

PROLOGUE...

This is the pioneer forum where the flourishing engineers can put out their maiden publication. This is an unsurpassed compile for gathering quite a lot of vital information for mounting their logical and artistic thinking. Let's go on with the psyche and essence in a mode to accomplish achievements in our life.

Akin to the prior volume of our bulletin here are many fascinating thoughts for the forthcoming style in engineering pasture. As the existence exceed, we also want to have the lucid image of belongings occurring around us and the amends in the meadow of engineering. The commentaries published can revolutionize the path of engineering and scholars from the Science and Humanities and are in favour of that to happen more rapidly. This newsletter also has the seizure of assorted function and fests held in our department.

Education is the most powerful weapon which you can use to change the world.
-NELSON MANDELA

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Only a generation of readers will spawn a generation of writers.
-STEVEN SPIELBERG

FOREWORD

In catering to the diverse interests and learning needs of NECians multiple pathways and options are made available. One among those is Newsletter which aims to share information, activities & achievements of Science & Humanities department that intend to make it a regular publication that keeps you in touch with action, development and implementation. I am impressed by the progress made in the newsletter and congratulate the team who made it happen.

Director



Principal



It is my sincere pleasure to welcome you once again to the Newsletter of Science and Humanities department of National Engineering College. This arsenal is in the right spirit to guide the enterprising students. We intend to trigger the artistic quality and reading

habit among the teens of our college, so that they can make a meaningful contribution towards society's development. The articles strike propinquity in dealing with technology and unique ideas. As life has no rewinds but only flashbacks, we bring up exhilarating flashbacks of the undertakings and accomplishments of the department. I feel proud to convey my best wishes to the versatile students' crew behind this meritorious effort.

Happy Reading!!!

HOD (S&H)



The Department's steadfast commitment to excellence has manifested not only in academic pursuits but also in encouraging the students participating beyond conventional disciplinary frontiers. The various activities featured in this newsletter are a testament to our department's concerted efforts to bring out the best from our young technocrats. The students are engaged in challenging and enriching actions through their proactive participation. This valuable publication is a golden arena for the students to show their creative talents. This makes the reading interesting and worth remembering. I am glad that this will continue to flourish in coming years. Best wishes!!!

FRESHERS' DAY FUNCTION AND PRE ENGINEERING PROGRAMME

Young Engineers step forward on this day 01.08.2016 in NEC. The chief guest, Dr. Jey Veerasamy, Sr. Lecturer, The University of Texas, Dallas, USA and his crew conducted four days software training programme for the first year engineering students as a Pre-Engineering Programme. A Memorandum of Understanding(MOU) between National Engineering College, Kovilpatti and The University of Texas, Dallas, United States of America is signed on this day.



Intelligence plus character –that is the goal of true education.

-MARTIN LUTHER KING

“REACH YOUR CREST” (One Day Motivational Program for +2Students)

Reach Your Crest, a Motivation Programme for +2 students of Government Schools was conducted on 19.11.2016. The Chief Guest Mr.A.Chinna Raju, M.A., M.Ed., (District Educational Officer) gave valuable tips to crack the 12th public examination. He wanted the students to explore more books to have a wide knowledge. Reach Your Crest for the second time was organized exclusively for Management & Matriculation Schools on 07.01.2017. The Chief Guest is Mr.M.Ramakrishnan, M.A., M.Ed., M.Phil., (Chief Educational Officer, Tuticorin)



The world is a book and those who do not travel read only one page.
-AUGUSTINE OF HIPPO

STATE LEVEL QUIZ COMPETITION FOR HIGHER SECONDARY SCHOOL STUDENTS

A State Level Quiz Competition for Higher Secondary School Students was conducted on 21st October 2016 (Friday). The chief guest, the Quiz Master Dr. Sumanth C. Raman stated that quiz is meant for everyone which makes us popular and besides participation, it provides knowledge. He stated that opportunity knocks the door only once so they should make use of the available golden opportunities to gain knowledge. He also said that participating and gaining knowledge is more important than winning in a competition.



PRIZE WINNERS

S.NO	STUDENT NAME	NAME OF THE INSTITUTION	PRIZE	AMOUNT
1	Balaji.R	Sri Jeyandra Saraswathi Swamigal Golden Jubilee Matric. Hr. Sec. School, Tirunelveli	1st	Rs.25000
	Makesh rajan.S			
2	Jayakishna.J	Kendriya Vidyalaya Puducherry	2nd	Rs.15,000
	Akshay.M.V			
3	Mothys Vikram.K	T.V.S Matric Higher secondary school, Madurai	3rd	Rs.10,000
	Sibi Bose.P.S			

CONSOLATION PRIZES

The following Schools got Consolation Prize of Rs.5,000

S.NO	STUDENT NAME	NAME OF THE INSTITUTION
1	Kamesh	Sakthi vinayagar Hindu Vidhyalaya , tuticorin
	Kutralanathan.K	
2	Pavithra.P	P.S. Chidamabara Nadar Girls Higher Secondary School, Virudhunagar
	Nivashini.T	
3	Navendrasibi.H	Sundram Matric. Higher Secondary School , virudhunagar
	Vigneshraja.G	
4	Rithik Sushil.A.R	Sivakasi Jaycees Matric Higher Secondary School, Sivakasi
	Jeya Kumaran.M	
5	Nikhitha George	St. Patrick Matric Higher Secondary School Pondicherry
	Preethi.R	
6	Dhanajeyan.M.S	Pushpalata Vidya Mandhir, Tirunelveli
	Sudhir.R	
7	Akshya.P	St. Joseph of Clunny Higher Secondary School, Puducherry,
8	Vikas	Keren Matric. Higher Secondary School, Madurai,
	Abishek Raj	
9	R.K.Roshan	Kamarajar Matric Higher Secondary School, Sivakasi,
	Vinu Varshithi.R	
10	Vishal.M	Spic Nagar Higher Secondary School, Tuticorin.
	Karthik Arun.R	

In this competition, more than 200 higher secondary school students from various districts such as Chennai, Pondicherry, Trichy, Tanjore, Vellore, Pudukkottai, Dindigul, Madurai, Theni, Virudhunagar, Tuticorin, Tirunelveli, Kanyakumari participated.

AWARENESS PROGRAMME ON BUSINESS ENGLISH CERTIFICATE

The Business English Certificate (BEC) is issued from Cambridge English Language Assessment Department, Cambridge University. It is a certificate of English proficiency, conducted all over the world. It gives you the opportunity to learn practical language skills and show to employers, how good you are in these skills.

NEC is a recognized preparatory centre and approved Exam centre for BEC Exams from 2011 onwards. In 2015-16, 176 students registered for BEC exam. An awareness program about BEC exams is conducted in the auditorium by the resource person, Mr.Joshua Gnanakkan, Area Clients Manager, Cambridge English Assessment Department, Chennai on 16.09.2016.



THE CONSTITUTION DAY

The Constitution Day was celebrated in our department on 25.11.2016. Programmes like Debate, Mock Parliament and English Essay writing competition were conducted.



Live as if you are to die tomorrow. Learn as if you were to live forever
-MAHATMA GANDHI

COMMUNICATION & SOFT SKILLS TRAINING

A special training for English Communication and Soft Skills is given to all the B.E./B.Tech students for about two periods a week. They are trained on Personality Development, Professional Behaviour and Attitude, Team Management, Leadership Skills, Interview Skills, Public Speaking Skills, Organizing Information and Eloquent Speaking, Self-Discipline, Ethical decision making, Body Language, Posture, Facial Expressions, Gestures, Empathetic Communication- Exploring values and principles of Social Living. They have Group Discussions, Individual and Group Presentations, Communication Activities, Extempore Performances, Ice Breakers, Vocabulary Builders and Activities which enhance their Listening and Comprehension. Students prepare NEWS of the week and read them in the Communication class and they collect and compile Technical Vocabulary.



Aim for Success, not perfection. Never give up...
Remember that fear always lurks behind perfectionism

ARTICLES

OIL SPILL

An **oil spill** is the release of a liquid petroleum hydrocarbon into the environment, it is usually used to marine oil spill, but spills may also occur on land. Oil spills may be due to release of crude oil from tankers, offshore platforms, drilling rigs and wells.



In general, spilled oil can affect animals and plants in two ways: direct from the oil and from the response or clean-up process. Oil penetrates into the structure of the plumage of birds and the fur of mammals. Some birds exposed to petroleum also experience changes in their hormonal balance. Some studies have suggested that less than one percent of oil-soaked birds survive.



2017 ENNORE OIL SPILL

On 28th Jan, 2017 environmentalist's fear the massive oil spill after two ships collided near Chennai, will have a long-term impact on the marine life than previously believed. Mt bw

maple hit mt
dawn

kanchipuram,
an Indian ship
carrying nearly



45,000 tonnes of petroleum. Nearly 40 tonnes of oil sludge and 27 tonnes of oil and water mixture has been collected. The thick oil sludge washed ashore along 800m of shoreline north of Chennai harbour. The popular Marina beach and a 2-3 km stretch of shoreline near Thiruvalluvar have also been affected. Turtles, fish and prawns coated in oil have been found dead on the beaches.

Almost 60 fishing villages have been impacted. The official release said 'super suckers' have removed 54 tonnes which contained 70 per cent water.

Currently our government is taking every necessary step to clean the ocean and to prevent any future disaster.



"SPREAD THE
WORD...NOT THE
OIL..."

- **J.JANOFER IBRAHIMA,**
CSE.

ECG ANALYSIS USING MATHEMATICAL TRANSFORMS

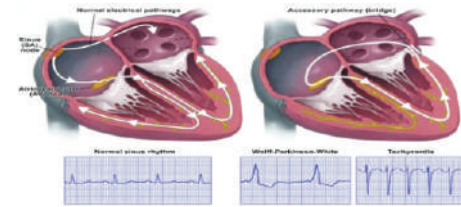
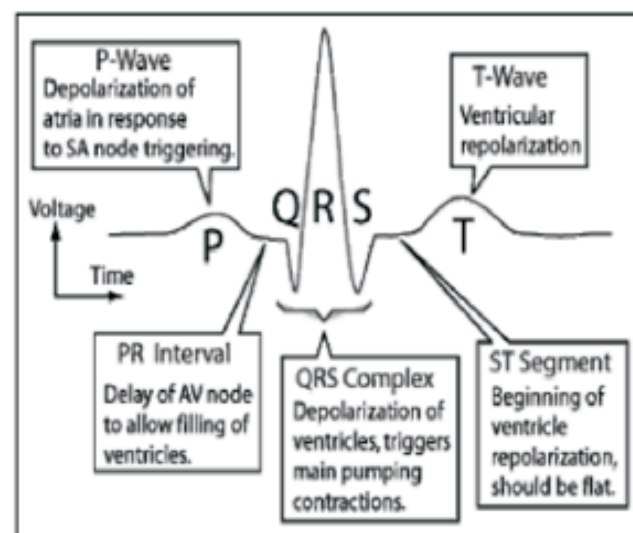
The electrical activity generated by the heart was measured for the first time by Waller in 1887. Einthoven developed a system to record this activity and got the NOBEL PRIZE in 1925. The record obtained from repolarisation and depolarization of the heart muscles is all about ECG.

ELECTROCARDIOGRAPH:

The electric activity of the heart is detected through electrodes which are positioned on chest, arms and legs. For every pair of electrodes a few milli volt difference of potential is measured, as a function of time. Twelve measures are usually taken and the ECG displays them graphically.

ECG WAVEFORM:

Each heart beat is displayed as a series of electrical waves characterized by peaks and valleys. Frequency range of an ECG signal is 0.05–100Hz. Characterized by five peaks and valleys labeled by the letters P, Q, R, S, T. P-wave is the activation of the upper chambers – atria. The QRS complex and T-wave is the excitation of the ventricles or the lower chamber of the heart.



ECG ANALYSIS USING TRANSFORMS:

A signal or a function can be better analyzed, described or processed using wavelet transform. The wavelet analysis of ECG signal is performed using MATLAB software. MATLAB - high performance; interactive system allows to solve many technical computing problems. Collection of functions built on the MATLAB technical computing environment.

WAVELET TRANSFORM IS BETTER THAN FOURIER TRANSFORM WHY????

Wavelet transform is found to be simple and more valuable. Wavelet transform based on the set of analyzing wavelets allowing the decomposition of ECG signal in a set of coefficients. Each analyzing wavelet has its own time duration, time location and frequency band. The wavelet coefficient corresponds to measurement of ECG components in time segment and frequency band.

Since the application of wavelet transformation in electro cardiology is relatively a new field of research, many methodological aspects of the wavelet technique will require further investigations in order to improve the clinical usefulness of this novel signal processing technique. Simultaneously diagnostic and prognostic significance of wavelet techniques in various fields of electro cardiology needs to be established in large clinical studies.

- **K.PREETHA
ECE**

Educating the mind without educating the heart is no education at all.
-ARISTOTLE

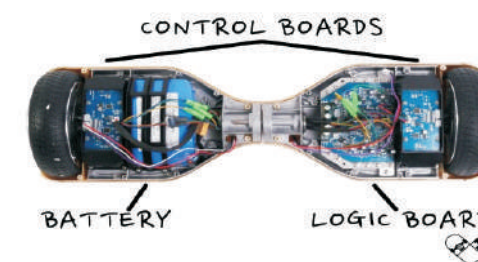
SELF BALANCING SCOOTER

A self-balancing scooter or self-balancing two-wheeled board, commonly referred to as a "hover board", is a type of portable, rechargeable battery-powered scooter. They typically consist of stands. This device is controlled by rider's feet, standing on the built-in gyroscopic, sensed pads.

Inventor of self balancing scooter

Based on the information from an article posted in Wired, it is believed that the self-balancing scooter was invented by a Chinese technology company called Chic Robotics and the device was first called "Smart S1". In fact, as of June 2015, there were already five manufacturers from China who copied the balancing scooter. The different models differ hugely in price and quality.

Here is how the inside of a high-quality self-balancing scooter should look like:



A two-wheel self balancing scooter is probably the most inexpensive type of self-balancing device at the moment. We have all conquered one of life's most precious moments; learning how to ride a bike. And now it's onto the next generation of riding... driving two-wheel self-balancing electric scooters. It is very easy to master the two-wheeled electric scooter since it only requires minimal balance in order to stay upright; they say it's easy as riding a bike.

K.SUHAACHINE- CIVIL

Education's purpose is to replace an empty mind with an open one
-MALCOLM FORBES

SMART QUILL

The prototype, called Smart Quill is claimed to be the biggest revolution in handwriting since the invention of the pen. The sleek and stylish prototype pen is different from other electronic pens on the market today. When the users have this, they don't have to write on a special pad in order to record what they write. The user could use any surface for writing such as paper, tablet, screen or even air. Smart Quill measures the movement of pen and then matches them to the movements that produce the words and letters programmed into its memory. It is a bit larger than an ordinary fountain pen. By pushing a button on the pen and writing what the user would like to enter does not necessarily need a screen. This technology has the ability to read handwriting not only on paper but on any horizontal or vertical flat surface. There is a three-line screen for reading the information stored in the pen. The users might also scroll down the screen by slightly tilting the pen. The user trains the pen to recognize particular handwriting, as long as the handwriting is consistent. Even if the handwriting is quite messy the pen can recognize it.



The notes are stored on the pen's hard disk after which it is plugged into an electronic inkwell. The text data is transmitted, for sending files electronically, into a desktop, modem, printer or any mobile or telephone. Upto ten pages can be stored on this pen. The power gets off automatically when the pen is kept idle for some time. Due to reduction in size of handheld computers, the keyboards become tiny such that we require needle like fingers to operate them. Hence, introduction of Smart Quill is the best solution for this problem.

S.V.VIJAYALAKSHMI

ECE

SUCCESS OF THE MILLENIUM!!!

GRAVITATIONAL WAVES

Everyone knows what gravity is and the person who found that, yeah it is Sir.Issac Newton. According to Newton the gravity is "**Action at a distance**". Newton's Law describes *effect* of gravity but does not explain it. After Newton, Einstein came into the scenario on **1916** he said "**Gravity is space-time curvature**". He said that Any mass/energy bends space-time near it. Now after 100 years (i.e.) On 11.02.2016 we have proved it!!!

What is Gravitational Waves?

When the curvature varies rapidly due to motion of the objects, curvature ripples are produced. These ripples of the space-time are Gravitational-waves. And these gravitational waves propagate at the speed of light.



From where do they form?

The main sources of Gravitational Waves are by the collision of

- ❖ Neutron Star with a Black hole
- ❖ Black hole with a Black hole

NATURE HAS MANY SECRETS HIDDEN, IT IS READY TO REVEAL IF WE ARE!!!

**-K.R.PRAVEEN KRISHNA
MECHANICAL**

Detection of Gravitational Waves

Since these waves are in the scale of 1/1000th of the width of a proton, the only way to detect these gravitational waves is by light. YES! The instrument used is Interferometers.

What is Interferometer?

Interferometer is an instrument in which the interference of two beams of light is employed to make precise measurements. There are two types of interferometers:-

- ❖ Ground Based Interferometers
- ❖ Space Based Interferometers

Ground Based Interferometers

The ground based interferometer which measured the gravitational waves was LIGO. LIGO stands for

L-Laser

I-Interferometer

G-Gravitational Wave

O-Observatory.

Space Based Interferometers

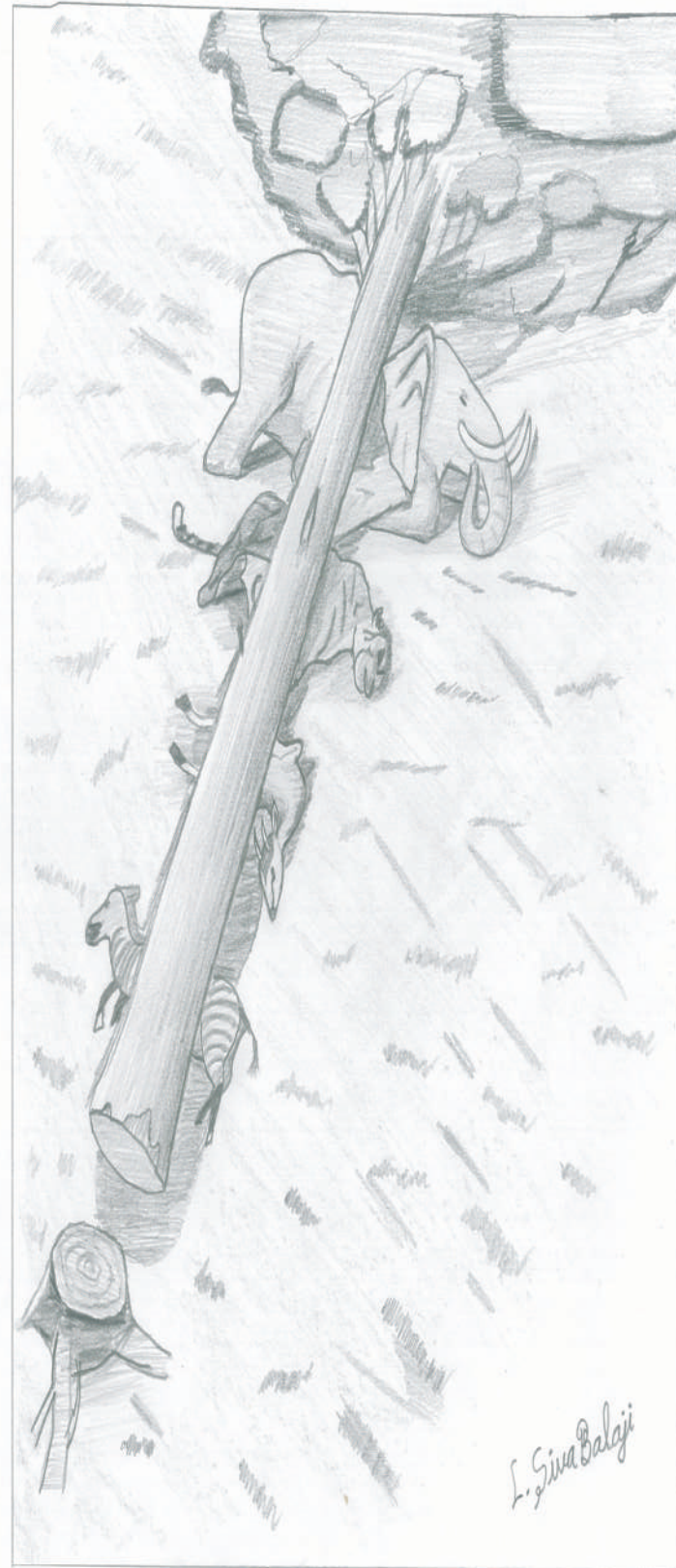
The Laser Interferometer Space Antenna (LISA), is a proposed European Space Agency mission designed to detect and accurately measure gravitational waves tiny ripples in the fabric of space-time — from astronomical sources. LISA would be the first dedicated space-based gravitational wave detector. It aims to measure gravitational waves directly by using laser interferometry.

STUDENTS' ACHIEVEMENTS:

S.No.	Name of the Student	Branch	Name of the contest	Date & Venue	Prizes
1	V.Jayavani	CSE B	Ministry of Drinking Water & Sanitaion Drawing	07.09.2016 & National Engineering, K.R.Nagar, Kovilpatti	First Prize
2	S.Meenakshi	EEE B			Second Prize
3	K.Shanmuaga Sundaram	EEE B			Third Prize
4	S.Kavitha	CSE A	Ministry of Drinking Water & Sanitaion Seminar	09.09.2016 & National Engineering, K.R.Nagar, Kovilpatti	First Prize
5	J.Joshua Raphael	ECE A			Second Prize
6	M.Dilan	MECH B			Third Prize
7	N.Manoranjani	ECE A	Ministry of Drinking Water & Sanitaion Essay Writing	12.09.2016 & National Engineering, K.R.Nagar, Kovilpatti	First Prize
8	S.Saikothai	IT			Second Prize
9	M.Venkatesh	CSE A			Third Prize
10	Group	CIVIL	Ministry of Drinking Water & Sanitaion Banner Making	14.09.2016 & National Engineering, K.R.Nagar, Kovilpatti	First Prize
11	K.Harini	CSE A			Second Prize
12	A.Mohammed Sharoon	MECH B			Third Prize
13	R.Raja Gowtham	CSE B	Archery (State Level Tournament for Engineering Colleges)	16.09.2016 & Parisutham Institute of Technology and Science, Tanjavur	First Prize
14	S.Manivannan	EIE	Young Scientist Conclave	07.12.2016 & India International Science Festival 2016, New Delhi	Attended

15	P.Periyanayaga Nathan	MECH B	“YUKTI2K17 – The National Level Management – Cultural Fest” Beat the Heat / Strataeris	03.02.2017 to 05.02.2017 & Thiagarajar School of Management, Madurai	II (Cash Prize Rs.3000/-)
16	K.R.Praveen Krishna	MECH A			III
17	K.S. Vignesh	MECH A			
18	M.Dilan	MECH B			
19	S.V.Vijayalakshmi K.Preetha	ECE B	“Convergence 2017” Paper Presentation	02.03.2017 & Sri Sairam Engineering College, Chennai	I Cash Prize (Rs.1,200/-)
20	K.Srimathi	CSE B			Cash Prize (Rs.1,200/-)
21	D.Ambujam Vigneswari R.Amirtha Varshini	EIE			II Cash Prize (Rs.900/-)
22	K.P.Siva Sankaran G.S.Amrith	MECH A			II Cash Prize (Rs.900/-)
23	R.Hari krishanan	MECH A			Attended
24	B. Pon Arvind	MECH B			Attended
25	K.S.Vigneshwar	CSE B	CISCO Networking Security Workshop	15.02.2017 & College of Engineering, Guindy	Attended
26	J. Ajay Karthick	EEE A	GYAN MITRA ’17 National Level Techno - Management Symposium	17.02.2017 to 18.02.2017 & Mepco Schlenk Engineering College, Sivakasi	Attended
27	R. Arun Gomathi i				
28	G.Santhiya	ECE B	GYAN MITRA ’17 National Level Techno – Management Symposium	17.02.2017 to 18.02.2017 & Mepco Schlenk Engineering College, Sivakasi	Attended
29	A. Monisha				
30	S.S.Shruthi				
31	P.Periyanayaga Nathan	MECH A	INTECHO’ 17 – A National Level Technical Symposium	04.03.2017 & 05.03.2017 and Madras Institute of Technology, Anna University, Chennai	Attended
32	K.R.Praveen Krishna				Attended
33	Aravind Prabaharan	MECH B			Attended
34	B.Anand Kumar				Attended
35	M.M.Ajeeth				Attended

PHOTOGRAPHY



- L.SIVA BALAJI
EEE



- DHIVAKARAN
EIE

SPORTS

Mr.R.Raja Gowtham CSE has won the Bronze medal in the 1st Tamilnadu State Youth cup Indoor Archery Championship-2016 conducted by Indoor Archery Association of Tamilnadu on 17th September 2016 in Salem.



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