

Machine Fundamentals

Syllabus Information

CS 1870 - Machine Fundamentals

Associated Term: 2020/21 Academic Session

Learning Objectives:

To provide insights and skills for dealing with large and infinite objects in a way that allows them to be implemented in a programming environment. Numbers: binary number systems, two's complement notation. Logic: propositions, logical formulae, truth tables and logical equivalences. Predicates, proofs and logical inference. Normal forms. Networks: series and parallel switching circuits, network minimisation. Automata: regular expressions, automata, Thompson's construction and the subset construction. Push down automata. Turing machines and non-computability. Low level languages: assembly language programming Learning Outcomes: use formal logic to design, reason about and minimise switching circuits write basic programs in assembly language understand binary representations of signed and unsigned integers write regular expressions to describe sets and build deterministic automata to recognise these sets use automata to design and reason about sequential flow systems

Required Materials: [Click here for the reading list system](#)

Technical Requirements: The total number of notional learning hours associated with course are 150. **These will normally be broken down as follows:** 33 hour(s) of Lectures across 11 week(s) 5 hour(s) of Tutorials across 9 week(s) 112 hours of Guided Independent Study **Formative Assessment:** Set Exercise Contribution & Productivity **Summative Assessment:** Written Assignment (5 Hours) - 10% Written exam (90 minutes) - 90%