Sipna Shikshan Prasarak Mandal's
SIPNA COLLEGE OF ENGINEERING & TECHNOLOGY, AMRAVATI
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Department of Information Technology

TECHNOCRAT

Departmental Newsletter

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COVER STORY
INDUSTRY 4.0

Volume 9, Issue 2

TECHNOCRAT

SIPNA COLLEGE OF ENGINEERING AND TECHNOLOGY, AMRAVATI.

DEPARTMENT OF INFORMATION TECHNOLOGY

Editor

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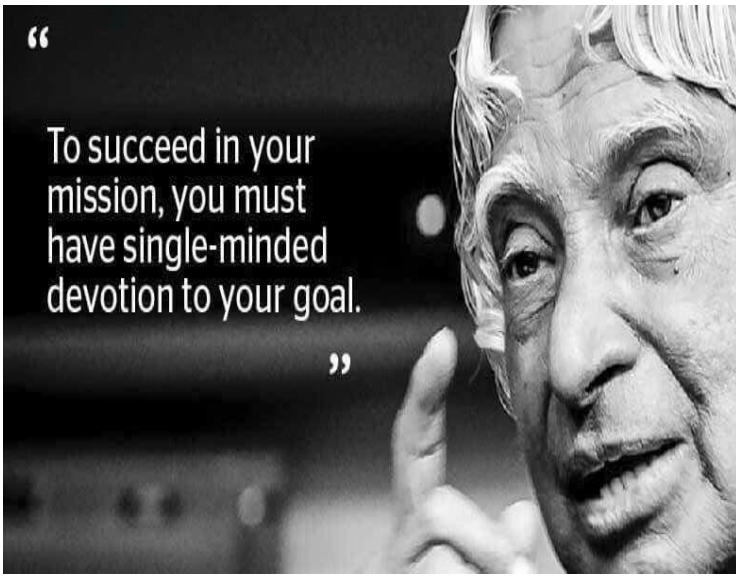
INSPIRATIONAL QUOTE



By. Dr. A.P.J. Kalam

About Department

- *Use of Information Technology is growing in the Government and industrial sector. The multi-national companies are building applications based on Cutting Edge Technology. They are using IT in their operations and decision making. Due to this exponential growth, computer user community is facing shortage of manpower, trained in developing quality solutions, and planning for long term IT requirements. The need for human resources in the IT industry is being addressed at various levels.*
- *Some degree programs are available at various universities, which are providing required technical manpower in IT industries of the country. These degree programs focus mainly on entry level knowledge, whereas the IT industry needs and much more refined skills for training, research and development. Our IT branch provides sophisticated academic program that will have the necessary depth and focus to meet the needs of both the user and the IT industry.*
- *The following UG, PG and Ph. D. programs are offered by the college.*

Undergraduate	***Post Graduate***	***Doctorate of Philosophy***
B. E. (Information Technology) 120 seats	*M. E. (Information Technology) 18 seats*	*Ph. D. (Information Technology)*

Objectives

- *Create leaders, trend-setters for the next generation of the IT industry.*
- *Offer state-of-art information technology education.*
- *Train individuals who would contribute substantially to the ambitious IT goals of the country.*
- *Undertake joint R & D with IT industry.*
- *Contribute to large developmental projects in government and public sector.*
- *Help the industry to create infrastructure that would facilitate the Indian IT industry.*

Vision of Department

- *Provide socially enriched and professional environment to transform the students into globally competent IT engineers*

Mission of Department

- *Provide learning ambience to impart quality technical education for students to develop into globally competent technology professionals.*
- *Prepare the students with strong fundamental concepts, analytical capability and problem solving skills.*
- *To provide a dynamic learning environment that emphasizes open ended design, team work, leadership and employability skills.*
- *To prepare graduates with positive professional attitude and ethical values with spirit of social commitment.*

Programme Education Outcomes

Engineering Graduates will be able to:

PEO.1:

Analyze and solve real-life problems through application of Information Technology and fundamental knowledge of mathematics and science courses

PEO.2:

Succeed in diversified and applied areas with analysis, design and synthesis of data to create novel products and solutions to meet current industrial and societal needs.

PEO.3:

Endure higher studies, research activities, and entrepreneurial skills and continue with lifelong learning.

PEO.4:

Adhere to professional and ethical values, soft skills, teamwork and communication.

Programme Outcomes

Engineering Graduates will be able to:

PO1: Engineering knowledge*:*

Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis:

Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences

PO3: Design/development of solutions:

Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations

PO4: Conduct investigations of complex problems:

Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage*:*

Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

***PO6: The engineer and society**:*
Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

***PO7: Environment and sustainability**:*
Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

***PO8: Ethics**:*
Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice

***PO9: Individual and teamwork**:*
Function effectively as an individual, and as a member or leader in diverse teams, and in multi disciplinary settings.

***PO10: Communication**:*
Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

***PO11: Project management and finance**:*
Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multi disciplinary environments.

***PO12: Life-long learning**:*
Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Objectives (PSOs)

***PSO.1:** Problem solving using the knowledge of programming, Theory of Computation, Data Structures and Discrete Mathematics.*

***PSO.2:** Design and develop software and hardware solution by applying knowledge in Database, Operating Systems, Computer Network & Security, System Architecture, Basic Electronics and Software Engineering.*

***PSO.3:** Analyze given information by applying Web Engineering, Communication Engineering, Internet of Things and Artificial Intelligence in Concepts.*

***PSO.4:** Demonstrate Awareness towards Professional Ethics, Environment Aspects, Social Issues and Readiness for Lifelong Learning.*

Industry 4.0

The Fourth Industrial Revolution (or Industry 4.0) is the ongoing automation of traditional manufacturing and industrial practices, using modern smart technology. Large-scale machine-to-machine communication (M2M) and the internet of things (IoT) are integrated for increased automation, improved communication and self-monitoring, and production of smart machines that can analyze and diagnose issues without the need for human intervention.

The term "Industrie 4.0", shortened to I4.0 or simply I4, originated in 2011 from a project in the high-tech strategy of the German government, which promotes the computerization of manufacturing. The term "Industrie 4.0" was publicly introduced in the same year at the Hannover Fair. In October 2012, the Working Group on Industry 4.0 presented a set of Industry 4.0 implementation recommendations to the German federal government. The workgroup members and partners are recognized as the founding fathers and driving force behind Industry 4.0. On 8 April 2013 at the Hannover Fair, the final report of the Working Group Industry 4.0 was presented. This working group was headed by Siegfried Dais, of Robert Bosch GmbH, and Henning Kagermann, of the German Academy of Science and Engineering.

As Industry 4.0 principles have been applied by companies they have sometimes been rebranded, for example the aerospace parts manufacturer Meggitt PLC has branded its own Industry 4.0 research project M4.

There are four design principles identified as integral to industry 4.0:

Interconnection — the ability of machines, devices, sensors, and people to connect and communicate with each other via the Internet of things, or the internet of people (IoP).

Information transparency — the transparency afforded by Industry 4.0 technology provides operators with comprehensive information to inform decisions. Inter-connectivity allows operators to collect immense amounts of data and information from all points in the manufacturing process, identify key areas that can benefit from improvement to increase functionality

Technical assistance — the technological facility of systems to assist humans in decision-making and problem-solving, and the ability to help humans with difficult or unsafe tasks.

Decentralized decisions — the ability of cyber physical systems to make decisions on their own and to perform their tasks as autonomously as possible. Only in the case of exceptions, interference, or conflicting goals, are tasks delegated to a higher level.

Components

The Fourth Industrial Revolution consists of many components when looking closely into our society and current digital trends. To understand how extensive these components are, here are some contributing digital technologies as examples:

- *Mobile devices*
- *Internet of things (IoT) platforms*
- *Location detection technologies*
- *Advanced human-machine interfaces*
- *Authentication and fraud detection*
- *3D printing*
- *Smart sensors*
- *Big analytics and advanced processes*
- *Multilevel customer interaction and customer profiling*
- *Augmented reality/ wearables*
- *On-demand availability of computer system resources*
- *Data visualization and triggered "live" training*

Biggest trends

In essence, the Fourth Industrial Revolution is the trend towards automation and data exchange in manufacturing technologies and processes which include cyber-physical systems (CPS), IoT, industrial internet of things, cloud computing, cognitive computing, and artificial intelligence.

1. ***Smart factory***

The Fourth Industrial Revolution fosters what has been called a "smart factory". Within modular structured smart factories, cyber-physical systems monitor physical processes, create a virtual copy of the physical world and make decentralized decisions. Over the internet of things, cyber-physical systems communicate and cooperate with each other and with humans in synchronic time both internally and across organizational services offered and used by participants of the value chain.

2. ***Predictive maintenance***

   Industry 4.0 can also provide predictive maintenance, due to the use of technology and the IoT sensors. Predictive maintenance – which can identify maintenance issues in live – allows machine owners to perform cost-effective maintenance and determine it ahead of time before the machinery fails or gets damaged. For example, a company in LA could understand if a piece of equipment in Singapore is running at an abnormal speed or temperature. They could then decide whether or not it needs to be repaired.

Article By.

Mr. Om A. Jaisinghani

Faculty IT dept

Our Achievements

Seminars and Workshops taken under Student Activity

1. *A seminar on the topic "M. Tech. as a Career Option and Opportunities available through GATE" was organized for the students of second year on 30/01/2020. We were obliged to have* ***Mr. Umesh Agalawe****, Director, GATE Forum, Amravati as the chief guest of the seminar. The seminar was a success with the presence of 76 students.*

2. *A Japanese Language Awareness Program was conducted on 05/02/2020 for students of Engineering, under Sipna's Forum for Japanese Language Proficiency (SFFJLP) and CSI-Student Chapter. At the start of the program, Abhishek Shah told the students about the reasons we are focusing on Japan and why not other countries. He explained why Indians should opt for Japan. Shreya Pusegaonkar told them about the advance technologies and the job opportunities for engineers.*

3. *UMANG 2020*

Every year the annual social gathering is celebrated as "Umang". This year Umang 2020 is celebrated from 18th February 2020 to 19th February 2020. The fever begins with days celebrations from 12th February 2020. The day's begin with Signature day, Green day, Red and Black day, Chocolate day, Traditional day, Bollywood and Hollywood day, Group and feens day and Executive day elebrations. For the celebration of Umang 2020, the good start is with Saraswati Poojan. Subsequently, Department flag hosting ceremony, Aura of arts (Arts andCraft), Rockerz - the singing show, Sipna's Iconic Fashion Show, Feet on Fire -The Dance Show, Variety Entertainment and Jallosh - The DJ Night were organized.

4. *KRIDAYAN 2020*

This year new flavour is added with "Kridayan 2020". It is the sports event which is celebrated from 12th February 2020 to 15th February 2020. In this sports competition, diferent indoor and outdoor games were organized. In indoor games, Carrom, Chess, Table Tennis and Badminton was organized where as in outdoor games, baseball, football, cricket, basketball, lagori, volleyball, kabaddi, arm wrestling, kho-kho and lagori was organized. In the kridayan 2020 in group event of Cricket (Men's), Kho-Kho (Men's and Women's), Volleyball (Women's), Kabadd (Men's), Tug of War (Women's),

Lagori(Women's), Carrom Doubles (Women's), Basketball (Men's) remain Winner and Runner. In Singles Arm Wrestling (Women's), Carrom remain Winner and Runner. Mr. Nishant Kitukale becomes the Best Coordinator for Kridayan 2020.

5. *VIDYOTAN 2K20*

   Every year we celebrate "Vidyotan" a National Level Techfest. It is the annual science and technology based national level technical festival of Sipna College of Engineering and Technology, Amravati. The sole purpose of organizing this techfest is to give the students a platform to compete from all around to showcase their talent and skills in various integrated techno events. These events promote a real technical trade for the budding engineers to comeup with their bright ideas. This year Vidyotan-2020 is celebrated with theme: "space, the final frontier...to infinity and beyond!". The event was organized on 17th February 2020.

6. *A Seminar on "LaTeX" was organised by the Department of Information Technology on 28/01/2020 for 3rd year I. T. students. We were obliged to have Prof. Ambarish R. Bhuyar, Assistant Professor, Dept. of. I. T., Sipna COET, Amt. as our chief guest of the seminar. The seminar was a success with the presence of 31 students.*

7. *A Seminar on "Internet of Things- An Emerging Technology" was organized under CSI Students Branch on 01/02/2020 for the interested students of Second and Third year of I. T. and CSE departments. Mr. Pranav Chavan and Mr. Advait Upadeo were the chief guests for the program. The seminar started with the floral welcome of Mr. Pranav Chavan by Dr. V. S. Gulhane, Head of Information Technology Department and felicitation by Dr. V. K. Shandilya, Head of Computer Science & Engineering Department. The session aimed at informing students about Internet of Things. Guest told students about fundamentals of IoT and informed the students that it is a system of interrelated computing devices, mechanical and digital machines which are provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.*

8. ***Sipna Shiv Mahotsav 2020***

Shivaji Jayanti is the birth anniversary of great Maratha ruler Chhatrapati Shivaji Maharaj. Shivaji Jayanti is celebrated by Sipna College of Engineering & Technology, Amravati every year on February 19 with much pomp and fervor to increase the fever of devotion towards land and empowering the youth for nation. Students of our college celebrate this occasion of nationalism with a Bullet Rally, Dhol Pathak, Flash Mob and stage performance of recreating the memories of Shiv Rajyabhishek and Afjalkhan's stabbed. Likewise every year the path of rally was Shiv-tekadi, Panchawati Square, Irwin Chawk, Jayasthambh, Rajapeth Square and final destination Sipna Ground.

9. 9th State Level Inspirational Award Exhibition 2020

9th State Level, Inspire Award Exhibition 2019 - 2020 was held from 8thFebruary 2020 to 10th February 2020 at Sipna College of Engineering and Technology, Amravati. In this exhibition 384 student participants have exhibited their talent through different attractive project models. These project models are designed to fulfill the societal need. The 384 student participants who have participated in the event were shortlisted from previously conducted state level competition. Through this exhibition, out of 384 participants, 38 students have been selected for national level competition. for the 9th state level inspire award exhibition, students from different part of the state like Mumbai, Pune, Nashik, Aurangabad, Nanded, Nagpur, Chandrapur and many other cities, have demonstrated their innovative projects.

Placement

Following students got placed from Department of I. T. in different companies.

Sr. No.	Name of Student	Company Name
1	Aniket Tiratkar	Tata Consultancy Services
2	Pragati Bhawar	Tata Consultancy Services
3	Pratik Kale	Tata Consultancy Services
4	Priya Hemnani	Tata Consultancy Services
5	Bhargavi Upadhye	Global Logic
6	Abhishekh Donge	Smart Data
7	Chitra Chauhan	Eturnus Solution
8	Harshada Joshi	Epic Research
9	Samrudhi Kapoor	Epic Research
10	Shivani Khond	Epic Research
11	Shruti Pusegaonkar	Bitwise Pune
12	Priya Wankar	Collabera
13	Pooja Wadhohkar	PinClick

14	Komal Gopal Vakte	PinClick
15	Shubham Dilip Goliwale	PinClick
16	Ashish Shilpakar	PinClick
17	Shruti Dhabalia	PinClick
18	Surbhi Deshpande	Wipro
19	Sheryas Ghogare	Wipro
20	Akrosh Rathod	PTMIDAS
21	Mayuri Karande	Parametric

About Institution

DEPARTMENT

OF

INFORMATION TECHNOLOGY

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Sipna College of Engineering and Technology, Amravati.

Vision:

To provide quality professional education and conducive environment to students to emerge as a model proficient institute.

Mission:

- *To create scholarly and vibrant environment for professional excellence.*
- *To contribute to advancement of knowledge in basic and applied areas of engineering and technology.*
- *To be an institute of choice in the region by developing, managing and transferring contemporary technologies.*
- *To build mutually valuable terms with society, industry and Alumni.*

Website: www.sipnaengg.ac.in