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ICE

DEPARTMENT OF INSTRUMENTATION AND CONTROL ENGINEERING

SARANATHAN COLLEGE
OF ENGINEERING

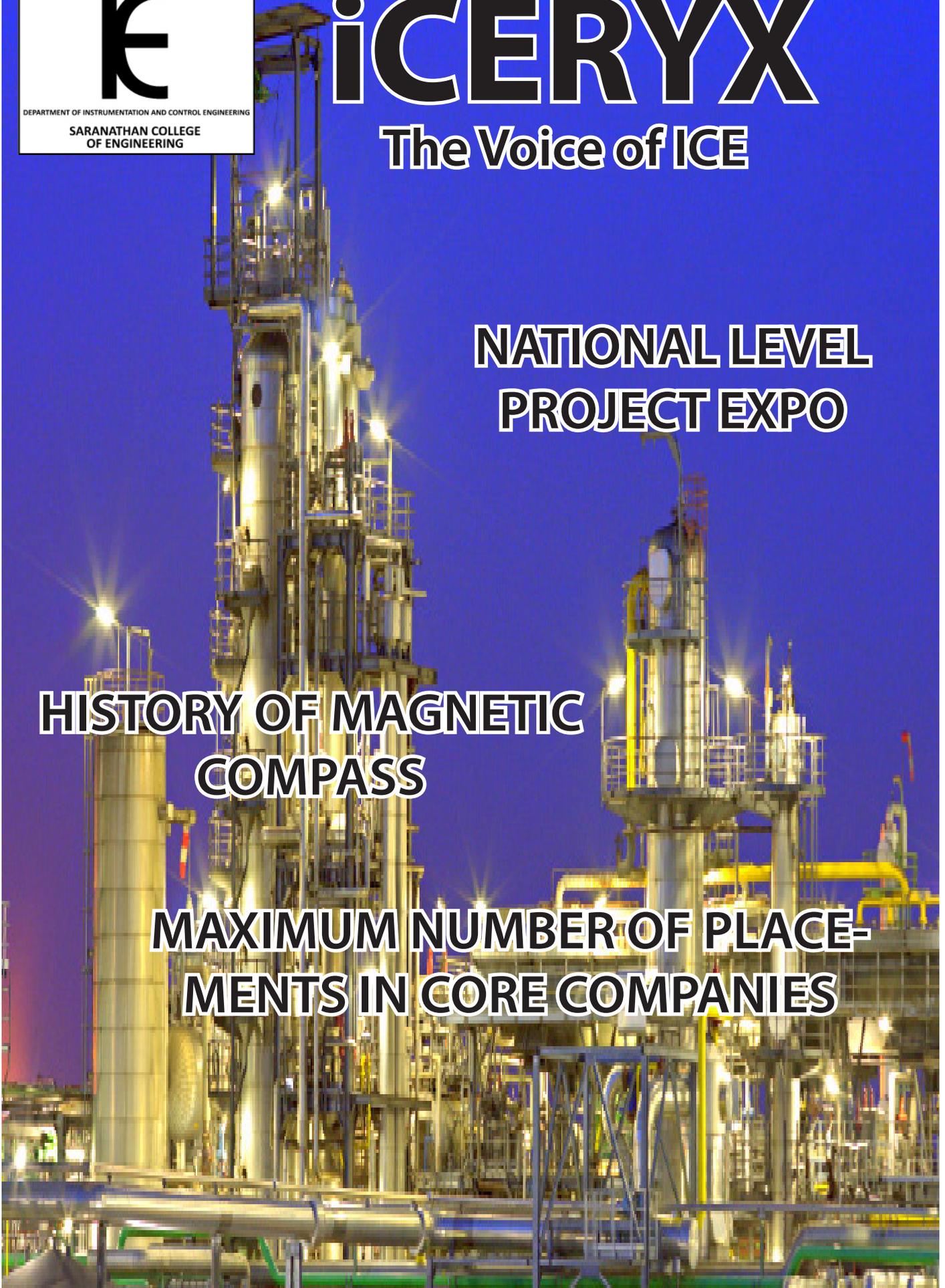
iCERYX

The Voice of ICE

**NATIONAL LEVEL
PROJECT EXPO**

**HISTORY OF MAGNETIC
COMPASS**

**MAXIMUM NUMBER OF PLACE-
MENTS IN CORE COMPANIES**



FOREWORD

The department is elated that the students are streamlined towards positive growth oriented outcomes. The students show their keen interest in projects and in transforming their knowledge into credential performances. The students are continuously monitored to introspect themselves in terms of academic as well as their performance improvement activities. They are always guided to work for the worst and hope for the best. ICERYX would always be a media to patronise the achievements of the department.

Dr.S.M.Girirajkumar,
HOD/ICE

FROM THE EDITORIAL BOARD

The exemplary achievements of the department is a classic example of how commitment can produce wonders. The department solley believes that a healthy mind is a prerequisite for a prosperous future. So utmost care and concern is given for the students to realize their aims and to accomplish their goals in the future days to come. Our department has shown a tremendous growth in terms of national level. The PR team feels it its greatest privilege to put to light to the outer world the remarkable and cummulative efforts of all of us which ahs led to this magnificent achievemnt.

Ben – Hur S.Christopher., Final year,
Shuprajhaa. T., Pre-final year,
Anuroopa Devi S., Final year,
Nazreen Banu A., Final year,
Nishanth. D., Pre- Final year.

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NATIONAL LEVEL PROJECT EXPO IN COLLABORATION WITH NATIONAL INSTRUMENTS AND ICTACT

- As aptly quoted by Confucius, "The will to win, the desire to succeed, the urge to reach your full potential... these are the keys that will unlock the door to excellence".

- The Department of Instrumentation and Control Engineering, Saranathan college of Engineering, is climbing the ladder of growth at a greater ease with utmost dedication and perseverance. The department has achieved many remarkable feats and today it has added a feather to its hat hosting the National Level Project Contest Project Expo'2015 in collaboration with National Instruments and ICTACT on 21st March 2015. The event has been a grand success abiding to ICE's mantra "Perpetual Progress".

- The National Level Project Expo'2015 saw representatives from National Instruments, Bangalore, Fluxgen Engineering Technologies, Bangalore, Optithought, Chennai, Innovative Invaders Technologies, Bangalore, National Institute of Electronics and Information technology (NIELIT), ICTACT, ICET, Bangalore. The industry experts graced the function with their presence and were also the panel of

judges, who reviewed the projects. The best batches will be given an opportunity for doing internship that would lead to placement (as per terms and conditions) in the leading core companies.

- The event witnessed huge participation from students across the Tamil Nadu region, who ea-

gerly took part in projecting their exhibits, which have been solely developed using National Instruments Hardware and Software. Off the 60 applications that had been received for the Project Expo, the scrutinizing team selected 26 Projects, who showcased their work and talent to the judges, awing them.

- The valediction function began at noon with the dignitaries - the principal of Saranathan College of Engineering, Dr. A. Revathy, Chief guest of the day, Prof. K. Jayaraman, ICET Pedagogy Systems Architect & ICET ALCHEMIST in ICET, Bengaluru, India, Dr. V. Krishnamurthy, Director-in-charge, National Institute of Electronics and Information technology, Chennai, Mr. Visweswaran, Senior academic consultant, National Instruments, Bangalore, Mr. Ganesh Shankar, Co-founder and Managing Director of Fluxgen engineering Technologies, Mr. Rajesh Muruganandam from Innova-



ative Invaders Technologies, Coimbatore, Mr. Yuvraaj from Op-tithought, Chennai, HoD of ICE Department Dr. S. M. Giriraj kumar. The chief guest of the day, Prof. K. Jayaraman, ICET, Bangalore presented the key note address and appreciated the winners of the contest with cash awards. The first prize was bagged by "3-D ROVER" by K. Mohammed Hussain, R. Allwyn Rajendran Zephre, M. Shantha Kumar of Final year ICE, Saranathan College of engineering, the second prize was secured by P.N.Vasantha, A. Abirami and N.Gayathri, Final year ICE, Saranathan College of Engineering for their project named - "Talking Herz frequenz Messgerat". The third prize went to M.Vishnu Prasanth and V.Suresh from K S Rangasamy College of Technology for their project titled "Fuel Savings In Automobile By Universal ECU With Multiple Fuel Ignition System Using Labview".

- Only those who attempt the absurd can achieve the impossible. Similarly, the National Level Project expo is the first of its kind in the college and the Department of ICE takes immense pride in showcasing the talents to the society.



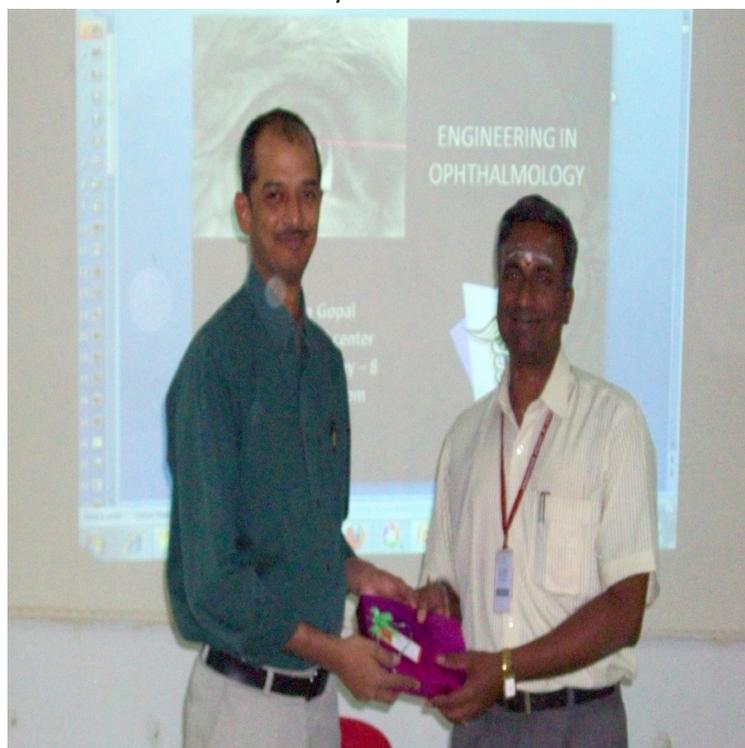
VISITORS TO THE DEPARTMENT

ENGINEERING IN OPHTHALMOLOGY

PR TEAM

Department of Instrumentation and Control Engineering of Saranathan College of Engineering organized a guest lecture for third year students of ICE on 20th March, 2015 at ICE Seminar Hall from 9:30am to 11:30am. Dr. M. R. Sriram Gopal, D.O.,DNB.,FRCS(G), was the guest of honour who gave his lecture on the topic "ENGINEERING IN OPHTHALMOLOGY".

- The speaker of the lecture covered a lot on human eye and its



defects and how an engineer play an important role in curing it. He also explained about : the applications of piezo crystals, Laser and Cryogenics in medicine. Types of Lasers used to repair tears in the retina and low wavelength lasers in which opacities and surface irregularities are removed from the cornea. Photorefractive keratectomy (PRK, LASEK), in which the cornea is reshaped without first cutting a flap. Instruments used in capturing detailed image of cor-

nea, retina and other parts of eye with the advancement in digi-

talization.

- Dr.V.R.Ravi, MS (Ortho), Director at Mothercell Regenerative Centre, Trichy who was also present added the role of engineers in medicine, and encouraged the students to develop smartphone based gadgets and embedded systems for its application in medicine.

- S. Sriram of 3rd year ICE welcomed the gathering, R. Sreyash of 3rd year ICE delivered the vote of thanks. D. Nishanth

and M. Shrinath were the master of ceremony. Dr. S. M. GiriRajkumar, Head of the department and staff of ICE were also present.

BRIDGING THE GAP BETWEEN THE INDUSTRY AND THE INSTITUE

PR TEAM

basic skills to be possessed by the students.

- He showcased the future placement requirements across the professional world. He stressed to focus on the GATE examination, as most of the public and the private sectors seek a valid GATE score card for employing the candidate.

- He explained the rules and the regulations of the Training and Placement cell. Finally, he gave many valuable tips to match the employability skills with the requirement of the recruiter..

- The guest lecture was so informative and interesting. As it is very essential for the students of pre final year to understand the qualities good professionals, this lecture kindled their minds and made them to think about their future.

A guest lecture was conducted for the pre final year students, regarding the development of their employability skills on April 2nd, 2015 at ICE seminar hall.

- Mr. Gopal Iyer, the head of the Training and Placement cell of the college, spent his golden seconds with the students. He gave lot of information about the current placement scenario and the

DEPARTMENT ACTIVITIES

IIT MADRAS OUTREACH PROGRAMME

PR TEAM

- The Department of Instrumentation and Control Engineering organized a guest lecture on the 17th March 2015 for the students of all the departments on the scope of higher studies available at IIT's.

- Currently guiding 6 P.G. Research Scholars, he added that MHRD offers scholarships to all the students enrolled in P.G. Courses and IIT Madras provides all the necessary facilities required to carry out research activities, even if it includes purchase of some new instrument.

FUNNY LOGICAL QUESTIONS

- 1) A donkey behind another donkey....
I'm behind that second donkey
But there is a whole nation behind me....
It is a murder you can describe in a word.



- Dr. S. Vengadesan, Professor, Department of Applied Mechanics, IIT Madras was the chief guest of the day. The initiative was to make the student community aware of the various post graduate courses available at IIT's.
- He highlighted that a perfect GATE Score is the gateway to IIT PG programmes, which includes M.Tech., M.S.(Research) and PhD courses. He mentioned that there were two admission seasons one in August and the second in January.

- He portrayed the research oriented life style at IIT Madras and also regarding the various industry-academic activities being carried out at IIT Madras Research Park. He illustrated on the variety of bio-diversities available in IIT Madras.
- It was an interactive session with the students asking queries on the various topics of their concern in relevance to higher studies at IIT Madras.
- As a final note, he told the students to focus and concentrate more on the preparation for GATE exams.

- 2) What does this say?

esgg sgeg gegs gsge

- 3) A man has a barrel with filled with oil that weighs 100 pounds, and then he puts something into it. Now the barrel weighs less than 100 pounds.
What did he put in the barrel?

PROJECT EXPO

PR TEAM

A project contest was held for the final year students titled "Project Expo" by the department on 27-02-2015.

This contest was held in order to motivate the students ideas and their innovative thoughts in bringing up new trends.

This expo also paved way for highlighting the final year projects to the other departments of the college.

The students exhibited all their finished projects. The projects were mainly oriented in LabVIEW platform.

Principal and Director encouraged the students with their gracious presence and by giving valuable suggestions.

Dr.M.Arutchelvi (Dean Academics) and Dr.Baskaran (Professor, Dept of Mech.) were the judges of the expo. They spent their valuable time in introspecting each and every project and awarded marks based on their performances.

Based on the decisions made by them along with the Head of our department the following students were announced as prize winners of the expo.

FIRST PLACE :

PROJECT TITLE : Life-saving Wearable Cardiovascular Activity Monitor to prevent Cardiac Arrest (Dr.S.M.Girirajkumar)

1. S.Allwin
2. S.Biksha Natesan
3. Benhur .S.Christopher

SECOND PLACE:

PROJECT TITLE: A smart ping pong robot (Mr.R.Gopalakrishnan)

1. A.Thamemul Ansari
2. K.Thivakaran
3. M.Hareesh Kumar

THIRD PLACE :

PROJECT TITLE:

Smart mobility for visually challenged people (Mr.P.Aravind)

1. D.Vaishnavi
2. I.S.Nivethitha
3. K.Karthik
4. EL.Ramkumar

The department awarded the students with cash awards of Rs. 1000 for the first place and Rs. 500 for the second and third place.

PECULIAR EINSTEIN QUOTES

~~No problem can be solved from the same level of consciousness that created it.

~~ Any fool can know. The point is to understand



PR TEAM

The Department of Instrumentation and Control Engineering organized a Faculty development program on the 19th and 20th of March 2015 for the faculties from different engineering disciplines on how to build an embedded system using LabVIEW, a software from National Instruments.

- The goal of this workshop is to provide a comprehensive understanding of the platform and enable system design approach to teaching, laboratory and research. This two day workshop saw participation from professors with different engineering backdrops from various colleges across Tamilnadu. During this two days of workshop participants got hands on experience in real time measurement and control.

- Prof. K.Jayaraman, ICET Pedagogy Systems Architect & ICET ALCHEMIST in CinICET, Bengaluru, India and Technology Mentor in United Electronics systems, Bengaluru & Vdesign Technologies, Pondicherry was the chief guest of the day. He is the recipient of 21st Century Millennium Award for OUTSTANDING ACHIEVEMENT IN THE CHOSEN FIELD OF ACTIVITY by International Institute of Education and Management by LMISTE and SMIEEEE.

- He gave the key note address in which he portrayed the techniques and the ways in which the professors must teach the students, in the most modern way. The way of approach not only focuses on the syllabus prescribed by the university but also to make the students understand the concept of the core

subjects.

- LabVIEW software is ideal for any measurements and control application, and is the heart of many system design platforms. LabVIEW integrates most of the modules that

engineers and scientists need, to build wide range of applications in less time. NI

LabVIEW platform offers a complete system design environment for problem solving, accelerated productivity, and continual innovation.

- The following are the events that unfolded during the workshop. On Day 1, the

participants got Hands on training on Graphical Programming Language LabVIEW and to Acquire, Analyze and Automate using NI Hardware and Software. The next day of the course saw the introduction of the recently developed hardware by National Instruments called as NI myRIO architecture—FPGA based System Design hardware platform. This included Case studies & Discussions in the application areas like Smart Grid, Industrial IoT, Machine Vision, Robotics, Cyber Physical Systems, Healthcare technologies.

- The participants are issued certificates by National Instruments through Saranathan College of Engineering. They were also provided softcopy of the course materials and the evaluation software of the National Instruments - LabVIEW.

PRE - FINAL YEAR AND SECOND-YEAR

PR TEAM

The department of Instrumentation and Control Engineering organized an online certification exam on Latex under the Spoken Tutorials project on the 18th March, 2015 and on 02nd of April 2015 for the pre-final year. and on 07th of March 2015. IIT Bombay in collaboration with the Ministry of Human Resource Development, Government of India conducts these exams to equip

LATEX

students in using Open Source scientific software. LaTeX is a high-quality typesetting system; it includes features designed for the production of technical and scientific documentation. LaTeX is the de facto standard for the communication and publication of scientific documents. LaTeX can be used as a standalone document preparation system, or as an intermediate format. In the latter role, for example, it is often used as part of a pipeline for translating DocBook and other XML-based formats to PDF. The typesetting system offers programmable desktop publishing features and extensive facilities for automating most aspects of typesetting and desktop publishing, including numbering and cross-referencing of tables and figures, chapter and section headings, the inclusion of graphics, page layout, indexing and bib-

liographies. 46 students from the pre-final year have successfully cleared this exam, for which 40% is the minimum requisite. The staff coordinators for this program are Prof. Abirami.S., Prof. Aravind P. and Prof. Gopalakrishnan R. from the department of ICE. Prof. Abirami S., AP/ICE was the registered exam invigilator. The department thanks the Computer Support Group of our college for rendering their technical support in organizing the online exam. The department congratulates the successful students and encourages them to take part in many such endeavours.

**FINAL YEAR
PR TEAM**

The department of Instrumentation and Control Engineering organized an online certification exam on C and C++ under the Spoken Tutorials project on 24TH OF FEBRUARY and 7th and 6th of April, 2015 for the final year. IIT Bombay in collaboration with the Ministry of Human Resource Development, Government of India conducts these exams to equip students in using Open Source scientific software. 51 students from the final year have successfully cleared this exam, for which 40% is the minimum requisite. The staff coordinators for this program are Prof. Abirami.S., Prof. Aravind P. and Prof. Gopalakrishnan R. from the department of ICE. Prof. Abirami S., AP/ICE was the registered exam invigilator. The department thanks the Computer Support Group of our college for rendering their technical support in organizing the online exam. The department congratulates the successful students

**STUDENTS ACHIEVEMENTS
PRE-FINAL YEAR STUDENTS IN
PROJECT CONTEST**

and encourages them to take part in many such endeavours.

Pre- final year students Shuprajhaa. T and Subasree.S bagged the second place in national level project contest conducted in the symposium "CIRCUITRIX'15" held at Sona college of Technology, Salem on 19th March 2015. The contest was comprised of two rounds.They exhibited their project in the platform of LabVIEW using DaQ. They were awarded with a cash award of Rs. 1000 each.

**PRE-FINAL YEAR STUDENT COM-
MENDED AS BEST MANAGER**

Pre - final year student Shuprajhaa. T won the title event in the national level technical symposium held at Sona college of Technology on 19th March 2015. She was awarded with a trophy entitled "THE BEST MANAGER".

**PRE-FINAL YEAR STUDENTS
PAPER PRESENTATIONS**

Pre- final year students Deepika and Trini Xavier presented their paper on the topic of "ANALYSIS OF RICE GRANULES USING NPR TOOL" in the technical symposium held at K.L.N College of Engineering, Madurai on 31 - 03- 2015.

Shuprajhaa. T presented a paper on " MEMS FOR ACCIDENT PREVENTION" in the national level technical symposium held at Sona college of Technology, Salem.

Trini Xavier of Pre- Final year won the first place in the event "MIND SURFERS" held at KLN College of engineering.

**BIONIC ARM
SENTHIL KUMAR,
PRE-FINAL YEAR**

A prosthetic arm that moves and feels like the real thing is now a step closer thanks to a new surgical technique which allows the owner to intuitively control her limb and regain her sense of touch.

Surgeons working on a female amputee in Chicago, US, have re-routed the ends of the motor nerves – which once controlled her arm’s movement – into the muscles in her chest and side. And the ends of the sensory nerves, which fed signals responding to heat and touch from her now-amputated arm to her brain, have been transferred to the skin on her chest. and back muscles to cause these movements.

Use your imagination To make the process more intuitive, Todd Kuiken and colleagues at the Rehabilitation Institute of Chicago developed a technique called "targeted muscle reinnervation". Motor nerves that once controlled the arm are transferred to nearby muscles, which are then fitted with myoelectric sensors to detect contraction.

"When the person imagines closing their hand, the signal goes down the nerve. Then we use that signal to control the prosthetic hand," explains prosthetist Laura Miller.

Claudia Mitchell, a 26-year-old former US marine, is already able to control her prosthetic arm with more skill than is possible with conventional devices. She can carry out simple tasks intuitively, such as cutting up food, and at four times the speed of someone with a conventional

devices.

She can carry out simple tasks intuitively, such as cutting up food, and at four times the speed of someone with a conventional prosthesis. And she has regained the sensation of having her arm touched when someone touches the patch of skin on her chest. Most of the advanced prosthetic arms on the market are powered by myoelectric motors that respond to contraction of muscles in the chest and back. But these are limited, because they allow only one movement at a time, such as bending the elbow or opening the hand, and amputees must learn to contract their chest and back muscles to cause these movements.

S.no	BatchNo	N a m e	Company Name
1	14507	BENHUR S.CHRISTOPHER	Chalkstudio, Bangalore
2	14545	S H A N T H A K U - MAR.M	Optithought, Chennai
3	14528	MOHAMED HUS-SAIN. K	Optithought, Chennai
4	14509	BIKSHA NATESAN. S	Automated Test System Technologies Pvt Ltd Chennai
5	14532	NHIZANTH.R	Automated Test System Technologies Pvt Ltd Chennai
6	14557	VASANTHA P.N	FluxGen Engineering Technologies, Bangalore.

PLACEMENT UPDATE

The Department of ICE and the management wish to appreciate the students who have been placed in core companies. They attributed the skill sets gained in various certificate courses like LabVIEW ,DCS and PLC..etc and their hard work towards project work to get these placement. It also wishes to appreciate the student's efforts on their project work and for the prizes won by them.

- 1 BENHUR S.CHRISTOPHER
Chalkstudio, Bangalore
- 2 SHANTHAKUMAR.M O p -
tithought, Chennai
- 3 MOHAMED HUSSAIN. K
Optithought, Chennai
- 4 BIKSHA NATESAN. S A u -
tomated Test System Technologies
Pvt Ltd Chennai
- 5 NHIZANTH.R Automated
Test System Technologies Pvt Ltd
Chennai
- 6 VASANTHA P.NF I u x G e n
Engineering Technologies, Banga-
lore.

CLAD CERTIFICATION

The department upholds great pride in congratulating the following members for having cleared the CLAD exam conducted by National Instruments, USA.

1. Gokul.V
2. Kamban.S
3. Nisha.A
4. Subramanian.G
5. Tharani Raja.K
6. Vaishnavi.D.
7. S.Abirami(Staff member)

- National Instruments, a US based Multinational Core Company that specializes in Virtual Instrumentation, certifies students and working professionals on its award winning System Design software – LabVIEW.

- The candidates are tested upon their broad working knowledge of the LabVIEW environment, a basic understanding of coding and documentation practices and the ability to read and interpret existing code. The average success rate has been estimated(as of NI trainers point of view) in the order of 6-10%.

- One staff member and 6 students from the final year of our department have been certified as CLAD by the online certification examination that took place at the college premises on 05.03.2015. A total of 22 students and 3 staff members appeared for the examination, bringing the success rate of our department to over 27%, way above the average rate.

- To meet the quality expected by the Global Industrial Market, NI expects the candidates to score 70% to be granted certification.

- The examination consists of 40 questions which have no absolute answer but expects the candidates to choose the most appropriate answer. Each question is valued at 2.5% of the total mark.

- The Certified Developers will be listed on the National Instruments Global Website (http://www.ni.com/services/certified_labview_associate_developers.htm) as part of the list of International Certified Developers.

- Owing to the high value for this certification, NI imposes 2 year validity to this certificate to ensure that their Certified Developers stay in par with the ever-advancing field of Instrumentation.

A HISTORY OF THE MAGNETIC COMPASS

This navigational instrument led to advances in trade, military might, and science

**Prof. R. Gopalakrishnan,
Department of ICE**

A History of the Magnetic Compass

This navigational instrument led to advances in trade, military might, and science

Inhospitable as it can be, the sea has played an essential role in human history, and so did that indispensable navigation tool, the magnetic compass. The sea provided the cheapest way to move goods over great distances, generating wealth through trade. Navigating the oceans successfully also played a pivotal role for many countries in gaining political and military power. Along the way, the compass contributed to innovations in physics and electrical engineering.

Far from the sight of land, the sea is a seemingly endless, undifferentiated expanse. For most of history, getting lost at sea was a very real danger, often with disastrous consequences. Even when close to land, seafarers can become disoriented in bad weather. For ancient Greek and Roman sailors, weather conditions even limited visibility enough to shorten the sailing season in the Mediterranean Sea. The Roman military writer Publius Flavius Vegetius wrote in the fourth century that travel from June to mid-September was safe, but that sailing any other time was risky. He called the period between mid-November and mid-March *mare clausum*, or the time when “the seas are closed.”

Seafarers adhered to these guidelines until the early 14th century, when the magnetic compass made its first appearance in the Mediterranean. No longer com-

. No longer completely dependent on landmarks, the mariner could now find his position relative to Earth’s magnetic field. With the Mediterranean now “open” for most of the year, trade increased substantially, which contributed to the rise of the Italian city-states.

FIRST APPEARANCES:

Though the behavior of lodestone, a naturally magnetized piece of the mineral magnetite, was observed by the ancient Greek philosophers Thales of Miletus and Socrates, the evidence is clear that the idea for using it in a compass first appeared



in China. There are allusions in the manuscript *Wu Ching Tsung Yao*, written in 1040, to “an iron fish” suspended in water that pointed to the south. And the earliest reference to a magnetic direction-find-



ing device for land navigation is recorded in a Song Dynasty book

the Chinese. With the successive rise of the Portuguese, Spanish, Dutch, and English empires, development of the compass shifted to the European nations facing the Atlantic Ocean.

The biggest challenge raised by the compass was what we now call magnetic variation: the angular difference between geographic or “true” north and the magnetic north, or the direction in which a magnetized needle points. Under clear skies, one could find the geographic north-south axis for comparison with where the compass pointed by either referring to the polestar or looking at the sun at noon.

Across the Mediterranean, the difference between geographic north and magnetic north was relatively small. However, in the Atlantic, particularly in the northern latitudes, the difference was considerable. If this difference had been constant, there would be no problem, but it varied greatly as one traveled east to west. During his first voyage to North America from Spain in 1492, Christopher Columbus observed this mysterious behavior, but he kept it from his crew, fearing it would spook them.

FURTHER DISCOVERIES:

Beginning in 1698, with the support of England’s Royal Society and the Admiralty, Edmund Halley, who would later be named the country’s Astronomer Royal, set out on several long expeditions to measure Earth’s magnetic variations across the northern and southern regions of the Atlantic Ocean. This data offered great advantage to the English Navy. In 1701, Halley produced the world’s first isogonic chart, which shows

FINAL YEAR STUDENTS PAPER PUBLICATIONS

magnetic north and true north varies at different points in the Atlantic Ocean

[see photo].

The study of magnetism set the stage for work in electrostatics. And the compass also served as a scientific instrument. With it, Danish physicist Hans Christian Ørsted observed in 1820 that an electric current from a battery flowing through a wire produced a magnetic field. This important discovery in electromagnetism paved the way for telegraphy.

In 1831, English scientist Michael Faraday showed that moving a conductor in a magnetic field produced an electric current, leading to advances in electric power generation. James Maxwell combined the electric and magnetic phenomena in a set of elegant field equations. Heinrich Hertz's discovery of radio waves, a type of electromagnetic radiation, set the stage for wireless telecommunications. This great chain of discoveries and inventions was set in motion by the seafarer's compass, the tool that made it possible to voyage across Earth's inhospitable seas.

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•Pradeepa.A, Rupika.P, Santhiya.S, Arutslvi.S "Acquiring soil humidity by labview", IJSRD

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The department is elated to congratulate all the fianl year students who have put their utmost efforts in accomplishing various goals and achievements with respect to their project works. The department is extremely proud to announce that the final year students have come up with nearly 50 publications in reputed journals.

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