SUTANTRA

information for enlightening

Department Of InformationTechnology

January-2019

About Department

The Department of IT was established in the year 2001 to groom the student of A.P for the requirements of IT industry. The Department has emerged as a reputed center of learning in the coastal districts of Andhra Pradesh. Footprints of the department´s students can be found in most of the local and global software majors. Student of this department mainly, brought glory to the college by securing University Rank.The department strives to empower the students, to achieve the demanding standards of IT industry, by bringing about a synergistic a cademic environment wherein cutting edge technologies, industry experts, faculty and students are engaged in a sustained interaction.

Vision of the Institute

To emerge as a Premier Institution for Technical Education in the Country through Academic Excellence and to be recognized as a Centre for Excellence in Research & Development, catering to the needs of our Country.

Mission of the Institute

To realize a strong Institution by consistently maintaining State-of-art infrastructure and building a cohesive, World Class Team and provide need based Technical Education, Research and Development through enhanced Industry Interaction.

Department Vision

To attain academic excellence in the field of Information Technology and research serving to the needs of the society through technological developments.

Department Mission

M1: To create stimulating learning ambiance by providing state-of-art infrastructure and to induce innovative and problem-solving capabilities to address societal challenges.
M2: To impart quality technical education with professional team to make the graduates globally competent to IT Enabled Services.
M3: To strengthen industry-academia relationship for enhancing research capabilities.

Program Specific Outcomes

PSO 1:

Develop software programs in various programming languages learnt to create the software applications to solve the real life problems of the society.

PSO 2:

Excel in emerging software tools and technologies.

PSO 3:

Effectively transform their ideas and bring consensus for the transformation of the idea into a usable software product / application.

Program Educational Objectives

PEO 1:

To have a successful career in IT as researchers, entrepreneurs and IT professionals satisfying the needs of the society.

PEO 2:

To motivate students towards higher education and incline them towards continuous learning process.

PEO 3:

To inculcate professional ethics of IT industry and prepare them with effective soft skills essential to work in teams.

PROGRAM OUTCOMES

1. Engineering knowledge:

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

2. Problem analysis:

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

3. Design/development of solutions:

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

4. 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.

5. 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.

6. 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.

7. Environment and sustainability:

Understand the impact of the professional engineering solutions isocietal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. Ethics:

Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

Department of IT

9. Individual and team work:

Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. 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.

11. 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 multid isciplinary environments.

12. 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.

BIO CHIPS

Most of us won't like the idea of implanting a biochip in our body that identifies us uniquely and can be used to track ou location. That would be a major loss of privacy. But there is a flip side to this! Such biochips could help agencies to locate lost children, downed soldiers and wandering Alzheim er's patients. The human body is the next big target of chipm akers. It won't be long before biochip implants will come to the rescue of sick, or those who are handicapped in some way. Large amount of money and research has already go ne into this area of technology. Anyway , such implants have already experimented with . A few US companies are selling both chips and their detectors. The chips are of size of an uncooked grain of ric e, small enough to be injected under the skin using a syringe needle. They respond to a signal from the detector, held just a few feet away,by transmitting an identification numberThis number is then compared with the database listings of register pets.

Daniel Man, a plastic surgeon in private practice in Florida, holds the patent on a more powerful device: a chip that would enable lost humans to be tracked by satellite.

It consists of two parts Transponder and Reader or Scanner Transponder: The transponder is the actual biochip implant. It contains:Microchip: The microchip stores a unique identification number from 10 to 15 digits long. The storage capacity of the current microchips is limited, capable of storing only a single ID number. Antenna coil: It is coil of copper wire around a ferrite or iron core. It receives and sends sign als from the reader or scanner.

Tuning Capacitor: It stores the small electrical charge (less than 1/1000 of a watt) sent by the reader or scanner. It activates the transponder. This allows the transponder to communicate with the scanner.

Glass Capsule: It is a small capsule measuring 11 mm in length and 2 mm in diameter, about the size of an uncooked grain of rice.

The capsule is made of biocompatible material such as soda lime glass.

Scanner:It consists of an "exciter coil" to excite or activate the implanted biochip. It also carries a "receiving coil" that receives the ID number from the biochip.

Mrs.D.Sirisha,
Associate Professor

BLUE EYE TECHNOLOGY

Blue Eyes is a technology conducted by the research team of IBM at its Almaden Research Centre (ARC) in San Jose, California since 1997. Blue eyes technology makes a computer to understand and sense human feelings and behaviour and also enables the computer to react according to the sensed emotional levels. The aim of the blue eyes technology is to give human power or abilities to a computer, so that the machine can naturally interact with human beings as we interact with each other. All human beings have some perceptual capabilities, the ability to understand each other's emotional level or feelings from their facial expressions. Blue eyes technology aims at creating a computer that have the abilities to understand the perceptual powers of human being by recognizing their facial expressions and react accordingly to them.

The main objective of Blue eyes technology is to develop a computational machine having sensory and perceptual ability like those of humans. The Blue Eyes technology system is a combination of a set of hardware and software systems.

Using the Blue eyes Technology it is able to record and monitor the user's physiological condition by a technical approach. The aim of this Blue Eyes technology is to provide a machine or system having sensory and perceptual abilities like human beings thus it will support healthy stress free surroundings where the computers and humans can work together as intimate partners.

Dr.S.Suresh
Associate Professor

Department of IT

Edge computing

It is worth highlighting that many overlapping and sometimes conflicting definitions of edge computing exist—edge computing means many things to many people. But for our purposes, the most mature view of edge computing is that it is offering application developers and service providers cloud computing capabilities, as well as an IT service environment at the edge of a network. The aim is to deliver compute, storage, and bandwidth much closer to data inputs and/or end users. An edge computing environment is characterized by potentially high latency among all the sites and low and unreliable bandwidth—alongside distinctive service delivery and application functionality possibilities that cannot be met with a pool of centralized cloud resources in distant data centers. By moving some or all of the processing functions closer to the end user or data collection point, cloud edge computing can mitigate the effects of widely distributed sites by minimizing the effect of latency on the applications.Edge computing first emerged by virtualizing network services over WAN networks, taking a step away from the data center. The initial use cases were driven by a desire to leverage a platform that delivered the flexibility and simple tools that cloud computing users have become accustomed to.
As new edge computing capabilities emerge, we see a changing paradigm for computing—one that is no longer necessarily bound by the need to build centralized data centers. Instead, for certain applications, cloud edge computing is taking the lessons of virtualization and cloud computing and creating the capability to have potentiallythousands of massively distributed nodes that can be applied to diverse use cases, such as industrial IoT or even far-flung monitoring networks for tracking real time water resource usage over thousands, or millions, of locations.
Many proprietary and open source edge computing capabilities already exist without relying on distributed cloud—some vendors refer tothis as "deviceedge." Componentsof this approach include elements such as IoT gateways or NFV appliances. But increasingly, applications need the versatility of cloud at the edge, although the tools and architectures needed to build distributed edg infrastructures are still in their infancy.

Mr.P.Surya Prabhakara Rao
Asistant Professor

The Relevance of Software Documentation, Tools and Technologies: A Survey

The data from the April 2002 survey of software professionals provides concrete evidence that debunk some common documentation misconceptions and lead to   the   following conclusions. document content can be relevant, even if it is not up to date. (However, keeping it up to date is still a good objective). As such,technologiesshould strivefor easy to use, lightweight anddisposable solutions for documentation.

Documentation is an important tool for communication as opposed to simply a fact sheet about the source code that is only relevant if well maintained. As such, technologies should enable the user to quickly and efficiently communicate ideas as opposed to providing strict validation and verification rules for building facts. The conclusions given above, as well as the data presented in the paper, will help documentation technologies better serve the needs of writers and readers. As well, decision makers will be able to choose more appropriate documentation strategies and technologies based on needs as opposed to generic expectations. Once we can admit that documentation is   out-dated and inconsistent, we can then appreciate and utilize it as a tool of communication. This tool can hen be judged based on its ability to communicate as opposed to merely presenting facts. Software document ation should focus more on conveying meaningful and useful knowledge than on precise and accurate information

Although more information should be extracted from the source code (as shown above), the process cannot be entirely automated. As one participant described "they [automated documentation tools] don't collect the right information."

This section describes the concept of tracking changes in a software project for the purpose of documentation maintenance. For instance, as changes are made to a system's source code, then all relevant documentation that refers to that code would be *marked* as potentially requiring updating.

Mr.V.Surya Prakash

Asistant Professor

BARCODE TECHNOLOGY

Barcode technology works of off a principle called symbology. Symbology at its basic form is what defines the barcode; it determines the mapping and interpretation of the encoded information or data. This encoding allows the scanning device to know when a digit or character starts and when it stops, similar to a binary representation. We recognize barcodes as an array of parallel lines alternating between white and black lines. Barcode technology provides a simple and inexpensive method of recording data or information in a number of applications.

The symbologies of the barcode technology can be arranged or mapped in a variety of ways. A continuous symbology is marked by the characters beginning with a black line and ending with a white line or space, while discreet symbologies have characters encoded as a black line a space and then another black line. This takes care of the characters and how each individual number or letter is read. The lines of a barcode also have variances in encoding the widths of the lines. Some barcode technology systems use two separate widths to determine the character while others use multiple width lines. The use of any of these encoding styles depends , of course , on the application for which the barcode technology is being used.The line or linear barcode techno logy is sometimes referred to as 1D encoding . While we are most familiar with these barcodes, there are more complex codes that employ the use of dot matrixes to achieve a more complex encoding process that can store and identify far more information.These are referred to as 2D or, i n some cases dataglyphs. They are comprised of miniature dots, like the old dot matrix printers, which create patterns that are read in the scanning process. They are not limited to this format and can be comprised of circular patterns or a collection of shapes and modules inserted into a specified image for a user.

Mr.Ch.Venkata Ramana

Asistant Professor

DevOps

DevOps Training – Explore the Curriculum to Master DevOps tools.

This is the odd one out in the list. It is not a technology, but a methodology.

DevOps is a methodology that ensures that both the development and operations go hand in hand.

DevOps cycle is picturized as an infinite loop representing the integration of developers and operation teams by:

automating infrastructure,

workflows and

continuously measuring application performance.

It is basically the process of continual improvement, so why not start with yourself

Ms.B.Preethi Devi

Asistant Professor

Cyber Security

Cybersecurity defined

Also referred to as information security, cybersecurity refers to the practice of ensuring the integrity, confidentiality, and availability (ICA) of information. Cybersecurity is comprised of an evolving set of tools, risk management approaches, technologies, training, and best practices designed to protect networks, devices, programs, and data from attacks or unauthorized access.

Why is cybersecurity important?

The world relies on technology more than ever before. As a result, digital data creation has surged. Today, businesses and governments store a great deal of that data on computers and transmit it across networks to other computers. Devices and their underlying systems have vulnerabilities that, when exploited, undermine the

health and objectives of an organization. A data breach can have a range of devastating consequences for any business. It can unravel a company's reputation through the loss of consumer and partner trust. The loss of critical data, such as source files or intellectual property, can cost a company its competitive advantage. Going further, a data breach can impact corporate revenues due to non-compliance with data protection regulations. It's estimated that, on average, a data breach costs an affected organization $3.6 million. With high-profile data breaches making media headlines, it's essential that organizations adopt and implement a strong cybersecurity approach.

Common types of cybersecurity

Network Security

protects network traffic by controlling incoming and outgoing connections to prevent threats from entering or spreading on the network.

Data Loss Prevention (DLP) protects data by focusing on the location, classification and monitoring of information at rest, in use and in motion.

Cloud Security provides protection for data used in cloud-based services and applications.

Intrusion Detection Systems (IDS) or Intrusion Prevention Systems (IPS) work to identify potentially hostile cyber activity.

Identity and Access Management (IAM) use authentication services to limit and track employee access to protect internal systems from malicious entities. Encryption is the process of encoding data to render it unintelligible, and is often used during data transfer to prevent theft in transit.

Antivirus/anti-malware solutions scan computer systems for known threats. Modern solutions are even able to detect previously unknown threats based on their

behavior.

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V. Vanitha

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ITWIN TECHNOLOGY

For accessing the data while you are far away from your PC, there is one option that is to make use of high capacity USB storage device. But what if you told that, you could securely access your PC or any other computer while you are travelling on the road - iTwin is a device that connects to your PC and it allows you to access files and devices that are connected to your home network remotely. It looks similar as USB device and it is designed by joining two halves. One half is connected to your house or office PC and you have to carry other half always with you. The part that you bring with you is used as a key for obtaining the connection to your PC when you are far away from your PC. When you connect another part of the iTwin device to your laptop when you are on the road, the device makes a Virtual Private Network (VPN) to your house or to the PC that you use in your office. iTwin is completely new file sharing and remote access device developed by a company named as iTwin. It is very similar like two ends of a cable, but is does not need the cable. It is simpler to use than a flash drive. It is just a plug and play device. With iTwin, it is possible to connect any two online computers located anywhere in the world. iTwin was invented by an Indian named Lux Anantharaman.

ITWIN SECURITY

1. Two Factor Authentication

iTwin device provides 2-factor authentication for advanced security. Access to your data is provided based on two different factors: Something you have – your physical iTwin device. Something you be familiar with –a password which you have to enter before the iTwin device can be used. Setting an iTwin device password is optional however we suggest that you set the optional password throughout device initialization to protect your data and network in the event that you lose the device.

2. Remote Disable

In the one half of the iTwin is lost; connection between the two halves of the device can be disconnected using the Remote Disable Feature. This is done by entering a unique disable code in the iTwin Disable Web Centre. The connection between the two halves of iTwin will be disabled within 90 seconds and after that, it is impossible to gain access to your data via the lost device

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