

REGISTRATION FORM

A Five day Workshop On

Foundation of Fuzzy Set and Fuzzy logic
With Applications
21-25 November 2017

Name: _____

Designation: _____

Organization: _____

Mailing Address: _____

Telephone: _____

Fax: _____

Email: _____

Registration fee Details

Amount: _____

Mode of Payment: _____

Date: _____

Signature

I hereby forward and recommend the above applicant for attending the workshop on "Foundation of fuzzy set and fuzzy Logic with Application", 21-25 November 2017.

Signature of
Head of Institute with seal.

PATRON

Prof. S. Birendra Singh
Director, NIT Manipur

CONVENERS

Mr. Benjamin A Shimray, EE.
Dr. Shuma Adhikari, EE.
Dr. Mrinal Kanti Sarkar, EE.

ORGANIZING SECRETARY

Dr. Th. Khelchandra, CSE

MEMBERS

Dr. Kh. Manglem Singh, CSE
Dr. Anil Kumar Birru, ME
Dr. P. Albino Kumar, CE
Dr. Prakash Choudhary, CSE
Dr. Ashish Ranjan, ECE
Dr. Mayengbam Sunil, CE
Dr. O. Bankimchandra, CE
Dr. Dushyant Singh, ME
Dr. Tikendranath Verma, ME
Dr. Y. Rohen, Mathematics Dept.
Dr. Mithun Roy, Chemistry Dept.
Dr. Herojit, Physics Dept.
Mr. P. Devakishore, EE
Mr. Ingudam Chitrasen, EE
Mr. Simon Tongbram, EE

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A FIVE DAY WORKSHOP On Foundation of Fuzzy Set and Fuzzy logic With Applications

21-25 November 2017



Sponsored by:
Technical Education Quality
Improvement Programme – III

Organized by
Dept. of Electrical Engineering
National Institute of Technology
Manipur, Imphal-795004
India

ABOUT THE INSTITUTE

National Institute of Technology Manipur, a centrally funded institution is set up to impart quality technical education at various levels of higher learning. It is one of the ten new NITs established and developed as Institute of National Importance by an act of Parliament. NIT Manipur started its first session with the three branches of Engineering-Electrical & Electronics Engineering, Electronics & Communication Engineering and Computer Science Engineering. The functioning of the institute was started at its temporary Campus at Takyelpat, Imphal under the mentorship of NIT, Agartala. The Institute has acquired 341.5 hectares of land in the lush green areas of Langol, Imphal and started its functioning at its permanent campus since 2014. This Institute now has five branches of Engineering viz CSE, EEE, ECE, Civil, Mechanical and Basic Sciences and Humanities Department and open courses on B. Tech., M. Tech., M. Sc. and Ph. D.

ABOUT THE DEPARTMENT

The Department of Electrical Engineering started since the inception of NIT Manipur. Presently the department offers B.Tech, M.Tech and Ph.D program. M.Tech Program offers specialization in Power & control Systems. The department have well equipped laboratory facilities to the students such as Power Systems Lab, Electrical Machine Lab, Network and Systems Lab, Simulation Lab, Control Lab, Power Electronics & Drives Lab, and Microprocessor Lab.

ABOUT THE WORKSHOP OBJECTIVE

To provide participants in depth understanding of fuzzy sets and fuzzy logic via computing with words. The key point is to demonstrate the utility of these relatively new mathematical paradigms in physical sciences, life science and management sciences.

BRIEF COURSE OUTLINE DAY ONE

Introduction of Computing with Words via Fuzzy sets and Fuzzy logic: Background; uncertainty and imprecision; statistics and random processes; uncertainty, fuzzy sets and membership; chance versus ambiguity. Classical Sets and Fuzzy Sets: Operations and properties of classical (crisp) sets and fuzzy sets; mapping of classical sets to functions. Introduction to Type 2 Fuzzy sets.

Example: The concept of fuzzy hypercube and its applications in Medicine

Case Studies: Per capita water consumption, Fuzzy Fault Tree Analysis: Revisited

Fuzzy Arithmetic

Zadeh's extension principle, Vertex method, DSW method, Fuzzy vector

DAY TWO

Classical and Fuzzy Relational Calculus: Cardinality, operations and properties of crisp and fuzzy relations; fuzzy Cartesian product and composition;

Case Studies: Fuzzy modelling in Medical diagnosis using compositional rule of inference

Classical and Fuzzy Relational Calculus (contd): Crisp and fuzzy tolerance and equivalence relations, transitive closure. Fuzzy similarity measures, cosine amplitude method

Case Studies: Fuzzy relational calculus in estimating health effects due to air pollution, energy options

DAY THREE

Fuzzy Classification /Clustering and Fuzzy Pattern recognition: Classification and Cluster analysis- Hierarchical clustering and partitioning or Hard c-Mean (HCM) Fuzzy c-Mean (FCM), Fuzzy pattern recognition

Example: Catalytic converter and a few more

Case Study: Sizing Air Quality Monitoring Stations.

Decision making in a fuzzy Environment:

Bellman- Zadeh approach, Fuzzy Bayesian modeling

DAY FOUR

Classical logic and Fuzzy logic: Tautologies; contradictions; equivalence; approximate reasoning, Classical logic and Fuzzy logic, Approximate reasoning, Fuzzy rule based systems, Fuzzy-to- Crisp Conversions: Lambda-Cuts, Defuzzification methods; Mamdani rules, FAT/FAM Theorem;

Case Studies: - Water/Air Quality Classification : Zadeh-Deshpande

Formalism, Risk based Optimal Ranking of Hazardous Installations in a Fuzzy Environment (Zadeh-Deshpande and Bellman-Zadeh formalisms), Can Multi constraint fuzzy optimization Bring Complex Problems in Selection of Solar Energy options?

DAY FIVE

Fuzzy logic Controls:

Model based controller, stability of fuzzy control systems

Case study and video:

1. Fuzzy logic based Environmental Friendly Air Conditioner

2. Design and Development of Fuzzy Logic Based closed Loop Control for Anesthesia Machine.

Course Schedule

Five Working Days: Around 25 hours.

Imp. Notes:

- Eligibility: Faculty members and research scholars from all branches of engineering and sciences are welcome.
- Payment should be made only after the initial confirmation
- The total intake: 40
- Lodging may be arrange for outstation participant on payment basis.

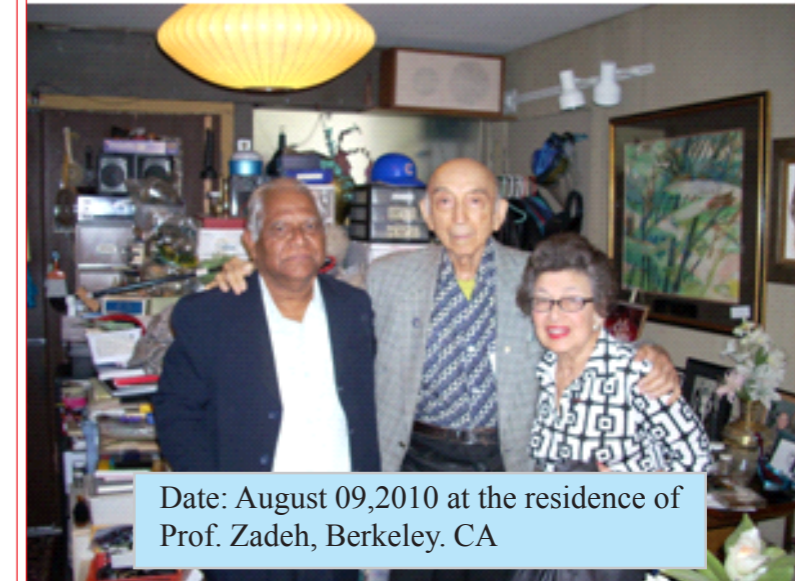
REGISTRATION DETAILS

Reg. Fee: Rs. 1000/-

Dead Lines:

- Receipt of Application : 15.11.17
- Final confirmation : 16.11.17
- Reg. Fee payment : 20.11.17
- On spot registration may be avail for outstation participants
- Scan copy of registration form may be send via e-mail.

Resource person



Date: August 09,2010 at the residence of Prof. Zadeh, Berkeley, CA

Prof. Ashok Deshpande

Founding Chair Berkeley Initiative in Soft Computing (BISC)-Special interest Group (SIG)-Environment Management Systems (EMS) holds a PhD degree in Engineering and Technology. Prof. Ashok was Deputy Director, National Environmental Engineering Research Institute (NEERI)/CSIR. He is Visiting Professor in Indian Institute of Technology Mumbai India and Adjunct Professor College of Engineering Pune India, and NIT Silchar. Professor Ashok has over 4 decades of R&D experience and has over 120 publications in the Journals of international repute/conferences. In the past, Dr. Ashok was WHO Adviser, Common Wealth Science Council Resource Scientist, World Bank Project Director for the studies on Probabilistic Risk Assessment for Chemical Process industry. He also organized a Workshop as WHO Adviser in 5 countries on Unaccounted for Water Management and also assisted Danish International Development Authority (DANIDA) as a Project Advisor.