

# <InSci.ights>



Newsletter of the Information Science and Engineering department

Volume 1

Issue 1

December 2015

## VISION AND MISSION OF THE INSTITUTE

### Vision:

To be one of the premier Institutes of Engineering and Management education in the country.

### Mission:

- To provide Engineering and Management education that meets the needs of human resources in the country.
- To develop leadership qualities, team spirit and concern for environment in students.

## VISION AND MISSION OF THE DEPARTMENT

### Vision:

To be a premier department of learning in Information Science and Engineering under Visvesvaraya Technological University, molding students into professional Engineers.

### Mission:

- Provide teaching-learning process that develops core competencies in Information Science and Engineering to meet the needs of the industry and higher education.
- Create an environment for innovative thinking and self learning to address the challenges of changing technology.
- Provide an environment to build team spirit and leadership qualities to succeed in professional career.
- Empathize with the societal needs and environmental concerns in Information Science and Engineering practices.

We dedicate our  
newsletter to  
Dr. A.P.J. Abdul Kalam



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Google

PROJECT SOLI

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Sanskrit vs English  
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NASA's opinion on  
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WHATSAPP'S LOGIC  
BEHIND HIRING  
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CSI  
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Conducted

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*B.N.M. Institute of Technology*

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# MESSAGE FROM THE EDITORIAL TEAM

*We present to you, the first edition of the the ISE newsletter, created completely by the students. This is the first time we have taken the opportunity to express ourselves, our ideas, be creative and design our very own newsletter.*

*We hope you get to learn about, experience and share your thoughts about the new technologies explored by the writers and editors of this edition and that you enjoy what we've put together as much as we did. :)*

## **PROGRAM EDUCATIONAL OBJECTIVES (PEOS)**

Graduates of BE program in ISE will be able to:

1. Analyze, design and implement solutions in the field of Information Science and Engineering and adapt to changes in technology by self learning.
2. Work effectively as an individual and in a team, exhibiting leadership qualities to meet the goals of the organization.
3. Keep abreast with the technology and pursue higher education.
4. Work with professionalism to meet societal needs along with concern for environment.

## **PROGRAM SPECIFIC OUTCOMES (PSOS):**

Graduates of BE program in ISE will be able to:

1. Analyze, design, develop and test software solutions using structured and object oriented approach.
2. Design, develop and optimize solutions for information systems employing fundamentals of system hardware & software, graph theory, finite automata ,data storage and communication networks.

## **PROGRAMME OUTCOMES (POS):**

Engineering Graduates will be able to:

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, and engineering sciences.
3. **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.
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 in societal 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.
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 multidisciplinary 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.

"One machine can do the work of fifty ordinary men.

No machine can do the work of one extraordinary man."—Elbert Hubbard

# WHY WHATSAPP NEEDS ONLY 50 ENGINEERS FOR 900 MILLION USERS



**DID YOU KNOW?**



Facebook has 1 Billion registered users. If it was a country, it would have the 3rd largest population in the world!



In using Erlang, WhatsApp is part of a larger push towards programming languages that are designed for concurrency, where many processes can be run at the same time. As internet services reach more people—and has to juggle more tasks from all those people—such languages become more attractive, naturally.

With its new anti-spam system—a system for identifying malicious and otherwise unwanted messages on its social network—Facebook, uses a language called Haskell. Haskell began as a kind of academic experiment in the late '80s, and it still isn't used all that often. But it's ideal for Facebook's spam fighting because it's so good at juggling parallel tasks—and because it lets coders tackle urgent tasks so quickly. Meanwhile, Google and Mozilla, maker of the Firefox browser, are striving for a similar sweet spot with new languages called Go and Rust.

Like Haskell, Erlang is a product of the '80s. Engineers at Ericsson, the Swedish multinational that builds hardware and software for telecom companies, developed the language for use with high-speed phone networks.

"Instead of inventing a language and then figuring out what to do with it, they set out to invent a language which solved a very specific problem," says Francesco Cesarini, an Erlang guru based in the UK.

"The problem was that of massive scalability and reliability. Phone networks were the only systems at the time who had to display those properties."

Erlang remains on the fringes of the modern coding world, but at WhatsApp and other internet companies, including WeChat and Whisper, it has found a home with new applications that operate not unlike a massive phone network. In essence, WhatsApp is a replacement for cellphone texting services. It too requires that "scalability and reliability." What's more, Erlang lets coders work at high speed—another essential part of modern software development. It offers a way of deploying new code to an application even as the application continues to run. In an age of constant change, this is more useful than ever.

**Kailasa Aravinda**  
3rd sem, ISE

## Drop 1-NBA acronyms

**NBA**-National Board of Accreditation, **OBE**-Outcome Based Education  
**PEO**-Programme Educational Objectives, **PO**-Programme Outcomes  
**PSO**-Programme Specific Outcomes, **CO**-Course Outcomes

More information about NBA accreditation advantages for students

.....next issue!



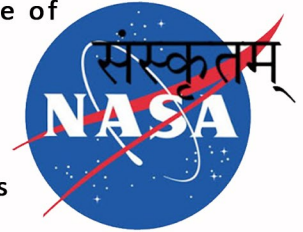
# WHY SANSKRIT OVER ENGLISH IN COMPUTATIONAL LINGUISTICS

Language, in other words, the mechanism of all human communication is represented by words and meanings. Across languages, the concept of these meanings remains the same. Yet the "Meanings" are understood by human beings based on contextual, relative, tonal and gestural basis. Computers on the other hand are hard-coded to go by the dictionary meanings. Thus programming computers to understand natural languages has been the biggest challenge haunting Scientists ever since the idea of Artificial Intelligence came into existence.



Now, we might wonder where the ancient Indian language Sanskrit fits into all of this. For starters, it is the most Scientific and Structured language. Sanskrit has many hidden Algorithms built into it as part of its vast scientific treatises, for analysing "Meanings" or "Word sense" from many perspectives since time immemorial. Let's dive a little deeper into why this is advantageous in Computing. As we know, English is used for all computing technologies today. But let us take a step back and look at the shortcomings of this language and why Sanskrit is better suited for the computational field. English is a very complex language - it takes even a native speaker 8-10 years to achieve proficiency, whereas it takes just 2 years to achieve proficiency in Sanskrit and another 2 years in literary Sanskrit. In addition, the written form of English is non-phonetic which adds its own problems in converting text to voice. Also, due to many borrowed words and regional flavours, spellings and pronunciations differ and add complexity. The interpretation of a text in computing goes through Parsing, part of speech tagging, lexical analysis, morphological analysis, syntactical analysis, and then semantical analysis.

Thus the more structured and scientific the language is, the fewer the problems in computer based natural language processing. Sanskrit itself has multiple parts of grammar, each one corresponding to simplifying each of these stages with precise and understandable instructions. The remarkable thing is, Sanskrit grammar has full support of multiple inheritance, function overloading, data abstraction, transformations, etc. The list is endless. A NASA scientist by the name of Rick Briggs, working at Roacs-NASA Ames Research Centre(California), composed and presented an article by the name of "Sanskrit and Artificial Intelligence" for AI Magazine, published by NASA in 1985. All the above characteristics of the language were demonstrated in detail in his paper. From all the research done in this field up to date, through the ever changing needs of technology and the need for a "perfect language", one thing is for certain. Sanskrit – the mother of all languages - could very well one day be the language for all future human communications, including computational technologies and even interstellar communications because of its inherent structural strength and scientific perfection.



**Namrata Simha**  
7th sem, ISE



## APPetizer

**TSF LAUNCHER 3D SHELL**

**Exciting new app that changes the look and feel of your android phone with its 3d experience. It has very smooth transitions and many cool looking widgets and themes.**

ANDROID APP ON 

"The art challenges the technology, and the technology inspires the art."—John Lasseter





# CSI WORKSHOPS AT BNMIT

## WORKSHOPS CONDUCTED DURING THIS SEMESTER

### WEB DESIGNING

A workshop on web designing was conducted on 13th september at BNMIT. This workshop focused on Web designing using HomeSite . Mrs Shashikala (Dept of CSE) conducted this workshop aimed at the 3rd semester students from the ISE and CSE departments. The turn out was an impressive 55 students. It was an event that lasted the entire day. Students who attended the workshop found it informative and interesting.

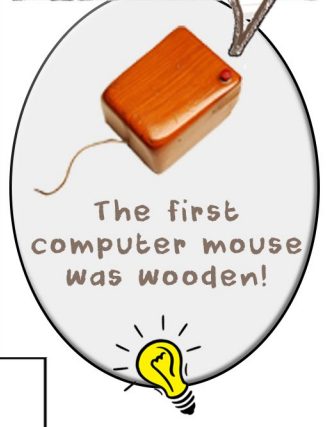


### PYTHON WORKSHOP

A workshop on coding in Python was organised on February 4th. It was an initiative by the student branch of CSI, here at BNMIT. The workshop was conducted by Mr Avinsh from CodeKraft. Students from 5th and 7th semesters belonging ISE and CSE departments were eligible to participate. Student participation was at the maximum. Those who attended the workshop have said that it was very informative and took a hands on approach. Overall an excellent approach to teaching.



### DID YOU KNOW?



The first computer mouse was wooden!



### Pencil Sketch Art

By  
Ms. Jagruthi

## WHEN THE WORLD MET SOLI



Imagine yourself performing day to day actions like changing the time on your watch, setting the room temperature or increasing the volume of your speakers or changing the song by making hand gestures and motions in the air. If you think that the only way of this is by getting casted in the next James Bond movie then you are mistaken!!  
At the annual Google I/O conference this year, the company showed off Project Soli in particular deserves to be discussed because it is mind blowing and has the capacity to turn this dream into reality. Demonstrating the abilities of the Soli system to a crowd of

“Lets go invent tomorrow instead of worrying about what happened yesterday”-Steve Jobs



developers recently in California by tuning a radio simply by rubbing his finger and thumb together, Mr. Ivan Poupyrev, founder of Project Soli said:

'Soli can pick up hand movements as far as a metre away but in reality this is too tiring,' he said. 'Until now we lacked the fidelity to capture hand movements in sufficient detail but now using radar, for the first time in history you can build these interfaces.'

Soli works using the 60Ghz radar spectrum at up to 10,000 frames per seconds which is much more accurate than camera-based systems, which track motion at much lower frame rates. These movements are then translated into commands that mimic touches on a screen.

The real challenge for the Project Soli team was to create a gesture radar small enough to be embedded in a microchip which mimics the operation of a normal radar that is equivalent to a shoe box in size. The current chip form of Soli allows it to be fitted into devices which don't have a traditional display. The team built the first prototype, a 5x5mm piece of silicon, in just 10 months. They're working on finalizing the prototype and software API for release to developers later this year who will be able to help take the project out of the lab and, hopefully, into our homes.

**G. Harshita Rao**  
7th sem, ISE

# TECHIE COMICS

UPDATES ARE AVAILABLE FOR YOUR COMPUTER.



# SHUTTER BUGS

PHOTOGRAPHS CLICKED BY STUDENTS OF ISE

Samarth Bharadwaj D D, 5th semester, ISE



Jeevan H Sreenivasiah  
5th semester, ISE



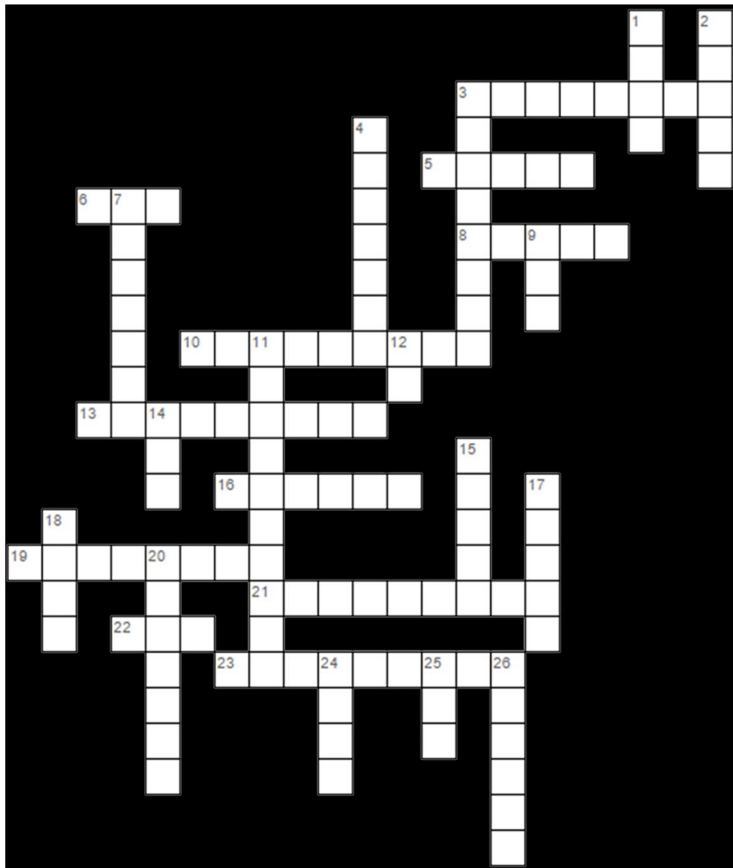
Kailasa Aravinda  
3rd semester, ISE



"The technology you use impresses no one.  
The experience you create with it is everything."-Sean Gerety



# COMPUTER CROSSWORD



## ACROSS

- 3 In a graphical environment, to hide an application that is currently displayed on screen
- 5 Software that allows users to organize, format, and calculate data with formulas using a spreadsheet system broken up by rows and columns.
- 6 Global Positioning Systems
- 8 A hardware device that enables a computer to transmit and receive information over telephone lines
- 10 It stores information and is one of the only parts in a computer that moves
- 13 A hardware device that enables an image, such as a computer screen, to be projected onto a flat surface
- 16 Powerful tool used to create and format databases
- 19 The physical parts or components of computer such as monitor, keyboard, hard disk, mouse, etc
- 21 is the former chief executive and current chairman of Microsoft, the world's largest personal-computer software company, which he co-founded with Paul Allen

22 Universal Serial Bus

23 Protective software designed to defend your computer against malicious software.

## DOWN

1 Released in early 1970s by programmers for programmers

2 Puts computer in state where it consumes less power without losing your place on the screen; computer does not shut down

3 In a graphical environment, to enlarge a window to the full size of the screen

4 Computers display device and in most of the cases, the only source of output from your computer

7 An external hardware device responsible for taking computer data and generating a hard copy of that data

9 Disk operating system

11 An icon on the Windows desktop that represents a directory where deleted files are temporarily stored

12 Internet and Computer Core Certification

14 the Windows logo in a circle and used with Windows Vista and Windows 7

15 Simple graphics painting program that has been included with all versions of Microsoft Windows

17 A hand-operated electronic device that controls the coordinates of a cursor on your computer screen as you move it around on a pad

18 Method of exchanging digital messages from an author to one or more recipients

20 What You See Is What You Get

24 A small picture that represents an object or program

25 Random Access Memory

26 Computer that has been designated to share resources and data





# APPetizer



## DEALOCX

An app for foodies in Bangalore which helps you stay updated with discounts/deals/offers in nearby eat-outs while earning reward points on your transactions. You can redeem these points to recharge phones, to get discount on Flipkart, Amazon, Myntra and so on.



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### DID YOU KNOW?



The home of Bill Gates was designed with the use of a Macintosh computer.



# SUDOKU MANIA

# <The InSci.ders>

Namrata Simha >  
7th semester



< Manasa  
Gopikrishnan  
7th semester

Nikhil Sv >  
5th semester



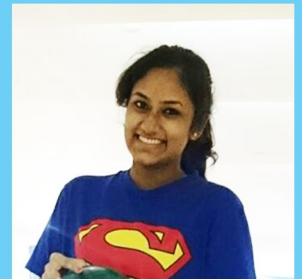
< Prathyusha  
Ayyagari  
5th semester

Samhita  
Kanthavar >  
5th semester



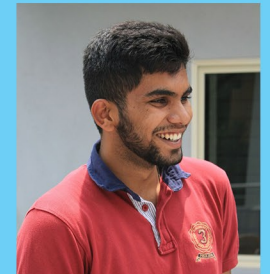
< Shrey Arora  
5th semester

Vidya Murthy >  
5th semester



< Bhavana  
3rd semester

Kailasa  
Aravinda >  
3rd semester



< Mayur Ls  
3rd semester

You can email us your queries and opinions at: [inSci.ghts2015@gmail.com](mailto:inSci.ghts2015@gmail.com)

"The key to success for everything in business, science and technology is never to follow the others."-Masaru Ibuka (Co-founder, Sony)