# JSS Academy of Technical Education

## Department of Computer Science and Engineering

## NEWSLETTER

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## VISION

"To be a distinguished academic and research department in the field of Computer Science and Engineering for enabling students to be highly competent professionals to meet global challenges"

## MISSION

1. To impart quality education in Computer Science and Engineering through state of the art learning environment and committed faculty with research expertise.
2. To train students to become the most sought after professionals in the field of Information Technology by providing them strong theoretical foundation and substantial practical training.
3. To provide a conducive environment for faculty and students to carry out research and Innovation through collaboration with reputed research institutes and industry.
4. To inculcate human values and professional ethics among students to enable them to become good citizens and serve the society.

**We dedicate the first issue of our newsletter to the divine soul Sri Manmaharaja Raja Gurutilaka His Holiness Jagadguru Dr. Sri Shivarathri Rajendra Mahaswamiji, founder of JSS Mahavidyapeetha.**

Centenary Celebrations

Jagadguru Sri Shivarathri Rajendra Mahaswamigalu, the 23rd pontiff, ascended the Holy Seat in 1928, when and was hardly twelve and he shared the responsibilities with his senior, Jagadguru Pattada Shivarathri Mahaswamigalu. Like his illustrious predecessor, he was a firm believer in the good of one and all. Jagadguruji had been at the helm of affairs of the Math for more than half a century, a period full of events seeking nothing but the welfare of all.

A scholar in Kannada and Sanskrit His Holiness knew English also. He was a patron of arts and literature. He was a thoughtful and sensitive who had mastered the art of turning every noble thought of his into a reality. The wisdom of all his predecessors seemed to have culminated in him. Every step he took was a step forward in search of new areas of service. That was how he could build an empire of educational institutions. But he was not an emperor seeking any sort of aggrandizement. Essentially he was a tireless worker, without any selfish ends.

However, the early years of his pontificate were not rosy. It was often reflected that he had to struggle relentlessly and staked his personal comforts to get even a small work done. A single minded dedication to a task aimed at the welfare of all alone goaded him to trudge a path of sacrifice. For this discipline, if we can call it so, he owed a deep debt of gratitude to his senior, Pattada Shivarathri Swamigalu.

JSS Mahavidyapeetha was the vision and foresight of his holiness, Jagadguru late Sri SriSri Dr. ShivarathriRajendraMahaswamiji. JSS Mahavidyapeetha was established in the year 1954. Jagadguru Sri Shivarathreeswara Mahavidyapeetha has been described by many eminent educationists as greater than a University, because under its aegis a child can begin its education in the kindergarten and proceed to earn a degree as well as a doctorate in several branches of learning. Simultaneously the Mahavidyapeetha has not neglected to strengthen the roots of our ancient knowledge, wisdom and culture and their application in the day-to-day life. Sanskrit Pathashalas, Yoga Kendras, Spiritual Retreats, Gurukulas, Art and Cultural forums are doing this work. Today the Mahavidyapeetha has grown into a center of learning that guides more than 350 institutions spread throughout Karnataka, Tamil Nadu and also in Uttar Pradesh. Every year thousands of aspirants of education and knowledge join the fold of the Mahavidyapeetha. Distinguished national leaders including the first President of India, Dr. BabuRajendra Prasad,former President Dr. A P J Abdul Kalam, former Prime Minister Sri Atal Behari Vajpayee have visited JSS and paid rich tribute to services rendered by the Mahavidyapeetha. Major strides were taken by the Mutt, about 6 decades ago, in the field of education, under the guidance and benevolence of His Holiness, Jagadguru Dr. Sri SriSriShivaratriRajendraMahaswamiji. His Holiness attained Samadhi in 1986 and the shrine situated at Sutturkshetra.

## About the Department

The Department of Computer Science and Engineering was established in the year 1997 with the objective of imparting quality education in the field of Computer Science and Engineering. With an initial intake of 60 students is now enhanced to 120. The department has to its credit a team of qualified, experienced and dedicated faculty, whose main aim is to equip the students with the knowledge and expertise to contribute significantly to the society and to continue to grow professionally. The students of the department are consistently getting ranks in university examinations. The Department has well equipped laboratories with the state-of-the-art computing systems. The Department has its own library, and also has technology forum called Init (Innovation in technology). The department has several initiative related to industry interaction. The department is recognized as a research centre by Visvesvaraya Technological University, Belagavi. With rapidly evolving technology and the continuous need for innovation, it has been the department on-going endeavor to produce quality engineering graduates. The department in the past has successfully organized several workshops/conferences.

## From the Principal's Desk

It gives me great pleasure to launch the bi-annual newsletter of the department of Computer science and engineering department. Congratulations to the team that has made it possible. The students and faculties of the department are always proactive in taking initiatives in organizing technical, cultural and social events. I hope that this newsletter will act as a medium to show all the activities of the department. Wishing you all the best.

Dr. Mrityunjaya V. Latte
Principal

## From the Editor's Desk

Dear Reader,

We are delighted to launch our first edition of Newsletter as a part of our effort to share significant moments of our journey with you. The newsletter will serve as an integrated information platform to keep everyone updated with the ongoing endeavors. The newsletter highlights the department news and the work of students, alumni, and faculty.

We extend our sincere thanks to everyone who supported us.

Wish you a good read!

Dr. Prabhudev Jagadeesh,
Prof. & Head, CSE

## Workshops / Seminars / Conference

Mr.Sharan from Unicoin delivered a lecture "BITCOIN – The Future Money" on 9/8/2015. He gave an insight into the working of the decentralized electronic crypto currency-bit coin.

Mr. Ravindra Gudibande delivered a talk on "Skills, Strength and Career in Future for Engineering Students" on 13th August 2015.He urged the students to think positively and stressed on the need of the right Rigor, Relevance & Research, for overall personality development.

Mr. Prabodh C.P from Free Software Movement of Karnataka (FSMK) gave a lecture to create awareness and interest about the development and use of free software on 30.4.16

**Inauguration of CSI Student Branch at JSS Academy of Technical Education, Bengaluru**

Department of Computer Science and Engineering, in association with Computer Society of India inaugurated the student branch in JSSATE Campus on 27th April, 2016.Dr. Prakash S., Chairman, CSI Bangalore Chapter, graced the occasion as the Chief Guest. Dr. Sateesh Kannegala, Vice Chairman, CSI Bangalore Chapter, was the keynote speaker.He presented a talk on "Bayesian Statistics and Networks and its applications".

From right:Dr. ShantharamNayak (Professor, RVCE), Dr. Sateesh Kannegala(Vice Chairman, CSI Bangalore Chapter),Dr. Prakash S (Chairman, CSI Bangalore Chapter), Dr.Mrityunjaya V. Latte - Principal, JSSATE, Shravan (4th sem CSE), Mrs. K S Rajeshwari (Assistant professor ,CSE),Dr. Sneha Y S (Associate Professor, CSE).

## Project Exhibition

Department of CSE organized project exhibition on 21/05/2016. Out of 41 projects, 14 were shortlisted for the presentation. The exhibition showcased the wide range of talents by the final year students with respect to future innovations and also helped in promoting their ideas and technical skills to other budding engineers. The judges selected 3 best projects based on the following rubrics: Social Impact, Novelty, Presentation and Results. Dr. Mrityunjaya.V. Latte, Principal, JSSATE visited the exhibition and appreciated the efforts made by the students

Dr. Mrityunjaya.V. Latte, Principal interacting with students in project exhibition

## Winners of the Exhibition

**First Prize Winners**
Title of Project: **"Smart Shopping Kart"**
From left: Srinidhi, Dr. Sneha Y S (Faculty), Amrutha,Anusha, Manohar,
Dr. Kiran (Associate professor, RNSIT),
Dr. PrabhudevJagadeesh (HOD,CSE)

**Second Prize Winners**
Title of project: **"An approach for monitoring and smart planting of urban solid waste management".**
From left: Dr.Kiran (Associate professor, RNSIT),
Dr. PrabhudevJagadeesh (HOD, CSE),
Aneesh Kumar, Nitesh Kumar,
Yathish Kumar, Pooja H (Faculty),
Dr. Sneha Y S(Faculty).

**Third Prize Winners**
Title of Project:
**"Web enabled engine numerical simulation tool"**
From left: Dr. PrabhudevJagadeesh (HOD, CSE),
Mr. Mahesh Kumar(Faculty),
RanjanaMuralidhar, Triveninayak,
Pooja H R, RachanaKashyap

**A 4-day Symposium on "Linear algebra and its applications in Computer Vision"** was conducted from 13th to 16th July, 2016. The Chief guest of the program, Dr. ArulalanRajan, Faculty, Department of ECE, NITK, Suratkal inaugurated the event on 13thjuly 2016. He addressed the gathering by highlighting the importance of linear algebra in the field of Engineering, especially in Computer Vision. Dr. Mrityunjaya V. Latte, Principal, JSSATE, Bangalore presided over the function and enlightened the participants by his presidential remarks. Dr. Prabhudev Jagadeesh, Professor and Head, Department of CSE as Convener of the Symposium welcomed the Guests and Participants. Dr. P. B. Mallikarjuna, Programme Coordinator gave an overview of four days symposium. A total of 50 participants (Faculties, Students and Industrial Professionals) from various engineering colleges across Karnataka and Industry participated in the event.

## Industrial Visit

5th and 7th semester students visited Wipro Technologies and Cognizant Technology Solutions on 3/11/2015. They interacted with Global Head of HR and Operations Team Leader and gained practical perspective about the world of work.


**"Staff and Students at industry visit in Wipro and Cognizant Technologies"**

## PARENT-TEACHERS MEET

HOD Dr.PrabhudevJagadeesh addressing the parents on Parent-Teacher's meet held on 21.5.16

# Staff Accomplishment

1. Mr. Abhilash, Mr.Niranjan K.C and Mr Sreenath co-authored a paper titled "A survey on mining statistical analysis of social website data using syntactic analysis and hybrid classification" ISSN-09759646, Vol.6, Issue 4, PP.4148-4150-2015
2. Mr. Abhilash and Mr D.V. Ashoka co-authored a paper titled A Survey on operating system virtualization methods and challenges". I-managers journal on Information Technology VOl5, No.1 Dec.15
3. ShwetaKaddi and Vinutha H.D co-authored a paper titled "Electri Load Assessment", AES Journal in Engineering Technology Management, January 2016.
4. Rashmi B N , "A Novel Approach to Signature Verification and Identification", 2016 International Conference on Computer Communication and Informatics (*ICCCI* -2016).
5. Dr. Prabhudev Jagadeesh , Professor & Head was appointed as a member of BOE for CS/IS composite board , VTU
6. Mr. Sharana Basavana Gowda , delivered a guest lecture on " Data Analysis on Perl and PHP" in an FDP on "Computation tools for OMICS data analysis" jointly organized by department of biotechnology and department of computer applications at MSRIT, Bangalore which was held on th13 July 2016.

Dr. Ashok Kumar A. R, Associate Professor, has been awarded Doctorate Degree on thesis title "A novel architecture for Data Center Network and its performance study" "from Computer Science and Engineering department by Indian Institute of Technology, Guwahati.

## Student Corner

Our students have secured 1st place in VTU single zone Lawn Tennis Competition held at VTU , Belagavi and also they have been selected for VTU Team .

**Mr. Koushik. H.A,** VIII SEM, CSE, JSSATE received prestigious national level YUVA CHETHANA AWARD for his contribution towards social service as NSS volunteer.

Mr. Koushik H A, Director of Books beka Online Solutions Private Limited in the Prudent Entrepreneur.

About the website : www.booksbeka.com is an e-commerce start up company positioning itself to become the market leader in offering a trouble free way to purchase and sell books online. We intend to provide our customers with the best online book shopping experience , with a smart, searchable website, easy to order , clear and secure payment methods and fast, quality delivery with best price.

Nayana.T.K , 3rd semester presented a technical paper titled " Network security on public cloud using machine learning technique" in Katalyst Tech fest at Siemens corporate Technology ,India, Aug 2016.

# Alumni Corner

An article by Mr.Shishir Prasad, Software Engineer, Microsoft Corporation, USA

## "C++ in the 21st Century"

Reading the title you must be wondering what an article about C++ is doing in a newsletter in the year 2016. Isn't C++ really old? Who uses it anymore? Isn't the rage all about C#/Java/Python nowadays? Nope. C++ isn't going the way of the dodo bird any time soon. There is still a lot of C++ code in the world. Much of the user-mode code that is part of Windows OS is written in C++. Many of Google's open source projects are in C++. Facebook too is actively working on the language. If anything, the C++ language has recently gotten a big boost to its capabilities which more than make up for its shortcomings when compared with other higher level languages like C#/Java.

C++ started out life as *C with Classes*, created in 1979. Fast forward to 1982, the official *C++*

name was given to the language, with *Release 2.0* coming out in 1989. However, it wasn't until

1998 that C++ was formally standardized by the ISO committee. This standardization came to be known as C++98 which was followed by some changes in 2003 to become C++03. This is the version of C++ that most of us have learned and coded all these years. However, now there are two more versions of the standardization – C++11 and C++14 that were formalized in 2011and 2014 respectively and they both add a lot of interesting stuff to the trusted old language. In the next few paragraphs we will see what are the most interesting and useful features in the new versions.

***Smart pointers***. One of the most thorny issues in both C and C++ is that of memory management. The programmer must be very careful in knowing how much dynamic memory was allocated, which components are using it and also when to release that memory. Getting any of these wrong leads to memory leaks or to something that has caused nightmares to many novice programmers – segmentation fault/access violations caused due to either using released memory or releasing memory twice. Smart pointers provide much help in avoiding these issues arising from the so called *raw* pointers. Smart pointers are essentially wrappers around raw pointers that act like raw pointers but avoid many of their pitfalls. Smart pointers are enabled by the concept of RAII (Resource Acquisition Is Initialization).

C++98 had the *std::auto_ptr*type which is a smart pointer but it was missing some key features. Then in C++11 *std::auto_ptr*was improved and renamed to *std::unique_ptr*. As the name suggests, a *std::unique_ptr*has exclusive ownership of the memory it points to and guarantees that the memory is released when it goes out of scope. Once released it sets it self to *null-ptr* there by guaranteeing that you cannot access the referenced memory again. The counterpart to *std::unique_ptr*is the *std::shared_ptr*which allows shared ownership of the memory rather than exclusive ownership. This means multiple components in the program can all be owners of a memory area. This is implemented using reference counting. Thus when a component wants to share ownership of memory from another component, it can do so by *copying* the other component's *std::shared_ptr*thereby increasing the reference count. The shared memory is released only when the last component releases its own copy of *std::shared_ptr* object, i.e., when the reference count goes down to zero.

***Move semantics***. This is one of the most exciting features introduced in C++11. Traditionally,

objects in C++ could only be copied even when the source object was not needed after the copying. This is inefficient and C++ is all about efficiency right? This is where move semantics come into play. For example, let's say in a class member function, we have created a *std::string* object, *strA*, that contains the string

"C++ is awesome in 2016". Realize that the strA object has automatically allocated dynamic memory for this string on the heap. The function stores this in a class data member of type *std::list* container which holds multiple *std::string* objects and then returns to the caller. Prior to C++11 *strA* had to be copied into the list, i.e.,the string object created in the list container had to allocate memory and copy the literal string from *strA* into itself. Then when the function returned *strA* went out of scope and the dynamic memory it allocated gets released. This is what C++11 offers for cases like this – the *strA* can be *moved* into the list container, i.e., the string object within the list takes over ownership of the string allocated in dynamic memory so that *strA* no longer owns it which means there is nothing to be released when *strA* goes out of scope. Thus we have saved one unnecessary memory allocation and deallocation. This can have a lot of positive performance impact in programs which use many temporary objects which use dynamic heap memory.

***Lambda expressions***. Lambdas are a convenient way to create function objects, i.e., objects that have defined the operator *()* so they can be invoked like a function. Notice that it is called a lambda *expression* which means it is written inline in source code and not as a separate entity which is how functions are written. This capability makes creating one-off, small functions really convenient. There is no need to declare the function in the header file and then provide a definition in the source file. There are multiple uses for this - predicates used in the STL's *_if* algorithms such as std::find_if and std::remove_if, on-the-fly specification of callback functions and so on. Consider the statement below: **std::find_if (list.begin(), list.end(),[](int val) { return (0 <val) && (val< 10); });**This one line statement calls the *std::find_if*algorithm with the predicate 'find all numbers in range (0, 10) within the specified list container'. The predicate is specified as a lambda expression. Think of it as a function that takes a single integer parameter and returns a bool. Since lambda expressions create function objects, the *std::find_if*algorithm can invoke it like a function and test each integer in the list against the specified predicate and thus return the first one that passes the predicate test. This is much simpler than having to create a separate function that performs the predicate test. The above three features are just a few of the new ones available in C++11 and C++14. I hope these three have renewed your excitement about C++. Here are some resources to learn moreabout the new features and some topics which you might find interesting.



Your feedback greatly aids us in improving the way we share information with you. We also welcome you to have your name on one of the articles in the forthcoming editions. We can be reached at newsletter.csejss@gmail.com