



College Of Engineering and Technology, Akola 444104

Research and Development Cell

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FUZZY LOGIC IN THE REAL WORLD

The theory of fuzzy logic is based on the notion of relative graded membership, as inspired by the processes of human perception and cognition. Lotfi A. Zadeh published his first famous research paper on fuzzy sets in 1965. Fuzzy logic can deal with information arising from computational perception and cognition, that is, uncertain, imprecise, vague, partially true, or without sharp boundaries. Fuzzy logic allows for the inclusion of vague human assessments in computing problems. Also, it provides an effective means for conflict resolution of multiple criteria and better assessment of options. New computing methods based on fuzzy logic can be used in the development of intelligent systems for decision making, identification, pattern recognition, optimization, and control.

Fuzzy logic is extremely useful for many people involved in research and development including engineers (electrical, mechanical, civil, chemical, aerospace, agricultural, biomedical, computer, environmental, geological, industrial, and mechatronics), mathematicians, computer software developers and researchers, natural scientists (biology, chemistry, earth science, and physics), medical researchers, social scientists (economics, management, political science, and psychology), public policy analysts, business analysts, and jurists.

Indeed, the applications of fuzzy logic, once thought to be an obscure mathematical curiosity, can be found in many engineering and scientific works. Fuzzy logic has been used in numerous applications such as facial pattern recognition, air conditioners, washing machines, vacuum cleaners, antiskid braking systems, transmission systems, control of subway systems and unmanned helicopters, knowledge-based systems for multi-objective optimization of power systems, weather forecasting systems, models for new product pricing or project risk assessment, medical diagnosis and treatment plans, and stock trading. Fuzzy logic has been successfully used in numerous fields such as control systems engineering, image processing, power engineering, industrial automation, robotics, consumer electronics, and optimization. This branch of mathematics has instilled new life into scientific fields that have been dormant for a long time.

Thousands of researchers are working with fuzzy logic and producing patents and research papers. According to Zadeh's report on the impact of fuzzy logic as of March 4, 2013, there are 26 research journals on theory or applications of fuzzy logic, there are 89,365 publications on theory or applications of fuzzy logic in the INSPEC database, there are 22,657 publications on theory or applications of fuzzy logic in the MathSciNet database, there are 16,898 patent applications and patents issued related to fuzzy logic in the USA, and there are 7149 patent applications and patents issued related to fuzzy logic in Japan. The number of research contributions is growing daily and is growing at an increasing rate. Zadeh started the Berkeley Initiative in Soft Computing (BISC), a famous research laboratory at University of California, Berkeley, to advance theory and applications of fuzzy logic and soft computing.

Fuzzy logic is used in large number of real-life applications and commercial products in a variety of fields. Although fuzzy logic has applications in a number of different areas, it is not

yet known to people unfamiliar with intelligent systems how it can be applied in different products that are currently available in the market. For many people, the engineering and scientific meaning of the word fuzzy is still fuzzy. It is important that these people understand where and how fuzzy logic can be used.

Almost any control system can be replaced with a fuzzy logic based control system. This may be overkill in many places however it simplifies the design of many more complicated cases. So fuzzy logic is not the answer to everything, it must be used when appropriate to provide better control. If a simple closed loop or PID controller works fine then there is no need for a fuzzy controller. There are many cases when tuning a PID controller or designing a control system for a complicated system is overwhelming, this is where fuzzy logic gets its chance to shine.

One of the most famous applications of fuzzy logic is that of the Sendai Subway system in Sendai, Japan. This control of the Nanboku line, developed by Hitachi, used a fuzzy controller to run the train all day long. This made the line one of the smoothest running subway systems in the world and increased efficiency as well as stopping time. This is also an example of the earlier acceptance of fuzzy logic in the east since the subway went into operation in 1988.

The most tangible applications of fuzzy logic control have appeared commercial appliances. Specifically, but not limited to heating ventilation and air conditioning (HVAC) systems. These systems use fuzzy logic thermostats to control the heating and cooling, this saves energy by making the system more efficient. It also keeps the temperature more steady than a traditional thermostat.

Another significant area of application of fuzzy control is in industrial automation. Fuzzy logic based PLCs have been developed by companies like Moeller. These PLCs, as well as other implementations of fuzzy logic, can be used to control any number of industrial processes.

As a final example of fuzzy logic, it can be used in areas other than simply control. Fuzzy logic can be used in any decision making process such as signal processing or data analysis. An example of this is a fuzzy logic system that analyzes a power system and diagnoses any harmonic disturbance issues. The system analyzes the fundamental voltage, as well as third, fifth and seventh harmonics as well as the temperature to determine if there is cause for concern in the operation of the system.

Dr. S.L. Satarkar

H. O. D

Computer Science & Engineering



FROM COORDINATOR'S DESK

It is with great enthusiasm that I will be taking over the editorial responsibility to work on Technical News Letter Jun-Sept. 2019

As we all know, a news letter is nothing but the mirror for Colleges' Vision and Mission. It exhorts the events, departmental activities and academic strength and achievements.

In this edition, I have tried to capture last three month activities of various departments. I strongly hope that this news letter will encourage faculty, students to use it as a platform to express themselves.

Any suggestion for improvement will be highly appreciated.

Sincerely

Dr.S.N.Nemade

Coordinator R & D COET,Akola

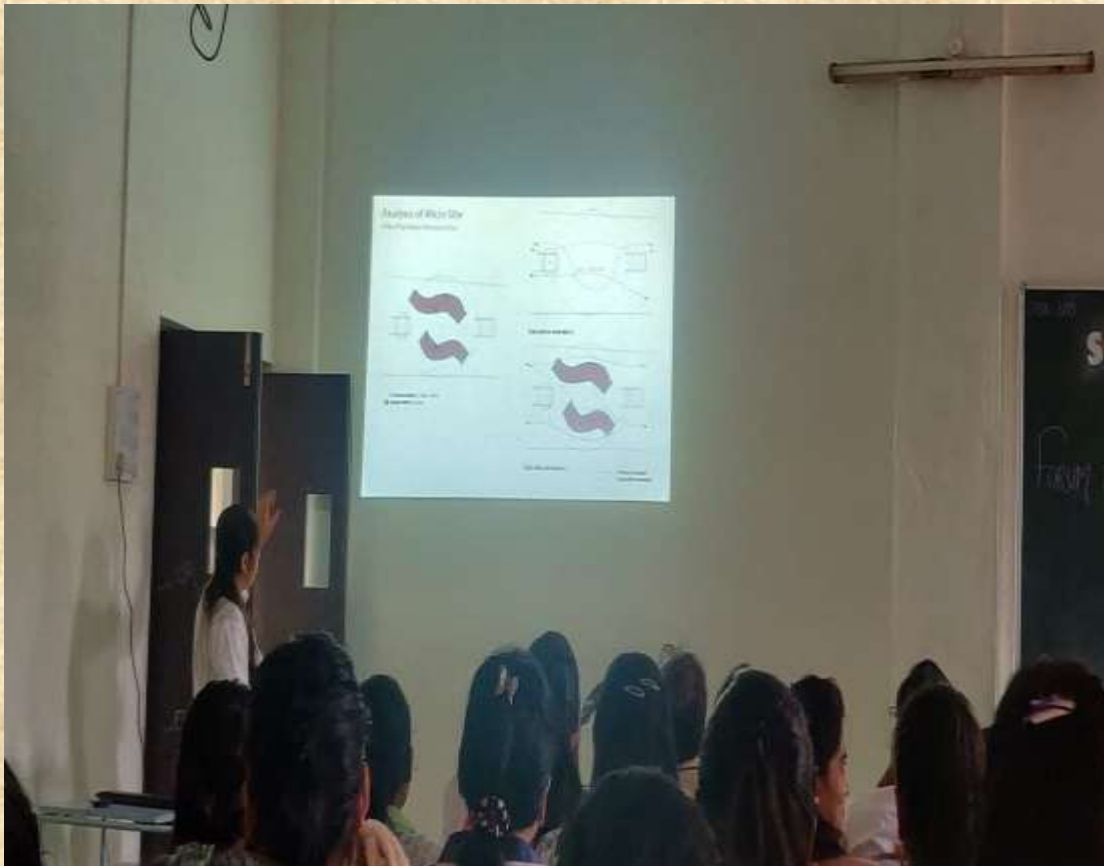
ARCHITECTURE



Architecture is an expression of values. - Norman FFOSTER Foster

TOPIC: DIGITAL DESIGN AND PRODUCTION

Introduction to Digital Architecture-Digital Design and Production delivered by Prof. Nidhi Chhatbar on dated 03.08.2019.



ORIENTATION PROGRAM

Orientation to First year Students regarding Architecture Department and Institute on dated 05.08.2019.



MRUDA WORKSHOP

Mruda- The Clay Modelling workshop of Artist Ravikrishan, Khamgaon organized in School of Architecture on dated 24.08.2019.



CHEMICAL ENGINEERING



I consider nature a vast chemical laboratory in which all kinds of composition and decompositions are formed. Antoine Lavoisier

❖ STAFF ACHIVEMENTS:

- Dr. S. N. Nemade has Published Paper in International Journal of Engineering science & Computing in volume-9,issue no.7,July 2019 on topic “ Synthesis and Characterization of Tannic Acid from Extraction of Emblica Officinalis (Avala)”.

INDUSTRIAL VISITS:

1. Department of Chemical Engineering and CESSCAA has jointly organized an Industrial Visit at Sanjay Tent House , M.I.D.C. Akola on date 11/07/2019.



2. Department of Chemical Engineering and CESSCAA has jointly organized an Industrial Visit at Chintamani Pharma , M.I.D.C. Akola on date 31/07/2019.



3. Department of Chemical Engineering and CESSCAA has jointly organized an Industrial Visit at N. K. Proteins M.I.D.C. Akola on date 06/08/2019.



EXPERT / GUEST LECTURE:

1. Department of Chemical Engineering & CESSCAA have jointly organized an Expert Talk by Dr. R. W. Gaikwad on Topic "Research Innovative Techniques in Polymers" on date 24 /08/2019.



2. Department of Chemical Engineering , Indian Plastics Institute, Akola Chapter & CESSCAA has jointly organized an one day Workshop on "Industrial Safety in Chemical Industries" in association with Rallis India Ltd. , a TATA Enterprise M.I.D.C. Akola on date 13/09/2019. Nearly 200 students and all faculties in department were participated in this Program.





3. Indian Plastics Institute, Akola Chapter & CESSCAA has jointly organized an Expert Talk by Dr. S. D. Dawande on Topic “Myths & Facts about Plastics” on date 16/09/2019.



Memorandum of Understanding (MOU):

- Department of Chemical Engineering , College of Engineering and Technology Akola has revised and extend the memorandum of Understanding MOU with Rashtriya Chemical Fertilizers Ltd. Thal Unit Alibag Dist.- Raigad for a period of 01/08/2019 to 31/07/2020.

COMPUTER SCIENCE AND ENGINEERING



“The computer was born to solve problems that did not exist before.”
– Bill Gates

- The session 2019-20 began with a welcome session for second year students by H.O.D., CSE. He briefed students about road map of the department.



- A guest lecture was organized for CSE students, where a technical expert from Google Mr. Kalpesh Beldar briefed the students.




- A joint program titled “Induction Program for second year students and Annual parents meet “was conducted on **24th Aug 2019**. The HOD and faculties gave a warm welcome to the students of second year. The students were briefed about the department by various faculties.
- Prof. P.V.Joshi highlighted the need of Induction program at second year level.
 - Prof. S.S.Dixit informed students about department. It included information about faculties, support staff, Alumni, Faculty achievements, Student achievements, infrastructure, labs and best practices of department.
 - Prof. K.S.Gilda informed students about academics. It included academic calendar, teaching scheme, academic schedule semester-wise, eligibility for passing, academic facilities and achievements.
 - Prof. S.A.Bobade described co-curricular activities in the department. Various activities like training programs (JAVA, PHP, android application development, ethical hacking, software testing), MTA program, IIT spoken tutorials, guest lectures, NPTEL courses, STTP for staff
 - Prof.S.A.Awachar described extra-curricular activities in the department. Need for extra-curricular activities were explained. Informed about the CSE student organization CSE-Bytes. Various types of activities were explained (Technical, cultural, personality development, social and sports.)
 - Dr.S.S.Agrawal explained the scenario of current placement status. He discussed different aspects about placement -opportunities, process and steps. Role of T&P cell and department in placement of students was elaborated.
 - Dr.S.L.Satarkar gave a motivational speech to the students and explained the current scenario of industries and their expectation from freshers.
 - After that we felicitate the toppers of previous semester of our departments by giving medal and certificates and also felicitate the students who had some special achievements.
 - Parents did a free talk with the staffs and asked their queries openly followed by refreshment.
 - Anchoring of the event was done by Prof. R.A. Taley and vote of thanks was presented by Prof. R.S.Jaiswal. The parent count was 32 and student count was 52 in the program.



- A guest lecture was organized by T&P cell for CSE students on 3 Sep 2019. Mr. Mohit Sahare from Aspiring minds guided students about placement. He highlighted the need for AMCAT exam for placement aspirants. College has dealt with Aspiring Minds and they have allowed extra attempts for AMCAT exam (Employability Assessment Test) for third year (3 attempts) and final year (2 attempts) students. First attempt of the exam was successfully conducted on 5th oct 2019 in department of CSE.

Faculty Achievements

<p>Dr. S.L.Satarkar Dr.S.S.Agrawal P.V.Joshi</p>	<p>Won 5th Prize at Amravati Startup Business plan competition 2019 organized by SGBAU,Amravati.</p>	<p>4th & 5th Sep 2019 Amravati</p>	
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CIVIL ENGINEERING



ENGINEERS

“The road to success is always under construction” Get it right....CIVIL

Dr.S.K. Deshmukh was elected as chairman of Board of Studies in Civil Engineering SGBAU, Amravati.

Dr.S.K. Deshmukh was nominated as Vice Chairman of Indian Water Works Association (IWWA) for academic year 2019-20.

Dr.S.K. Deshmukh worked as expert on Local Enquiry Committee of SGBAU, Amravati.

Dr. S.M.Taley has received Pratibha Gaurav Rastriya Puraskar on 10th October 2019 at Muramba.

Dr. S.M.Taley has delivered an expert talk on topic “Role of Geologist in Civil Engg.” at Mauli Engg. Sheogan on Sep.2019.

Dr. S.M.Taley has delivered an expert talk on topic “Role of Geologist in Civil Engg.” at Shri Shivaji Science College Akola on Sep.2019.

Dr. S.M.Taley worked as expert on Local Enquiry Committee of SGBAU, Amravati.

Dr.A.R.Gupta was nominated as Treasurer and member of Indian Water Works Association (IWWA) for academic year 2019-20.

Prof. P.M.Raut attended one day workshop on the topic Industrial safety in industry in association with Rallis India Ltd. , a TATA Enterprise M.I.D.C. Akola at C.O.E.T.A. on September 2019.

Prof.A.T.Tathod was nominated as executive member of Indian Water Works Association (IWWA),Akola chapter for academic year 2019-20.

Prof. A.T.Tathod attended one day workshop on the topic Industrial safety in industry in association with Rallis India Ltd. , a TATA Enterprise M.I.D.C. Akola at C.O.E.T.A. on 13 September 2019.

Prof. A.S. Gangane has awarded Post Graduate Diploma in Urban Planning & Development – PGDUPDL with 68% by IGNOU, New Delhi in June 2019.

Prof. A.S. Gangane has participated in Faculty Development Program – NPTEL by IIT Roorkee in September 2019

Prof. A.S. Gangane has participated in one day workshop organized by Sipna COE, Amravati during period 25th -30th Nov.19.

Prof. A.S. Gangane has participated in one day workshop organized by ACCE India at Akola 14th Sept.19.

Prof. A.S. Gangane attended one day workshop on the topic Industrial safety in industry in association with Rallis India Ltd. , a TATA Enterprise M.I.D.C. Akola at C.O.E.T.A. on 13 September 2019.

Prof. A.A.Malokar attended one day workshop on the topic Industrial safety in industry in association with Rallis India Ltd. , a TATA Enterprise M.I.D.C. Akola at C.O.E.T.A. on 13 September 2019.

Activities for Students

Sr. No.	Activity	Activity I/C Prof.
1.	Site visit at MHADA Colony- Akola for 2 nd Year students.	A.T.Tathod
2.	Civil Engg. department has organized “Mini-Project ”for 3 rd Year Students – BP& CAD during period 25 th to 27 th September 2019.	A.S. Gangane



3.	Civil Engg. department has organized One Day Workshop on Mass concreting at C.O.E.T.Akola 16 th September 2019	A.S. Gangane
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4.	Civil Engg. department has organized One Day Workshop on Career Opportunities in Civil Engineering at C.O.E.T.Akola 16 th September 2019	A.S. Gangane
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MECHANICAL ENGINEERING



If you change the way you look at thing, the things you look at change

EXPERT TALK & VISITS:

- 1) Department of Mechanical Engineering organized industrial visit in “Thermal Power Plant” at Paras on 28/08/2019 for Third & Second Year students. Total 49 Students accompanied with two professors visited the plant.
- 2) Department of Mechanical Engineering organized Expert Lecture on “Introduction to Design Software” in Association with Training and Placement Cell On 26/09/2019. Expert speaker was Mr. Wajahat Khan.

STUDENTS ACHIEVEMENT:

- 1) Sonali Bawane and Sanket Deshmukh participated in “ASME EFX Series” held at G. H. Raison College of Engineering, Nagpur on 14/09/2019.

FACULTY ACHIEVEMENT:

- 1) Prof. S. K. Patil was awarded Ph.D degree by SGBAU, Amravati on 29/07/2019
- 2) Dr. S. K. Patil was nominated as member of Board of Studies in Production Engineering comprised in the faculty of Science & Technology on 09/09/2019

FIRST YEAR

1. Prof. K.U.Deshmukh and Dr.J.V.Shegokar attended 3 days Faculty Development Program organized by AICTE for Students Induction program during 16th to 18th July 2019 at SIRT's Sagar Group of Institutions, Bhopal.
2. Prof. K.U.Deshmukh and Dr.J.V.Shegokar attended, one week Faculty Development Program organized by AICTE for Students Induction program during 22nd to 28th July 2019 at G.H.Raisoni Engineering College, Nagpur.

FROM EDITORIAL TEAM'S DESK

We are indeed enthusiastic to publish the eighteenth Issue of Technical News Letter. Meticulous efforts have been put forward to consolidate, capture all the events of various departments. We strongly hope this newsletter would serve to be more informative for faculty and students.

We express our sincere thanks to Dr.S.K.Deshmukh (Principal), Dr.S.N.Nemade (Coordinator R & D) who has given us the opportunity to work on this. Any Suggestions and feedback will be most welcome.

Editors

Prof.R.S.Jaiswal

Prof.M.R.Pundkar

Editorial Team

1. Prof. R.M.SHAMBHARKAR
2. Prof.S.V.Khedkar
3. Dr.S.M.Taley
4. Dr. D.V. Wele