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Complexity: Course Syllabus

Textbooks:

C. H. Papadimitriou. *Computational Complexity.* Addison Wesley, Reading, Mass. 1994. (Reprinted with corrections 1995).

M. R. Garey and D. S. Johnson. *Computers and Intractability: A Guide to the Theory of NP-Completeness.* W. H. Freeman and co., San Francisco, 1979.

M. Sipser, *Introduction to the Theory of Computation.* PWS Publishing, Boston,1996.

Other References:

** A. V. Aho, J. E. Hopcroft, and J. D. Ullman. *The Design and Analysis of Computer Algorithms.* Addison Wesley, Reading, Mass, 1974.

S. Baase. *Computer Algorithms.* Addison Wesley, Reading, Mass., second edition, 1988.

** Gilles Brassard and Paul Bratley. *Algorithmics: Theory and Practice.* Prentice Hall, Englewood Cliffs, N. J., 1988.

** D.P. Bovet and P. Crescenzi. *Introduction to the Theory of Complexity.* Prentice Hall, 1993.

** T. H. Cormen, C. E. Leiserson, and R. L. Rivest. *Introduction to Algorithms.* MIT Press, Cambridge, Mass., 1990.

S. Even. *Graph Algorithms.* Computer Science Press, Rockville, Maryland, 1979.

D. Harel. *Algorithmics: Foundations of Computer Science.* Open University Press, Israel, 1991. (in Hebrew).

J. E. Hopcroft and J. D. Ullman. *Introduction to Automata Theory, Languages and Computation.* Addison Wesley, Reading, Mass., 1979.

J. F. Ja'Ja'. *An Introduction to Parallel Algorithms.* Addison-Wesley, 1992.

D. S. Johnson. A catalog of complexity classes. In J. van Leeuwen, editor, *Handbook of Theoretical Computer Science, Volume A: Algorithms and Complexity*, pages 67–162. MIT Press, 1990.

D. S. Johnson. The NP-completeness column: an ongoing guide. *Journal of Algorithms*, 1981-today. (The column appears several times each year).

Kurt Mehlhorn. *Data Structures and Algorithms. Volume II: Graph Algorithms and NP-Completeness.* Springer-Verlag, Berlin, 1984.

Ch. Papadimitriou and K. Steiglitz. *Combinatorial Optimization: Algorithms and Complexity.* Prentice-Hall, Englewood Cliffs, New Jersey, 1982.

R. Sedgewick. *Algorithms.* Addison-Wesley, Reading, Mass., 1988.

J. van Leeuwen, editor. *Handbook of Theoretical Computer Science, Volume A: Algorithms and Complexity.* MIT Press, 1990.

** Those refereces will be used for some concrete class material.