

INSTRUMENTATION AND CONTROL DEPARTMENT





DR. SWETA P. DAVE

PRINCIPAL, G.E.C. GANDHINAGAR.

t is a matter of great pride and satisfaction for GEC-Gandhinagar to bring out the Newsletter 'MindSpark'

released from the Department of Instrumentation & Control. The College has made tremendous progress in all areas-academic, non-academics, and capacity building relevant to staff and students. I am confident that this issue of Departmental Newsletter will send a positive signal to the staff, students, and the person who are interested in Technical Education and Technology based activities. A Newsletter is like a mirror that reflects a clear picture of all sorts of activities undertaken by a Department and develops writing skills among students in particular and teaching faculty in general. I congratulate the Editorial Board of this News Letter who has played a wonderful role in accomplishing the task. My heartfelt Congratulations to staff members and Students for their fruitful efforts. With Best Wishes.



DR. D. H. SHAH PROF. & HEAD, I & C, G.E.C. GANDHINAGAR.

Greetings from the Department of INSTRUMENTATION AND CONTROL ENGINEERING at GEC-Gandhinagar. It gives me immense pleasure to note that the response to our departmental newsletter 'MindSpark' has been overwhelming. The wide spectrum of articles in different sections gives me a sense of pride that our students and professors possess the creative potential and original thinking in ample measures. Each article is entertaining, interesting, and absorbing. I applaud the contributors for their stimulated thoughts and varied hues in the articles contributed by them. A commendable job has also been done by the Editorial Board in planning for and producing the Newsletter. My congratulations to the team who took the responsibility for the arduous task most effectively. I am hopeful that this small piece of technical work shall not only develop the taste for reading among students but also develop a sense of belonging to the institution as well.

Department Of Instrumentation And Control

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ABOUT THE INSTITUTION

Established in 2004, Government Engineering College, Gandhinagar (GEC-Gn) takes pride in its highly motivated students. Our students are life-long assets that help this institute to continuously evolve and work towards its Vision. Approved by AICTE. The College is administrated by Directorate of Technical Education, Gujarat State, Gandhinagar. GEC Gn is affiliated to Gujarat Technological University. GEC-Gn offers its students a wide range of courses to choose from. This helps them to become multi-skilled personalities who can handle the challenges that industry and society will pose before them as future engineers. Committed, to deliver excellence in everything that it does, our institute works towards reducing the gap between industry and education. GEC-Gn endeavours to educate students in a manner that offers them an opportunity not only to excel in academics but to be completely future ready to bring solutions to industrial problems relevant to society and environment.

Vision

To be a premier engineering institution, imparting quality education for innovative solutions relevant to society and environment.

Mission

- To develop human potential to its fullest extent so that intellectual and innovative engineers can emerge in a wide range of professions.
 To advance knowledge and educate students in engineering and other areas
 - of scholarship that will best serve the nation and the world in future.
 - To produce quality engineers, entrepreneurs and leaders to meet the present and future needs of society as well as environment.

ABOUT THE DEPARTMENT

Department of Instrumentation & Control Engineering is well posed to cater the needs of the course. It is equipped with well-developed laboratories to satisfy the course curriculum of various subjects related especially to the Measurement & Automation. Instrumentation & Control Engineering Department started with inception of the college in 2004.

Presently department offers undergraduate course B.E.(Instrumentation & Control). The under graduate course is recognized by AICTE (All India Council for Technical Education).

Vision

To impart quality education in Instrumentation & Control engineering through innovation to meet technological challenges of industries and society with environmental consideration.

MISSION

- To impart knowledge about present trends in the field of Instrumentation & Control engineering.
- To train competent Instrumentation& Control engineers who can design, operate process instrumentation and also manufacturing an automation systems in industries.
 - To encourage students to work on innovative research projects related to Instrumentation & Control engineering considering environmental aspect.

A wide range of opportunities are available in both commercial and industrial sectors covering processing, manufacturing, energy supply, mining, electronics, communications, IT, computer systems, defense-related industries, etc.

To impart quality education in Instrumentation & Control engineering through innovation to meet technological challenges of industries and society with environmental consideration.

We aim to produce talented instrumentation and control specialists who cater to meet technological challenges of industries and society with environmental consideration.

Program Education Objective statements (PEO)

PEO-I To operate and maintain industrial Instrumentation & Control system.

PEO-II To design Industrial Instrumentation & Control system by innovative approach.

PEO-III To inculcate professional and ethical attitude, effective communication skills, multidisciplinary approach and an ability to relate Engineering issues in social and environmental context.

PEO-IV To acquire the ability for life-long learning needed for a successful Professional career.

Program Specific Outcome (PSO)

PSO1 Design and develop solutions for process control and automation industries and able to pursue career in research, industry, higher studies and adapt to changing technology.

PSO2 Able to understand professional and ethical responsibility with effective communication skills and life-long learning.

ABOUT THE FACULTY

TEACHING STAFF DETAILS



PROF. M.R. JANI

DesignationAsQualifcationMExperience27

Associate Professor ME (IC) 27 Years

DR. S. A. RANKAWAT

Associate Professor Designation PhD Qualifcation 27 Years Experience



DR. D. H. SHAH

DesignationAssociate Professor (Head Of The Department)QualifcationPhDExperience23 Years

PROF. A. D. RATHOD

Associate Professor Designation ME (IC) Qualifcation 22 Years Experience



PROF. M.B. HINGU

DesignationAssistant ProfessorQualifcationM.TECH., SYSCON-IITBExperience25 Years of Teaching, 01 Year Industry

PROF. I.U. AJMERI

Assistant Professor **Designation** ME (IC) **Qualification** 24 Years of Teaching **Experience**







PROF. K. C. DAVE

DesignationAssistant ProfessorQualifcationM.Tech (E And TC)Experience13 Years

PROF. K. K. ACHARYA

Assistant Professor Designation ME (IC) 22 Years of Teaching, D2 Years Industry Experience





DR. K. B. PATHAK

Designation Assistant Professor Qualification PhD Experience 18 Years

PROF. K. S. VASHISHTHA

Assistant Professor Designation ME (IC) Qualification 12 Years Experience





PROF. N. V. PATEL

Designation Assistant Professor Qualification ME (IC) Experience 11 Years of Teaching, D5 Years Industry

PROF. P. N. PATEL

Assistant Professor ME (IC) O8 Years

Designation Qualification Experience





PROF. R. S. RANA

Designation Assistant Professor Qualification M.TECH (IC) Experience O6 Years



PROF. R. L. ZADFIYA

Assistant Professor Designation M.TECH (IC) Qualification 12 Years Experience





PROF. A. N. BOKADE

Designation Assistant Professor Qualification ME (IC) Experience 17 Years

PROF. J. J. SHAH

Assistant Professor ME (IC) D6 Years Designation Qualification Experience





PROF. C. B. PANCHAL

Designation Qualification Experience <mark>Assistant Professor (Contractual)</mark> ME (IC) DG Years of Teaching, D5 Years Industry

NON-TEACHING STAFF DETAILS



MISS N. J. MAKWANA

Designation Lab Assistant Qualification BE (IC) Experience D5 Years

ABOUT THE RESOURCES

The department has spacious and ventilated classrooms and state of the art laboratories with research lab facility, all that makes an excellent infrastructure.



Process Control Laboratory - II Lab is equipped with process control trainers which helps to perform control of different variables like pressure, flow, level and temperature using different classical control strategies.

Embedded System Laboratory

ппппп

Lab is equipped with Microprocessor and Controller kits and Data acquisition kits which helps students in implementation of different control strategies and logic for automation applications.



Computer Centre 1 & 2

Lab is equipped with PCs having latest specifications and various simulation open source software, which helps students for simulation of various control strategies and electronics circuits.

ABOUT THE RESOURCES

Analog Electronics Laboratory

Lab is equipped with electronics workbench and power electronics trainer which helps in performing characteristics of different electronics and power electronics devices. It also helps in developing and testing of different electronics applications like filter circuits, drives etc..

Communication Laboratory This laboratory is equipped with communication kits which help students in various subjects like Analog and Digital Communication, Analog Signal Processing etc..

Measurement & Process Control

Laboratory Department is having 06 PLC Trainer kits, useful in subjects related to automation & control. As a part of Industrial Measurement lab, the department is having Dynalog kits which help in deriving major sensor characteristics.











TRAINING & PLACEMENT CELL, IC DEPARTMENT, GECGN

With the combined efforts of all I&C faculty members, departmentmental training and Placement Cell facilitates the process of placement of students besides collaborating with leading organizations in setting up internship programs for the students. The Cell provides the infrastructural facilities to conduct preplacement talks, online and written aptitude tests, group discussions, and interviews besides catering to the hospitality of industry officials while on campus.

Some glimpses of Placement Drives :



Placement Drive conducted at Government Engineering College, Gandhinagar (I&C Dept) by Precision Mass Products Pvt. Ltd.



TRAINING & PLACEMENT CELL, IC DEPARTMENT, GECGN



Pool Campus Drive conducted at VGEC, Chandkheda by IRIS Automation Pvt. Ltd.

With numerous Campus Placement Drives organized at the Institute and through Pool Campus Drives conducted at various Institutes, the number of placements has increased. The various organizations like Precision Mass Products Pvt. Ltd., IRIS Automation Pvt. Ltd., Yokogawa Ltd., MTS Engineers Pvt. Ltd., Semitronik Instruments, NIRMA Ltd., WS Atkins (India) Pvt. Ltd., VISCON Automation, Radiant Controls & Automation Pvt. Ltd. have hired our students with the highest package of 4.3 LPA and an average package of 2.72 LPA. The department congratulates the selected students at this moment and extends best wishes for their future ventures.



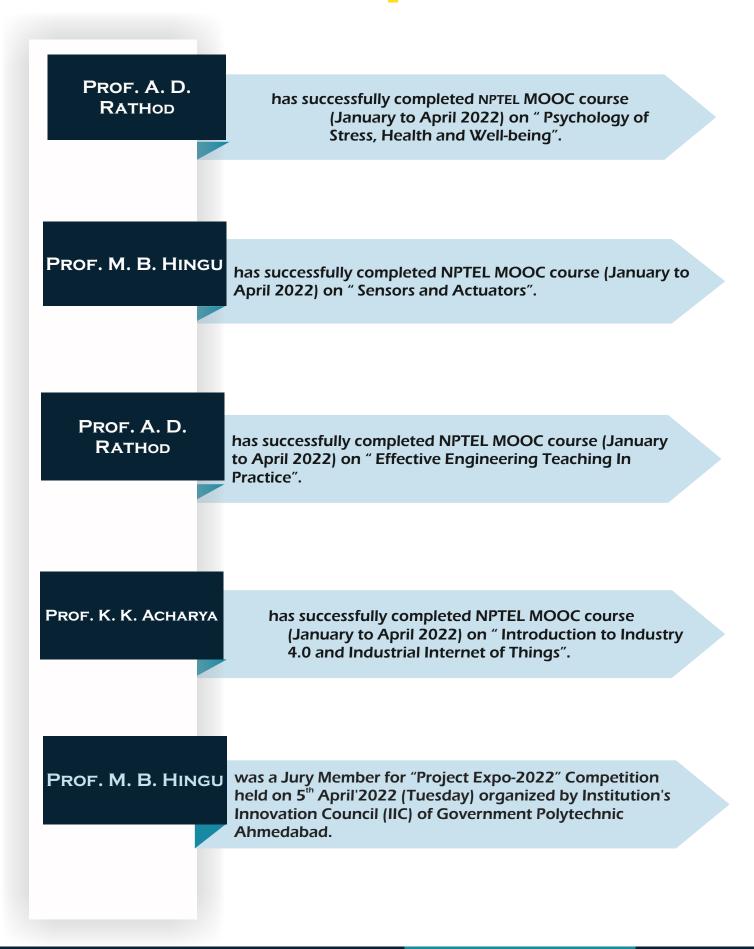
Pre-Placement Sessions



A career guidance program organized by the I&C Dept. in collaboration with ACE Engineering Academy

The preparation for the Final Placements is done by organizing various kinds of training programs and mock tests to transform students to crack interviews with companies on aspects related to Aptitude tests, Group discussions, Resume writing and Personal Interview rounds. The students are also made aware of various carrier options after completing their course.

ABOUT FACULTY MANEUVER



ABOUT FACULTY MANEUVER

PROF.(DR.) S. A. RANKAWAT

has successfully completed NPTEL MOOC course (January to April 2022) on "Bio Medical Signal Processing".

Prof. K. K. Acharya & Prof(Dr.) K.B. Pathak

Prof. K. K. Acharya and Prof.(Dr.) K. B. Pathak had successfully organized and coordinated GUJCOST sponsored and DTE approved 2 weeks online STTP on "Trends in Industrial Automation: Refreshing past and focusing future" from 13th June 2022 to 24th June 2022 in IC Department, GECGn. Prof. K. S. Vashishtha, Prof. A. N. Bokade and Prof. C. B. Panchal were the co-coordinators of the program.

PROF(DR.). K.B. PATHAK

Gave an expert talk on "Energy Efficient and Environment Friendly Technological Trends" in the National Level Event 'Gujarat Vigyan Sammelan 2022' on 01-Feb-2022. He was a session expert during the theme of 'Sustainable Technology'.

PROF(DR.). K.B. PATHAK

has successfully completed NPTEL MOOC course (January to March 2022) on "Automatic Control".

ABOUT FACULTY MANEUVER

FACULTY PAPER PUBLICATIONS

- Dr. D. H. Shah has published a Research Paper on "IOT Based Driver Alertness System" in Stochastic Modeling & Applications-Special issue on Recent Research on Management, Applied Sciences and Technology-UGC care approved journal on 10 February 2022.
 - Dr. D. H. Shah has published a Research Paper on "Ergonomics with AI to Reduce WMSDS" in Stochastic Modeling & Applications-Special issue on Recent Research on Management, Applied Sciences and Technology-UGC care approved journal on 10 February 2022.
 - Dr. D. H. Shah has published a Research Paper on "Investigating the Effect of Covid Induced Lockdown on Land Surface Temperature over Ahmedabad City" in SCOPUS indexed IEEE 2021 India Geoscience And Remote Sensing Symposium proceedings, dated on 13 June 2022.
 - Dr. D. H. Shah has published a Research Paper on "Studying the Trend of Carbon Monoxide for Lockdown Period over India" in SCOPUS indexed IEEE 2021 India Geoscience And Remote Sensing Symposium proceedings, dated on 13 June 2022.
 - Dr. D. H. Shah has published a Research Paper on "Spatio-Temporal Variation of Particulate Matter (Pm10 And Pm2.5) Over Ahmedabad" in SCOPUS indexed IEEE 2021 India Geoscience And Remote Sensing Symposium proceedings, dated on 13 June 2022.
 - Dr. D. H. Shah has published a Research Paper on "Assessment of Black Carbon Concentration and Delta C over Ahmedabad." in SCOPUS indexed IEEE 2021 India Geoscience And Remote Sensing Symposium proceedings, dated on 13 June 2022.
 - Dr. D. H. Shah has published a Research Paper on "Spatiotemporal Variation of Nitrogen Dioxide (No2) Ahmedabad City" in SCOPUS indexed IEEE 2021 India Geoscience And Remote Sensing Symposium proceedings, dated on 13 June 2022.
 - Dr. D. H. Shah has published a Research Paper on "Understanding the Variation of Carbon Monoxide over Ahmedabad City" in SCOPUS indexed IEEE 2021 India Geoscience And Remote Sensing Symposium proceedings, dated on 13 June 2022.

ABOUT

Departmental Activities

DEPARTMENTAL

ACTIVITIES

BUILDING A CLIMATE RESILIENT GUJARAT -

GECG IC Department -students and faculties visited Exhibition " Building a Climate Resilient Gujarat, at Science city Ahmedabad. It was a good exposure for students on Climate Action and Start-ups. Students enjoyed interacting with exhibitors. It was a very good initiative by Dept. Of Climate change, Dept of Science & Technology and Education Department- Govt. Of Gujarat.





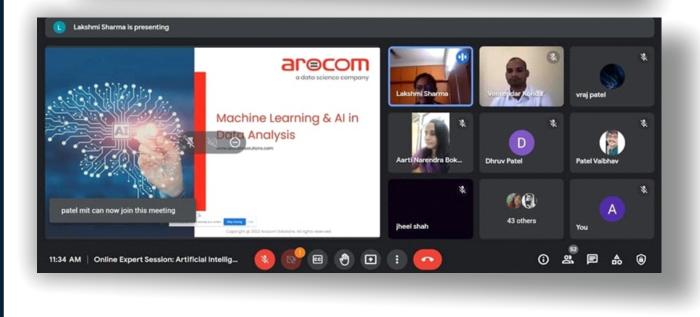
ABOUT DEPARTMENTAL ACTIVITIES

ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

A webinar on "Artificial Intelligence & Machine Learning" was organized by Instrumentation & Control Engineering Department, GEC Gandhinagar on 11-02-2022. The session was conducted by Ms. Laxmi Sharma (Project Manager), Mr. Veerendar Konda (Data Engineering and ML Consultant) and Mr. Dhaval Mandaliya (Founder) of Arocom IT Solutions Private Ltd. More than 50 faculties and final and pre final year students of the department participated and took benefit in magnifying their knowledge from this session. ENGINEERING GOVERNA. ŧ INSTRUMENTATION & CONTROL DEPARTMENT IS ORGANIZING A WEBINAR ON: GANDHINAGAR Σŕ ARTIFICIAL INTELLIGENCE & MACHINE LEARNING DATE: 11th FEB 2022 TIME: 11:30AM-01:00PM SESSION EXPERTS Google Meet Link(Tap here) **JUOD®JE** HOST PATRON OM IT SOLUTIO COMMITTEE MEMBERS PROF. R. S. RANA ASST. PROFESSOR (I.C.) G.E.C., GANDHINAGAR PROF. C.B. PANCHAL ASST. PROFESSOR (I.C.) G.E.C., GANDHINAGAR DR. SWETA P. DAVE DR. DEEPALI H. SHAH ASST. PROFESSOR (I.C.) G.E.C. GANDHINAGAR

DR. SWETA P. DAVE PRINCIPAL G.E.C., GANDHINAGAR

HOD (I.C. DEPT.) G.E.C., GANDHINAGAR





INDUSTRIAL VISIT PROLIFIC AUTOMATION PVT LTD

Industrial visit of 6th Sem IC students with faculties on 19th & 20th April 2022 at Prolific Automation Pvt Ltd (Alphatech Automation) Ahmedabad. Students got exposure of hands on practice on PLC, SCADA, HMI, VFD and Embedded System based Automation solutions...Thanks to Prolific Automation-Ahmedabad.



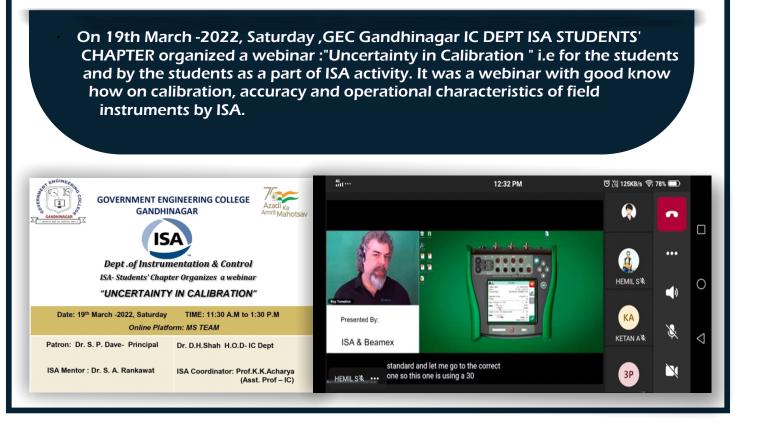
Open House Project Fair

On 18th April 2022, Open House Project Fair was conducted by Dept. Of Instrumentation & Control (GEC Gandhinagar) in which students of final semester presented their work of Internship/ major project done in industry. It was a good presentation by students by way of power point presentation and posters of their actual work done in industries during the Internship as a part of GTU academic requirement.



ABOUT DEPARTMENTAL ACTIVITIES

UNCERTAINTY IN CALIBRATION



ADVANCED INDUSTRIAL AUTOMATION USING PLC & SCADA

 GEC Gn IC Department organized a workshop on "Advanced Industrial Automation using PLC & SCADA", with support of Prolific Automation on 22nd March 2022. Students enjoyed hands on practice on PLC & SCADA

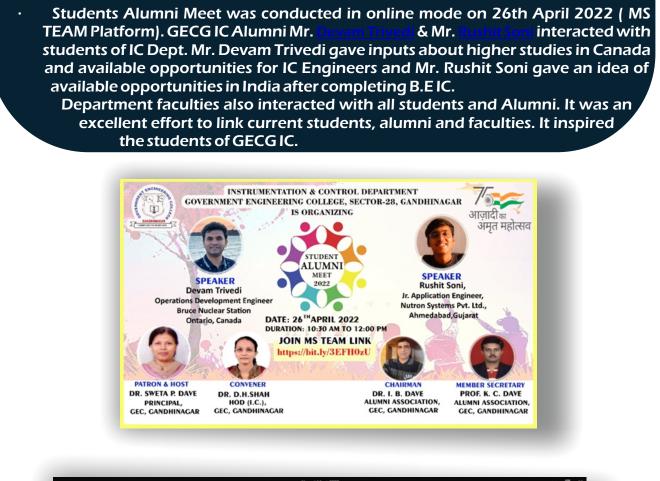




ABOUT

DEPARTMENTAL ACTIVITIES

ONLINE ALUMNI MEET





ABOUT DEPARTMENTAL ACTIVITIES

GUJCOST Sponsored and DTE approved, 2 weeks Online STTP

GEC Gandhinagar IC Dept. had organized GUJCOST Sponsored and DTE approved, 2 weeks STTP (Short Term Training Programme) (On line Mode) on "Trends in Industrial Automation: Refreshing past and focusing future" from 13th June 2022 to 24th June 2022. 62 participants, including faculties and students from Gujarat and other states have participated with full enthusiasm. The training was a grand success.



YOGA DAY CELEBRATION

[•]As a part of International Yoga Day celebration, Department of Instrumentation & Control, performed yoga on 21st June 2022 morning, at the department.





• **VADHER HARSH, STUDENT OF SEMESTER 4- IC,** has received SSIP grant for his clean energy product development project under I-Hub .

PATEL FORAM, STUDENT OF SEMESTER 4- IC
 Patel Foram, student of semester 4- IC, had attended 2 week workshop on ARDUINO, 3D Printing, Basic Electronics Circuit and Block Printing.
CERTIFICATE IS PROUDLY PRESENTED TO THIS CERTIFICATE IS PROUDLY PRESENTED TO PATEL FORAM .V SUCCESSFULLY ATTEND TWO WEEK WORKSHOP ON ADUINO, 5D PRINTING, BASIC ELECTRONIC CIRCUIT, AND BLOCK CODING ADUINO, 5D PRINTING, BASIC ELECTRONIC CIRCUIT, AND BLOCK CODING MULTY Darchol Coounder & CTO

RITESH PATLE, STUDENT OF SEMESTER 6-IC=

 Ritesh Patle, student of semester 6-IC has successfully completed a NPTEL course by IIT KHARGPUR on the topic "Introduction to Industry 4.0 and IIOT" for the duration of 12 weeks.



ABOUT CREATIVE CORNER



CREATIVE CORNER



Ροεμ => फर्नेयाद

कर विया करीयाद मतलत जर जहां में अविश्वी का आदत्ती व्यमझकर, वे दिया चाय सतलत के तशाज, पर तोलकर । वर्द्त तो बहुत है अतत्मती दुतिया में धार्रो, जाति - दार्भ सतामत कर रहा चर अवसाज हजायों।

तक्षी तो चर्झीते के तहाया, आंक्यु में बीटी जीला कर कहां कमजीर आय हो द्वसची ओर अश्विमात की शिव्या पर लेमा सादसी का व्युग चुस वहां भुलण भावसी।

टााव सहलाते हुएा आंचला मानने की लत मगर, ना मिला सुनने वाला पीत वह गये जहरू ।

सतलत अरे जहां में शोषित कहां करे फेरियाद्।

- योथुर

लोजियों को बहि रहा फर्ज अब याद,

PIYUSH CHAUHAN SEM-6

ABOUT STUDENT'S DISQUISITION

TIME TO SHARPEN THE SWORD...

THINK..PAUSE ..RETHINK..AND EXECUTE...

In today's era, education is being competitive day by day, and after getting higher education to build a successful career is also being more and more competitive. Students of engineering always are on their toes to do something better. They have to upgrade themselves with changing technology and changing trends in industries. But is that an only solution? If a student works hard and upgrades oneself with changing trends then what? The existing competition and macro-economic scenario is really threatening. Every country is facing various challenges and that is going to affect the job market as well as the technological implications.

Therefore, it is a time to sharpen the sword. A sword of common sense, a sword of intellect, a sword of knowledge and a sword of skill. Considering current scenario, it is imperative to keep a watch on changing trends in society, in country and in the world too. Just getting a good job is not sufficient and it is not the only way to upgrade oneself and to contribute to the society too. If one can do something on his own and can develop something in an innovative way then it is going to have some meaning.

It is a time to develop something innovative, i.e., thinking.... Then pause and have a look on existing scenario i.e., current market, current economic situation, current technology and need of development in a specific area...Then comes a stage of rethinking i.e., based on the study done in second stage, how one can improve or redevelop something so that it can solve some purpose in a better way...And finally execute it for a sustainable model i.e., a prototype, a product or a business model. That fire must be burning in the mind to do something better and to develop something new.

If at least 10% of youth and especially engineering students start thinking in this direction then it will really contribute a lot to the society and then to the country as a whole. Innovative ideas always find the fruitful minds. And if that works out perfectly then there will be abundant opportunities in terms of startups, business ventures, and new technological initiatives for research and development.

I think our students of engineering have that potential and can do something in this direction too... Feeling hopeful...... and optimistic....

PROF.K.K.ACHARYA- ASST. PROFESSOR –IC GOVT. ENGINEERING COLLEGE GANDHINAGAR

ABOUT STUDENT'S DISQUISITION

If man has benefited immeasurably by his association with the dog, what, you may ask, has the dog got out of it? His scroll has, of course, been heavily charged with punishments: he has known the muzzle, the leash and the tether; he has suffered the indignities of the show bench, and the tin can on the tail, the ribbon in the hair; his love life with the other gender of his species has been regulated by the frigid hand of authority, his digestion ruined by the macaroons and candies of doting women. The list of his woes could be continued indefinitely. But he has also had his fun, for he has been privileged to live with and study at close range the only creature with reason, the most unreasonable of creatures.The dog has more fun out of Man than Man has got out of the dog, for the clearly demonstrable reason that Man is the more laughable of the two animals.

The dog has long been bemused by the singular activities and the curious practices of men, cocking his head inquiringly to one side, intently watching and listening to the strangest goings-on the world.

He has seen men sing together and fight one another in the same evening. He has watched them go to bed when it is time to get up, and get up when it is time to go to bed. He has observed them destroying the soil in vast areas, and nurturing it in small patches. He has stood by while men built strong and solid houses for rest and quiet, and then filled them with lights and bells and machinery. His sensitive nose, which can detect what's cooking in the next township, has caught at one and the same time the bewildering smells of the hospital and the munitions factory. He has seen men raise up great cities to heaven and then blow them to hell.

A DOG'S EYE VIEW OF MAN

ABOUT STUDENT'S DISQUISITION

You know that decades are a recent invention? Decades are hardly a century old. Not the concept of having ten years of course, but the concept of the decade as a sort of major cultural unit, like when I say "the 90s" and you think of flannel shirts and grunge music and great R&B music, or when I say "the 80s" and you think of people with big hair using floppy disks. You need a lot of change for a decade to be a meaningful demarcation. Back in the 1600s they didn't really talk about centuries as much either. It was all about the life of the king, the reign (of King James and so forth), or the era.

And then they invent clocks and clocks get cheaper and cheaper. Clocks are an amazing experience, right? Two hands, and a bell. This sense of relentless forward motion and they go in only one direction. Imagine doing user testing on clocks.

You say, "You're a farmer – tell me about a normal day."

And the farmer says, "Normally I wake up then depending on the month I might plant or reap the harvest."

And you say, "How do you know what to plant?"

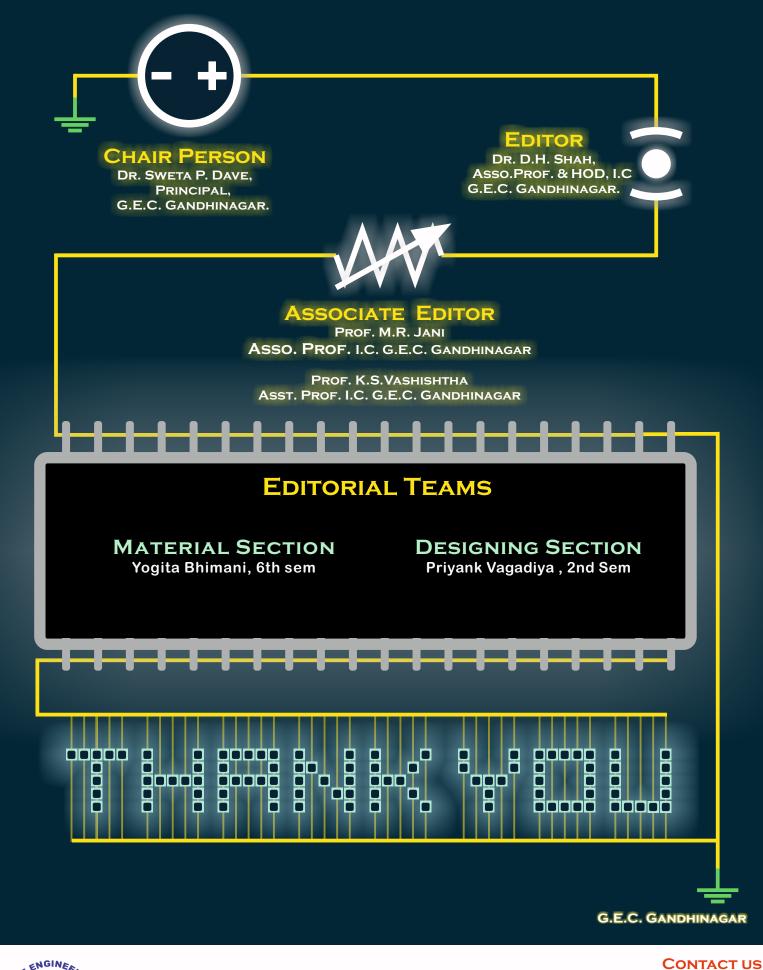
And the farmer says, "I've got this poem that we've been using for generations, so like, in June I mow my corn, in August I harvest my wheat with a sickle, stuff like that."

And you're trying to build understanding, you say, "That poem sounds really useful. But I'd like to talk about a new approach to time. What if I could divide every single day into 24 big parts called hours, and each of those into 60 little parts called minutes? So now instead of having just a whole day, you have 1,440 little pieces of time and you can arrange them and do whatever you want. What is your reaction to that?"

And I think the farmer would probably be polite but I'm guessing he'd be thinking, "Clock? That's the single stupidest thing I've ever heard."

THE CLOCK

BHAWYA SAXENA 190130117123 SEMESTER 06





GOVERNMENT ENGINEERING COLLEGE GANDHINAGAR **Q**

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