

**The Hong Kong University of Science and Technology**

**UG Course Syllabus**

[Course Title] Theory of Computation

[Course Code] COMP 3721

[No. of Credits] 3

[Any pre-/co-requisites] (COMP 3711 OR COMP 3711H) AND (MATH 2111 OR MATH 2121 OR MATH 2131 OR MATH 2350)

**Name:** [Instructor(s) Name] Nevin L. Zhang

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**Course Description**

This course is an introduction to the foundation of computation. Topics covered include set theory and countability, formal languages, finite automata and regular languages, pushdown automata and context-free languages, Turing machines, undecidability, P and NP, NP completeness.

**Assessments:**

[List specific assessed tasks, exams, quizzes, their weightage]

<b>Assessment Task</b>	<b>Contribution to Overall Course grade (%)</b>
4 Homework Assignments	20%
Mid-Term	30%
Final examination	50%

**Required Texts and Materials**

Elements of the Theory of Computation, Second Edition, by Harry R. Lewis and Christos H. Papadimitriou, Prentice-Hall International Inc.

**[Optional] Additional Resources**

- Theory of Computing: A Gentle Introduction, by Efim Kinber, Carl Smith, Prentice Hall.
- Introduction to the Theory of Computation, Second Edition, by Michael Sipser, PWS Publishing Company.
- Introduction to Automata Theory, Languages, and Computation. by John E. Hopcroft and Jeffrey D. Ullman, Addison-Wesley, 2001