

# Mathematical Applications in Computer Science: A Review

**Atul Jagannath Bhawsar and Vikas Sahebrao Ghorpade**

Lecturer

Shri. H. H. J. B. Polytechnic, Chandwad, Maharashtra, India

**Abstract:** *Arithmetic has been an important intellectual preoccupation of man for a long term. Pc technology as a proper subject is ready seven many years younger. However, one thing in common among all customers and manufacturers of mathematical idea is the almost involuntary use of computing. In this text, we deliver to fore the many close connections and parallels among the two sciences of mathematics and computing. We display that, unlike inside the other branches of human inquiry where arithmetic is merely utilized or applied, computer technological know-how also returns additional price to mathematics via introducing positive new computational paradigms and methodologies and additionally through posing new foundational questions. We emphasize the strong interplay and interactions via searching at some thrilling present day results from quantity idea and combinatorial arithmetic and algorithms of pc technology.*

**Keywords:** Computer Science, Computational Paradigm, Combinatorial Mathematics.

## REFERENCES

- [1]. Knuth, D. E., The Art of Computer Programming Vol. 1 Fundamental Algorithms, Addison Wesley, New York, 1973.
- [2]. Dijkstra, E. W., A Short Introduction to the Art of Programming, Computer Society of India Press, Mumbai, 1977.
- [3]. Appel, K. and Haken, W., Every planar map is four colourable. Illinois J. Math., 1977, 21, 429–567.
- [4]. Manna, Z., Logics of Programs, Addison Wesley, 1987.
- [5]. Knuth, D. E., Algorithmic thinking and mathematical thinking. Am. Math. Monthly, 1986, 81, 322–343.
- [6]. Edmonds, J., Paths, trees and flowers. Can. J. Math., 1965, 17, 449–467.
- [7]. Garey, M. R. and Johnson, D. S., Computers and Intractability– A Guide to the Theory of NP-com pleteness, W. H. Freeman, San Francisco, 1979.
- [8]. Lemmermeyer, F., Reciprocity Laws: From Euler to Eisenstein, Springer, New York, 2000.
- [9]. Edwards, H. M., Fermat’s Last Theorem , Springer, New York, 1977.
- [10]. Knuth, D. E., The Art of Computer Programming Vol. 2 Seminumerical algorithms, Addison Wesley, New York, 1981.
- [11]. Yan, S. Y., Number Theory for Computing, Springer, New York, 2000.
- [12]. Knuth, D. E., The Art of Computer Programming Vol. 3 Sorting and Searching, Addison Wesley, New York, 1981.
- [13]. Aho, V., Hopcroft, R. E. and Ullman, J. D., Design and Analysis of Algorithms, Addison Wesley, New York, 1982.
- [14]. Aigner, M. and Ziegler, G. M., Proofs from The Book, Springer, New York, 1998.
- [15]. Abhijit Das and Veni Madhavan, C. E., Public Key Cryptography: Theory and Practice, Manuscript of a forthcoming book, 2005.
- [16]. van Lint, J. H. and Wilson, R. M., A Course in Combinatorics, Cambridge University Press, London, 1992.
- [17]. Gessel, I. and Gian-Carlo Rota (eds), Classic Papers in Combinatorics, Birkhauser, 1987.
- [18]. Jukna, S., Extremal Combinatorics with Applications to Computer Science, Springer, New York, 2001.

- [19]. Konig, D., Math. Ann., 1916, 77, 453–465.
- [20]. Hall, P., On representatives of subsets. J. London Math. Soc., 1935, 10, 26–30.
- [21]. Dilworth, R. P., A decomposition theorem for partially ordered sets. Ann. Math., 1950, 51, 161–166.
- [22]. Hardy, G. H. and Ramanujan, S., Asymptotic formulae in combinatory analysis. Proc. London Math. Soc., 1918, 17, 75–115.
- [23]. Koblitz, N., A Course in Number Theory and Cryptography, Springer, New York, 1996.
- [24]. MacWilliam, F. J. and Sloane, N. J. A., The Theory of Error Correcting Codes, North Holland, New York, 1977.