SRINIVAS GROUP
SAMAGRA GNANA
ESTD: 1988

Auto Thrust

When we thrust, we leave everyone in dust.....

May 2018

Srinivas Institute of Technology, Mangaluru
Department of Automobile Engineering

Volume 2, Issue 4

ನಮ್ಮ SIT ಮಂಗಳೂರು

H.O.D'S MESSAGE

Another academic year is approaching an end, which was buzzing with curricular, Co curricular and extra curricular activities. It is really a great feeling to see the students and the faculty being actively involved, whether it was 'Swachh Abhiyan' or Service Camps or Workshops or Internship or Industry Visits or SAE. This is really a good sign for the budding department and for the growing institution. It was not only in academics but also in sports and cultural activities, we all felt the presence of AU department.

With the semester coming to an end very shortly, the time has come for the students to re-dedicate themselves on studies. I take this opportunity to express my gratitude to the outgoing students, who are the brand ambassadors of AU department. All the best to you guys! It was a wonderful experience! Wish You a bright future and 'All the Best' in your all future endeavours.

The team 'Auto Thrust' has been instrumental in highlighting the departmental activities and setting it's own standards for others to follow. I thank the team and all the contributors for its success. Aim high for the upcoming issues.

I wish all the best to all my dear students for their end semester exams.

Dr. Ramakrishna N. Hegde

*** *For Internal circulation only*

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Imagination is more important than Knowledge

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Inside this issue:

Diesel reigns as alternatives expand their role in commercial trucks

Commercial truck manufacturers and users are all looking at a range of sustainable fuels, but it will be some time before they collectively displace diesel. Natural gas is making a big impact in many programs, with growing interest in renewable natural gas, while electrified power trains also see rising use.

A number of speakers at the recent Green Truck Summit in Indianapolis said "there's no silver bullet" among these options. Compressed and liquid natural gas are seeing solid acceptance, renewable gas and biodiesel are growing solidly, and electric power is advancing rapidly. Each fuel is best suited for different vehicle types and varied use cases.

Gassing up

Many large fleets are moving quickly to expand their alternative-fuel usage. Pepsi has several compressed natural gas trucks, using CNG for 40% of over road Frito Lay delivery tractors, and it's deploying more electric vehicles in cities. UPS is taking a similar tack.

Natural gas is catching on with vocational trucks, like this Freightliner M2 112 NG, because they burn cleaner than diesel fuel.

The supply of alternative fuels is increasing, helping reduce costs. But it's often costly to install the fueling stations and set up other elements like maintenance. That's one reason that the industry is looking at several different solutions.

Source: SAE INDIA

Short Introduction of Maharashtra state

Formation	1 May 1960
Capitals	Mumbai
Districts	36 total
Government	Government of Maharashtra
Governor	Vidyasagar Rao
Chief Minister	Devendra Fadnavis
Legislature	Bicameral Legislative Council 78 Legislative Assembly 288
Area Total	307,713 km^2
Area rank	3rd
Population (2011)	112,372,972
Rank	2nd
Density	370/km^2
Demonym	Maharashtrian
GDP (2016-17)	₹19.86 lakh crore (US$300 billion)
Total	₹165,491
Per capita	
Languages	Marathi
Time zone	IST (UTC+05:30)
code	IN-MH
Vehicle registration	MH-
HDI	0.6659
HDI rank	7th
Literacy Rate	82.9% (6th)
Sex ratio	929 ♀/1000 ♂ (2011)
Website	www.maharashtra.gov.in

TARDEC pursues advanced power generation

ZH2's fuel cells generate electricity from a hydrogen source. That electricity powers the vehicle's propulsion system and the on-board electronics, while off-vehicle power is provided via an Exportable Power Take-Off (EPTO) unit. The EPTO takes the high-voltage from the fuel-cell stack and converts it to both high- and low-voltage AC to power tools and other equipment.

The follow-up to the ZH2 is the Silent Utility Rover Universal Superstructure (SURUS). This fuel-cell platform is envisioned as both a commercial- and military use electric vehicle with autonomous driving capability.

"Tank Automotive Research, Development and Engineering Center (TARDEC) worked with General Motors to develop the overall vision of the SURUS concept vehicle, including its performance, weight, dimensional targets, and base architecture," said Drot-

The SURUS platform includes two advanced electric drive units, four-wheel steering, advanced propulsion power electronics, a

leff TARDEC's Program Manager for Fuel Cell Technology. The concept vehicle extensively uses off-the-shelf and near-term components and technologies.

Source: SAE INDIA

A single thread of hope is still a very powerful thing

Photography by Manisha (4th sem)

ಯಾರ ಮೇಲೂ ಹೆಚ್ಚು ಅವಲಂಬಿತರಾಗಬೇಡಿ, ನಿಮ್ಮ ಹೆಣ ಹೊರುವಾಗಲೂ ಜನ ಹೆಗಲು ಬದಲಾಯಿಸುತ್ತಾರೆ !!!

Thoughts about ಸ್ವಚ್ಛ ಅಭಿಯಾನ by 6th sem students

Swachha Abhiyaan was started to clean our India. So its our responsibility to clean our home, surroundings, class and college. It is our duty to stop anyone who is throwing the garbage in our surroundings.

Amit Santra

ನಾವು ಬೇರೆಯವರ ತಪ್ಪುಗಳನ್ನು ಗಮನಿಸುತ್ತೆವೆಯೇ ವಿನಃ ನಮ್ಮಿಂದ ಆಗುವ ತಪ್ಪುಗಳನ್ನು ಗಮನಿಸುವುದಿಲ್ಲ. ಮೊದಲು ನಾವು ಸ್ವಚ್ಛತೆಯ ಬಗ್ಗೆ ಗಮನವಹಿಸಿದರೆ ಸ್ವಚ್ಛ ಭಾರತ ಅಭಿಯಾನ ಯಶಸ್ವಿಯಾಗುತ್ತದೆ.

ದೇವಾಡಿಗ ನಿಖಿಲ ಗೋಪಾಲ

Clean our nation from pollution, deforestation and other things. Create a safe clean opportunity for future. Be part of Swachha Bharat Abhiyaan and make change in our self.

Jomal Jose

Swachha Bharat Abhiyaan is a massive movement that seeks to create a clean India. Proper disposal of waste should be taken care. One good saying is "first be a rich then be a philosopher". So first our self should take part in this.

Manugowda

Swachha Bharat is a campaign that aim is to clean street, roads and surroundings. For this, we need to create awareness among citizens of India.

Pramod GL

Is cleaning only the responsibility of the karamcharis? Do citizens have no role in this? We have to change this mindset. It takes time to change established mindset. It is not about Modi!!! Modi is only one of its 1.2 billion people. This is a people's task. Every road, path, office, home, hut and particle of air around us can and must be clean.

Sunny S.Desouza

ಸ್ವಚ್ಛ ಭಾರತದ ಮುಖ್ಯ ಉದ್ದೇಶ ನಮ್ಮ ಸುತ್ತಲಿನ ಪರಿಸರದ ಬಗ್ಗೆ ಕಾಳಜಿ ತೋರುವುದು ಮತ್ತು ಅಲ್ಲಿನ ಗಿಡ ಮರಗಳನ್ನೂ ಆರೈಕೆ ಮಾಡುವುದು, ಬಯಲು ಶೌಚ ನಿರ್ಮೂಲನೆ ಹಾಗೂ ಸ್ವಚ್ಛತೆಯ ಬಗ್ಗೆ ಜಾಗೃತಿ ಮಾಡಿಸುವುದು. ಎಲ್ಲರೂ ಕೈ ಜೋಡಿಸಿದೆ ಆದರೆ ನಮ್ಮ ದೇಶವು ಉನ್ನತ ಪ್ರಗತಿಯನ್ನು ಹೊಂದುವುದರಲ್ಲಿ ಯಾವುದೇ ರೀತಿಯ ಸಂಶಯವಿಲ್ಲ.

ನಮಿತ.ಆರ್

Swachha Abhiyaan is a politics free campaign and inspired by the patriotism. It is launched has the responsibilities of each and every Indian citizen. It is possible only when each & every citizen of India would understand this campaign.

Nevil Rodrigus

Clean India can be stated in 3 words. Reduce, Reuse & Recycle. Reducing use of non bio degradable materials like plastic. Reusing of materials instead of wasting them. Recycling the organic waste. Keeping our society clean is very essential, because a clean nation is a healthy nation.

Shamanth

ಅಂದು ಗಾಂಧೀಜಿ ಕಂಡ ಸ್ವಚ್ಚಭಾರತದ ಕನಸು!! ಅದಕ್ಕೆ ಇಂದು ಮೋದಿಜಿ ತೋರಿದರು ಹುಮ್ಮಸ್ಸು!! ಸ್ವಚ್ಚವಾಯಿತು ಭಾರತೀಯರ ಮನಸ್ಸು!!, ಆದರೆ ಅಕ್ಟೋಬರ್ ಒಂದಕ್ಕೆ ಸೀಮಿತವಾಯಿತು ಈ ಕನಸು!! ಕೊರಗುತ್ತಿದೆ ನನ್ನ ಈ ಮನಸ್ಸು!!

ಶಿವಪ್ರಸಾದ

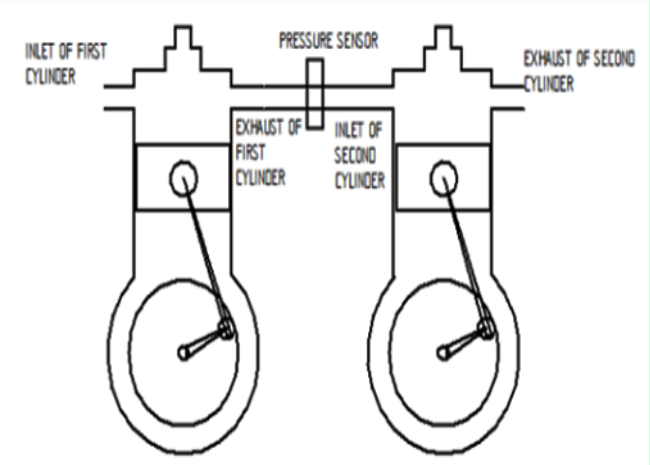
"Don't worry about failures, worry about the chances you miss when you don't even try."

Development in Research Work of Compressed Air Powered Engine

Light utility vehicles are becoming very popular means of independent transportation for short distances. Cost and pollution with petrol and diesel are leading vehicle manufacturers to develop vehicles fuelled with alternative energies. Engineers are directing their efforts to make use of air as an energy source to run the light utility vehicles. This paper is a report on "How to increase efficiency of air in air powered engines".

Working Principle: The air is introduced to the engine cylinder by the inlet valve from the compressed air tank. Due to the pressure of the air the piston starts to move from Top Dead Centre (TDC) to Bottom Dead Centre (BDC) which makes the crankshaft to rotate. After the piston reaches BDC it returns to the TDC and the cycle continues.

The Compressed Air Engine (CAE) can be made of 2-stroke engine as well as 4-stroke engine depending on the requirement. If more power is required 4-stroke engine is preferred but if more efficiency is required 2-stroke engine is used. As our topic is about increasing the efficiency of CAE we will be considering 2-stroke engine. The first stroke is the expansion stroke where the inlet valve will be open and the exhaust valve will be closed and the piston will be moving from TDC to BDC. When the piston moves from BDC to TDC the compressed air is sent out from the cylinder one to cylinder two by passing through pressure sensors.

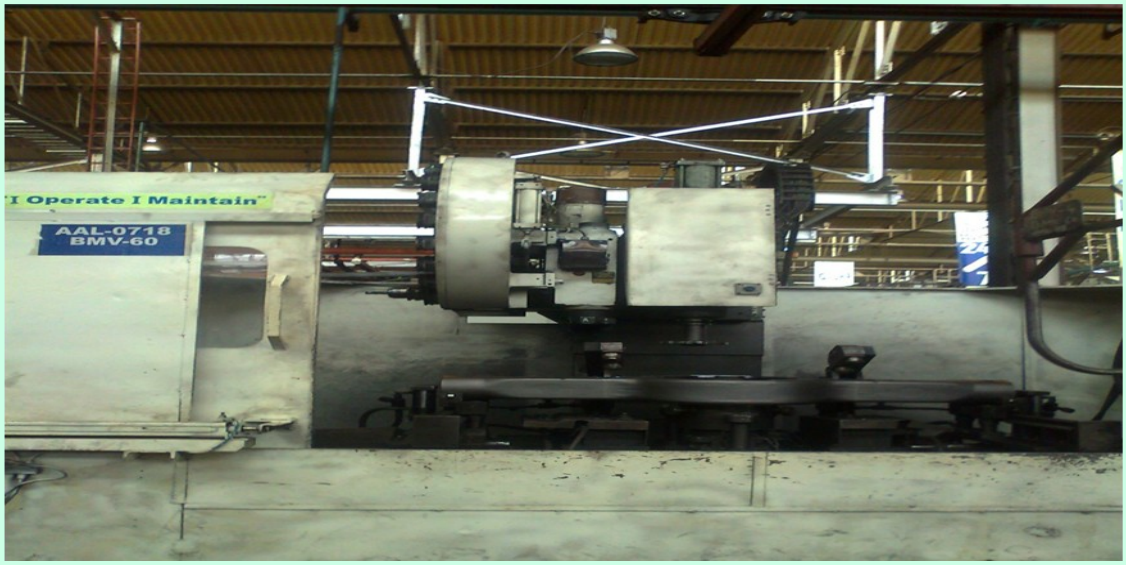


The main concept of efficiency of compressed air comes here, where the compressed air from cylinder one's exhaust valve is sent to cylinder two's inlet valve by passing through the pressure sensors instead of sending it out to the atmosphere. When the compressed air leaves cylinder one the pressure of the compressed air will not remain same as the initial pressure, the pressure will decrease. Which is not enough to push the cylinder from TDC to BDC, therefore pressure sensors are used to measure the pressure of the compressed air. Once the air enters the cylinder two through the inlet valve there will be a compressed air injector mounted at the top of the engine which will provide the required amount of the air pressure which the compressed air is lacking and the cycle takes place. Through this method the efficiency of the air would increase by 1.4 to 1.5 times.

Devadiga Nikhil G.
6th sem Automobile Engg
SIT Mangaluru

Repair time reduction for vertical machining center

Root-cause identification for quality and productivity related problems are key issues for manufacturing processes. It has been a very challenging engineering problem particularly in a multistage manufacturing, where maximum number of processes and activities are performed. The maintenance function is a key area in which competitiveness through efficiencies and world-class performance can be attained by focusing on the reduction of long and costly equipment repair times.



Every organization depends on the availability and efficiency of its resources for it to remain competitive in a very challenging economic climate. The proper functioning of its assets used in the production line is crucial for delivering a product on time and that meets the expectations of customers. One of the ways to increase the productivity is to increase the availability of existing machines. More the machine availability more is the scope for increase in productivity

Availability of machines can be increased by reducing the downtime or MTTR of the machines. Main objective is to reduce MTTR of BMV 60 VMC machine by finding out the Root Cause Analysis and arriving at executing the counter measures by which these problems can be reduced and subsequently solved.

In this, Preventive Maintenance and Root Cause Analysis are adopted to improve the Machine Availability & Productivity. Root cause analysis is carried out to find the root cause of breakdowns and some parallel improvement opportunities were also identified for implementation so as to reduce the downtime, MTTR. This work is executed based on the down time of the machines which are classified as critical machines.

Mr. Abhilash.V
Asst. Professor
Department of Automobile Engineering
SIT Mangsluru

Snap shots

Hand Ball Winner (Mangaluru zone)

BEST OUTGOING STUDENT (AUTOMOBILE) OF THE YEAR 2017-18 JACKY CHRISTON

Snap shots

Envision & Sports Day 2K18

Blood Donation

Industrial Visit to BEML & GRS Engineering PVT LTD Mysore by 6th sem Students

HERO EXTREME 200R

Displacement	66.5 mm
Bore	57.5 mm
Stroke	199.6 cc
Kerb Weight	146 kg
Wheelbase	1338 mm
Fuel Capacity	12.4 L
Supply System	Carburetor
Drive Type	Chain Drive
Expected Price	Rs 1,05,000
Wheel Size	Front -17 in Rear -17 in
Starting	Kick and Self Start
Maximum Power	18.35 PS @ 8000 rpm
Maximum Torque	17.1 Nm @ 6500 rpm

TVS NTORQ125

Displacement	124.79 cc (3V)
Maximum Power	6.9kW@7500rpm/9.4PS@7500 rpm
Maximum Torque	10.5Nm @5500rpm
Dimensions (lxbxh)	1865x710x1160 mm
Wheelbase	1285mm
Ground Clearance	155mm
Kerb Weight	116.1 KgFront
Disc	220mm Disc
Rear	130mm Dia Drum
Fuel tank	5 liter

All our dreams can come true if we have the courage to pursue them."

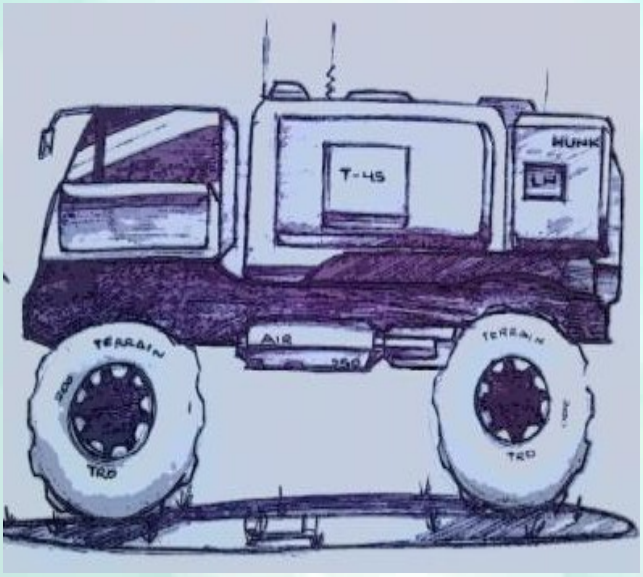
FORD FREE STYLE

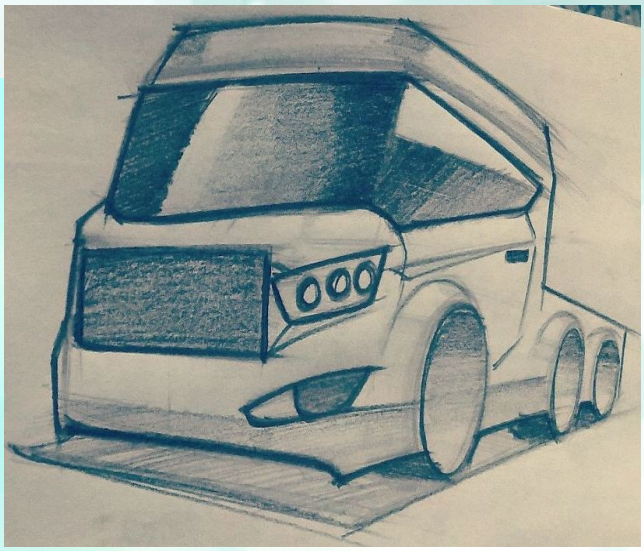
Engine type	1.5 lite disel engine
Engine displace-ment	1498
No of cylinders	4
Fuel type	diesel
Max power	98.63bhp@375rpm
Maximum torque	215nm@1750 3000rpm
No.of.cylinder	4
Fuel supply system	CRDI
Gear box	5- speed
Front suspension	independent mcpherson
Rear suspension	semi independent
Turning radius	5.0m
Brake front	ventilated disc
Rear brake type	drum
Fuel tank capacity	40 liters

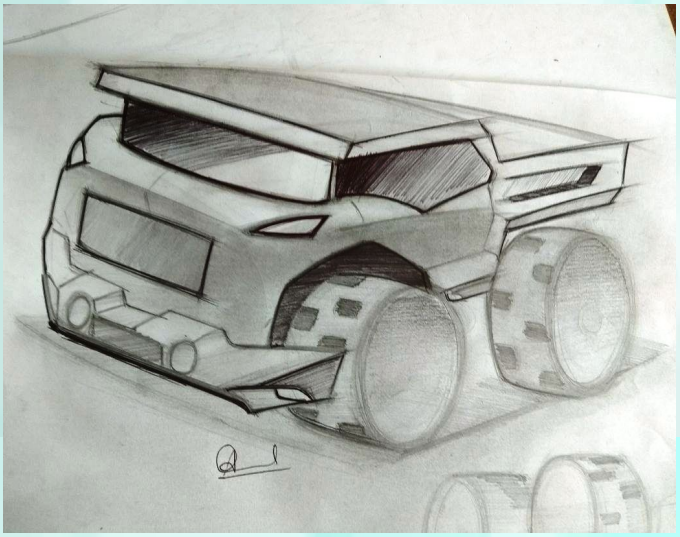
TOYATA YARIS

Engine Description	1.5-litre 105.5bhp 16V Dual
Displacement (cc)	1496
No. of Cylinders	4
Maximum Power	105.5bhp@6000rpm
Maximum Torque	140Nm@4200rpm
Valves Per Cylinder	4
Transmission Type	Manual
Gear box	6 Speed
Drive Type	FWD
Front Suspension	McPherson Strut With Stabilizer
Rear Suspension	Torsion Beam With Stabilizer
Fuel Type	Petrol
Fuel Tank Capacity	42 (Liters)

Remember that life's greatest lessons are usually learned at the worst times…







Art by Avinash (6th sem)

ಇಂದಿನ ಯುವಪೀಳಿಗೆ ಮತ್ತು ಅವರ ಜೀವನಶೈಲಿ

ಯುವಪೀಳಿಗೆ ಅಂದಾಕ್ಷಣ ನಮಗೆ ತಕ್ಷಣ ನೆನಪಾಗೋದು, ನಮ್ಮ ಭವ್ಯ ಭಾರತ ದೇಶದ ವೈಶಿಷ್ಟ್ಯವನ್ನು ವಿಶ್ವಕ್ಕೆ ಪರಿಚಯಿಸಿದ ಮಹಾನ್ ವ್ಯಕ್ತಿ ಸ್ವಾಮಿ ವಿವೇಕಾನಂದರು ಮತ್ತು ಯುವಕರಿಗೆ ಹೇಳಿದ ಮಾತು "ಏಳಿ ಎದ್ದೇಳಿ ಗುರಿ ಮುಟ್ಟುವ ತನಕ ನಿಲ್ಲದಿರಿ". ಈ ನುಡಿಯನ್ನು ಇಂದಿನ ಯುವಪೀಳಿಗೆಗೆ " ಏಳಿ ಎದ್ದೇಳಿ ಮೊಬೈಲ್ ಬಿಟ್ಟು, ಸ್ವಲ್ಪ ದೇಶದ ಕಡೆಗೂ ಗಮನ ವಹಿಸಿ" ಎಂದು ಅನ್ವಹಿಸಬಹುದಾಗಿದೆ. ಏಕೆಂದರೆ, ನಮ್ಮ ದೇಶದ ನಿರ್ಮಾಣ ಮತ್ತು ಅಭಿವೃದ್ಧಿ ಯುವಜನತೆಯ ಮೇಲೆಯೇ ಹೆಚ್ಚು ಅವಲಂಬಿತವಾಗಿದೆ. ಅತಿ ಹೆಚ್ಚು ಯುವ ಜನಸಂಖ್ಯೆಯನ್ನು ಹೊಂದಿದ ರಾಷ್ಟ್ರಗಳಲ್ಲಿ ಭಾರತವು ಮೊದಲ ಸ್ಥಾನದಲ್ಲಿ ನಿಲ್ಲುತ್ತದೆ. ಆದರೆ, ಇಂದು ಹೆಚ್ಚಿನ ಯುವಪೀಳಿಗೆಯ ಜೀವನಶೈಲಿಯು ಮೊಬೈಲ್ಸ್,ದ್ವಿಚಕ್ರ ವಾಹನ, ಬಟ್ಟೆ ಮತ್ತು ಪಾರ್ಟಿಗಳಿಗೆ ಸೀಮಿತಗೊಂಡಿದೆ. ಅವರಿಗೆ ದೇಶದ ರಾಜಕೀಯ ಬಗ್ಗೆ ಮತ್ತು ಜಗತ್ತಿನಲ್ಲಿ ಏನು ನಡೆಯುತ್ತಿದೆ ಎಂದು ತಿಳಿದುಕೊಳ್ಳುವ ಆಸಕ್ತಿಯೇ ಇದ್ದಂತ್ತಿಲ್ಲ. ಡಿಸ್ಕೋಗಳಲ್ಲಿ ರಾಕಿಂಗ್ ಸಂಗೀತಕ್ಕೆ ಹೆಜ್ಜೆ ಹಾಕೋದು, ಹೊಸ ಮೊಬೈಲ್ಸ್, ಡೆನಿಮ್ ಜೀನ್ಸ್ ಮತ್ತು ವುಡಲ್ಯಾಂಡ್ ಬೂಟು ಮತ್ತು ಕೆಟಿಎಂ ಬೈಕಗಳು, ಇದು ನಗರ ಪ್ರದೇಶದ ಹೆಚ್ಚಿನ ಯುವಜನರ ಸಾಮಾನ್ಯ ಜೀವನ ಶೈಲಿಯಾಗಿದೆ.ಇವರು ಈ ಎಲ್ಲವುಗಳನ್ನು ಹೊಂದಿಲ್ಲದಿದ್ದರೆ, ಇದು ಕಾಲೇಜ್ ಕ್ಯಾಂಪಸ್ನಲ್ಲಿ ತಮ್ಮ ಇಮೇಜ್ಗೆ ಧಕ್ಕೆಯಾಗುತ್ತದೆ ಎಂದೇ ಭಾವಿಸುತ್ತಾರೆ.

ಇವತ್ತು ಹೊರಾಂಗಣ ಆಟ ಮತ್ತು ಮೊಬೈಲ್ ಆಟ ಅಂತ ಆಯ್ಕೆ ಕೊಟ್ಟರೆ, ಎಷ್ಟು ಜನ ಹೊರಾಂಗಣ ಆಟಗಳನ್ನು ಆಡಲು ಬಯಸುತ್ತಾರೆ? ದ್ವಿಚಕ್ರ ವಾಹನ ಒದಗಿಸಿದರೆ ಎಷ್ಟು ಜನ ನಡಿಗೆಗೆ ಆದ್ಯತೆ ನೀಡುತ್ತಾರೆ? ನಿಸ್ಸಂದೇಹವಾಗಿ ಮೊಬೈಲ್ ಮತ್ತು ದ್ವಿಚಕ್ರ

ವಾಹನ ನಮಗೆ ಉಪಯುಕ್ತ ಆದರೆ, ಅತ್ಯಾಧುನಿಕ ಜಗತ್ತಿನ ಕಡೆಗೆ ತಿರುಗಿ ನಮ್ಮೊಳಗಿರುವ ಮನುಷ್ಯನನ್ನು ಕಡೆಗಣಿಸಿದರೆ ಹೇಗೆ?

ಪೋಷಕರೊಂದಿಗೆ ಸಮಯವನ್ನು ಕಳೆಯುವುದು ಅಥವಾ ಅವರಿಗೆ ಸಹಾಯ ಮಾಡುವುದು, ಇವು ಕೆಲವು ವಿಶೇಷ ಕ್ಷಣಗಳು. ಆದರೆ ಯುವಕರು ತಮ್ಮ ಸಮಯವನ್ನು ಮೊಬೈಲ್ಗಳಲ್ಲಿ ಹೆಚ್ಚು ಕಳೆಯುತ್ತಾರೆ. ಇಂದಿನ ಹೆಚ್ಚಿನ ಯುವಜನತೆ ಕಾಲೇಜ್ಗೆ ಪೋಷಕರ ಒತ್ತಾಯದಿಂದೋ ಅಥವಾ ಹಾಜರಾತಿಗಾಗಿ ಬರುತ್ತಾರೆ. ಆದರೆ ತಮ್ಮ ಜವಾಬ್ದಾರಿಯಾದ ಅಧ್ಯಯನ ಮಾಡಲು ಮರೆಯಬಾರದು. ನಿಜ ಹೇಳಬೇಕೆಂದರೆ ಯುವಕರಿಗೆ ನಿರುದ್ಯೋಗ ಮತ್ತು ದೇಶದ ಸಮಸ್ಯೆಗಳ ಬಗ್ಗೆ ಸರಿಯಾಗಿ ತಿಳಿಯೋದು ಅವರು ತಮ್ಮ ಶಿಕ್ಷಣದ ಪದವಿ ಮುಗಿಸಿದ ಮೇಲೆಯೇ!!!!

ನಿಜ, ಜೀವನದಲ್ಲಿ ಮನರಂಜನೆಯು ಇರಬೇಕು ಆದರೆ ಅದು ಮಿತಿಯಲ್ಲಿರಬೇಕು. ಇಂದಿನ ಯುವಜನತೆ ಕೆಲವು ಜವಾಬ್ದಾರಿಗಳನ್ನು ತೆಗೆದುಕೊಂಡರೆ, ನಾವು ಮತ್ತು ನಮ್ಮ ದೇಶ ಉತ್ತಮ ಎಂದು ಜಗತ್ತಿಗೆ ಸಾಬೀತುಪಡಿಸಬಹುದು. ಇದು ನಮ್ಮ ಯುವಪೀಳಿಗೆಯ ತಲೆ ಒಳಗೆ ಹೊಕ್ಕರೆ ನಮ್ಮ ದೇಶದ ನಿರ್ಮಾಣ ಮತ್ತು ಅಭಿವೃದ್ಧಿ ಸಾಧ್ಯ.

ಪ್ರಕಾಶ ಎಸ್. ಟಿ

ಉಪ ಪ್ರಾಧ್ಯಾಪಕರು,

ಆಟೋಮೊಬೈಲ್ ವಿಭಾಗ

Technical Paper Published

Devadiga Nikhil Gopal of 6th sem student has published a paper titled as ***Development in Research Work of Compressed Air Powered Engine by Increasing its Air Efficiency*** in International Journal for Scientific Research & Development (IJSRD)

PROJECT APPROVED FOR KSCST SPONSORSHIP 2017-18

Project Title	Branch	Name of the Guide	Name of The Students	Sanctioned Amount
Experimental Study on Performance and Emission Characteristics of 4-Stroke Single Cylinder Petrol Engine Using Formulated Castor Oil As Base Lubricant	Automobile Engg	GIRISH A.R	Manish JS Swapnil SB Ashlesh BR Aditya NC	7000

ROAD SAFETY AWARENESS PROGRAMME

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