Handout

Cutting Edge Visionaries (2018-19)

Websites, portals and other things you need to start using today:

- UBUNTU - **linux OS**
- cevgroup.org
- cev-workspace.slack.com
- GITHUB
  - version control system, for open source, collaboration
- **STACK**
  - STACKOVERFLOW
    -mainly for computers
  - STACKEXCHANGE
- INSTRUCTABLES
  -Building new stuffs daily, DIYs
- MEDIUM
  -Great articles and recommendation list
- MACHINE LEARNING MASTERY
- TED & TEDx
- Wolfram Alpha
- ShareLatex
- Matlab Community
- Knappily App **(Detailed insights into news)**

Magazines:

- Open Source For You (articles, open source softwares, tutorials, etc.)
- Pratiyogita Darpan (General awareness)
- Digit (Latest gadgets with new technologies, etc.)
- Chip (Computer and communication, etc.)
- Forbes (Finance, industry, investing, and marketing topics)
- Electronics For You (interviews, video, tool reviews, electronics projects, etc.)

Competitive Coding Websites:

These sites are meant for competitive coding and for self learning. They all have large pool of questions and conduct frequent competitions. Some let you conduct your own event too. They all have their discussion forum.

- Hackerearth
  - Very good UI. Best online code editor.
  - Provides many resources to learn.
  - CodeMonk is a good platform to start learning. It should be the first step.
  - Its evaluation method is lenient in practice questions (very friendly).
  - Hackathons are also conducted on this platform.
  - Own event creation is very easy.
  - Very good for beginners.

- HackerRank
  - Good UI. Code editor is good.
  - Many resources to learn.
  - Evaluation method is less friendly. Input and output is not displayed.
  - Create your own event. It gives many options which sometimes can be confusing. So hackerearth is better in this respect.

- CodeForces
  - UI is minimal. No online code editor.
  - Good pool of questions.
  - Evaluation is friendly in practice but strict in live events.
  - Not recommended for beginners.

- TopCoder
- CodeChef
  - UI is good. Code editor is more like a text editor.
  - Lots of good questions.
  - Many reputed events are conducted.
  - Has a lengthy and formal procedure to conduct your own event among friends.

Educational Websites:

- cevgroup.org
- edx.org
- udacity.com
- ocw.mit.edu
- udemy.com
- coursera.org
- hackster.io
- hackaday.com
- Instructables.com
- Howstuffworks.com
- Learnengineering.com
- Brilliant.org
- freecodecamp.org

Useful Apps

- Camscanner
- Skippy
- Symbolab
- Splitwise
- Inshorts
- TED
- SILP
- Evernote

- Habit Tracker
- Merriam-Webster Dictionary

Useful and cool Websites:

- www.reddit.com
- pixabay.com - For stunning free images
- virustotal.com- for malware detection
- thenewboston- free video courses
- downforeveryoneorjustme.com- for websites check
- whichbook.net- for finding books
- justwatch.com- for movies
- 10minutemail.com- for disposable email
- youtube.com/tv- for youtube in tv mode
- studddent.com-for discounted development products for students

Game Development and Augmented Reality:

- UNITY Gaming Engine
- VUFORIA
- UNREAL gaming engine
- How to Unity ARcore - youtube

Research Papers / Journals:

- Digital Library SVNIT (http://www.svnit.ac.in/web/department/ELibrary/elibrary.php)
- ieeexplore.ieee.org up
- arxiv.org
- Academictorrents.com
- Academia.edu
- https://www.sae.org/publications/journals
- https://dl.acm.org/
- http://www.ijcea.org/
- https://www.scirp.org
- https://pubs.acs.org/action/showPublications?display=journals (Subscriber access provided to NIT Surat!)
- https://pubs.rsc.org/en/journals
- Science Direct
- Elsevier
- Scopus
- Nature
- New Scientist

Books:

- 'The Pursuit of Happyness' - Chris Gardner
- 'The Da Vinci Code' - Dan Brown
- 'The White Tiger' - Aravind Adiga
- ' The Magic of Thinking Big' - David J Schwartz
- 'Angels & Demons' - Dan Brown
- 'Year of Yes' - Shonda Rhimes
- 'The power of your Subconscious mind'- Dr Joseph Murphy
- 'The monk who sold his ferrari'- Robin Sharma
- 'Straight from heart'- Kapil Dev
- 'The Alchemist'- Paulo Coelho
- 'Think and Grow Rich'- Napoleon Hill
- 'Mossad'-by Michael Bar-Zohar
- 'The Rozabal Line' - Ashwin Sanghi
- 'Thinking, Fast and Slow' - Daniel Kahneman
- 'Theory of everything'- Stephen Hawking
- 'Test of my life'- Yuvraj Singh
- 'I do what I do'- Raghuram Rajan
- 'The 7 habits of highly effective people' - Stephen R. Covey
- 'How to win friends and influence people' - Dale Carnegie
- 'Rich Dad Poor Dad' - Robert T. Kiyo Saki
- 'You can win' -Shiv Khera
- 'Zero to One' - Peter Thik
- 'Engineer to Win' - Scroll Smith
- 'An astronaut's Guide to life' - Chris Hadfield

Movies:

DRAMA /MYSTERY

- The Shawshank Redemption
- Illusionist
- Seven

WAR TIME/ MILITARY

- Saving Private Ryan
- Inglorious Bastards
- The Hurt Locker
- American Sniper
- FURY
- Lone Survivor
- White House Down
- Black Hawk Down
- 1971

DRAMA/THRILLER

- The Dark Knight
- Dunkirk
- Source Code

DRAMA/CRIME

- The Godfather Series
- Inside Job
- Taxi driver(1976)
- Pulp fiction

DRAMA/SPORTS

- Unbroken
- Million Dollar Baby
- Rocky
- Peaceful Warrior

DRAMA

- The pursuit of happiness
- About time
- Walt before mickey
- October Sky
- Whiplash
- Cast Away
- Your Name (Kimi no na wa)
- One flew over Cuckoo's nest

DRAMA/SCIENCE FICTION
- In time
- Big Hero 6

DRAMA/COMEDY/BLACK COMEDY
- Forrest Gump
- Big short
- Wolf of the wall street
- Fight club

DRAMA/BIOPIC:
- The man who knew infinity
- The theory of everything
- Snowden
- A Beautiful Mind

FICTION/ACTION/HISTORY:
- Edge of Tomorrow
- The pianist
- Schindler's list
- The Bridge on the river Kwai
- Philomena

BRANCHWISE

Computer Engineering:

Free courses-
- "CS50 : Introduction to Computer Science" (@edx.org)
- " C++ For Programmers " (@udacity.com)
- " CS50's Web Programming with Python and JavaScript" (@edx.org)
- "Intro to JavaScript" (@udacity.com)
- "Optimize your Github" (@udacity.com)
- "Android Basics" (4 sub-courses) (@udacity.com)
- "Machine Learning by Andrew Ng" (@coursera.com)

Online/Offline Competitions and Hackathons:
- InOut
- Smart India Hackathon
- Hack In The North (HINT)
- Rajasthan hackathon (online and onsite)
- Hack2Innovate

-Visit hackerearth for any new hackathons

Open Softwares:
Apply for student accounts in the ones not available freely :
- Microsoft for unlimited OneDrive storage and free Office 365 online
- JetBrains Softwares (pycharm, clion etc)
- Unity Gaming Engine
- Atom text editor
- Anaconda
- VirtualBox
- VMware
- Sublime Text
- Gnome Extension in chrome (for Ubuntu (say, linux) only, try out different extensions)

Electronics Engineering:

Free courses-
- "Mobile Electronics" (@open2study.com)
- "Get Started with MATLAB & Simulink: An Intro for Beginners" (@udemy.com)
- "Fundamentals of Digital Image and Video Processing" (@coursera.com)
- "Introduction to the Internet of Things" (@edx.com)
- Pcb designing by eagle (@learn.sparkfun.com)
- Verilog simulation (@asic-world.com)
- Arduino lessons (@youtube by Paul McWhorter)
- Development of Raspberry pi (@raspberrypi.org)

Softwares:
- MATLAB & Simulink
- Scilab
- Arduino IDE
- Proteus
- Quartrus II
- Verilog & VHDL
- Pycharm

Societies:
- IETE
- IEEE

Open Softwares:
- MultiSim
- Proteus: Ckt and AVR MCU Simulation
- Eagle:PCB Designing
- Octave
- ImageProcessing, ComputerVision, Control System Simulation,Digital Signal Processing
- NI's LabView
- NS 2 Qualnet-network Internet
- TCAD-GNU version for nanotechnology
- Keil
- HFSS

Mechanical Engineering:

Free Courses:
- "A Hands on introduction to Engineering Simulations" (@edx.org)

- "Computational Fluid Dynamics" (@learncax.com)
- "Engineering Design - Vehicle Dynamics" (@nptel.ac.in)
- "Mobile Robotics" (@open2study.com)
- "Solar energy" (@edx.org)
- "Engineering Explained" and "Kyle Engineers" (@youtube.com)

Paid Courses:

- "Race car aerodynamics" (@aerodesign.com)
- "Introduction to CFD using MATLAB and OpenFOAM"
- "Solidworks training" (@solidworks.com)
- "GD&T" (@sae.org)

Softwares:

- AutoDesk-AutoCAD
- Inventor
- Catia
- SolidWorks
- Pro-E
- ANSYS
- Google SketchUp
  - follow **NASH VAIL,** SVNIT alumni for great blogs
- MATLAB
- SolidEdge

Societies:

- SAE
- ISME
- ASME
- ISHRAE
- IIIE

Electrical Engineering

Free courses-

- Electrical vehicle technology (@edx.org)
- Solar Energy: Integration of Photovoltaic Systems in Microgrids(@edx.org)
- Transfer Functions and the Laplace Transform(@edx.org)
- Autonomous Navigation for Flying Robots (@edx.org)
- MATLAB (@udemy.org)
- Matlab Simulink (@udemy.org)

Interesting Projects to do-

- RT lab
- Power Generation from Moving Vehicles
- Power Theft Protection
- Booster Circuit
- Inverter Circuit
- Circuits and Electronics

Open Softwares:

Apply for student accounts in :

- Octave
- PowerSim
- LabviewSketchup

Civil Engineering

- Cardboard Model Building
- Designing on Softwares
- Some Famous Civil Engineering Projects-Bridges, Tunnels and Dams @ ocw.mit.edu
- Shock Absorber in Tall Buildings
- Introduction to Urban Geo-Informatics -eDx - by Hong Kong Polytechnic University
- Project on Comparative Study of Gradually Varied Flow Profiles Using HEC-RAS Software and MATLAB Code

Open Softwares:

Apply for student accounts in :

- AutoCad
- Revit
- Google Sketchup
- AutoPlotter

Chemical Engineering

Softwares:-

- Matlab
- DWSIM
- Aspen Hysys
- Excel
- Prosim
- ChemCAD
- Mathematica
- Python
- R language
- COMSOL

Societies:

- AICHE (free student membership)
- IICHE
- CHES (SVNIT student chapter)

Open Softwares:

- Octave
- Maxima
- Scilab
- Sim42

Resources

Aptitude and Spatial Ability:

- Parikhsa.co
- Indiabix

Robotics:

Sites to buy Robotics Stuff in INDIA:

- http://nex-robotics.com/
- http://www.robokits.co.in/

- http://www.vegarobokit.com/
- http://www.rcbazaar.com/default.aspx
- http://www.rcdhamaka.com/

World's best online Robotics Store:

- Jameco
- Solarbotics
- Digi-KEY
- Radioshack.com

FESTS:

ODD Semester:

- ENGINEER - NIT Surathkal
  -October end
- The Red Brick Summit -IIM Ahmedabad
  -September End
- TECHNOZION- NIT Warangal
  -September End
- Sweden India Nobel Memorial Quiz

EVEN Semester:

- TechFest - IIT Bombay
  -Dec Mid
- SHASTRA - IIT Madras
  -Jan First Week
- KSHITIJ - IIT Kharagpur
  -Feb First week
- Pragyan- NIT Trichi
  -March first Week
- TECHKRITI - IIT Kanpur
  -March mid
- APOGEE - BITS Pilani
  -March mid
- FELICITY - IIIT Hyderabad
- Cognizance - IIT Roorkee
- Sparsh -SVNIT Surat

INTERNSHIPS:

RESEARCH INTERNSHIPS:

Foreign-

- DAAD Wise (Germany)
- MITACS Globalink (Canada)
- SN Bose (USA) (only top 2 of department)
- IUSSTF-Viterbi (USA) (Only CS,ECE & EE)
- NTU-India Connect (Singapore)
- Caltech SURF (USA)
- EPFL (Switzerland) (Only CS,ECE & EE)
- Charpak (France)
- ETH Zurich (Switzerland)
- CERN Summer Student Program
- CERN OpenLab (Switzerland)
- OIST (Japan)

India-

- SRFP (Research Internship @ IITs, IISC)
- IIT Madras Summer Internship Program
- IISER Kolkata Summer Student Intern
- Summer Research Intern IIIT Allahabad
- IIT Delhi Research Internship Program

SCHOOLS:

- Summer School - IIT Kanpur by Association of Computing Activities
- Summer Foreign IIT Delhi
  - 4 weeks Intensive internship program in association with Rendezvous IIT

Website:

- angellist.co
- offcampusjobs24.com
- Internshala.com (Not much recommended)
- Internships & Jobs - Facebook Page

Podcast Channels:

- Science Vs
- Stuff you should Know
- Freakanomics
- Plant money
- Harvard Business Review

Youtube Channels:

Technical-

- CS50
- MIT OpenCourseWare
- Siraj Raval (AI)
- Tim Callinan (mechanical engineering)
- Simply Explained - Savjee
- Practical Engineering
- Engineering Explained
- Real Engineering
- Mark Rober
- How to Unity ARcore - Augmented Reality
- TREEHOUSE
- NESOACADEMY
- Colinfurze
- MKBHD
- Unbox Therapy
- Linus Tech Tips
- How it's made
- Verge Science
- Thio Joe

Film Making

- Peter McKinnon (Photography)
- Andrey Lebrov (Film Post Production)
- Cinecom.net (Film Making, AfterEffect)
- PiXimperfect (Photoshop)
- Casey Neistat

Non-Technical-

- Yes Theory
- Large Short Films
- 5 minute crafts
- The Viral Fever (TVF)
- Tushar Lall (Great Music)

- Health and Fitness - Gurumann
- Vsauce
- Veritasium
- Wendover Productions
- Numberphile
- Periodic videos
- Kurzgesagt
- Minutephysics
- TED-Ed
- Coffee Break
- D.O.N.G
- PolyMatter
- CGP Grey
- Nerdwriter
- Life Noggin
- 3Blue1Brown
- Vox

When Bored-

- Hishe
- Screen Junkies - Honest trailers
- Epic Rap battles
- Death battle
- PewDiePie
- Smosh
- Game theory
- TheRadBrad

->Download **7 launcher** for **CSGO. Easily downloadable over College WIFI.**

Some summers are not always meant to be spent doing internships. For 1st yearites they are meant to sit back, get fundamental engineering concepts clear, enjoy life, and... eventually get bored. There are several things you can pick up over the course of a summer, sitting at home. You will get ideas on what to do apart from catching up with TV shows :

1. Learn how to read faster : Most people usually read at the speed of their inner voice. This speed can, however, be improved greatly. Try Spreeder.
Why learn this? You can cruise through books and papers at an incredible speed, with the same amount of comprehension, once you master this skill.
2. Graphic Design : You don't even need to have an artistic side. Read basic design rules and how colours affect people before you start learning Photoshop. For free alternative, try Paint.NET
Why learn this? There are plenty of paid graphic design internships out there- these skills are in demand! You can even chip in with some volunteer work for NGOs.
3.Learn Anything from the best : edX, CoursEra brings together some of the best universities in the world with a collection of free courses that cover almost every topic in the world. Learn at your own pace through engaging video lectures and regular quizzes. Take a fundamental course on Linear Algebra which is base for Game Development, Cryptography etc.
Why learn this? Who doesn't want to know more about the world? Perhaps you can learn about Mathematical Biostatistics, greek and Roman Mythology, Computational NeuroScience or Psychology.
4.Learn a language: If you're good at picking up languages, this will be time well-spent. Try Live Mocha and Memrise for languages such as Spanish, French, German or even Morse Code.
Why learn this? A whole new world of films and literature opens up to you!
5.Programming: While you won't become a boss programmer in two months, it is a fantastic start. If you find out it is for you, you'll love it more every day! Try to develop skills of creating ALGORITHMS. Take a course on Algorithm Design.
Why learn this? Whole Engineering depends on how efficient your algorithm is maybe for designing an elevator, guided missile or event sorting data.
6. Edit Wikipedia: If you're an expert(fairly knowledgeable) in any topic at all in the world, why keep that knowledge to yourself? Do you know a lot about whales? Engineering? Or any other topic..let the world know . DO make sure you make only necessary edits and write only about things you know.
Why do this? Remember the number of times Wikipedia has helped you with homework and random arguments? Pay it forward.
7. Solve a Rubik's Cube : Solving a Rubik's Cube is quite easy once you master the algorithms. With some practice you can do it super fast. You will find plenty of videos on YouTube for it.
Why learn this? Impress your friends. Or if they won't be impressed, impress your younger cousins!
8. Improve your public speaking skills: Read up about public speaking skills and tricks. For example, try not saying "Umm" during pauses. Practice! The mirror is your friend.
Why learn this? Host a CEV talk next Year! And also PowerPoint presentations will be the bane of your life. Might as well make it enjoyable.
9. Learn how to invest: The earlier you start, the better! Find a good resource to learn the basics first (like investopedia) and set aside a small amount of money to get started.
Why learn this? Apart from making money, of

course, you'll learn very valuable things about financial planning.