Module Code	CSU44012
Module Name	Topics in Functional Programming
ECTS Weighting[1]	5 ECTS
Semester taught	Semester 1
Module Coordinator/s	Glenn Strong
Module Learning Outcomes	On successful completion of this module, students will be able to: LO1. Develop sophisticated programs in a high level functional language LO2. Critique software designs in terms of functional concepts LO3. Contrast the functional style as it is used in several languages
Module Content	Course content covers both techniques and technologies. Topics will include: • Designing programs with higher-order functions (functors and monad transformers) • Domain Specific Languages in functional programming • Monads and Arrows for programming • Type systems for functional languages; basics of type inference • Generalized Abstract Data Types; introduction to dependent types • I/O and State handling • Functional debugging • Efficiency considerations • Functional programming for web and concurrent systems
Teaching and Learning Methods	Teaching is via lectures and in-class presentations and discussion, and online delivery of content through Blackboard.

Assessment Details[2]

Assessment Component	Brief Description	Learning Outcomes Addressed	% of total	Week set	Week due
Examination	2 hour written examination	LO1, LO2, LO3	60%	n/a	n/a
Programming projects	Two programming projects at the mid point and near the end of term.	LO1	30%	4,8	6,12

[1] TEP Glossary
[2] TEP Guidelines on Workload and Assessment

Reading	Review and discussion of selected material from the research literature	LO2, LO3	10%	2	12

Reassessment Details

e.g. Examination (2 hours, 100%)

Contact Hours and Indicative Student Workload

Contact Hours (scheduled hours per student over full module), broken down by:	**33 hours**
lecture	33 hours
laboratory	0 hours
tutorial or seminar	0 hours
other	0 hours
Independent study (outside scheduled contact hours), broken down by:	**33 hours**
preparation for classes and review of material (including preparation for examination, if applicable)	33 hours
completion of assessments (including examination, if applicable)	59 hours
Total Hours	**125 hours**

Recommended Reading List

List of research literature and recommended texts circulated on Blackboard in week 1.

Module Pre-requisites

Prerequisite modules: CS3016, **Other/alternative non-module prerequisites:** A reasonable grounding in the programming language Haskell (experience with similar languages such as ML) is required.

Module Co-requisites

Module Website

Blackboard

Last Update

1/8/2019 by Glenn Strong