Formal Lang/Automata
- Statistics
- Linear Algebra
- Numerical Analysis
- Algorithm Analysis

**Replacement Courses**
- Predicate Calculus
- Multivariate Calc
- Pi Calculus
- Trees, Graphs, Grammars
- Data Structures
- Operating Sys

**Core**
- Programming
- Programming
- Data Structures
- Operating Sys
- Computer Org
- GUI
- Prog Languages
- Sfw Engr I
- Sfw Engr II
- Tech Elective
- Tech Elective

**Add ENGR Core**
- Circuits
- Signals/Systems
- Mechanics
- FE Exam

**Software Engineering BS program**
- d: declarative
- i: imperative