

# **SOFT COMPUTING**

## **MCA 4002**

**TOPIC: Basics of Soft Computing**

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# Introduction

- The idea of soft computing was initiated in 1981 when Lotfi A. Zadeh published his first paper on soft data analysis “What is Soft Computing”, Soft Computing. Springer-Verlag Germany/USA 1997.]
- Zadeh, defined Soft Computing into one multidisciplinary system as the fusion of the fields of Fuzzy Logic, Neuro-Computing, Evolutionary and Genetic Computing, and Probabilistic Computing.

# Introduction

- Soft Computing is the fusion of methodologies designed to model and enable solutions to real world problems, which are not modeled or too difficult to model mathematically.

# Introduction

- The aim of Soft Computing is to exploit the tolerance for imprecision, uncertainty, approximate reasoning, and partial truth in order to achieve close resemblance with human like decision making.

# The Soft Computing – development history

<b><i>SC</i></b>	<b>=</b>	<b><i>EC</i></b>	<b>+</b>	<b><i>NN</i></b>	<b>+</b>	<b><i>FL</i></b>
<b>Soft</b>		<b>Evolutionary</b>		<b>Neural</b>		<b>Fuzzy</b>
<b>Computing</b>		<b>Computing</b>		<b>Network</b>		<b>Logic</b>
<b>Zadeh</b>		<b>Rechenberg</b>		<b>McCulloch</b>		<b>Zadeh</b>

# The Soft Computing – development history

***EC*** = ***GP*** + ***ES*** + ***EP*** + ***GA***

***Evolutionary***

***Genetic***

***Evolution***

***Evolutionary***

***Genetic***

***Computing***

***Programming***

***Strategies***

***Programming***

***Algorithms***

**Rechenberg**

**Koza**

**Rechenberg**

**Fogel**

**Holland**

# REFERENCES:

1. N. K. Sinha and M. M. Gupta, Soft Computing & Intelligent Systems: Theory & Applications- Academic Press /Elsevier. 2009.
2. Simon Haykin, Neural Network- A Comprehensive Foundation- Prentice Hall International,Inc.
3. R. Eberhart and Y. Shi, Computational Intelligence: Concepts to Implementation, Morgan Kaufman/Elsevier, 2007.
4. Ross T.J. , Fuzzy Logic with Engineering Applications- McGraw Hill.
5. Principle of Soft Computing, By Dr. Prashant Kumar Patra, Bhuvneshwar.
6. Soft Computing, By Prof Debasis Samanta, NPTEL online course.