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Not just magnitude, but direction also!

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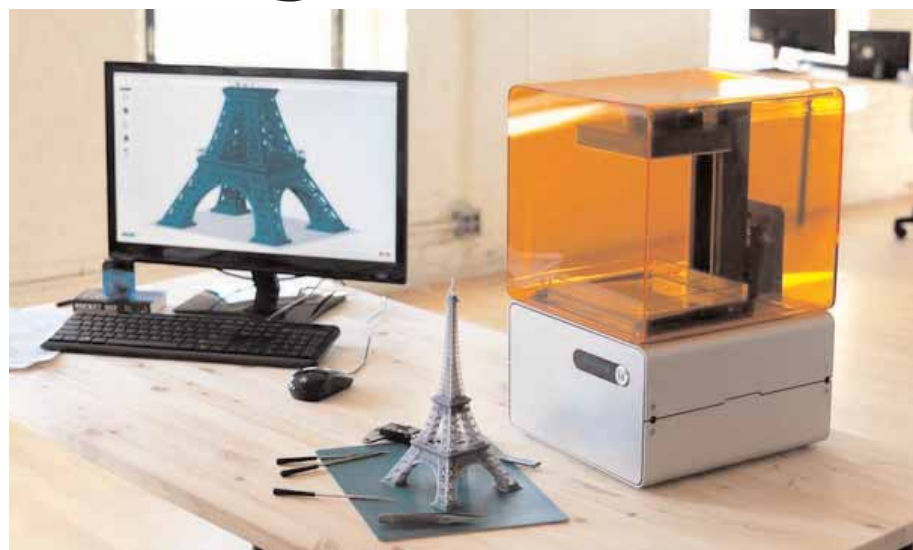
Reader Engagement Initiative

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3D printing has a bright future



In an age in which the news, books, music, video and even our communities are all the subjects of digital dematerialization, the development and application of 3D printing reminds us that human beings have both a physical and a psychological need to keep at least one foot in the real world. 3D printing, also called as Additive Manufacturing, is a process of generating three-dimensional solid objects from a digital model designed on a computer. It is achieved using additive processes, where an object is created by laying down successive layers of material. The technology is used in jewellery, footwear, industrial design, architecture, engineering and construction (AEC), automotive, aerospace, dental and medical industries, education, geographic information systems, civil engineering, and many other fields.

The first commercial 3D printer was based on a technique called stereo-lithography, invented by Charles Hull in 1984. Stereo-lithographic printers remain one of the most accurate types of hardware for fabricating 3D output. Other common 3D printing technologies are Fused Deposition Modelling, Polyjet Matrix, Selective Laser Sintering and Direct Metal Laser Sintering.

Multi Jet Modelling (MJM) is the most common 3D printing technology used. This builds up objects from successive layers of powder, with an inkjet print head used to spray on a binder solution that selectively glues only the required granules together. Each method has its own advantages and drawbacks, and some companies consequently offer a choice between powder and polymer for the material from which the object is built. The main considerations in choosing a method are generally the speed, cost of implementation, cost of the printed prototype, cost and choice of materials and colour capabilities.

Most current 3D printers are not used to create final consumer products. Rather, they are generally employed for rapid product prototyping, or to produce moulds or mould masters that will in turn allow the production of final



items. Such printing of 3D objects already enables engineers to check the fit of different parts long before they commit to costly production, architects to show detailed and relatively low-cost scale models to their clients, and medical professionals or archaeologists to handle full-size 3D copies of bones printed from 3D scan data.

3D printing has a bright future apart from rapid prototyping; a domain where its impact is already highly significant. Medicine will forever be changed as new bio-printers actually print human tissue for both pharmaceutical testing and eventually entire organs and bones. Architecture and construction are changing as well. As of now, 3D-printed models of complex architectural drawings are created quickly and inexpensively, rather than the expensive and time-consuming process of handcrafting models out of cardboard. Experimental, massive 3D printers are printing concrete structures, with the ultimate goal of someday building entire buildings with a 3D printer.

3D printing has been used to create a full-size reproduction of King Tutankhamun's mummy and to repair Rodin's sculpture, The Thinker. 3D printing is a disruptive technology of mammoth proportions, with effects on energy use, waste, customization, product availability, art, medicine, construction, the sciences and of course manufacturing. It will change the world as we know it and before you know it!

- Aneesh Rangnekar, BE EXTC 2, VIT

'V-UNITE' to progress

The verdant Vidyalankar tree of knowledge and quality education continues to bloom and spread its sturdy branches every year. More than five decades after the seeds were planted by my father C.S. Deshpande, the Vidyalankar family continues to work together to nurture the tree and take it to newer, grander heights.

"V-Unite", organized at ITC Grand Central, Parel on December 2, 2012, was an occasion to celebrate Team Vidyalankar's achievements. Initiated last year as a part of Vidyalankar's 50 year celebrations, "V-Unite" is an annual get-together of all Vidyalankar Classes faculty and their family members and helps to reinforce our bonds and inspires everyone to always aim for excellence.

Every year we take pride in the accomplishments of our immensely talented students - the fruits of our efforts. Vidyalankar is flourishing well and the inherent reason for this can be attributed to a passion for education and learning and our engagement with the students. Rooted firmly in principles and ethics, Vidyalankar has always believed in generating not just academically bright students, but also in equipping them with the skills and values necessary to help them face the challenges of the professional world.

Our students have been consistently notching up cent percent marks even in engineering, which many consider to be a challenging course. This good performance is not limited to only engineering; our young achievers have made a mark in all courses, be it IIT JEE, CMAT, CAT or GATE to mention a few.

Vidyalankar recognises the difference between teaching and coaching. Teaching is primarily a one-way interaction wherein the onus of learning and understanding lies on the student. On the other hand, coaching is an ongoing, cyclical interaction.

A coach first teaches, observes the student's learning progress and then provides feedback. All the three stages make learning a complete experience, in which the student is inspired to



reach out to wider horizons of knowledge. I am extremely proud that all the members of our faculty are not mere teachers, but coaches in the real sense.

Every year we go ahead and progress with a vision for both our major activities; our classes and colleges. We have set ourselves a target of setting up 100 centers in 5 years. At present 20 branches operate in various strategic locations of the city and beyond. I am glad to share with you that with the current signing up of 70 more centers, our tally may soon go up to 90. The vision for all our colleges is to advance from being pure teaching institutes to teaching institutes doing research, the ultimate goal being to become research institutes doing teaching.

The advent of the New Year is akin to a new spring season which brings in with it new shoots, new leaves, new hopes and new targets. I wish a happy, prosperous and more knowledgeable 2013 to everyone at Vidyalankar and may we all put in our best efforts in 'fertilizing' young minds and imparting quality education.

- Vishwas Deshpande, Vidyalankar

Hello Readers!

Team Vector wishes all its readers a happy and successful 2013. Do mail in your articles and poems, and feedback, as always, on vector@vidyalankar.org

Be sure with Vidyalankar

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Our Classroom Coaching GATE 2012 Result*

 Gaurav Parikh 99.97 (EC) IIT Delhi	 Lalit Shevkani 99.85 (EC) IIT Kanpur	 Sibin Thomas 99.55 (EE) IIT Kanpur	 Ajay Gupta 99.96 (CS) IIT Bombay	 Vijay Daultani 99.84 (CS) IIT Delhi	 Abhijay Kulkarni 99.05 (ME) IIT Kanpur
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*Partial Result

Dadar : 4232 42 32 / 2430 63 67 • Thane : 4232 22 00 / 2544 33 19 • Nerul : 2770 26 39 / 2770 26 42

IES - Service to the nation

As students approach the end of their engineering course (or even before in some cases), they start planning how to go ahead in their careers. Some opt to take up a job at a reputed private firm; some go for MBA while others pursue Masters in Technology (MS or M-Tech). What most students don't try for is taking up government service.

The Indian Engineering Services meets the technical and managerial requirements of the government of India. These positions are filled based on merit through competitive exams. The recruitment is done for three categories: Civil Engineering, Mechanical Engineering, Electrical Engineering and Electronics & Telecommunication Engineering. It is considered to be one of the toughest exams where more than 1.5 lakh students compete for approximately 500 posts making the selection ratio just 0.00275. The founder of Vidyalankar, the late Prof. C.S. Deshpande appeared for the 'Indian Engineering Services' (IES) examination of the U.P.S.C. and secured the first rank in this All India Competitive Exam in 1955.

The selection through engineering services examination is through two stages: written tests and personality test. Only the candidates who qualify in the written tests are called for the personality test.

Eligibility criteria

- Nationality: A citizen of India, a citizen of Nepal or a subject of Bhutan, or a person of Indian origin who has migrated to India from certain specified countries with the intention of permanently settling in India.
- Educational qualifications: At least a bache-



lor's degree in Engineering (B.E. / B. Tech) from a recognised university or science degree or its equivalent with wireless communications, electronics, radio physics or radio engineering as special subjects is also acceptable for certain services/ posts only.

- A candidate should be more than 21 years and less than 30 years of age

Examination details

The examination is conducted in two parts; written tests and personality test. Written tests are totally of 1000 marks consisting of 5 papers of 200 marks each. The first is general ability paper consisting of objective type questions from general English and general studies which includes knowledge of current events, Indian history and geography. The remaining four papers are specific to the relevant engineering discipline. Of these, the first two papers will be objective type and the remaining two papers will be subjective type. For objective type questions each question will have 4 options and there is a negative marking of one-third marks allotted to the question for an incorrect answer.

The personality test consists of an interview to judge the candidate's knowledge in the relevant engineering field and general knowledge and other skills and requirements.

How to apply?

The application form is available at a nominal cost and should be purchased at designated head post offices/post offices throughout the country. The application packet contains the application form, information brochure, an acknowledgment card, and an envelope for sending the application.

Tentative dates

- Release of Notification: March 16, 2013
- Last Date of submission of Application forms: April 15, 2013
- Dates of Engineering Services Examination:



June 28, 2013

IES selections are made for services and posts on the basis of categories i.e. civil, mechanical, electrical and electronics and telecommunication engineering. These services include:

- Indian railway services of engineers (according to category).
- Indian railway stores services
- Assistant executive engineer
- Central power engineering service (mechanical engineering posts).
- Indian defense service of engineers (civil engineering posts).
- Indian naval armament service (electrical engineering posts).
- Junior telecom officer (electronics & telecommunication engineering posts).

The Indian government provides avenues for engineers from various branches. Apart from providing a chance to serve the nation, it also gives the security of a government job. Engineers passing this exam start with a basic pay scale of Rs 20,000-40,000 per month along with additional facilities. So it is not too bad a start for your career path. Though this option is not wildly popular, it is quite lucrative in terms of future potential and also allows you to actively participate in the shaping on the nation's future.

Ref: www.wikipedia.com,
www.upscguide.com

- Kaveri Gupta, TE Computers, VIT

Youth empowerment is essential

“This is a time for bold measures. This is the country, and you are the generation.” - Bono.

The advent of the internet, and hence social networking and blogging, has exposed the young to not only information but also opinions of people who have led diverse lives. The best in science and technology as well as the choicest in arts and culture is a mouse-click away. People can travel to all parts of the world and learn anything they are interested in. If knowledge is power, each person has hordes of untapped easily accessible power.

In a democracy, both power and responsibility lie inside the doors of the parliament and that is where youth should aim to be. Instead of distancing themselves from politics and social duties, they must follow in the footsteps of leaders like Sachin Pilot and Milind Deora. After all it should be not be 'they' who rule 'us'; it should be 'we' who rule 'ourselves'. If you like something, support it wholeheartedly. If you don't, make strong laws to change it. Things will change only when we stop spreading proverbial dirt and start cleaning the actual dirt. The aim should be the dawn of the day when the world will turn its attention east to notice what the Indian Prime Minister is saying.

Volumes have been written on how youth is terribly mistaken and ever so cruel in neglecting and often disgracing the elderly. No one, however, seems



to venture in the abyss of constant condemnation and disapproval that the old ones almost feel is their gift to the next generation. Indeed as Ernest Hemingway put it, “The error of youth is to believe that intelligence is a substitute for experience, while the error of age is to believe experience is a substitute for intelligence.” It is true that the speed of courage of new blood may scare the older generation. But they must remember that experience is the result of embarrassing and often fatal mistakes. It is with their support only that those under their wing can dare

to spread theirs and soar.

It would be platitudinous if we reiterate that youngsters are being empowered. The true test of the power of youth is determined by whether it is used to build bridges or strike cracks, whether it generates an Obama or an Osama, whether it creates the Europe of the 1940s or the Japan of the 1960s. Gone are the days when youth was equated with hedonism and inexperience. Today, youth builds industries, spreads awareness, and runs nations.

- Akshay Sukthankar,
BE EXTC-2, VIT

We Care



Your appetite benefits from healthy snacks between meals to reduce cravings, and keep energy levels up. A grab-and-go snack could be the difference between some nourishment and none at all. So chuck the potato chips and choose healthy snacks by stocking up your refrigerator with the following options:

Fruits and vegetables: Eating fruits and vegetables provides vitamins, only a small number of calories, and a feeling of fullness.

Whole grains: Whole-grain snacks are rich in fiber and complex carbohydrates, which give you energy with staying power. Look for items such as low-fat crackers, pretzels and crisp breads.

Nuts and seeds: Nuts and seeds provide protein, so you will feel fuller longer. They are high in fat, but it's mostly monounsaturated, a healthy kind of fat.

Low-fat dairy products: Low-fat versions of cheese, yogurt and other dairy products are good sources of calcium and protein, plus many other vitamins and minerals.

Reference: www.mayoclinic.com

Plan your career now with Vidyalkankar

Vidyalkankar recently conducted seminars and workshops on the various entrance exams for Post-Graduation in the fields of Management and Technology. Special focus was given on the GATE, CAT and CMAT examinations. Here are a few questions by students that were fielded by the Vidyalkankar team:

What are the eligibility criteria for GATE? For how long is the score valid?

Only candidates who are in the final year of graduation are eligible to give GATE. Also, the GATE score is valid for two years. Students can visit gate-vidyalkankar.org or the IIT-Bombay website to check the eligibility criteria in detail.

What are the eligibility criteria for CAT / CMAT? For how long are the scores valid?

The candidate must be in the final year of his graduation to be able to give the CAT / CMAT. Also, to be eligible for admission into a B-school the candidate must secure 50% or higher in the final year of graduation. Both CAT and CMAT scores are valid for one year. However, CMAT is conducted twice a year; once in September and once in February. The better of two scores is used for admission into B-schools.

Can I prepare for competitive exams like GATE, CAT and CMAT during my graduation or will it affect my graduation studies?

Ideally speaking, one should start preparation for any post graduate competitive entrance exam right from the pre-final year of graduation. Our toppers have always maintained that studying from the pre-final year gives students an advantage over the others. Also, if one starts preparation in the pre-final year; it does not affect graduation studies at all since preparation can be done gradually without hampering other activities. Moreover, students should avoid waiting for their graduation to get over and then start preparing because this could lead to a year's gap in their career.

What are my chances of getting into a good B-school by giving CMAT?

CMAT has been made compulsory for all B-schools across India whose MBA / MMS programs are recognized by the AICTE (All India Council for Technical Education). This means that 3,923 colleges across India now accept the CMAT score. These include many of the top B-schools in the country like FMS-Delhi, MDI-Gurgaon, JBIMS etc. What's more is that many great B-schools that are a part of deemed universities, like SP Jain and NMIMS, are also accepting CMAT scores.



What are the career options through GATE apart from an M. Tech and M.E.?

There are many opportunities for students through GATE other than pursuing an M. Tech or an M.E. It is mandatory for candidates to have given the GATE exams to be eligible for jobs at Public Sector Undertakings (PSUs) such as BHEL, NTPC, IOCL, HPCL, BPCL, GAIL etc. These are coveted jobs with average salaries being around Rs 7 lakh per annum. Apart from this, GATE also opens opportunities for students who want to pursue a career in research. For example, one of the eligibility criteria for pursuing the OECs and DGFS research programs in BARC is that interested candidates must have given GATE. Candidates will be shortlisted for further selection on the basis of their GATE scores. Lastly, many top ranked universities abroad such as National University of Singa-

pore, Nanayang Technical University-Singapore and Heidelberg University in Germany accept the GATE score for their post graduate degrees.

Are students with work experience preferred to students without it at top B-schools?

Work experience is not mandatory and is not one of the eligibility criteria to get into a top B-school in India. For CMAT, candidates could be given 1-4 marks extra depending on the number of years of work experience. Also, IIMs give 'ratings' to different aspects of a candidate's profile such as undergraduate percentage, 12th standard percentage etc. Work experience too is one of these aspects. For the IIMs, a student could get a rating between 1 and 3 for the work experience aspect, depending on the number of years he or she has worked. However an important word of caution is students who are currently studying should not plan on working and then giving competitive management exams just for the sake of these extra

marks. What happens is that once a person starts working, he or she loses the habit of studying. So a candidate may work for a few years and may gain a few marks extra for his work experience but may end up scoring 10 - 15 marks lesser in the exam than what he would have gotten had he given the exam during his graduation!

What is more important for an M. Tech in the IITs? Is it my All India Rank or my percentage in undergraduate studies?

To be eligible to do an M.Tech in the IITs the candidate must have scored an aggregate of 60% or higher in his or her graduate degree course. However, it is extremely important that the candidate scores an excellent All India Rank to get selected into the IITs. Candidates should aim at getting a top 100 All India Rank. This enables them to be in a position to choose the field and IIT of their liking.

- Team Vidyalkankar





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Some of our CAT / CMAT Toppers

						
99.37 percentile	99.06 percentile	98.71 percentile	98.70 percentile	98.74 percentile	98.64 percentile	98.34 percentile

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• Helpl : 2779 28 38 / 2778 28 43

• Thane : 4332 32 89 / 3944 33 16

• Marolli : 4332 16 86 / 3991 86 21

Admission in Progress

GOOGLE HANGOUTS

the new social networking tool



Nowadays social networking is an intrinsic part of one's daily schedule wherein the entire society is engaged in constant communication on the go. The main players of this era are Facebook, Twitter, WhatsApp, and Skype to mention a few. And as usual Google is never ever behind in anything. Google released Google+ and now it has come up with Google Hangouts.

Hangouts are places where multiple people meet and share their reviews and be a part of social world. It gives a great exposure. Such an environment is provided by Google which is known as Google+ Hangouts - Catch up face-to-face-to-face. It has some amazing functionalities like:

Chat face to face wherever you are

Catch up with the whole family and friends, no matter whether you are on your computer, phone or tablet device. At a time 10 people can join a hangout and are connected visually and share.

Host virtual meetings

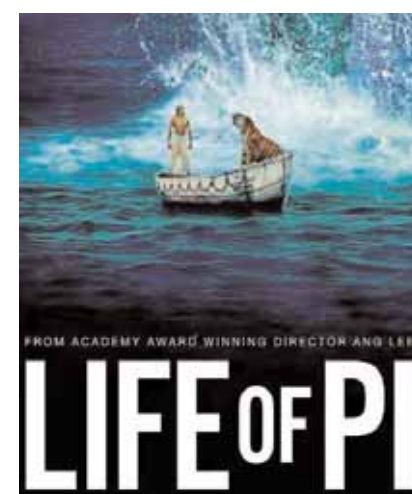
It increases your team's productivity with meetings that can include up to 10 people and can use powerful tools like screen sharing and Google Docs, also calls to US and Canada are free and international call rates are very low.

Hangouts on air

It enables you to stream your live hangout publicly on your Google+ profile, your 'you tube' channel and your website. Whether you're an aspiring artist, a global celebrity or a concerned citizen, you can go live in front of a global audience.

Google Hangouts has great hardware portability options as it is available for tablets and smartphones. It is a great tool which can be used in academics, politics and many other areas where knowledge and information has to be conveyed to a large crowd.

- Disha Deliwala, Faculty, VSIT



A breathtaking journey

“A story that will make you believe in God,” is how one character describes the events that take place in “Life of Pi”, the latest film from Ang Lee. Adapted from the best-selling novel of the same name by Yann Martel, “Life of Pi” tells the story of Piscine “Pi” Patel, a young boy growing up in Pondicherry, India on the grounds of a public zoo that his father operates for the local government.

If one was to describe ‘Life of Pi’ in a single word, no doubt that word would be beautiful. Everything about the movie- the setting, the story, the technique, the resulting package is truly a treat to the eyes. One could admire the uniqueness of the technology, the skills of the actors, and the versatility of the director for creating such a mesmerizing movie with its hallucinatory 3D effects.

The Patel family, consisting of Pi, his father, mother and older brother, say goodbye to their friends and family and board a cargo ship, taking with them all the animals from their zoo, which are to be sold in Canada. En route, the ship encounters a massive storm, forcing a too-late evacuation that results in Pi being the only survivor. This is grand adventure on an epic scale, a survival story that takes up half the movie. He confronts thirst and starvation, finds a modus vivendi with the fierce tiger, endures and wonders at a mighty storm, a squadron of flying fish, a hump-backed whale, a school of dolphins, a night illuminated by luminous jelly-fish. The 227 days at sea are a test of physique, mental adaptation and faith, and Suraj Sharma makes Pi's spiritual journey as convincing as his nautical one.

The movie will definitely keep you glued to your seats for all of the adventure, and restore a belief in the human resilience and our resourceful mind. The chemistry between Richard Parker and Piscine is fearsome, scary as well as loving. The movie has you gasping in horror as well as teary in sorrow as you feel the emotions played to perfection by the actor, not to mention the magnificent Bengal tiger, whose every move grasps the awe of the audience.

- Ankita Urala, TE Biomed, VIT

17 Vidyalkar students selected at National Standard Examinations

The New Year ushered in a grand success for Vidyalkar. 17 Vidyalkar students were selected for the second round of Olympiad conducted by HBCSE (Homi Bhabha Centre of Science Education) which is the highest selection in Maharashtra as compared to any other coaching institute.

Aditya Kale, Aditya Mate and Anand Dhoot have qualified for all three Olympiads viz. NSEP (Physics Olympiad), NSEC (Chemistry Olympiad) as well as NSEA (Astronomy Olympiad). Aman Jain and Rahul Surana have qualified for NSEC (Chemistry Olympiad) and Naitik Bhise and Atharva Korde have qualified

for NSEA (Astronomy Olympiad). The trio of Aditya Mate, Anand Dhoot and Aditya Kale have also bagged prestigious All India Ranks 15, 23 and 35 respectively at KVPY Exam 2012. Their outstanding performance will definitely motivate other students to work hard and to achieve their goals.

Commenting on the thumping success of his students, Prof. Ravindra Nadkarni, Dean Academics, Vidyalkar says, “We have developed a very robust program that trains students not just for IIT JEE but also for other competitive exams like Olympiads and KVPY. Our students have been put through the rigors of this program and

the results are here for all to see.”

The National Standard Examinations (NSE), are conducted by HBCSE at about 1000 centers all over India, with more than 25000 students appearing for each subject at these examinations. The National top 1% (i.e. nearly 200-250 students) from these NSEs are selected for the Indian National Olympiads (viz. InPhO, InChO, INBO or INAO) respectively. The top 35 students selected from INOs will represent India at the International Olympiad.

Vidyalkar wishes our students good luck for their forthcoming exams. Hope they do their best at INOs as well as at IIT-JEE.

Be sure with



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NSEP, NSEC & NSEA

NSEC

NSEA









Aditya Mate Anand Dhoot Aditya Kale Aman Jain Rahul Surana Naitik Bhise Atharva Korde