Universal College of Engineering

(Permanently Unaided | Approved by AICTE, DTE & Affiliated to University of Mumbai)

Gujarati Linguistic Minority Institution

Accredited with B+ Grade
in 1st cycle of accreditation by

NAAC
NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

CURRENT WAVES

AN INITIATIVE BY EXTC DEPARTMENT

MAGAZINE

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RAHUL NAIR

AUGUST 2019

ELECTRONIX QUOTES

THE MOST TECHNOLOGICALLY EFFICIENT MACHINE THAT MAN HAS EVER INVENTED IS THE BOOK.

–NORTHROP FRYE

JUST BECAUSE SOMETHING DOESN'T DO WHAT YOU PLANNED IT TO DO DOESN'T MEAN IT'S USELESS.

–THOMAS EDISON

HUMANITY IS ACQUIRING ALL THE RIGHT TECHNOLOGY FOR ALL THE WRONG REASONS.

–R. BUCKMINSTER FULLER

IT'S SUPPOSED TO BE AUTOMATIC, BUT ACTUALLY YOU HAVE TO PUSH THIS BUTTON.

–JOHN BRUNNER

21 Things Engineering Students Wished They Knew When They Started University

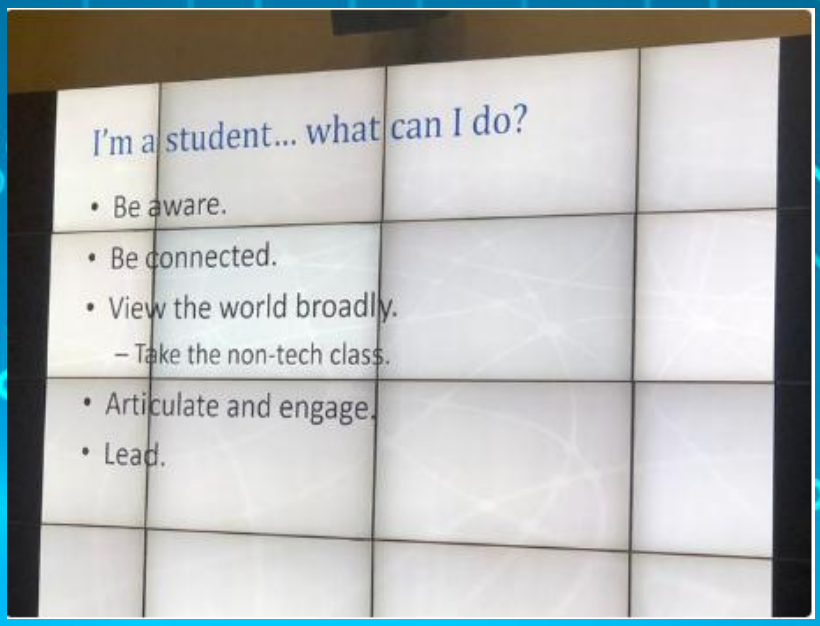
Your university years can be some of the most exciting years of your life, but it's easy to lose your focus. Here's a few things budding engineers wished they knew when they started university.

Starting at university is an exciting time in anyone's life and marks a new beginning full of promise. You're encountering a wealth of knowledge, meeting countless new people, and paving the way for your future.

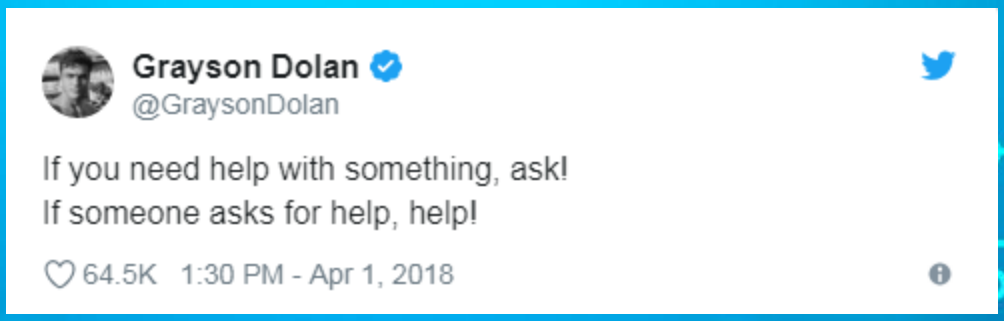
That said, it's easy to be overwhelmed by your new surroundings and end up losing your focus. Between parties, events, and extracurricular activities, there's no shortage of distractions from your studies.

Not just that, but life after graduation might not be what you thought it would be. As always, hindsight is 20-20, and past graduates have plenty of advice to impart. Here are just a few things that engineering students wished they knew before starting university.

1. *There's No Such Thing as a Stupid Question*
2. *Socializing Can Be as Important as Studying*



3. *It's Never Too Early to Start Networking*
4. *Don't Burn Any Bridges*
5. *Ask for Help When You Need It*

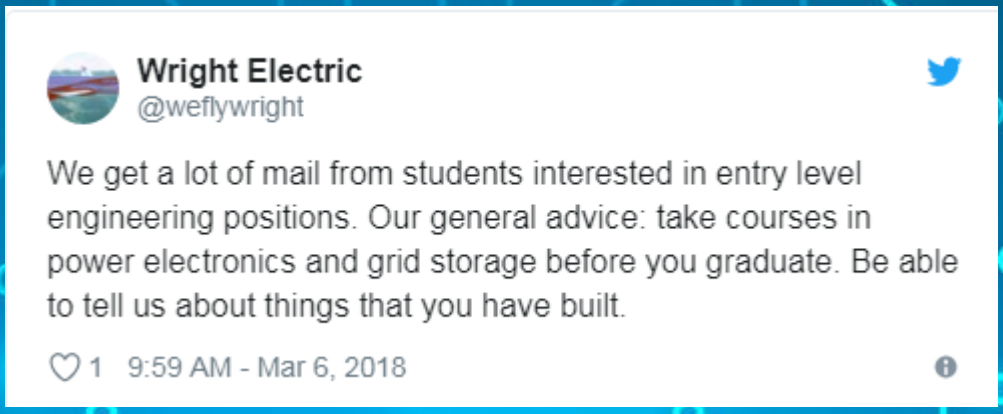


6. *You Probably Won't Use Everything You Learn - But You Still Need to Learn It*
7. *You Need to Push Yourself and Take Initiative*
8. *You Can't Ever Settle For "Good Enough"*
9. *Don't Worry About Getting Into the "Best" Schools*
10. *Don't Limit Your Skills to Engineering Alone*
11. *You're Not Guaranteed A Job After Graduation*
12. *If You're Not Having Fun, You're in the Wrong Place*

ANSWERS

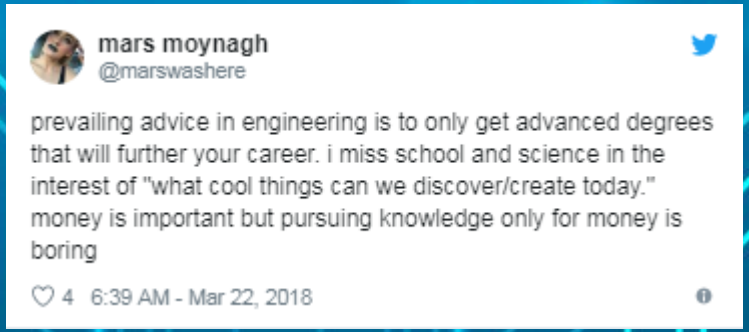
1. Modem 2. Central Processing Unit (CPU) 3. Arithmetic Logical Unit (ALU) 4. Random Access Memory (RAM) 5. * , ? 6. American National Standard Institute (ANSI) 7. Large Number of Cells 8. Microprocessor 9. Data and program 10. Removing BIOS password

13. Get Hands-On Experience

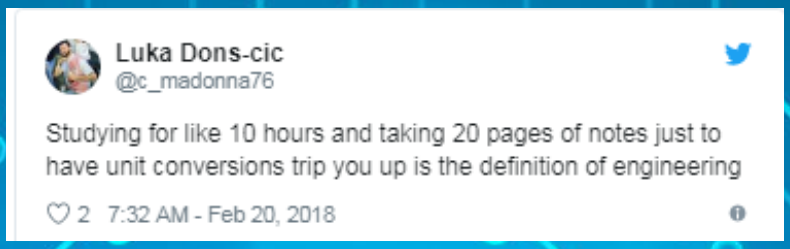


14. You Need to Be a Team Player

15. Nobody Cares About Your GPA After College
16. Reflect on What Inspires You



17. Start Your Portfolio Sooner Rather Than Later
18. Take Good Notes and Hold onto Them



19. Look Outside of Your Desired Field

20. Don't Get Lazy Over the Summer

Obviously, summer is your chance to take a break, but be smart about how you use your free time. Even just a few pages a day will make a huge difference, and will lighten your workload when the college year starts. Take notes too, especially of any questions you have. This way you'll be able to get the most out of your time in class.

21. Use the Internet to Your Advantage

There's a wealth of information online that can help you when you're struggling. From lectures on YouTube, to podcasts, there's no shortage of ways to supplement your learning. So if you've missed a class or are having trouble understanding something, there's always help to be found online.

https://amp.interestingengineering.com/21-things-engineering-students-wished-they-knew-when-they-started-university#referrer=https%3A%2F%2Fwww.google.com&amp_tf=From%20%251%24s

This week's story comes to us from *ECN* reader Abdel Hezzini, senior electrical systems engineer, Veeco Instruments.

I think my engineering story was written before I was born. It began in the 1980s when my parents migrated to the United States from Aleppo, Syria. My father was an electrical engineer and landed several jobs as a technician in order to support our family of seven. I found myself working alongside him almost daily by the age of six. Instead of Saturday morning cartoons and playing with toy race cars, I had multimeters, oscilloscopes, and soldering irons. By the age of 16, I was working as an engineer tech at a company that worked with X-ray, MRI, and CAT scan equipment.

I learned something about myself during those years—that my curious nature propels me toward continuous growth. I knew that with the right approach, design, and idea, I could engineer the future that I wanted for myself and those around me. The defining moment came at the age of 18, when I needed a car, but couldn't yet afford one. Instead of accepting that fate, I forged my own. I went to the junkyard and bought the parts. In 2 months, I built a working car for less than $700.

At the time, gas prices were the highest they'd ever been, sparking an idea for which my passion for electrical engineering and hobby for building cars served me well. My design, which improved the efficiency of gas mileage by taking advantage of the car's losses, like heat from the engine, won first place. It was one of those "aha" moments when I truly understood how engineers can be agents of positive change.

This success inspired me to create innovative solutions to life's problems on a broader spectrum. I decided that I needed better tools to aid my goal and enrolled in the undergraduate electrical engineering program at New Jersey Institute of Technology (NJIT) while working full time. My time at NJIT validated my decision and I knew that I'd chosen the best career path for myself.

Abdel Hezzini

senior electrical systems engineer

After earning my degree at NJIT, I worked as a control engineer for a few years, but wanted to get more involved in the overall design of an entire system. In my current role as a senior electrical system engineer at **Veeco Instruments**, we have a high level of responsibility and accountability associated with our tools. When you're an engineer, upper management trusts you to be able to find an answer that others haven't been able to find. This requires a careful balance between managing tight deadlines, while always maintaining structural competency and efficiency. These intricacies built not only the trust and confidence my colleagues have in me, but the same confidence I have in them.

My favorite part of being an engineer is that I am not just an engineer: I am a scientist, planner, innovator, designer, developer, and may take on even more roles as the scale and impact of our tools continue to evolve. I enjoy the challenge of solving problems and having a hand in the innovative world that allows us to operate more efficiently and make our environment more sustainable. It's imagining the finished product that you conceptualize in your mind, and then later seeing it built. There are no words to describe that feeling!

Creativity and curiosity are at the core of how I perceive the world around me, which is how I know I've always been an engineer at heart. My experience thus far has taught me many things, but what provides the most powerful affirmation for me is that being an engineer gives me the power to solve real-world problems we're facing as a society. We, as engineers, can truly make a change for the better.

https://www.ecnmag.com/blog/2019/02/i-became-engineer-turning-curiosity-career

Department Activities

20th June 2019

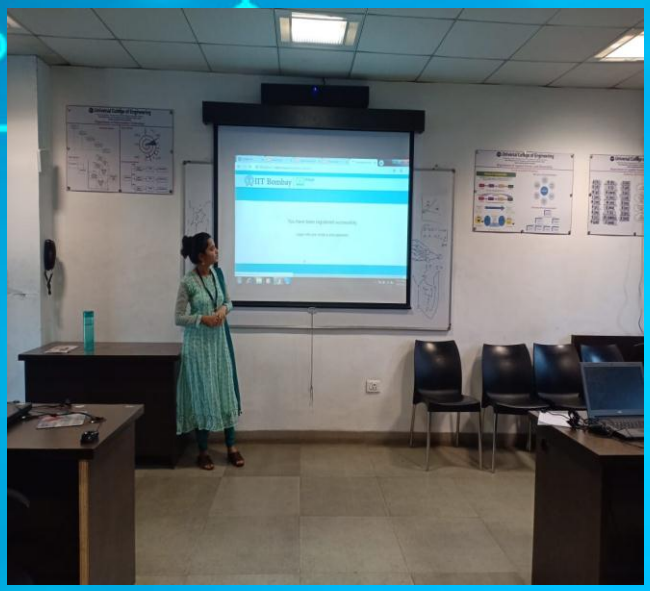
Orientation/ Hands-on training programme on IIT Virtual Labs Usage and Development

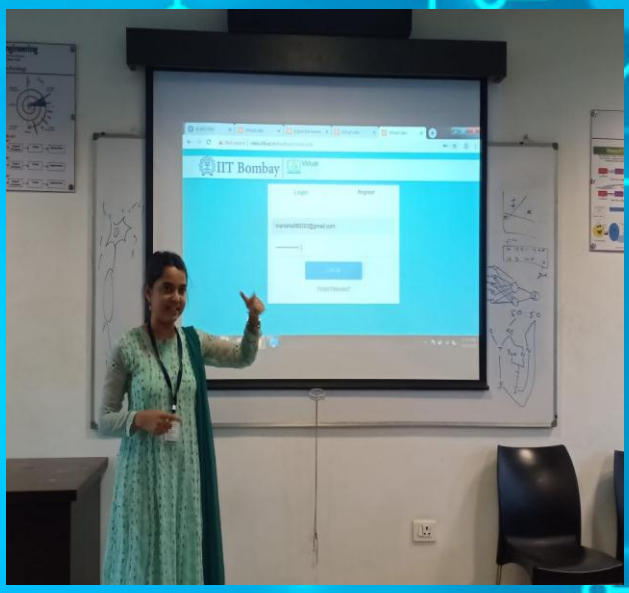
An Orientation/ Hands-on training programme on IIT Virtual labs usage and development was organized at Regional center-virtual labs, school of biotechnology and bioinformatics, D Y Patil Deemed to be University, Navi Mumbai on 20th June 2019. The participants were addressed by the Director, D Y Patil Deemed to be University. A very informative session was conducted by Dr. Pushpadeep Mishra, Project Manager IITB, Mumbai. He addressed the participants and emphasized on the various benefits of using Virtual labs. The session covered the different types of virtual labs available, benefits of using Virtual Labs for students as well as faculties. The next session was a Hands-on training programme on IIT Virtual labs usage. Dr. Naveen P, Regional Coordinator for IIT Bombay Virtual Labs & his team trained the participants on performing the different experiments and giving feedback about the experiments performed using Virtual Labs. The Programme was concluded by feedback from the participants. The programme was attended by 2 faculties from EXTC Department Mrs. Kaveri Sawant, HOD, EXTC Dept. and Ms. Swarali Narvekar, Assistant Professor, EXTC Department.

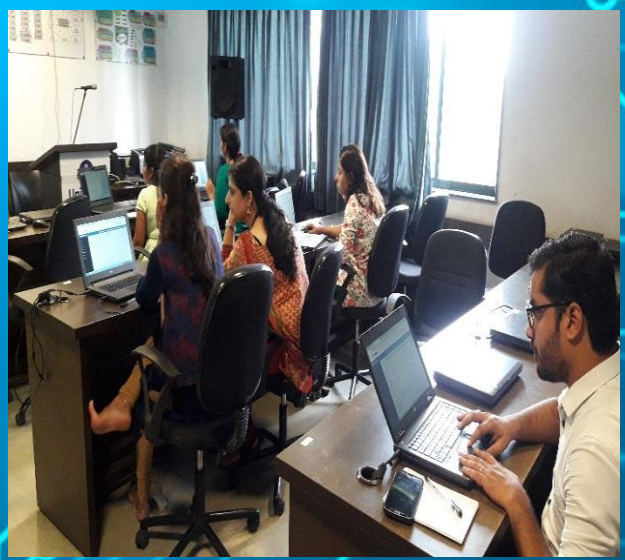
4 July 2019

Workshop conducted on IIT Virtual Labs Usage and Development for Faculty Coordinators

Ms. Swarali Narvekar conducted workshop on Virtual Labs for the faculty of each department wherein Swarali Ma'am explained all the tact's she learned during her hands-on programme.







July 20, 2019

Parents Teacher Interaction (PTI)

Department conducted PTI meet for Second year and Third year students

Faculty addressing Second year parents in Lab 218

Faculty addressing Third year parents in Lab 219

Faculty shared attendance to respective parents.

Parent's also shared their views with faculties and interacted with their class coordinator.

31 JULY 2019

Institute level elective Energy Audit by the department of Electronics & Telecommunication. The students of BE EXTC conducted a Type 1 audit of UCOE.

Energy Audit

For engineers, technicians, and management engaged in industrial automation, ISA is the trusted provider of standards-based foundational technical resources, driving the advancement of individual careers and the overall profession.

Mr. Hardik Parmar, student from Third year received BEST ISA STUDENT MEMBER PROJECTAWARD 2019.

World Cup 2019 Final, England vs New Zealand: England lift maiden World Cup title with a little controversy and lot of drama

Take a deep breath and reboot your memories. The World Cup has finally come home. England have kept their date with destiny, albeit a little controversially and not without a lot of drama. It doesn't get closer than this, beating a side on the number of boundaries hit in the innings after staying level even after a Super Over custom-made only for the World Cup.

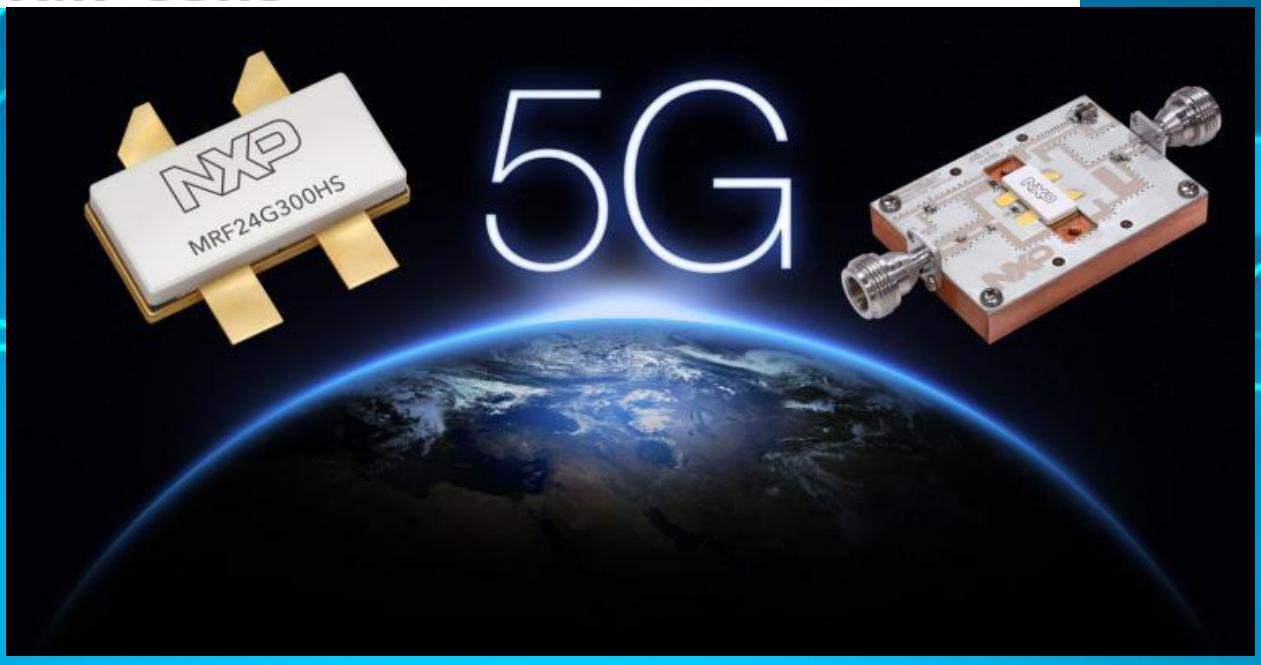
Eoin Morgan lifted the trophy but New Zealand won hearts by staying true to their fighting streak. World Cup finals tend to disappoint. The last time Lord's had hosted one, the finest ever Pakistan team crumbled for just 132 against Australia. Previous finals in 2015, 2007 and 2003 too were equally one-sided as Australia made short work every time, irrespective of the opponent. That story has been set straight now. There was every kind of drama you could imagine. This was the dream final.

ENGLAND CWC19

https://www.hindustantimes.com/cricket/world-cup-2019-england-lift-maiden-world-cup-title-with-little-controversy-and-lot-of-drama/story-gx6VPlQgvSJ5XUQCHTL7CK.html

INDUSTRIAL AUTOMATION

Sizing Up Semiconductors for 5G Small Cells



Armed with several semiconductor technologies, NXP is readying for the requirements of 5G infrastructure systems with discrete devices and compact modules. Effective radio networks will require efficient power amplification and NXP Semiconductors has recognized that a single semiconductor technology may not be enough for 5G.

The semiconductor innovator is developing discrete and integrated device solutions for 5G based on three different in-house technologies: silicon (Si) LDMOS, gallium-nitride (GaN), and silicon-germanium (SiGe) processes.

IOT, SECURITY & AUTOMOTIVE

Who's Responsible for Security Breaches?

Kelf: Yes, you can bring that element in, as well. You specify everything it can do, and now you walk the things that it can't do.

Bartley: You need tools that can prove you can't do stuff. That is what Datapath analysis can tell you. You want to know that a piece of data cannot go from here to here.

https://www.electronicdesign.com/industrial-automation/sizing-semiconductors-5g-small-cells

Semiconductor Engineering sat down to discuss industry attitudes towards safety and security with Dave Kelf, chief marketing officer for Breker Verification; Jacob Wiltgen, solutions architect for functional safety at Mentor, a Siemens Business; David Landoll, solutions architect for OneSpin Solutions; Dennis Ciplickas, vice president of characterization solutions at PDF Solutions; Andrew Dauman, vice president of engineering for Tortuga Logic; and Mike Bartley, CEO for TV&S.

LOW POWER-HIGH PERFORMANCE

SEMICONDUCTOR ENGINEERING

New processors will be blazing fast, but that doesn't guarantee improvements in system speed.

New processor architectures are being developed that can provide two to three orders of magnitude improvement in performance. The question now is whether the performance in systems anything will be close to the processor benchmarks.

Most of these processors doing one thing very well. They handle specific data types and can accelerate the multiply-accumulate functions for algorithms by distributing the processing across multiple processing elements in a chip.

In effect, they are parallelizing operations while also pruning algorithms and adjusting the output to whatever precision level is necessary, and they are storing and retrieving bits from memory in multiple directions rather than just left-to-right.

Put in perspective, there are multiple potential bottlenecks as compute models shift, both from a technology and a business perspective. And that doesn't even begin to address the ability to get data in and out of memory fast enough to keep up with processing. The shift to new processor architectures comes with a lot of moving parts, and so far, there isn't a whole lot of visibility into how all those pieces will work together.

Blog Review: Aug. 7

Synopsys' Taylor Armerding considers whether ransomware attacks on cities aren't only about money but if there are political motivations for intentionally sowing chaos and dysfunction.

Cadence's Paul McLellan takes a look at the different way radio spectrum for 5G is being allocated in the U.S., which recently auctioned 24GHz bands for mmWave, and the rest of the world, which has focused on mid-band spectrum to build out 5G first.

Mentor's Omar El-Sewefy notes that the time is ripe for EDA software on the cloud now that providers have addressed security concerns and why some companies are switching.

ANSYS' Chris Montgomery explains the fundamentals of design for reliability, the impact it has on a design's success, who should be involved, and some best practices to guide the process.

A Rambus writer points to a new side-channel attack created by a group of white hat researchers that is specifically designed to reveal the internal structure and parameters of deep neural network computer vision models.

Intel's Mike Davies digs into spiking neural networks as a means to achieve neuromorphic computing and why maximizing bits-per-Joule may be more important than bits-per-second.

SEMI's Mike Russo raises concerns about trade tensions between Japan and Korea that could impact the supply of chemicals used in semiconductor manufacturing.

Arm's Sital Amin contends that securing devices is a multi-dimensional challenge that needs to be addressed using a variety of different ways.

ON Semiconductor's Irvind Ghai contends that Wi-Fi is becoming an integral part of the outdoors communication infrastructure thanks to improved spectral efficiency and better performance in dense environments in Wi-Fi 6.

Intrinsix's Eric Bass explains the goals of DARPA's CHIPS program to develop modular electronic systems comprised of chiplets connected with a silicon interposer.

Nvidia's Geetika Gupta reflects on some of the accomplishments of Titan, the 2012 supercomputer at Oak Ridge National Laboratory that, once the fastest in the U.S., was recently decommissioned.

Plus, don't miss the featured blogs from the latest IoT, Security & Automotive and Test, Measurement & Analytics newsletters:

Editor In Chief Ed Sperling argues that the hack at Capital One should scare everyone.

Executive editor Ann Steffora Mutschler looks at why AI and machine learning advancements are evolving along with ADAS development.

Flex Logix's Geoff Tate explains why TOPS isn't all you need to know about an inference chip.

Mentor's Jacob Wiltgen describes the juggling act to detect random faults and fail safely, but still consider power and area impact of safety features.

Synopsys' Dana Neustadter shows how iSIM enables strong identification and authentication of devices that can act as the trust anchor for secure communications.

Editor In Chief Ed Sperling argues that test may become the next bottleneck in design.

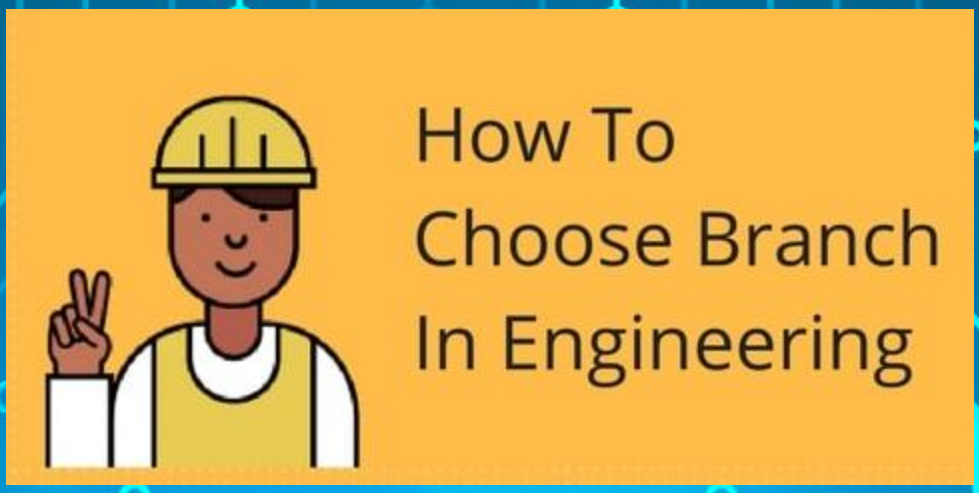
OptimalPlus's Michael Schuldenfrei presents a checklist for using data more effectively.

ProteanTecs' Evelyn Landman explains how to use in-circuit monitoring and off-chip machine learning to improve reliability.

Mentor's Vidya Neerkundar questions whether you can still take advantage of hierarchical DFT methods if you need to perform full-flat physical implementation.

YieldHUB's Kevin Robinson observes that although OSATs historically have performed outlier detection, more fabless companies are taking control in-house.

https://semiengineering.com/blog-review-aug-7/



Engineering is basically a combination of theory and practical. Keeping this in mind and having knowledge about what each of the courses entail will help you make a decision about your choice. Before getting into the tips for how to choose branch in engineering, let us look at what the various popular engineering branches deal with.

How to Choose Branch in Engineering: Civil Engineering (CE)

This is a wonderful course and almost every college have good infrastructure for this, both in terms of faculty and laboratories. On the other hand, this is really a tough job which involves going to sites and taking care of construction management stuff. You cannot make good money in this field if you are working for someone and starting own company needs good investment and contacts, which is difficult for a common Indian family.

How to Choose Branch in Engineering: Mechanical Engineering (ME)

Mechanical Engineering comes with similar issues as Civil Engineering, i.e. it too involves working outdoor and a lot of management works.

How to Choose Branch In Engineering: Electronics And Electrical Engineering (EEE)

Electronics and Electrical Engineering is a highly job-oriented course. But when it comes to faculty and practical experiments, most of the colleges do not have enough infrastructure. Moreover, after finishing the course, most of these engineers work in software companies as there isn't enough companies who work in core areas of Electronics and Electrical Engineering. Electronics and Communication Engineering (ECE) too has similar issues.

The advantage of these core branches (Civil, Mechanical, Electrical) is that there are lots of government and public sector jobs for these branches. Though there are government jobs for non-core branches as well, the number of posts for non-core branches in government sector is generally low.

How to Choose Branch in Engineering: Computer Science Engineering (CSE) And IT

The infrastructure required for these courses is very easy to provide and if teaching is not good at college, finding a tutor outside, even in a small town, is not a problem. If you are to

ultimately land up in a software company, there is no logic in going for other courses, especially if seats in Computer Science or IT are available. On the other hand, if there is no seats in the Computer Science Engineering or IT department of your desired college, you can take up a seat in branches like EEE or ECE as well. We have more software companies than any other companies. These companies pay good salaries and give a chance for foreign assignments that will further enhance your personal and professional skills. However, it must be kept in mind that when Google, Microsoft and other top companies come for campus interviews, they don't allow any other streams than CS and IT. In non-core branches like CSE or IT, you can get good and fast growth in the IT Sector as compared to government sector. At the same time, jobs are not secured in the IT Sector as compared to in government sector.

How To Choose Branch In Engineering: Engineering Branches

1. Aeronautical Engineering
2. Aircraft Maintenance Engineering
3. Agricultural and Irrigation Engineering
4. Aerospace Engineering
5. Mechanical Engineering
6. Civil Engineering
7. Instrumentation Engineering
8. Computer Science Engineering
9. Chemical Engineering
10. Electrical Engineering
11. Electrical and Electronics Engineering
12. Agricultural Engineering
13. Automobile Engineering
14. Industrial Engineering
15. Manufacturing Engineering
16. Marine Engineering
17. Metallurgical Engineering
18. Ceramic Engineering
19. Mining Engineering
20. Bio Medical Engineering
21. Electronics and Communication Engineering
22. Electronics and Instrumentation Engineering
23. Electronics and Telecommunication Engineering
24. Genetic Engineering
25. Production Engineering
26. Petrochemical Engineering
27. Polymer Engineering
28. Textile Engineering
29. Instrumentation and Control Engineering
30. Material Science and Engineering

https://www.embibe.com/exams/this-is-how-you-can-choose-your-engineering-stream/amp/

WeLcOmE fIRsT YeAr sTuDEnTS to tHe OXyGEn PArloR