NATIONAL ENGINEERING COLLEGE

(An Autonomous Institution Affiliated to Anna University , Chennai)

K.R.Nagar, Kovilpatti-628 503.

Department of

SCIENCE & HUMANITIES

Volume -1 Issue -2

NewsLetter

April-2016

PREFACE

We might have gone through many magazines but "NEWSLETTER" is a very new way of expressing the thoughts of young budding engineers, which was well expressed in the previous volume. This is an exceptional area where many people could get some interesting things for developing their intellectuality and creative thinking, Let's keep our mind and soul in such a way so that we can attain success everywhere.

Like the previous volume of our newsletter here are many interesting articles and Innovating ideas for the upcoming trends in engineering field. As the years pass on we should also have a clear picture of things happening around us and the changes in the field of engineering. The articles which have been published can change the course of engineering, and students from Science and Humanities are in favour of that to happen sooner and this newsletter also has the annexation of the various functions and fests held in our department

CONTENTS

PROGRAMMES HELD

Maths club"CONNECTIONS":

The power of 'Lateral Thinking' could be promoted by "Connections". By thinking laterally and connecting the images and clues the quiz question is cracked.

Academics is a part which is a mixture of different methods of learning, one of which is the connections which was held by the maths club students for enthralling the students under the guidance of Mrs.Sasi Rekha(AP S&H). It was an interesting event and it was conducted in 3 rounds and students are selected for the finals which will be held shortly.

School Mentoring Programme:

New initiative by our first year students:

1.to help the school students in improving their skills
2.to stimulate their interest in scientific activities
3.to develop and nurture them

This mentoring session was designed with the ideals of "Discovery rather than invention" and "Outcome rather than process". The students from Science Club have mentored the Ravilla K.R.Appaswamy Naidu Vidhyashram Matric Higher Secondary School, New Town, Kovillpatti. The following students attended the program as mentors:

- A.AJITHKUMAR, First year MECH
- P.ASHWIN SIVAGURUNATHAN, First year MECH
- R.ANUSHRI, First Year CIVIL
- E.FELICET GRATION ,First year MECH
- R. PARTHIPAN, I Year ECE.
- V.PADHMAPRIYA, First year IT
- P.SUSHMITHA, First Year CIVIL

Group Discussion by EIE & EEE students :

On regarding "Environment Science and Engineering", we covered the syllabus of unit-3 by conducting the group discussion among the students in order to have a wide knowledge about the concept. On each Environmental Science class we had group discussions. The syllabus was split into 8 topics and students were divided into groups with 8 to 10 members in each group. Students of EIE and EEE actively participated under the guidance of Ms.V.Latha Asso.Prof.,S&H. The Group discussion was assessed by Mr.J.ThambaAP(S&H), Ms.Sundarakamalam Soft Skill Trainer and Ms.T.Rathi Munisri AP(S&H) department. The faculties asked some interesting questions to the students to stimulate their knowledge and gave their valuable feedback. The students enthusiastically participated and developed communications skills along with the opportunity given to increase their scientific knowledge. Thus the whole group discussion was organized in a proper manner and gave a joyful learning experience

Eco club:

Eco club creates environmental awareness among future generation. The first year students of Electronics and Instrumentation Engineering have taken the effort of making our campus green; to create awareness among students to make the earth green they have selected an area, 3×3sq.m of land. The formal beginning was initiated by our HOD Dr.M.A.Neelakantan (HOD S&H) and under the support of Mrs.V.LathaAso.Prof.(S&H), Dr.S.ThalamuthuAP(S&H), Mr.S.Chitirai Kumar AP(S&H). After removing all the weeds, seeds were sown on the soil on 23..3.16, sprouts came out very soon and the plants started to raise high within a week. Day by day the number of visitors increased. Within a short period we have converted the 3feet land into a mini rain water harvesting unit. Many different types of plants were planted in the land. Thus the students have dedicated themselves towards "Mother Earth" and have created awareness among the hearts of the budding engineers.

NECFY-UTSAV '16 (One day cultural programme):

Culture means arts, customs, lifestyles, background, and habits that characterize a particular society or nation; a day for cultural activity can enlighten the students to actively participate in many events and be happier besides the academics. We have conducted an one day programme for cultural events named as Nec-Fy-Utsav'16,on 17thMarch,we had many competitions like dancing, skit, mime, connections, Dub-smash, face painting, and many more. Convener of the culturals was Mrs. Rajeswari (AP S&H). The programme was initiated by Our Director DR.Kn.K.S.KChockalingam, Our Principal Dr.S.Shanmugavel and our HOD (S&H) Dr.M.A.Neelakantan; who has been a great support for the students at all times. Many students won prizes and the prizes were distributed in the evening with the presence of our HOD and Dr.K.G.Srinivasagan, Dean of Placement Cell.

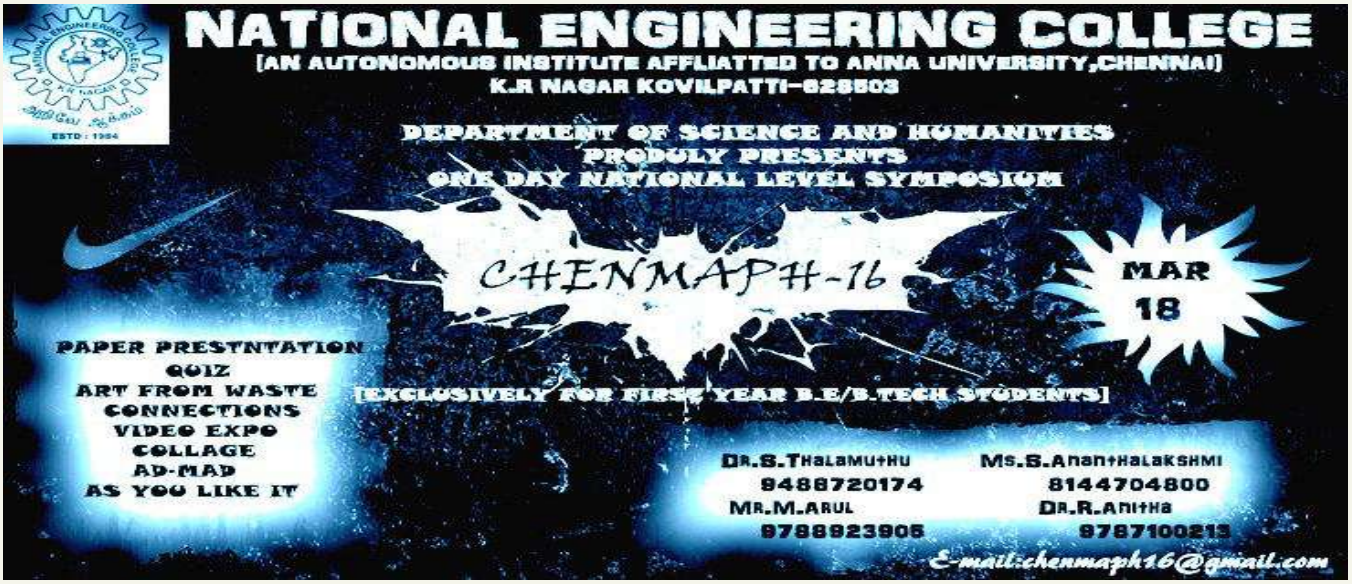
CHENMAPH (One day state level symposium):

One of the mega event for the first years is "CHENMAPH"- One day state level symposium which was held in our college at 18th March in a grand manner. Students from more than 20 colleges participated in the competitions that was conducted enthusiastically by our I-year students and staff members. The Chief Guest was Mr.V.Manikanda Prabhu , an alumni of our college, accompanied by our Director DR.Kn.K.S.K.Chockalingam, Principal of our college Dr.S.Shanmugavel and in the presence of the conveners of CHENMAPH Mr.Thalaimuthu (S&H) and Mrs.Anitha the inauguration ceremony was held, Around 200 students from various colleges in and around Kovilpatti participated. The events are:

1.Paper presentation
2.Video expo
3.As you like it
4.Science model
5.Quiz
6.Ad mad
Apps developing

The programme got modest as many participants actively participated and the prizes were distributed by the dignitaries in the evening during the valediction, St.Francis Xavior College of Engineering got the overall championship.

POSTER'S PRESENTED BY THE STUDENTS:

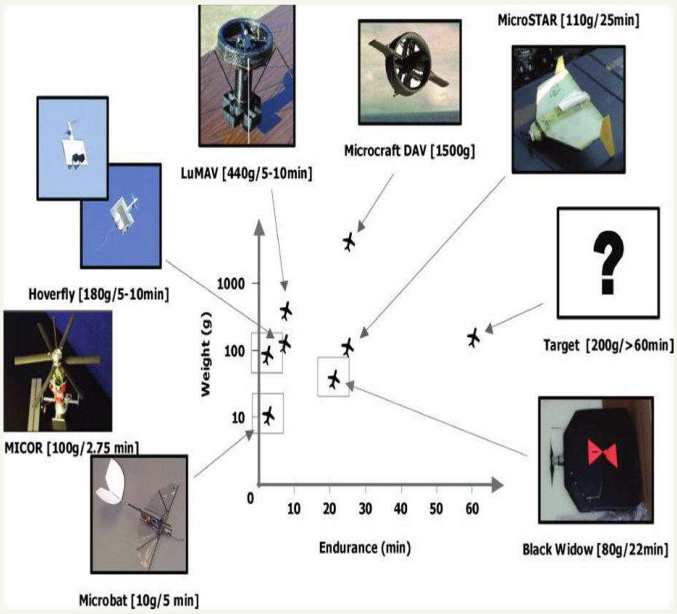


ARTICLES BY STUDENTS :

FLYING ROBOTIC SECRET AGENTS

After the great invention by the Wright brothers there was a gradual development in the area of aerospace technology. Now it has reached to the level of Miniature vehicles or Micro Air Vehicles (MAV).MAV are considered to be the intelligent robots of the sky, autonomously guided with on board navigational system. They have small length dimensions and less weight. So that MAV can fly to the maximum height with a maximum speed. For this purpose they should not be made by metals instead polymers and composites are used. MAVs could be used in the war fields to monitor the opponent

This is the major application of MAV in military field. MAV operates in the principle of **SENSITIVE REYNOLDS NUMBER REGIME.**As a new class of vehicle it faces many unique challenges that makes the construction of MAV difficult. Engineers and researchers are trying a lot to develop better micro vehicles. These are the different micro air vehicles their weight and speed.



IMPOSSIBLE MATERIAL

There is lot of inventions that helped for human development, most of the inventions are mainly because of the sincere efforts of great scientists, but there are also times when scientists keep on trying for a particular idea and end up in an entirely different result i.e., Accidental invention, for example, Wilhelm Roentgen in 1895 was trying out something on discharge through cathode rays and accidently found out X-rays, similarly the impossible material was accidentally found, that is believed to be impossible for more than 100 years. The impossible material is discussed in detail below.

The researchers at Uppsala University while making efforts to synthesize Calcium carbonate, accidentally ended up with anhydrous magnesium carbonate. This is called impossible material and is named after Uppsala University as Upsalite**.** It is a nontoxic anhydrous form of magnesium carbonate. With a surface area of 800 m^2 per gram, Upsalite is reported to have the highest surface area measured for an alkali earth metal carbonate ever created. It is found to absorb more water at low relative humidity's better than the best materials previously available the hygroscopic zeolites. Further, salite can release that water at lower temperatures than zeolites, requiring less energy. Each nanopore is less than 10 nanometres in diameter which results in one gram of the material having a whopping 26 trillion nano pore. "If a material has many small pores," it gives the material a very large surface area per gram,which gives the material many reaction sites.

Applications:

Upsalite's moisture absorption properties are excellent. It was found to absorb 20 times more moisture than fumed silica, a material used for cat box fillers. It's absorption properties made it to be used in the following applications:

Used as an anti-caking agent, in moisture control during the transport of moisture sensitive goods.

SUBHIKSHA.R (ECE)

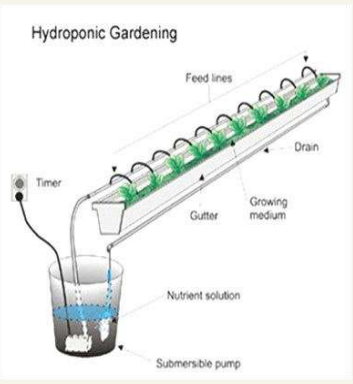
This means that you'd need 20 times less material to do the moisture control job. Its unique pore structure also opens up new applications in drug delivery. The pores can host drugs that need protection from the environment before being delivered to the human body.

MANIKANDAN.K(MECH)

TECH HYDROPONICS

Environmental exploitations serves to be the greatest alarm to humans at present. Many necessary steps are taken to create a better future to the upcoming generations. The very near impact to humans will be by water and its sources.Humans and other beings are in a great need of water; be it agriculture or domestic use, water is of prime importance. Looking up at agriculture,it requires both water and soil. Foreseeing the requirements of soil for growing population, It is clearly evident that most of the land will definitely be occupied by factories, sectors and houses. Agriculture in future is to rely only on nutrients and water. Hydroponics would be a better solution to the future. Hydroponics is nothing but, a subset of hydroculture and is a method of growing plants using mineral solution, without soil and with very little water.

Although this technique dates back to 1600s, it is considered that, this system can also help to



grow plants in space,leading to possibilities of human survival in space for a longer time**.** This artificial growth of plants is monitored by using newer technological advancements

It provides accurate necessities to grow a good, nutritious plant. Internet of Things (IOT) is used up here.

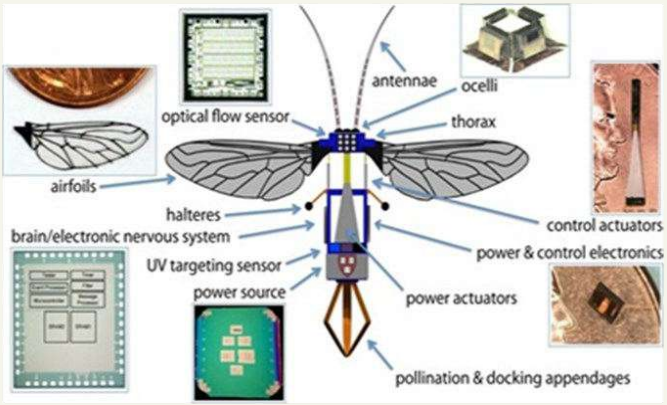
SUBHAWINYA.D (IT)

ROBOT BEES

Instrumentation eyes in laser beams, eyes in robot could be of greater use. Laser eyes could help people could control the smart phones, tablets laptop any wearable technology using only gesture. Bee-Size flying robots are under research .It spreads its usage in all fields from pollinating crops to locate disaster victim Capricorns Previous research.

LIMITATIONS DETECTED**:**

Robot bees are capable of flying while tethered and moving submerged in water. This machines lack depth perception .Robots have tough time avoiding flying into walls or landing on flower to overcome the problem out lit the robot bees with a laser based version of radar (Lidar) was designed, “Lidar” is basically exploiting the 'echo' of a light pulse," Lidar —short for light, detecting and ranging. It emits invisible laser pulses instead of the radio waves used in radar.



Imagine the echo of a light pulse that leaves a sensor, which bounce off at an object and returns to it’s really state. Peering this quickly, but without complex circuit and inside a small form factor is one of the main challenges. The micro lidar device will weigh about two thousands of and once (56

KAMESH.J(EIE)

INDIAN ARCHITECTURE:

"Whatever good things we build end up building us"

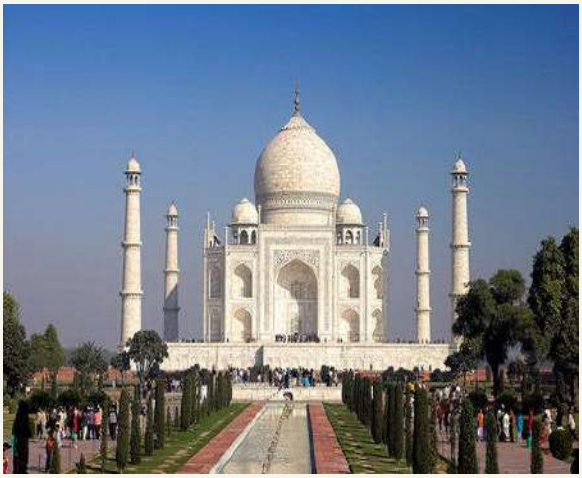
The rising of sun is an inexorable fact, like that it is also an infamous note – 'How the Indian Architecture rooted its history, culture, religion and marvellous engineering around the world'. Undoubtedly, India's one of the most durable achievement is ARCHITECTURE. It symbolises diversity of our Indian culture and encompasses varied ancient and native traditions

The vast and unique art work that was sculptured in every single piece of stone, minute like an atom stands for ancestral respect and passion towards architecture. Talents of sculptures engineers, architectures, painters and so forth stretching from the north to the south in conjunction with the east and the west make the Hindustan - A LEGENDARY

The focal point of our ancient architecture is the usage of skills, hard labour, and logical thinking rather than technology and software that we use today.

The great Indus valley civilization flourishing around the Indus river basin, is just like the heart of structural design and planning. The civilization is noted for its cities built of brick, roadside drainage system, and multi-storeyed houses, the baths and toilets system is acknowledged as one of the most advanced in the ancient world. It gradually extends to Hindu Temple architecture - the temple complex of Khajuraho adhering to the Sikhara temple style architecture, ornate lintel over Mantapa entrance at Belur temple stands as a model for middle age architecture. Grandeur of construction, beautiful sculptures, delicate carvings, high domes, gopuras and extensive courtyards were the features of Temple architecture in India. These can be clearly visualised in the Lingaraj Temple at Bhubaneswar in Odisha, Sun Temple at Konark, Brahadeeswarar Temple at Thanjavur in Tamil Nadu.During Mughal period, the palaces rose expressing the true beauty of colourful knack. Among the architectural achievements of this epoch- "TAJ -MAHAL" ,

Built as a tomb for queen Mumtaz Mahal by Shah Jahan, has shown a noteworthy coalesce of Indian style united with the Islamic and Persian styles."Pearls in the necklace of castles of India"depicts the flabbergasted gorgeousness of Gwalior fort.



Rock - cut architecture and cave paintings of Ajanta and Ellora about 10 centuries old elaborates Hindu, Buddhist and Jain faith. It brings out the purity and music of vision that embraces the prettiness of nature.

Architecture is an eternal life. With the introduction of Modern Architecture into India and later with Independence, the hunt was more with modern technologies that led to unbeatable India gate, Qutubminar, city of Chandigarh and so on.

Our Indian architecture is based on three legged stool;climate,technology,cultural,UNESCO has listed 830 world heritage sites, out of wish 26 are in India.So it is a truth to be told that our Indian architecture is a time capsule to demonstrate "the legacy of India".

"Architecture starts when you carefully put two bricks together..There is begins.

– Ludwig Mies van der Rohe.....

We civil engineers, make India proud by our sky scrapers.

GOWRI.C(CIVIL)

BIO BATTERIES

By the past years we have heard about Daniel cell, voltaic cell, and it's step by step development into batteries. Generally a battery is a direct current source. We know about the applications of battery in our day to day life.

We know about the applications of battery in our day to day life. In the field of Electric and Electronics, there are innumerable studies and research about the power sources are being done, in one of the research they have developed a type of battery called as "Bio battery". Let us discuss about some of the important facts about the Bio battery

Generally, when (C6h12O6) glucose solution is poured into white cubes, the Walkman (speaker) begins to play. Bio battery is basically based upon the mechanism of living organisms and carbohydrates (glucose).Generally when glucose is broken down to release energy .Itgenerates electricity. One of the drawbacks is it's not an eco-friendly battery but has a great potential for using as an energy source.

The Bio battery's power output is up to 50mW*2, by connecting four Bio batteries in series we can operate speakers for hearing music. The Bio battery in mainly made upon organic plastics (polylactate), is designed to be reminiscent of a living cell.

WORKING:

The working principle is recycling of carbohydrates (CO2) by this type of recycling CO2; the level of CO2in the atmosphere will not be increased. We can acquire electrical energy direct from this process or energy can be obtained from exchange of electrons and protons

through two enzymatic reactions.

That is, when electrons and protons move from enzyme to enzyme, it essential to extract electricity.

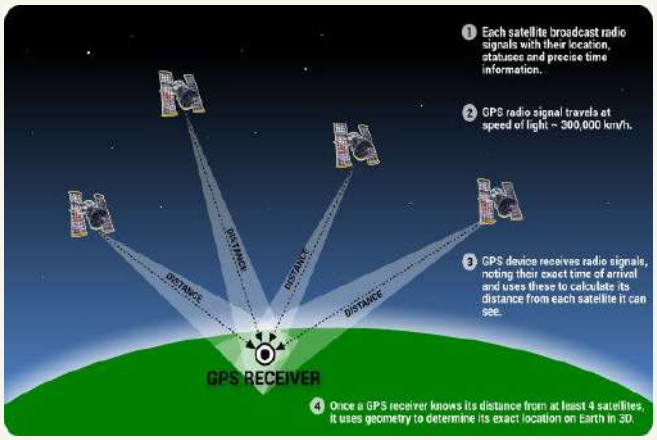
JOTHI BASU.M(EEE)

FUTURE TRENDS OF GPS:

GPS or Global Positioning System is a network of orbiting satellites that send details of object's position. The signals are obtained by GPS receivers, such navigation devices are used to calculate the exact position, speed and time at the object's location. GPS was first founded by USA for military and intelligence applications.

Working of GPS:

Out of 2271 satellites around 24 to 32 solar satellites are used for GPS calculation. Each of the satellite in the orbit allows a receiver to detect at least four of the operational satellites. These satellites send microwave signals to the receiver where the computer uses these signals to calculate our distance from each of these four satellites. Signals from three of the satellites are used to carry out trilateration process which is used to calculate our position on earth based on our distance from the three satellites. The signal from the fourth satellite is used to confirm the results given by the other three satellites.



Application of GPS:

The application of the Global Positioning System fall into five categories: location, navigation, timing, mapping, and tracking.

Most of the applications use a combination of the following categories:

1.precision farming
2.open-pit mining
3.oil exploration
4.airport and harbor approaches
5.animal migration and population studies
6.vehicle tracking
7.Construction - tunnels, golf courses, roads, etc.
8.Emergency services - the closest ambulance or fire truck is sent to an emergency, thereby saving time.
9.Atmospheric studies - ozone layer, air quality, etc.

SANKARANARAYANAN.S
PRAKASH.J
SOORIYA.M (CSE)

NECESSITY OF SOFT SKILLS:

Soft skills are the real asset of an individual, which at times severs to be visiting card for a professional. But these skills are not alien to us, it has really been blend in the blood and soul of our ancestors in their social lives now it has been launched with a new label .Acknowledging this fact and cultivating these metrics in one's skill set will lay path to achieve excellence in their personality traits.

Apart from educational inputs it's highly essential to concentrate and feed the passion of soft skills in an engineer. Grooming and upgrading one's skill set seems to be an oar for a person to sail his boat in the sea of success. Exhibiting positive attitude in all walks of life extracts "the most preferred behavior "from us.

S & H NEWSLETTER

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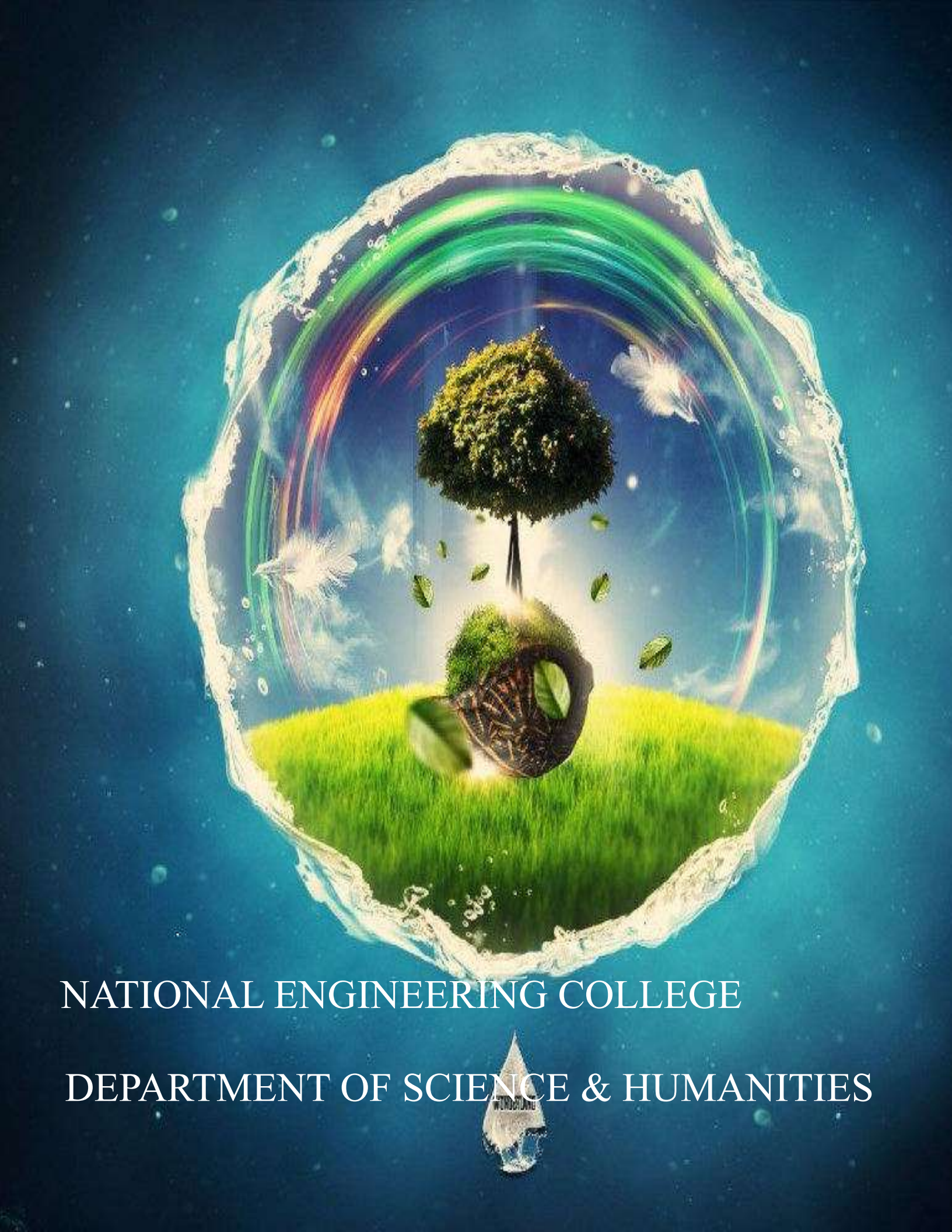

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