



CEV- ORIENTATION



D.C.SANDEEP

3RD YEAR TRONIX

INTERESTS

- AVR PROGRAMING
- COMMUNICATION ENGINNERING
- MOBILE AUTOMATIONS

INTERNSHIPS/ PROJECTS

- EMBEDDED SYSTEMS AND ROBOTICS FROM I3 INDYA
- TRAINING AT ONGC (SATELLITE COMMUNICATION/COMPUTER NETWORKING)
- A CISE CERTIFIED(CERTIFIED INFORMATION SECURITY EXPERT)
- ETHICAL HACKING



- Why is CEV ?
- What is CEV ?
- What does CEV do ?

Outline

- Why Engineering ?
- What is Engineering ?
- Engineering taxonomy
- Undergraduate Life Cycle
- Techfests
- Summer breaks
- Internships
- Conference
- Projects
- SVNIT resources
- CEV resources
- Classy online resources

What is Engineering ?

It combines with the field of science and maths to solve real world problems that improve the world around us.



Why Engineering ?

- Just because of the fact that in INDIA, its a status ,that's why?
- **NOT AT ALL.** The main motivating reasons are:
 1. Ultimate field of challenge and creativity
 2. Demands growth with time
 3. Involves innovation
 4. Learn skills you can apply anywhere
 5. A great lifestyle!!



Engineering Taxonomy

Taxonomy in general means the practice and science (study) of classification of things or concepts, including the principles that underlie such classification



Undergraduate Life Cycle

“The life is **not** a race”

1st Year

- Induction – Adapting to new style of learning.
- Meeting Adviser (Mostly seniors)
- Lifestyle Change (Living independently)
- First assessment (Meeting deadlines and objectives)
- End of first year (Generally unreflective on experiences so far)
- “What to do in Summer Break?”



2nd Year

- A step up in the standards expected.
- Rising to the challenge of deeper study.
- “What else can I do here ?” (Searching for new opportunities and interests)
- Summer break- what can be to sharpen your skills and knowledge)

3rd Year

- Challenges increase once again – more sophisticated learning takes place
- A question arises – “I need more experience- I haven’t done enough within my degree”.
- Thinking and chalking out the plans for further studies, whether it is CAT or GRE or GATE or simply having a job.

Final Year

- “Time management is crucial than ever before.”
- Preparing for interviews. “ I am going to graduate and get a job.”
- Completion of college projects.

AND AFTER GRADUATION:-

- What support I can give to my alma-mater?
- Most of them prefer a masters degree(M-tech or an MBA)
- There is an provision to directly Join as a PHD Scholar

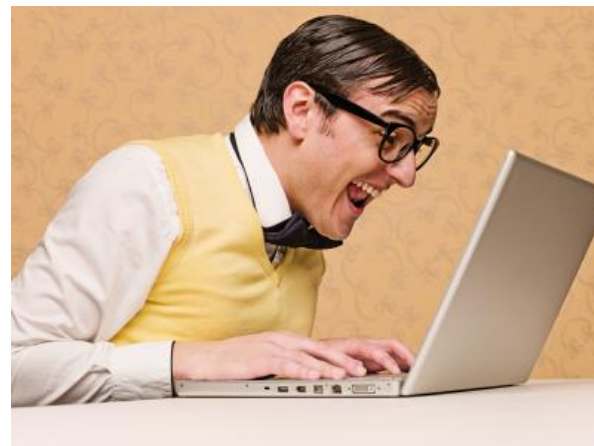
Things to do in First Year

- **Explore new things**
Online courses , Techfests, Projects etc.
 - **Don't restrict yourself**
 - **Develop your overall personality**
 - **Develop a good working attitude**
-
- Exploring and Improving your soft skills does not mean that u become a book worm.
 - Engineering is more fun and there are many ways of learning in an interactive way.

Online Resources

Browse:

- www.nif.org.in
A place where Ideas are valued & honoured .
- www.svnit.ac.in
Digital Library of SVNIT
IEEE , IET Papers , Nature , Science Direct,
INDEST etc
- www.ipindia.nic.in
Information Regarding Patents of India & detailed description of the same.
- www.ted.com : TED Talks on various aspects
- <http://www.vlab.co.in/> : Virtual Labs for Doing Practical online with Comparison for idealistic values. Browse !!





Online Resources

World Best Education Websites

- edX.org
- coursera.org
- NPTEL.org
- udacity.com
- udemy.com
- MIT Open Courseware
- Hansiversity.com



Electrical Engineering and Computer Science

Course #	Course Title	Level
6.00SC	Introduction to Computer Science and Programming (Spring 2011)	Undergraduate
6.00	Introduction to Computer Science and Programming (Fall 2008)	Undergraduate
6.01SC	Introduction to Electrical Engineering and Computer Science I	Undergraduate
6.001	Structure and Interpretation of Computer Programs	Undergraduate
6.002	Circuits and Electronics	Undergraduate
6.003	Signals and Systems	Undergraduate
6.006	Introduction to Algorithms	Undergraduate
6.02	Introduction to EECS II: Digital Communication Systems	Undergraduate
6.025J	Introduction to Bioengineering (BE.010J)	Undergraduate
6.033	Computer System Engineering	Undergraduate
6.034	Artificial Intelligence	Undergraduate
6.035	Computer Language Engineering (SMA 5502)	Undergraduate
6.041	Probabilistic Systems Analysis and Applied Probability (Fall 2010)	Undergraduate
6.041SC	Probabilistic Systems Analysis and Applied Probability (Fall 2013)	Undergraduate
6.042J	Mathematics for Computer Science	Undergraduate
6.046J	Introduction to Algorithms (SMA 5503)	Undergraduate
6.050J	Information and Entropy	Undergraduate
6.172	Performance Engineering of Software Systems	Undergraduate
6.189	Multicore Programming Primer	Undergraduate
6.912	Introduction to Copyright Law	Undergraduate
6.252J	Nonlinear Programming	Graduate
6.262	Discrete Stochastic Processes	Graduate

Magazine

EC – EFY

Mech- Top Gear, Overdrive,
AutoCar

Chem

Chemical Engineering World,
Chemical Industry Digest

Comps- Digit Chip

Trical- Industrial Automation(IED
Communications), IET(generation
transmission and distribution)

SVNIT Library – Separate Section for
Magazines – Recent Collections

“Price : 80/month” !! ?



SVNIT Resources

- Library
- Online Subscription of College for Students
- STTP- Short Term Training Program
- Facility to download IEEE Research Papers for no cost through SVNIT Local Area Network
- Magazine and Journal Section in Central Library
- Reference Section 2nd Floor Central Library
- Digital Library – Store house of all well know Tech Journals
- Go to svnit.ac.in -> Resources -> Central Library -> On Right Section Digital Library LINK
- E-Books –Springler E-books, Cambridge University Press E-Book

E-Journals – Science Direct, ACM Digital Library, Institute of Civil Engineering Journals,

Engineering Science Data Unit Series etc..



CEV Resources

- CEV Talks
- Online CEV Forum
- Online Blogs - Website
- Online Facebook Group
- Videos of Previous CEV Talks
- CEV Projects
- Contact CEV Members for any technical help

Projects

- To formulate, plan, and fabricate any system using a set of possible methods, and try to modify it by using some of the optimization techniques.
- Steps-
 - Analyze
 - Theories
 - Formulate Solution
 - Simulations
 - Experiments
 - Final Solutions
 - Debug
 - Documentations

Civil Engineering

- When in 1st year or 2nd year, it is perfect time to learn what and how things happen in the field.
- This is true at least for us civil engineers.
- Things happen totally differently in the field.
- Most of the people with whom you work and I am talking about the contractor engineer of the local contractors are not even diploma holders.
- So, just select a site of anything you like whether it is construction, surveying or water works or whatever.

Project - Civil

- Cardboard Model Building
- Designing On Softwares



Project- Comps

- Read -A Complete Reference To Java by Herbert Schildt
- Make Applets
- Android App Development
- Game Development
- AI-Artificial Intelligence :- Course on edX
- Read HTML:- HTML-5 for Web Development
- PHP
- Hacking
- Android- Learn to Root, Flash
- Google About Crack Paid Software using Decompiler and Disassembler!!!

Project - Chem

Batteries- Batteries of Your Own, like

- Galvanic Cell
- Zinc Air Battery
- Al CU Battery

Propulsion System-Car using

- Vinegar+ Baking Soda
- Decomposition of H_2O_2

Heat Exchanger

- Built an indirect contact type semi batch heat Exchanger.



Projects- Mechanical

Project-Mech

- Robotic Arm
- RC Planes
- Hovercraft
- Wall Climbing Robot
- Rope Climbing Robot
- Pole Climbing Robot
- Tricopter/Quadcopter
- Hydraulic Lift Arm



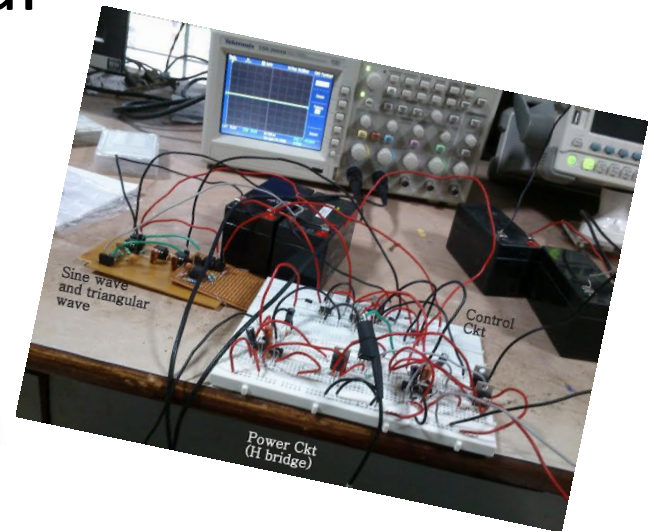
Projects –Tronics &Comm

- SMPS
- POV
- LED CUBE
- FM Receiver
- Line Follower
- Temperature Controlled Fan
- Phone Jammer
- 555 Timer Projects
- Raspberry Pi



Project-Electrical

- Power generation from renewable resources on small scale(solar, wind, etc)
(Example of windmill in SVNIT made by students)
- Control and stabilization of system(Inverted pendulum, segway,etc)
- Robotics(Line follower, robotic arm,quadcopter,etc)
- Design of power supplies(UPS, Inverter,etc)



God-Father Sites

- <http://www.howstuffworks.com/>(Discovery's Site-More of general Science)
- <http://www.engineersgarage.com/>
- www.societyofrobots.com
- <http://students.iitk.ac.in/roboclub/tutorials.php>
- lpol.im

Elect

- controleng.com
- control.com
- electric.net
- controlglobal.com
- ctms.engin.umich.edu

Others

- internshala.com
- knowafest.com
- twenty19.com

Mech

- pirate4x4.com
- carbibles.com
- SudhaCars.com

Comp

- code.org
- codechef.com
- spoj.com
- Java Applets-
<http://walter-fendt.de/ph14e/>

Techfests

- Annual science and technology festival.
- Entirely organized by students.
- Consists of number of events and competitions.
- All India level of competition.
- Get Exposure to a wide variety of competitions and intellectual knowledge
- Some of major techfests' in India:-



EXTRA –EDGE SOFTWARE’S

Civil

1. Revit
2. AutoCAD
3. Staad Pro

Chem

1. Microsoft Excel
2. Super Pro Designer
3. Open Foam
4. Chems sketch
5. Aspen

Areas in Comps

1. Android App Development-
IDE:-Eclipse
2. Game Development
Software
3. Hacking-Backtrack OS

Mech

1. Autodesk- AutoCad
2. Autodesk- Inventor
3. Pro-e
4. Google Sketch-Up

Trical

- 1.E-tap
- 2.Matlab
- 3.LabView
- 4.PSCAD
- 5.Psim
- 6.Lapack-Numerical Linear Algebra

Tronics

1. MultiSim
2. Proteus-Ckt And AVR MCU Simulation
3. Eagle-PCB Designing
4. Matlab-Mother of all things-Image Processing,Computer Vision,Control System Simulation, Digital Signal Processing
5. NI's LabView
6. NS 2 Qulanet – Network Internet
7. TCAD – GNU version for NanoTechnology



Summer Breaks

- What to do in 2 ½ months????????
- Sit at home? Just do time pass with friends, or do some **REAL Engineering** Stuff



Internships

- Internship
- Paid Internships
- Some Options
- Embedded System-Robotics & Cyber Security
- I3 Indya
- Wegilant(Specialized in Cyber Security)
- STP.mbsgroup.in-(Also Has Course On F1 Car Design and Development)
- www.blog.internshala.com
- www.eduinfo.asia
- Google Summer of Code.
- Various Programming Contests



RESEARCH PAPER ?????

Research paper is more than the sum of your sources, more than a collection of different pieces of information about a topic, and more than a review of the literature in a field.



A **research paper** analyses a perspective or argues a point.



Regardless of the type of research paper you are writing, your finished research paper should present your own thinking backed up by others' ideas and information.

BENEFITS WE GET !!!

- When investigating any phenomenon in class, it is useful to know how the **original study** was performed.
- Learn how to **balance** independent and collaborative efforts.
- Gives us appropriate **vision** to explore future career fields.
- Extremely helpful in **linking** curriculum & practical scenario which directly enhances your quality as a **human resource**.
- So rather than delaying , just **START your journey of growth.....**
- Good Resources -www.ipindia.nic.in
- -Google patents

Patent-Intellectual property

What is
a
patent?

- A patent is a government granted monopoly.
- Exclusive right to make, use or sell an invention.
- The right to exclude others from making, using or selling an invention.

WHAT IS A PATENTABLE INVENTION ??

- A **new** product or process, involving **an inventive** step and capable of being made or used in an industry.
- It means the invention to be patentable should be **technical** in nature and should meet the following criteria -

i) **Novelty** : The matter disclosed in the specification is not published in India or elsewhere before the date of filing of the patent application in India.

ii) **Inventive Step**: The invention is not obvious to a person skilled in the art in the light of the prior publication/knowledge/ document.

iii) **Industrially applicable**: Invention should possess utility, so that it can be made or used in an industry.

WHY SHOULD I GET A PATENT ???

- A patent gives the patent owner the **right** to exclude someone else from making, using, selling, or offering to sell, or importing the patented invention into the restricted region.

- Without a patent, anyone can **steal** your invention and you have no way to **prevent** them from doing so.

****** If you spent a lot of **money** on **research** and **development** of an invention, the **competitor** may be able to make your invention less expensively than you because you incurred all of the costs of creating the invention.

Learn In Interesting Way!!!!

Watch Movies!!!!!!

Like :

- October Sky
- Iron Man-1,2
- Wall-E
- Batman
- G I Joe-1,2
- Transformers-1,2,3
- Social Network
- Avatar
- Real Steel
- Pirates Of Silicon Valley
- Blade Runner
- 2002:A Space Odyssey
- A Beautiful Mind

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Discovery, Discovery Science

- How Tech Works
- Dark matters
- Extreme Engineering

History TV

- Mega Marvels

NatGeo

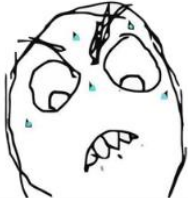
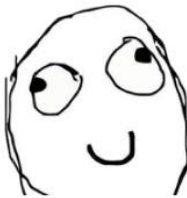


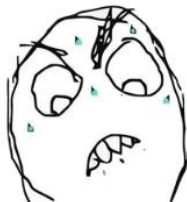

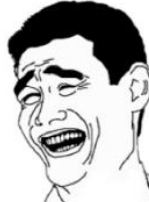

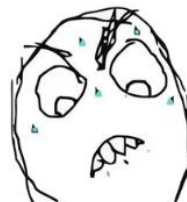
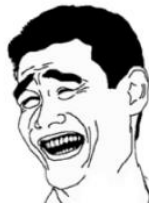
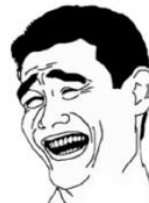

- Big,Bigger,Biggest
- Mega structures
- Mega Factories
- I Didn't Know That
- Ultimate Factories



Pro-Tips

- Identify the people who inspire you,
- Develop a portfolio of projects
- Learn the value of networking.
- Star Tip.
- Work in teams as much as you can
- Seek informal leadership roles.
- Find your flaws
- Take online business class
- Take design and other humanities online classes
- Make your summers productive
- Recruit and develop your personal board of directors

General attitude of students Throughout The college Life

	Saturday	Sunday	Monday Morning
Freshman			
Sophomore			
Junior			
Senior			

PLACES TO VISIT IN SURAT

- **Dumas**

Tourists can savour the scenic beauty of the Arabian Sea from Dumas.

- **The Old Fort**

The Old Fort is not merely a tourist spot in Surat but it has a historic importance

- **Dutch Gardens**

A beautiful relic of Surat's glorious past are the magnificent and sprawling Dutch Gardens.

- **Vansada National Park**

The Vansada National Park is one of protected area of Gujarat , which is rich in the bounties of Nature



Thank You