SYSTEMATIC PROGRAM DESIGN PART 1: SYLLABUS

The complete Systematic Program Design course consists of 3 parts, each of which is 5 weeks long. Each week consists of 1 or 2 modules, and those modules all have a similar structure, comprised of:

- An overview describing the module learning goals and summarizing the work required to complete the module.
- A number of blended topic lectures, consisting of video interspersed with questions for you to answer.
- A set of problems that will let you practice the new design techniques before the quiz.
- A module quiz. Most weeks the module quiz involves a self-assessed design problem. The nature of this self-assessment will be covered in detail in a later unit. Each of the three parts of the course ends with a small project in the form of a larger design quiz that uses peer assessment.
- A module wrap up.

The following chart provides an overview of the course topics:

Week	Module Name	Lectures	Time to complete	Practice Problems	Quiz
	Overall Learning Goal				
1	**Beginning Student Language**	8	5-8 Hours	4	*none*
	Learn to program with the core programming language used throughout the course.				
2	**How to Design Functions (HtDF) Recipe**	6	4-7 Hours	3	Self-Assessed Design Quiz
	Learn how to use the HtDF recipe to design functions that consume simple primitive data.				
3	**How to Design Data (HtDD) Recipe**	12	5-8 Hours	2	Self-Assessed Design Quiz
	Learn how to use the HtDD recipe to design data definitions tor atomic data				
4	**How to Design Worlds (HtDW) Recipe**	7	3-6 Hours	1	*none*
	Compound Data	3	2-4 Hours	3	Peer-Assessed Final Project
	Learn how to use the HtDW recipe to design interactive programs with atomic and then compound world state.				
Part 2 of the course covers arbitrary-sized data including lists and trees; the use of helper functions; functions consuming two complex types; and the use of local expressions to improve program clarity and/or performance.					
Part 3 of the course covers abstraction, generative recursion, search, accumulators and graphs.					