

PRODIGY-19 ANNUAL MAGAZINE

2019

PRODUCTION ENGINEERING ASSOCIATION



INNOVATIVE PROJECTS

PHOTOGRAPHY

POETRY

ACHIEVEMENTS

SKETCH

PROJECTS

PAPERS



EDITOR'S NOTE:

Greetings from the Editorial Board. It is a great pleasure to release the magazine "PRODIGY" on PRACTICE'19. Production Engineering Association had put a lot of efforts to expose the student's work through this magazine. This magazine includes technical articles, bi-lingual literary works, microtales, sketches and Photographs, that are exclusively the work done by the students of Production Engineering. It is hoped that the magazine will be continued to issue in the upcoming years also, with a lot of unique works from the students.

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Message from the Principal:



I am intensely contended about the continuing effort put forth by the students and faculties of Production Engineering Association in organizing the technical symposium the **PRAXIS'19**. I am also jubilant that the students and the faculties are involved completely in organizing workshops and technical symposiums throughout the academic year. I congratulate the Production Engineering Association for taking initiative to release the magazine "**PRODIGY**", that exposes student's talents as a part of **PRAXIS'19**.

Dr. P THAMARAI, PhD.,

Message from Head Of the Department:



It is heartening to note that the Production Engineering Association is organising PRAXIS 2019, a national level technical symposium on 1.4.2019 to showcase the skills and best attitude of students of GCT Production Engineering. TOP management of the institution is undertaking many initiatives to make the environment conducive and for student centric learning. I hope that the PRAXIS will witness enthaustic participation of the students from across the state. Best wishes for the sucesful organisation of the event as well for the souve-neir planned on this occasion.

Dr. T. ALWARSAMY

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AEROPONICS



Aeroponics is the developing trends in the agricultural field by growing plants without any medium like soil. Similar techniques have been implemented by using water as a medium in hydroponics culture. But aeroponics differ from hydroponics by spraying water instead of soaking the roots in it. The roots of the plants will be suspended from top of the containers especially made for aeroponics. The roots do not make any contact with the lateral sides as well as bottom of the containers. The shoot system of the plant grows above the top surface of the boxes.

The nutrients for the plants are given to the root system by nutrient mixed water from sprayer nozzles placed at the bottom of the container. The nutrients are sprayed at uniform time intervals by using hydraulic circuits. Proper hydraulic circuits with filters, pumps, pressure switches and valves were designed and implemented along with timer connections to spray nutrients at regular intervals.

The containers need to be given a water spray of 1LPM. They also had to be maintained at temperatures below 20 degree Celsius for growing potato tubers. This is achieved by spraying water. Different setups have been tried for spraying water and maintaining the temperatures below 20 degrees.

The temperature within the greenhouse tend to increase the temperature of the aeroponic containers. It can increase the temperature of the water flowing within the containers. It has been taken into account and attempts were made to maintain low temperature ranges. The other requirements like sunlight and ventilation are provided naturally within the greenhouses. The techniques and methods for reducing the temperature have been discussed briefly.

1.1 Aeroponics vs hydroponics:

Hydroponics is a method of growing plants without the soil medium, by using mineral, nutrient solutions in water solvents. The roots will remain soaked in the nutrient rich solutions. Sometimes the roots of the plants are grown in an inert medium like perlite or gravel. Hydroponics is also regarded as 'solution culture' having no inert medium. The hydroponics system will have two variations namely sub-irrigation and top irrigation. The reservoirs for these are built by plastics, glass, concrete, vegetable solids and are made to be free from algal and fungal growth. Static solution culture will have nutrient solutions in containers. The solutions may be aerated or non-aerated. In case of non-aerated, solution levels are kept low so as the roots to get adequate oxygen.

Continuous flow solution culture will have constant flow of solutions to the roots. This have the advantage over static culture of adjusting the temperature and nutrient concentration done on a large storage tank and circulating it.

Aeroponics was proposed as an alternate to hydroponics in 1983 by Richard Stoner. The limitation from hydroponics is that it can hold only 8mg of oxygen per liter of water though it is aerated. Aeroponics can provide more oxygen than the former. Another advantage of aeroponics is that any plant species can be grown in aeroponic environment. In 1982, patent for aeroponic apparatus using low pressure compressed air to deliver nutrient solution to suspended plants.

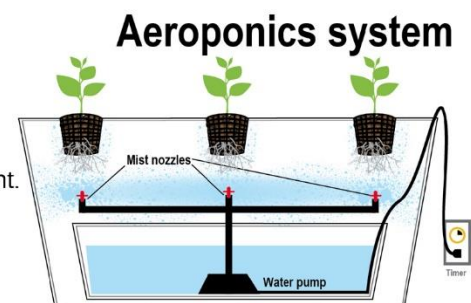
The basic principle of aeroponics is growing plants in a closed environment by spraying nutrient rich water on the suspended roots and lower stem of the plant. Ideally the environment is made free from pests and diseases so that the plants grow healthier than those grown in medium. Owing to the sensitivity of root system, aeroponics is often combined with hydroponics as an emergency in case aeroponics fails.

Aeroponic equipment make use of sprayers, nozzles, misters, foggers etc. to create fine mist of nutrient solution. It is a closed loop system. The water droplet size is the key for root development in aeroponics. The aeroponic culture will allow the roots to spend 99.98% of their time in air and 0.02% in atomized nutrient solution. So the plants capture oxygen more effectively. The reduced throughput of nutrients will result in the minimum requirement of nutrients for growing plants.

A variety of nutrient solution can be provided to root zone without the need of flushing out any previous solution as done in hydroponics. The interval and duration of nutrient spray can be easily altered for different plant species as per their requirement. It also allows the ease of working with plants and also easy harvesting. Also any infected plant can be easily removed and the chance of spreading infections is very minimum.

1.2 Advantages of aeroponics:

- 80% increase in dry weight biomass than hydroponically grown plants.
- 65% less water usage and one fourth nutrient input than hydroponics.
- Can be cultured in zero gravity as mist is easier to handle in zero gravity environment.
- Plentiful supply of oxygen to plant.
- Decreased transmission of diseases due to minimal plant-to-plant contact.
- An effective research tool for plant study.



2. DESCRIPTION:

The aeroponic containers have been already built up by the research scholars who were in the polyhouses. The containers were built with specific materials and dimensions. The description of the containers is cited below followed by the hydraulic circuits design and implementation.

2.1 The containers:

The environment required for the aeroponic culture had been built with rectangular boxes of standard size (1.5m x 1m x 1m). A sum of eight boxes of same dimensions were constructed and kept before the attempts were made to observe the effects of different methods of cooling. The containers were made of aluminum frames on the sides and wrapped up with plastics. The top surface of the container was covered with neoprene sheets to act as thermal insulator as well as air tight cover. The base of the box was made of sheet metal and are bolted with the aluminum frame. An outlet hole was provided at one of the ends of the base plate. Couple of doors on either sides of the box were there so as to observe the things within the box as well as to assist the operations in pipelines within the boxes.

Two layers of plastic sheets with cuts, were placed inner to the walls of the boxes. They had been placed in a manner where the uncut portion of outer sheet will cover the cut portion of the inner sheet. They are provided so as to keep the boxes air-tight and to guide condensed droplets of water to the base plate. The top neoprene sheets had holes at equal distances to place the plant. A total of 72 holes were there on the neoprene sheet. All the joints are checked and made sure that they are airtight and leak-proof. The nozzles for spraying nutrient mixed water are placed inside the box slightly above the bottom surface. A sum of 12 nozzles per box have been used. The nozzles are placed on the PVC pipes. The PVC pipes receive supply from a hydraulic circuit.

2.2 Hydraulic circuit:

Hydraulic circuit is a connection made between certain hydraulic equipment to provide hydraulic output (here nutrient mixed water). There will be tank or reservoir filled with water where nutrients can be mixed. The tank will be connected to a filter to remove dust particles and a pump to deliver water at high pressures. An accumulator (diaphragm type) is used as an auxiliary source in case water drains out in tank or the pump fails. The pressure of the system can be adjusted by a pressure regulator fixed along with the accumulator. A pressure reducing valve is connected to the outlet from the accumulator.

The pressure reducing valve is used to reduce the working pressure of the water if it increases, by directing it to the sump. From the valve, a unidirectional solenoid controlled valve is connected by a pipeline. The function of the solenoid controlled valve is to allow the water through it only when an electric signal is given. Since the aeroponics requires the nutrients to be sprayed at predetermined intervals and durations, solenoid valves are used. The electric pulse for activating and deactivating the solenoids is given by a timer. The output from the solenoid valve is given to the pipe network with nozzle within the containers.

The connections between pump, accumulator, valves and PVC network are given by hydraulic pipes of 16mm diameter. The interconnections are made with help of 16-½ connectors, 16-16 T joints and elbows. Also 12-½ and 16-12 connectors also used in some areas. To make the connections and joints leak proof, Teflon tapes are wound on the threads of the connectors and then fastened. The water droplets will get collected on the base plate and are directed to a sump by the outlet port of the baseplate. The outlet water may or may not be recycled and directed to the nutrient water reservoir.

Experiment 1: (with normal water)

The first attempt is made on the first two of the eight boxes. The first box is made as dry box to know the ambient temperature within the containers. The water from the reservoir is given to the hydraulic circuit and the timer connections have been given to the solenoid valve. The pump continuously pumps the water and provides output. Since the solenoid valve is operated over intervals, the continuous running may damage the pump. Thus, a timer connection is also given to the pump.

Experiment 2: (with cold water)

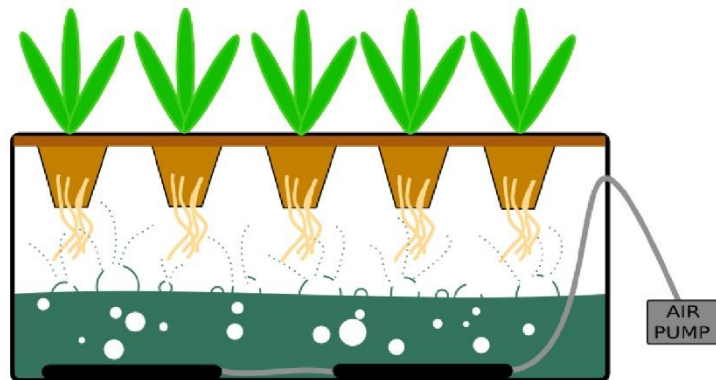
The second attempt to reduce the inner temperature of the boxes is made with the help of a water cooler. The tank is replaced by a water cooler in the hydraulic circuit. The boxes 3, 4 and 5 are tried with water cooler connections. The circuit connections given are similar to the previous containers. The inlet water to the pump from cooler is kept at the temperature of 12.41 degree Celsius. Similar timer connections have been given and the temperature of the boxes have been monitored.

Experiment 3: (insulating the pipelines with refrigeration pipes)

The box 4 is opted for next attempt. The pipelines for the box 4 is insulated by refrigeration pipes to prevent the heating up of cold water from cooler by radiation. The other setups are made similar to the earlier attempts and the temperature of the box is monitored. Thermocouples are placed at different positions to measure temperatures at that position.

Experiment 4:

The experiment is carried out by providing additional spraying of water from the inner top of the container. A pipeline with holes is placed on the inner side of the top surface. A thermocouple is placed near that to measure the temperature of it. An addition to the early setup, a booster pump is connected to the newly installed pipeline. The pump draws water from the cooler and directs it to the pipeline. The booster pump is also given a timer control, so that it is also operated over cycles with intervals. The booster pumps are given a ON time of 55seconds and OFF time of 5 seconds per cycle. The resulting temperatures are monitored by the sensors and recorded.



CONCLUSION

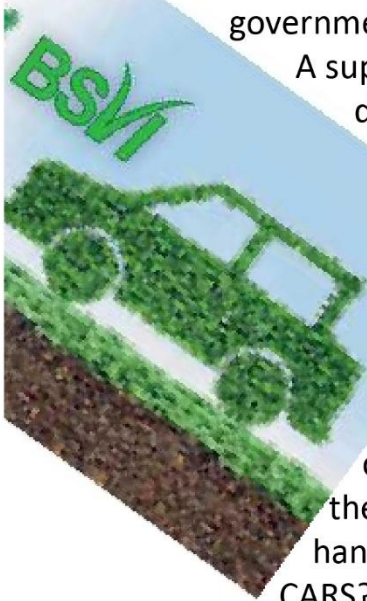
The required conditions for producing potato tubers through aeroponics have been created. The temperature within the boxes were maintained at required temperature range and the nutrients can be mixed with the water in the cooler and then sprayed through the nozzles. The discharge of 1.44LPM from the nozzles also satisfied the required discharge of 1LPM. The best way to maintain at low temperatures is to provide cold water with all the pipelines being insulated, along with cold water spraying from top to bottom. The early attempts were made with spraying time of 20 seconds per cycle. To optimize the flow rate and to remove the heat within the containers, the spraying time is extended to 45 seconds. The water droplets have the property of absorbing more heat when their size is reduced. Thus the water sprayed through nozzles removed heat quite efficiently. The plants were transplanted to the boxes and their growth is observed and recorded continuously through video cameras.

KIRAN KUMAR S
FINAL YEAR PRODUCTION

EMISSION A MISSION

What is BS VI?

Bharath stage VI is a vehicle emission standards that is mandated by the government to be followed from April 1, 2020. This emission standard is implemented to Reduce the alarming rise in the air pollution due to the huge emission of gasses such as NOX, COX, HC, S, Particulate matter. Eventhough the BS IV standard is being followed since 2017, a sudden decision is to be enacted due to the drastic rise in the particulate mater in NCR. High range of pollution is mqrked in 2017 at a ranfe of 6.28 kg/m³. The maximum permissible amount of PM in air is 2kg/m³, which is safer for breathing. Due the high pollution rate in NCR, a huge p[opulation suffered from various respiratory diseases. In this regard, a verdict was passed in 2017 to leap frog from BS IV to BS VI. This leap frog is for the two reasons, one to upgrade to the level emission control that is being followed by other nations and the other reason is for the rising pollution across our nation. The main constraint that is taken into account to reduce the PM is by measuring it by particle numbers and not by mass. The main fact will have a higher price than usual, since more advanced technologies are used. Since a high pollution is recorded in NCR, the government planned and enacted the availability of BS VI fuel from April 1, 2018.



A supreme court verdict depicts that the BS VI fuel will be available on some districts of Agra from April 1, 2019. It also stated that the fuel may be available in the remaining metropolitan cities out of the 13 metropolitan cities which includes the NCR, Kolkata, Bangalore, Chennai, Mumbai, Agra, Pune, Ahamedabad, Hyderabad, Surat, Visakhapatnam, Cochin, Jaipur. The fact is the BS VI cars will be sold on a full swing after the BS VI fuel is available throughout India. But there aroused a single question whether BS VI fuel is compatible on BS IV cars? The answer to this is that the BS IV cars are capable of running on BS IV fuel because the combustion is more, but the efficiency and the performance of the car is reduced. On the other hand, you will have a question whether the BS IV fuel is compatible on BS VI CARS? This would obviously be a blunder question because the OBD of the BS VI vehicles' ECM will be programmed to monitor the emission and control it only for the BS VI fuel. So when even a small contamination of the BS VI fuel with BS IV fuel may cause the pop up of the warning signals on the cluster and causes the engine to cease .

The BS VI cars will also include include the regulation MY'19. This regulation is mainly focused on safety. The safety factors comprises of air bags for both front and rear passengers, seat belt sensor and hood sensor. The vehicle will crank only after the seat belt sensor and hood sensor sends the feedback signal regarding whether all the passengers had tightend the seat belt and the hood is locked perfectly, respectively. The other main safty factor is the installation of ABS on all cars. This safety regulation will be available omn all cars that is brought after April 1, 2019. BS IV cars have only two oxygen sensors one at the exhaust manifold and the other after the catalytic convertor. But the BS VI vehicles will have an additional sensor at the exhaust pipe which can sense all the gases.

BS VI emission standards is equivalent to the euro VI standards in the vehicle level. But when it is considered on the fuel level up-gradation BS VI Diesel is equivalent to EURO VI standards and BS petrol is equivalent to Euro V standards. The major reduction is the sulphur from 50 ppm to 10 ppm in diesel(low sulphur diesel). The emission standards differs for bikes and lightduty vehicle and heavy duty vehicles.

Most of the vehicles in India are diesel vehicles, so the major emission control is done on the Diesel. The diesel vehicles emit the major gases like Sulphur, COX and Particulate matter. All these are reduced by 59% in the BS VI standards. When you consider on the petrol part, the petrol vehicles emit NOX and HC, COX on a greater amount. This is reduced by 40% on this emission standards.

This leap frog put a very great pressure on the Oil Companies and Automotive manufacturer. They have to make a lot of variations. This up-gradation in the automobiles included a great deal of change under the bonnet. Additional devices like Exhaust Gas Recirculation device, Selective catalytic reduction technique and Catalytic converter with fine tuning for emission is included in the common under body systems. The first car that is released after the BS VI fuel availability on 2018 is by the Mercedes Benz and model S-class with selective catalytic reduction. Nowadays, all Automotive companies either started manufacturing or under research for the BS VI up-gradation.

Now let's have a look on how EGR, SCR and Catalytic Converter works:

CATALYTIC CONVERTER

A catalytic converter is an exhaust emission control device that converts toxic gases and pollutants in exhaust gas from an internal combustion engine into less-toxic pollutants by catalyzing a redox reaction (an oxidation and a reduction reaction). Catalytic converters are usually used with internal combustion engines fueled by either gasoline or diesel—including lean-burn engines as well as kerosene heaters and stoves.



The first widespread introduction of catalytic converters was in the United States automobile market. To comply with the U.S. Environmental Protection Agency's stricter regulation of exhaust emissions, most gasoline-powered vehicles starting with the 1975 model year must be equipped with catalytic converters. These "two-way" converters combine oxygen with carbon monoxide (CO) and unburned hydrocarbons (HC) to produce carbon dioxide (CO₂) and water (H₂O). In 1981, two-way catalytic converters were rendered obsolete by "three-way" converters that also reduce oxides of nitrogen (NO_x); however, two-way converters are still used for lean-burn engines. This is because three-way-converters require either rich or stoichiometric combustion to successfully reduce NO_x.

Although catalytic converters are most commonly applied to exhaust systems in automobile they are also used on electrical generators, forklifts, mining equipment, trucks, buses, locomotives and motorcycles. They are also used on some wood stoves to control emissions. This is usually in response to government regulation, either through direct environmental regulation or through health and safety regulations.

SELECTIVE CATALYTIC REDUCTION:

Selective catalytic reduction (SCR) is a means of converting nitrogen oxides, also referred to as NO_x with the aid of a catalyst into diatomic nitrogen (N₂), and water (H₂O). A gaseous reductant, typically anhydrous ammonia, aqueous ammonia or urea, is added to a stream of flue or exhaust gas and is adsorbed [citation needed] onto a catalyst. Carbon dioxide, CO₂ is a reaction product when urea is used as the reductant. Selective catalytic reduction (SCR) is a means of converting nitrogen oxides, also referred to as NO_x with the aid of a catalyst into diatomic nitrogen (N₂), and water (H₂O).

A gaseous reductant, typically anhydrous ammonia, aqueous ammonia or urea, is added to a stream of flue or exhaust gas and is adsorbed [citation needed] onto a catalyst. Carbon dioxide, CO₂ is a reaction product when urea is used as the reductant. Selective catalytic reduction of NO_x using ammonia as the reducing agent was patented in the United States by the Engelhard Corporation in 1957. Development of SCR technology continued in Japan and the US in the early 1960s with research focusing on less expensive and more durable catalyst agents. The first large-scale SCR was installed by the IHI Corporation in 1978.

Commercial selective catalytic reduction systems are typically found on large utility boilers, industrial boilers, and municipal solid waste boilers and have been shown to reduce NO_x by 70-95%. More recent applications include diesel engines, such as those found on large ships, diesel locomotives, gas turbines, and even automobiles.

EXHAUST GAS RECIRCULATION:

In internal combustion engines, exhaust gas recirculation (EGR) is a nitrogen oxide (NO_x) emissions reduction technique used in petrol/gasoline and diesel engines. EGR works by recirculating a portion of an engine's exhaust gas back to the engine cylinders. This dilutes the O₂ in the incoming air stream and provides gases inert to combustion to act as absorbents of combustion heat to reduce peak in-cylinder temperatures. NO_x is produced in high temperature mixtures of atmospheric nitrogen and oxygen that occur in the combustion cylinder, and this usually occurs at cylinder peak pressure. Another primary benefit of external EGR valves on a spark ignition engine is an increase in efficiency, as charge dilution allows a larger throttle position and reduces associated pumping losses.

In a gasoline engine, this inert exhaust displaces some amount of combustible charge in the cylinder, effectively reducing the quantity of charge available for combustion without affecting the air fuel ratio. In a diesel engine, the exhaust gas replaces some of the excess oxygen in the pre-combustion mixture. Because NO_x forms primarily when a mixture of nitrogen and oxygen is subjected to high temperature, the lower combustion chamber temperatures caused by EGR reduces the amount of NO_x the combustion generates. Gases re-introduced from EGR systems will also contain near equilibrium concentrations of NO_x and CO; the small fraction initially within the combustion chamber inhibits the total net production of these and other pollutants when sampled on a time average. Chemical properties of different fuels limit how much EGR may be used.

For example methanol is more tolerant to EGR than gasoline.

The exhaust gas, added to the fuel, oxygen, and combustion products, increases the specific heat capacity of the cylinder contents, which lowers the adiabatic flame temperature. In a typical automotive spark-ignited (SI) engine, 5% to 15% of the exhaust gas is routed back to the intake as EGR. The maximum quantity is limited by the need of the mixture to sustain a continuous flame front during the combustion event; excessive EGR in poorly set up applications can cause misfires and partial burns. Although EGR does measurably slow combustion, this can largely be compensated for by advancing spark timing. The impact of EGR on engine efficiency largely depends on the specific engine design, and sometimes leads to a compromise between efficiency and NO_x emissions. A properly operating EGR can theoretically increase the efficiency of gasoline engines via several mechanisms.

Reduced throttling losses. The addition of inert exhaust gas into the intake system means that for a given power output, the throttle plate must be opened further, resulting in increased inlet manifold pressure and reduced throttling losses. Reduced heat rejection. Lowered peak combustion temperatures not only reduces NO_x formation, it also reduces the loss of thermal energy to combustion chamber surfaces, leaving more available for conversion to mechanical work during the expansion stroke.

Reduced chemical dissociation. The lower peak temperatures result in more of the released energy remaining as sensible energy near TDC (Top Dead-Center), rather than being bound up (early in the expansion stroke) in the dissociation of combustion products. This effect is minor compared to the first two. EGR is typically not employed at high loads because it would reduce peak power output. This is because it reduces the intake charge density. EGR is also omitted at idle (low-speed, zero load) because it would cause unstable combustion, resulting in rough idle. Since the EGR system recirculates a portion of exhaust gases, over time the valve can become clogged with carbon deposits that prevent it from operating properly. Clogged EGR valves can sometimes be cleaned, but replacement is necessary if the valve is faulty.

In modern diesel engines, the EGR gas is cooled with a heat exchanger to allow the introduction of a greater mass of recirculated gas. Unlike spark-ignition engines, diesels are not limited by the need for a contiguous flamefront; furthermore, since diesels always operate with excess air, they benefit from EGR rates as high as 50% (at idle, when there is otherwise a large excess of air) in controlling NO_x emissions. Exhaust recirculated back into the cylinder can increase engine wear as carbon particulates wash past the rings and into the oil. Since diesel engines are unthrottled, EGR does not lower throttling losses in the way that it does for SI engines. Exhaust gas—largely nitrogen, carbon dioxide, and water vapor—has a higher specific heat than air, so it still serves to lower peak combustion temperatures. However, adding EGR to a diesel reduces the specific heat ratio of the combustion gases in the power stroke. This reduces the amount of power that can be extracted by the piston. EGR also tends to reduce the amount of fuel burned in the power stroke. This is evident by the increase in particulate emissions that corresponds to an increase in EGR. Particulate matter (mainly carbon) that is not burned in the power stroke is wasted energy. Stricter regulations on particulate matter (PM) call for further emission controls to be introduced to compensate for the PM emission increases caused by EGR. The most common is a diesel particulate filter in the exhaust system which cleans the exhaust but causes a constant minor reduction in fuel efficiency due to the back pressure created. The nitrogen dioxide component of NO_x emissions is the primary oxidizer of the soot caught in the diesel particulate filter (DPF) at normal operating temperatures. This process is known as passive regeneration. Increasing EGR rates cause passive regeneration to be less effective at managing the PM loading in the DPF. This necessitates periodic active regeneration of the DPF by burning diesel fuel in the oxidation catalyst in order to significantly increase exhaust gas temperatures through the DPF to the point where PM is quickly burned by the residual oxygen in the exhaust.

By feeding the lower oxygen exhaust gas into the intake, diesel EGR systems lower combustion temperature, reducing emissions of NO_x. This makes combustion less efficient, compromising economy and power. The normally "dry" intake system of a diesel engine is now subject to fouling from soot, unburned fuel and oil in the EGR bleed, which has little effect on airflow. However, when combined with oil vapor from a PCV system, can cause buildup of sticky tar in the intake manifold and valves. It can also cause problems with components such as swirl flaps, where fitted. Diesel EGR also increases soot production, though this was masked in the US by the simultaneous introduction of diesel particulate filters. EGR systems can also add abrasive contaminants and increase engine oil acidity, which in turn can reduce engine longevity. Though engine manufacturers have refused to release details of the effect of EGR on fuel economy, the EPA regulations of 2002 that led to the introduction of cooled EGR were associated with a 3% drop in engine efficiency, bucking a trend of a 5% increase in a year. Any innovation regarding the emission control will have huge scope for the next very few years, but the EURO standards are researching and working on the introduction of the electric vehicle. The introduction of electric vehicle will largely reduce the pollution. Any inventions and innovations on the electric vehicle development would have a greater scope in the field of automobile.

CLASSIC FOREVER

FORD MUSTANG



Ford mustang- a high powered car which had made the ford company to go to the next level.As the symbol of horse intimates,it has high horse power. Due to this it had become on the dream cars all over the world since then and it has also been in a evolution from 1964.A dream car for most to just see that car.It proves that thevinatge is more classic and good than the present.

YAMAHA RX 100



As ford in car herecomes the RX100 in bikes.But its graze is in the recent days.Eventhough the BS2 is banned but its importance in the recent days made it to abolish the ban for two stroke engine and makes the company to restart the manufacturing.Its sound will make everyone to see and its power makes it an incredible one.These two make everyone and also me to make them as dream.

N HARIPRASATH
3rd YEAR

SECURITY THROUGH TECHNOLOGY

A new body scanner ensures greater airport security without compromising passenger convince.

Millimetre wave scanner

When it comes to whether or not something that is technically feasible should be done, opinions vary. The debate becomes particularly emotional when individual liberties to have full camera surveillance of certain areas, perhaps even with automatic face recognition in the slight hope that it might record criminal activity or contain a picture of a person. Should we ease restrictions on the privacy of correspondence and telecommunications, so that authorities could then track down criminal activities more easily when it comes to aviation safety. This is less controversial, as the result of a representative survey.



Body scanning technology has not come quite therefore yet, but it's heading that way. People will come to appreciate this convenience that many airport in the future.

However, since anyone can buy and fly one, they increasing wind up places where they are un waned for reasons of confidentially or safety –such as at airports, events and private areas. But there is a solution drone deduction systems can alert you to these posts and even keep them at bay. It is not only used in airports, also used to pilgrim ports, harbours, and various urging areas.

Comparing the human errors, deductive device errors, seems to be very less.



SABARINATHAN S
MANJU G
3rd year

AN ERA OF ARTIFICIAL INTELLIGENCE

In this fast moving world it is very much required to adapt to the recent trends for globalisation. There arise a situation that puts a question mark with exclamatory "are humans getting replaced by AI in the industrial sector?". The answer yet remains a puzzle. This article gives an illustration for the possibility. Scientists are now in research for the possibility of using ARTIFICIAL NEURAL NETWORKS to predict new stable materials.

Artificial neural networks and algorithms are inspired by connections in the brain have learnt to perform a variety of tasks, from pedestrian detection in self-driving cars to translating languages. Finding the stability of materials is now a central problem in materials science, physics and chemistry. Earlier quantum mechanical computations are used for energy calculations. This artificial neural network research deals to predict a crystal's formation energy using electronegativity and ionic radius as two inputs. Models are now being developed which are 10 times more accurate than previous machine learning models efficient to screen thousands of materials in matter of hours. Crystals like garnets, perovskites are used in LED lights, rechargeable lithium-ion batteries. By this it allows to use neural networks to understand formation of energy on above mentioned crystals. Industrial Revolution by Humans definitely will turn to AI revolution creating a new generation of machine learning. They are likely to be either the best or worst thing to human era. Hope the best thing happen to fortunate the vision INDIA 2020.

KEERTHANA-3RD YEAR

SPACE X- A BILLIONAIRE'S DREAM

Most of us wonder when hearing about Space-saving, what does it mean? From childhood everyone has a dream of flying to space and watch the planets and stars very close. This is the idea behind "Travel to space" that prevails not only among astronauts but also amongst every human in the world. One may question, whether visiting the space and planet as a tourist spot will be possible or just a useless thought of a creative and innovative person? But a man aroused with more confidence and used advanced technology to make most of our dreams true with his ideas. The man is Elon Musk "21st century innovator". All started in 2002, the mission to enable human to gain a Space-saving civilization and a multi-planet species by building a self-sustaining city on Mars. In 2008, Space-x's Falcon 1 became the first privately developed liquid-fuel launch vehicle to orbit the earth. Elon also leads Tesla, which makes electric cars, giant batteries and solar products. Elon co-founded and sold 'paypal', the world's leading Internet payment system and one of the first Internet maps and direction service which helps in bringing major publishers including New York times and Hearst, online. Elon Musk is a billionaire who dreamt of launching a Mars colony, as he placed footprints in different fields that can pave the way for his dream to come true. We would wonder how Elon Musk make money?

Elon Reeve Musk a South African born American entrepreneur founded X.com in 1999, Space-x in 2002 and Tesla motors in 2003. Musk became a multi-millionaire in his late 20s. Although he sold his start up company, Zip2 to a division of companies, His dedication, passion and hard work raised him to the peak of success. The third company of Musk is Space exploration Technologies Corporation or Space-x in 2002 with the intension of building spacecraft for commercial space travel. Musk and Space -x made history, when the company launched it's Falcon9 rocket into space with an unmanned capsule. The vehicle was sent to the International space station with 1000 pounds of supplies for the astronauts stationed there, marking as the first private company that sent a spacecraft to the international space station. A man with a story behind Tesla, Space-x, and solar city was once a student with an innovative ideas and will power to success. His effort to strike the success he longed for was not an easy task to accomplish. It took years to succeed, along with the criticism from the people. "Failure is an option here. If things are not failing, you are not innovative enough", said by Musk, which will help us to understand the necessity of failure in our life. Elon Musk is changing the world with his revolutionary ideas. Space travel has already made history and Musk is trying to reset the history with his innovative ideas. Ideas are with every one of us, bring it out, work for it and achieve success. Even after your death, your words and actions remain alive and rule the world.

YASHINI-3RD YEAR

PHOTOGRAPHY



HARIPRASATH
1ST YEAR



GANESH BALAJI
2ND YEAR



TAMILANBAN
4TH YEAR



NAVEEN KUMAR
2ND YEAR



AJAY.C
2ND YEAR



SUBHIKSHA DEVI
2ND YEAR



YOGA GANAPATHI
2nd YEAR



KURALASARAN
3rd YEAR



VIGNESHWARAN
4th YEAR

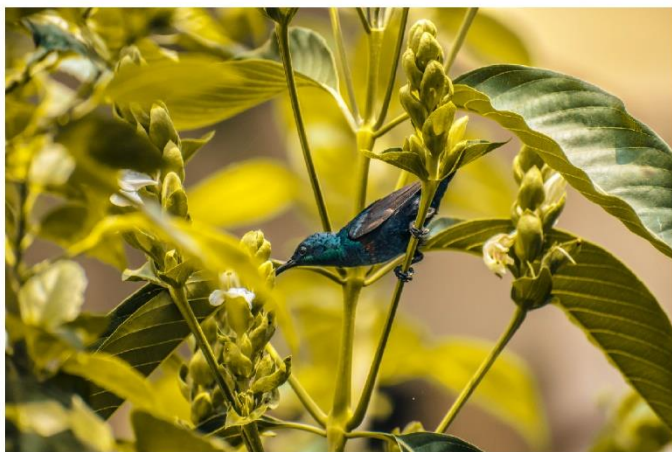


SABARINATHAN
3rd YEAR

DINESH PRABHU
3rd YEAR



PHOTOGRAPHY



JAGATHEEP SANJAY P
Final year



TAMILANBAN S
Final year



GENERAL ARTICLES

LOVE OF LIFE

It breaks my heart that most people have no clue that who really they are. While most people argue that having a life you love will make you happy, I argue that happiness will help you to create a life you love. While going through this my brain questioned myself. What is life? What is love? What is happiness? It's inevitable. Sometimes you will experience with half a dream come true. You may meet the man of your dreams, but he is married. You are offered a job, but it pays only half of what you need. You may meet a friend who shares your interests, but she lives an hour away. You finally may find the car you love, but you cannot afford it. Life is unpredictable. Whether getting all these stuffs and satisfying your needs could make you happy? No, I guess it isn't. If it were, then more people would actually be happy, wouldn't they? Love towards our possession won't pursuit us to lead a happy life. In turn, it will decrease our love towards ourselves and other humans. If your child spills food in your dress, then you will show your full anger towards the child. Sometimes you may beat the child too. Are we hurting our little child for the sake of spoiling a dress which costs few thousands? What does it matter even if it costs a few akhs? Showing love towards the people around us only gives us the life we love.



“Darkness cannot be driven out by darkness,
Hate cannot be driven out by hate,
only love can do that”

-ASHOK – 2nd year

FIRST DAY OF COLLEGE

The super excited day I've ever seen! As soon as I landed with all my belongings to the first year hostel, all other hostels looked like a real bungalow with a slight peacock chirping. I wondered my stay for the forthcoming years.

After settling all in place, it was the time i got introduced to all strangers called roommates. Though all were girls in the room, I felt insecure staying where in no one is familiar to me. Overcoming all this stuffs, entering the first day of class was the most funniest! The

class was packed with boys and I felt like entering an seminar hall with only boys side. Clinging to my confidence, I entered the classroom at my maximum walking speed. Then I saw seats available at the front corner. The other girls who entered the class room along with me were keen to get seated like in a musical chair. Everyone wanted a back seat, but I somehow managed to sit in the middle. Days got rolled and the subjects seemed like an ocean, where I was just a nemo. My mind popped with hell of questions about my future, But I had only one answer "ALL IS WELL".

Everything happened because it is ought to happen. then I made up my mind and determined to learn engineering, cause I'm a production engineer



-SUBIKSHA DEVI-2nd year

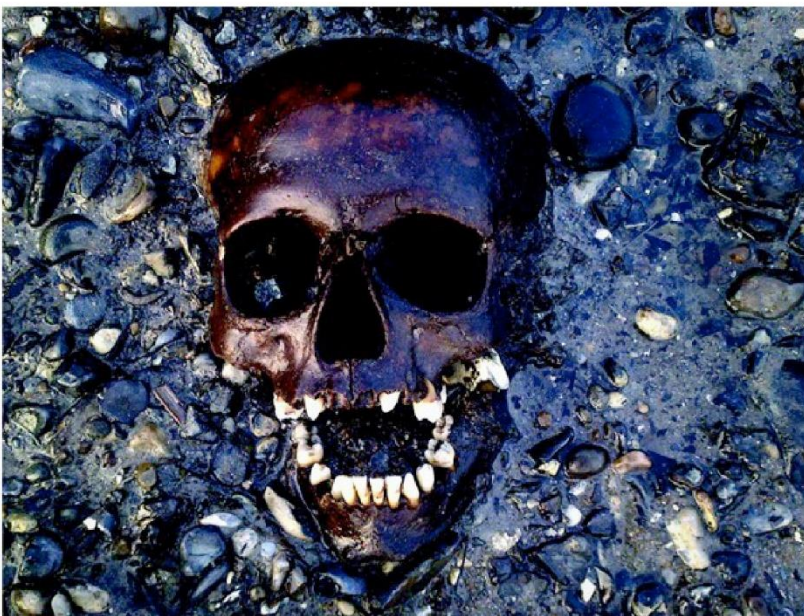
Excavation in the horror work

" Haunting of hill house" is another horror work of Mike Flangan . He is know for his remarkable work in horror jonour like 'Oculus' and 'Rush'. This series is based on Shirley Jackson's with the same title as the series. Before going to the review there is a spoiler alert.This story revolves around Crain's family with a father ,a mother and 5 Children . The Youngest are twins brother and sister named Luke and Nelie. The eldest is Steve followed by Shirley and Theo. Their father fixes the old house and make profit by selling it. The initial plot goes as the family is moving to a new house which was owned previous by the Hill family. The story runs parallel in two time periods , one when the kids are young and the other at when they are grown ups. The story ismostly centred around the twin siblings. The story starts with Nelie crying due to her dreams of bend neck lady. The youngest siblings are more susceptible to the ghost in the house. Parallely in the present Steve becomes a famous author of horror works . He doesn't believe on ghost. But ironically the first episode was finished by Steve seeing the ghost as the name of the episode says " Steve sees a ghost".

At the same episode Nelie finish of her life in the Hill House which they departed decades ago in a fishy way. Luke becomes a drug addict and Theo becomes a some kindy for paranormal investigator as she claims some supernatural power due to the hill house. The rest of the story is about how the rest of the family safe gaurds their life and the emotions around them.The main aspect of horror movies and series is the background music, which is well handled by "The Newton brothers". They knew where to have peek tone and where to leave it silent. The most excellent work done here is the cast selection. The Julien (younger Luke) stole the entire audience by his innocent look and voice . The kids act as they are born for it . On my opinion, this is "The perfect cast" for the characters.

I was overwhelmed by the ending of the fourth episode which reveals the truth of the bend neck lady. Even I jumped out of my bed and told my friends that this is the best end that I have ever seen in my life. The next most appreciable thing is the cinematography.This is the series with lots of long shots in it, which needs a lot of off screen works and clear idea of the scene is going to happen. Which is well handle by the crew.

This series is the one with lots of suspense and twist , which is worth for a binge watch.



-LENIN KUMAR
2nd year



கதகதப்பான இருட்டில் கரைந்தோடும் வெள்ளத்தில்,
காரிருள் நீக்கி கண்விளித்து...
அறம் பொருள் இன்பம் அறியாமல்...
அன்னை மடியின்றி,
அலைந்து திறிந்து,
அறிவு புகட்ட ஆசானின்றி,
ஆற்றில் விழும் மழைநீர் போல்...
ஆழ்கடலை நோக்கி சென்றேன்...
ஆதரவற்றவளாய!!!



- Meena jeyashri B – 2nd year

SISTA DOLL

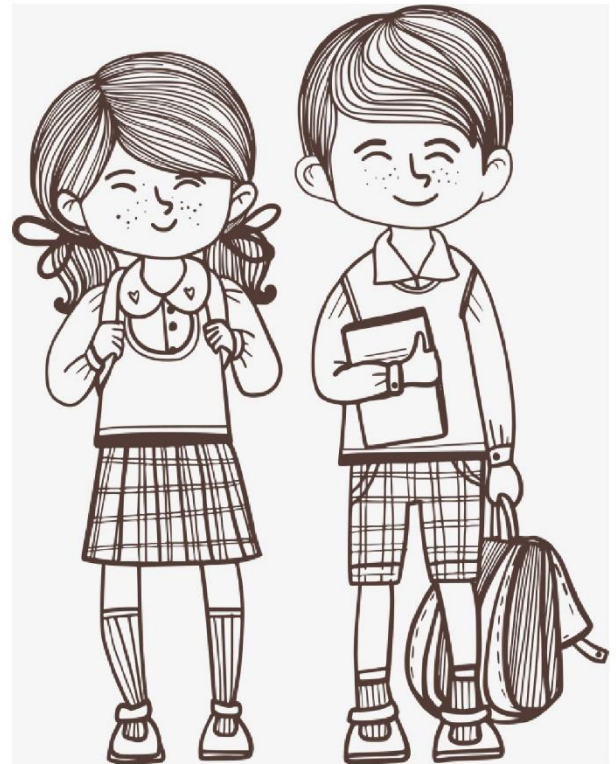
Dear Princess,
You are the best doll I would play with,
Mesmerized on your cute things till death!
I came first ,you came next on row
Irony you are my mentor though!!

Creature with dual nature ,
Oops it's not mature either!
Wages war with you,
Wages war for you !!
Difference though!!

We ,as a stereotype breakers,
Hits hard on the pseudo-sight makers!
Couples on the eyes of freaking society,
Giggles, as truth is known by almighty!

O my God!! Who is she?
Thank you for gifting me!
My last request before fall,
Make me close my eyes before my doll!!

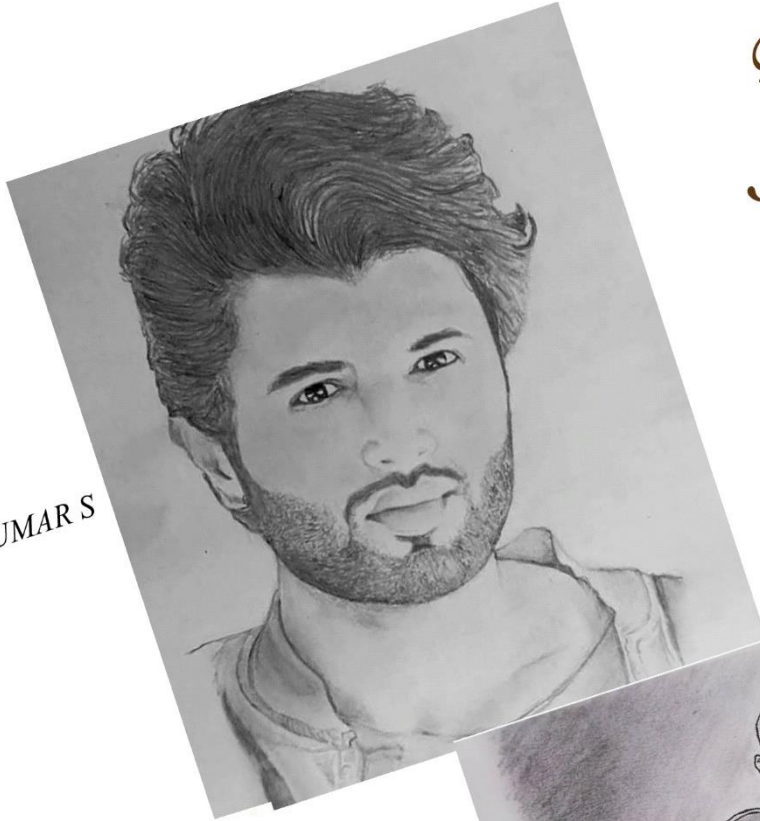
Love,
Your fighting partner



-SHANAVAS SHAREIF-3rd year

PENCIL SKETCHES

NAVEENKUMAR S
2nd YEAR



MANOJ ASCAR S
2nd YEAR



KAVIYARASU N
3rd YEAR



GURU PRASATH
1st YEAR

MICROTALES

MY EYES IS LIKE HOTSPOT..
IT CONNECTS WITH HER WHENEVER
SHE(WIFI) NEEDS IT...

-ASH

YEAH I FELT RAPRED WHENEVER MY
THOUGHTS SUNK INTO THEIR WATER
LIKE IDEALOGIESWHICH ATTAINS THE
SHAPE OF OTHERS...
SHE YELLED...

-ASH

ITS TOUGH FOR MY HANDS TO REACH
YOUR SHOULDER ON THAT DAY...BUT
NOW MY HANDS ARE SEARCHING FOR
IT AND ENDS UP IN SHEDDING TEARS..
AND SCOLDS THE HEART..WHICH WAS
ALREADY IN THE OCEAN OF TEARS

-ASH

THE LEAVES THAT YOU STEPPED WERE
THE ONES WHICH KISSED YOU WITH ITS
SHADE

-H.K.

LOOK MEANT STARE
TALK MEANT FLIRT
GOING BEHIND MEAN FOLLOW
THEY HAD EVERYTHING TO BLAME
UPON HIS INTENTIONS

-H.K.

THEE WRITER FEARED,"WAHT IF I RUN
OUT OF WORDS?"
THE HEART REPLIED,"NOT UNTIL
WE(MIND) DIVORCE"

-H.K.

MEMORIES SPEAKING THROUGH
SILENCE MAKES US TO BE HAPPIER
WHEN OUR BELOVER ONES AREN'T
THERE

-HP

THAT ONE CALL WHICH MAKES MY
CARNAGED HEART TO BLOSSOM
FROM ANY CHORD.A CALL FROM
WHO I HAVE BORN

-HP

IN THE WORLD OF 22 YARDS,YOU
CAN'T BE AT CORRECT LENGTH
AND LINE ALL THE TIME.

-HP

FEELING HAPPY FOR CSK VICTORY HE
SAID.THEY ASKED "YOU HATE CSK RIGHT?"
HE BLUSHED AND SAID
"I LOVE HER MORE"

-NAVEEN

IGNITE'18



PRODUCTION ENGINEERING ASSOCIATION

PRESIDENT:



Dr. T. ALWARSAMY,
Head of the Department,
Production Engineering.

TREASURER:



Mr. M. SANKAR KUMAR,
Assistant Professor,
Production Engineering.

GENERAL SECRETARY:



A. PARAMAGURU,
Final year,
Production Engineering.

STUDENT TREASURER:



M. KHISHOR,
Final year,
Production Engineering.

JOINT SECRETARY:



V. SRINATH,
Third year ,
Production Engineering.

DEPUTY TREASURER:



R. RAKESH,
Third year,
Production Engineering.

EXTRA - CURRICULARS FINAL YEAR



SANTHOSHKUMAR B
LDS event organizer and manager
Event coordinator of Green Club



DHAANISH MOHAMED S
Managing Secretary and Editor of SJC
Head of Entrepreneurship Development Cell



BALA BHARATHI ARJUN D
Captain of GCT Athletics team
Captain of GCT chess team



BHAVISHYAHA S
Treasurer of TEDx GCT
Head of Humans of GCT-SJC



BOOBALAHARIHARAN M
Captain of GCT Cricket team



RAHUL R
Event coordinator of Green Club



JEGADEESAN G
General Secretary of Tamil Mandram



VIGNESWARAN S
Treasurer of fine arts



RAJKAMAL N
Syscom head of Green Club



MURALEKRISHNAN V
Treasurer of Entrepreneurship development cell



VIGNESH K R
Management and logistics in
TEDx GCT



KEVIN KARNAS P
Executive Producer and designer
TEDx GCT



SANJAY V
Cadet under officer



ATHISH C R
Guitarist in GCT Orchestra

EXTRA-CURRICULARS



Rtr. SABARINATHAN
Secretary in Rotract Club GCT
Third year



Rtr. SANGEETHA
Customizer in Rotract Club GCT
Third year



Rtr. BALAJI
Sergent at arms in Rotract Club GCT
Third year



DEEPAN A
Treasurer of Y's Service Club of GCT Youth
Second year



PRAVESH V
SAE Treasurer
Third year



Rtr. KEERTHANA
Treasurer in Rotract Club GCT
Third year



Rtr. KURALARASAN
Director of web service in Rotract Club GCT
Third year



Rtr. Venkatraj
Sergent at arms in Rotract Club GCT
Third year



HARIPRASATH N
SAE Vice Chair Person
IIC Coordinator
SRF Coordinator
Third year



NAVEEN KUMAR R
SRF Coordinator
SAE Event Coordinator
Third year

WORKSHOPS



IGNITE '18

The Production Engineering Association organized a workshop on 08/09/2018 at Government College of Technology Campus.

The workshop is conducted in two sessions that covered all the areas of the topic which were very useful for the development of technical knowledge of the attendees. The session handled by VOLVO team gave a portrayal of their advanced technologies that is being used in vehicle dynamics of car. The BENELLI team gave an insight about the recent trends in the super bikes and manipulation of the engine power in bikes.

PRAXIS '19



A workshop was organized by the Production Engineering Association as a part of PRAXIS'19 on March 2, 2019 at Government College of Technology Campus.

The session handled by BHARATHBENZ shared a thorough knowledge on Bharath Stage emission standards and the changes adopted on the vehicles for the new emission standards. The trends and the advancements in automobile suspension system was explained with a truck model by EICHER. The advanced technologies in the dynamic drive control were communicated to the attendees by HONDA. The Advancements in Engine Management system was portrayed by FORD

STUDENT ACHIEVEMENTS

Sl.no	Student name	Achievement	Current year of study as on 2019
1	DEEPAK G	SAE Tire 3 2nd in CNC MILLING & LATHE. REC AUTOQUIZ 2ND-2017-1 ST . KARPAGAM DHRUVA-BIZ PLAN 1 ST .	Final year
2	SANTHOSHKUMAR B	SAE Tire 3 2nd in CNC MILLING. KCE Dhruva BIZ PLAN -1 ST . HENOSIS- AUTOQUIZ-NGP COLLEGE-1 ST .	Final year
3	KEVINKARNA S P	SAE TIRE 3 1st in CNC milling. SAE Tire 3 2nd in CNC MILLING. SAE Tire 3 1st in Prototype modelling. Dhruva Prototype modelling National Level 1st Draftsman.	Final year
4	SANJAY V	Stand-up comedy- First prize at KALAM in Sri Shakti Institute of Engg.	Final year
5	DHARANI S	KCE Dhruva -1st place adzap, biz-plan. SAE tier event process planning 2nd place.	Final year
6	SHALINI A	KCE Dhruva-1st place adzap, biz plan. SAE tier events GD 1st place, 2nd place process planning.	Final year
7	SHALINI K	SAE tier event second place process planning	Final year
8	THARINI A	KCE Dhruva weld master second place. SAE tier event second place process planning.	Final year
9	DHAANISH MOHAMED S	KCE Dhruva-1st place adzap.	Final year
10	VIGNESH K R	SAE TIRE 3 2nd in CNC turning.	Final year
11	SATHISH KUMAR S	SAE TIRE 3 2nd in CNC turning.	Final year
12	SALEEM BASHA C	SAE TIRE 3 2nd in CNC turning.	Final year
13	BALA BHARATHI ARJUN D	Anna University chess zonal- 3 rd place. 4*100m Relay Anna University zonal in SREC- 3 rd Place Athletics zonal- overall 3 rd place 4*100m Relay Anna University zonal in KCT- 2 nd Place	Final year
14	DHIVAKAR S	Walkathon: zonal- 2 nd (2018) Zonal- 1 st (2019), Inter zone- 3 rd (2019), Centais – 2 nd	Final year

Sl.no	Student name	Achievement	Current year of study as on 2019
15	KEERTHANA S	Doodles of Google. Academic Excellence award for 3 consecutive times.	Third year
16	HARIPRASATH N	Bosch Smart Student Award-2018. Hemosis 2019 at N.G.P College. Paper Presentation-1 st , Technical Quiz-1 st . Mr.Mechanics-1 st . Mechonova 2018 at CIT College 2 nd prize HR interview. Uddesha 2017-MCET College-INNOVATE -1 st Prize. Paper Presentation-3 rd at UIT college.	Third year
17	ANUSUBA P	KCT Yugam Paper Dressing-1 st Prize.	Third year
18	GOWTHAMA PANDIYAN	PSG-Kriya 2019-Paper Presentation 1 st Prize. SREC-MEQUEST2019-Project Presentation-3 rd Place. SNS College of technology-Connections-1 st prize. GCT Salem-Paper Presentation 2 nd Prize. Trust Car-1 st Prize.	Third year
19	RAKESH R	Junior Billiards - under 21 State no 2 (2018) State no 3 (2017) State no 3 (2016). Junior snooker (under 21) State no 4 (2017) State no 3 (2016). Sub junior billiards (under 19) State no 3 (2016). Sub junior snooker (under 19) State no 3.	Third year
20	SANGEETHA	Throwball-2 nd at GCT Tattoo making-1 st at NIT Trichy Festember Graffiti-1 st Sangamam17 Wall Painting 2 nd KCT Yugam18 Academics-3 rd rank 2017 Paper Dressing 1 st KCT Yugam 19	Third year
21	SABARISHAN	KCT Yugam 2019 event: Solutionerise-2 nd Place PSG-Kriya 2019 Paper Presentation-1 st Place PSG-Kriya 2019-BRIDGE IT-1 st place SREC-MEQUEST 2019-Paper Presentation-2 nd place, Project Presentation-3 rd Place SNS college of technology-Smart Interview- Connections-1 st Place,Quiz 2 nd place.	Third year

22	SANTHOSH KUMAR	KCT Yugam 2019-Event:Solutionerise-2 nd Place, PSG-kriya 2019-Paper presentation 1 st place, PSG-kriya 2019-BRIDGE-IT_1 st place	Third year
23	NAVEEN	NGP College-Paper Presentation-1 st place	Third year
24	MOHANA PRIYA V	Paper Presentation-1 st in KCT yugam. Techno Cnnexion-2 nd prize in KPR institute	Third year
25	ASHOK KRISHNAN	Event: street play Place: NIT, trichy Prize: third prize. Event: street play Place:KCT,Coimbatore Prize: first prize.	Second year
26	YOGA GANAPTHI S	Event:Villupattu Place:NIT - I st prize Event:Villupattu Place:CIT - Ist prize	Second year



STUDENTS
PARTICIPATION IN
SAE'S VEHICLE DESIGN
AND FABRICATION
EVENTS

GROUP PHOTO



Final year



3rd year



2nd year

Short poems

இருள் சூழ்ந்த வானில்
மூன்றாம்பிறை நிலவு
ஒளிர்வதைபோல்
இழுத்து உடுத்திய சேலையில்
அவள் இடை
தெரிவதெனவோ...

- சே.சி.சி.

நிஜங்கள் என்னும்
நிலத்தைவிட்டு
நினைவுகள் என்னும்
நிலவில் வாழ
நினைக்கிறாயே மனிதா...

- சே.சி.சி.

சாதி கரை உன்னில்
படிந்திருக்க
ஓடி ஒளியாதே
மறைவைத்தேடி
பகுத்தறிவு மழை
வெளியில் பொழிய
ஒருமுறையாவது நழைந்துவிடு

கரைகள் கரைந்துவிடும்...
உன் எண்ணம் நிமிர்ந்துவிடும்...

- சே.சி.சி.

தட்சணை போட்டு
அர்ச்சனை செய்தால்
பிரச்சனை தருமோ....
வரிசையில் நின்று
தரிசனம் பெற
கரிசனம் ஏதற்கு
காசு கொடுத்தால்....

காசே தான் கடவுளடா...!

- சே.சி.சி.

ஊர் தொடுத்து வரும்
துங்க தோ
இவளது தோடு...
தென்றல் தொட்டு அசைந்து வருது
அவள் காத்தோடு...

- சே.சி.சி.

VIGNESWARAN S
Final year



PRAXIS 19

AN INCREDIBULLS INVASION

APRIL 2



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