Education in Engineering   +2

What is the difference between American and Indian engineering education?

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8 Answers

Anonymous
Answered Jul 28, 2016

Being a student who completed high school in India and came to the United States to pursue my further studies in Engineering I find this question quite reasonable.

let me begin by stating the difference between the Indian and American curriculum in high schools which are the stepping stones to higher education.

Indian high school science stream curriculum without doubt is the tougher among the two and is more centered towards the core subjects of science PCB/PCM even the AP curriculum is far less complex that the IIT prep syllabus. But the down side is Indian syllabus focuses more on the theory than the practicals. Whereas in the U.S theory and practicals go hand in hand thus providing students with greater understanding of what they learn in their classes, even languages are given equal importance because it accounts to 50% of their SAT I scores.

Now coming to the entrance exams in the two countries the Indian entrance exams in my opinion is one of the toughest in the world which requires thorough understanding of all the fundamental concepts of PCM/PCB. On the other hand admission to engineering colleges is quite different in the U.S, it is a very long procedure which normally ends before the students graduates from their high schools, they usually submit their SAT scores, recommendation letters from their teachers and their counselors.

(Some top Engineering colleges require SAT II)

Finally to the Engineering program, in the U.S the primary focus of all the degree programs is to make sure that each student has a clear understanding of what he has learnt in the classes, the availability of good research facilities and laboratories makes sure that this happens which is not the case in India where good research facilities are clearly lacking in many colleges but provides students with a lot of theory thus blurring the fundamental concept of engineering. The programs also enable students to transfer to better colleges if they have met the required credit and GPA requirements set by the colleges and even to change majors which are only heard in the IITs in India. The availability

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of good internship programs from almost all of the top companies in the world further adds to skill development making the graduates ready to face real life problems beforehand. The dual degree programs in the United states provides the students a lot more opportunities with wide selection of programs to further strengthen their careers (for eg: students can major in both engineering and business or any other combination which they prefer). Even so I would say the IITs are equally respectable as some premier institutes in the United States and the top tech companies are well aware of that fact!

Finally on a personal note most students here take courses based on their aptitude and not due to parental pressure, everyone knows computer science is a strong career option in the united states but not every student takes it even with good scores unless he has a strong aptitude in it, which I find quite fascinating.

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Anindya Majumdar, An average Indian undergrad-turned- average American grad-student
Answered May 11, 2014

I am not sure whether you are talking about the graduate or the undergraduate structure. But a few general points:

- · American students give much lesser importance to grades as compared to the Indian counterparts. They do believe that grades are important, of course! But they have a more intrinsic sense of "wanting to learn" rather than "scoring good grades". The fraction of students who take up a course because they think they will learn something interesting in that, is much larger in USA than in India. This includes courses in entirely different disciplines.

This is not necessarily advantageous or disadvantageous to either set of students, however. I India, one of the main targets at the end of education is finding a "good" job. And to be fair, companies do look at the numbers on your transcript then. Obtaining a 'C' in "The History of Music" will hurt you a lot more in India than USA.

- · A lot of universities in USA will offer undergrads the chance to choose/change their major at the end of first year (or in some cases, even a bit later). This does happen in India as well, but the chances are much lower. Only the students at the top of their batches get an
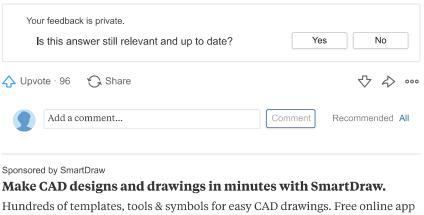
opportunity to do it! Thus, in USA, you can take a variety if courses and then choose what stream you want to follow.

- · Research is a much more integral part of engineering/science education here. Most undergrads would have had significant research experience at the university, as well as some industry exposure, by the time they graduate. This is in strong contrast to India, where even the final year projects are at most times, not nearly as rigorous! Coming to graduate school, this difference further grows. A number of reasons including lower interests shown by both the faculty and the students, far lesser opportunities, lower standard of research infrastructure, and a huge surplus of students compared to the number of available projects, heavily load the situation against the Indian engineering output.

- · There is a much larger stress on theoretical aspects in India. The overall course content, for most parts, is larger in India as compared to equivalent courses in USA. Examinations are far more stressful. In USA, there is, in general, a much larger continuous assessment component. There are assignments throughout the semester, and students do take them much more seriously than India. They work through the assignments much harder than most Indian students. The laws against plagiarism are much stricter. In case of exams, the Indian system is much more rigorous. In USA, a lot of exams are open-book and/or open-notes (and in some cases, open internet access as well!). Thus, the need to learn formulae is way lower! In India, this does happen, but to a much smaller extent.

- · Though not restricted to engineering, the students in USA in general are much freer and do their undergrads with a target of discovering what they like, and how they want their life to pan out with! A lot of them do part-time jobs at multiple places. The whole culture is much more relaxed than in India. However, when they do find something to work upon that they like, they pursue that with endless passion. Overall, they choose whatever they want to learn, and learn it well. And I would guess this makes their undergrad experience much more fulfilling than their Indian counterparts, who have the target (and thus, pressure) of either earning a good job or getting into another reputed higher educational program (MS/PhD/MBA, etc.).

PS: I have used the terms "USA" and "America" interchangeably here. Wherever I mentioned America, please assume USA only (though a large part of this answer may be true for Canada too, I suspect!)

PPS: These are just observations! Feel free to suggest/ object/debate/oppose any part of the answer! J

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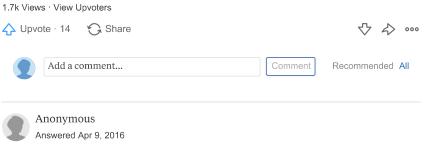Tek Lentine, Senior Engineer at Werner Co
Answered Feb 22

As a chief engineer, I had the opportunity to review many resumes that included both Indian and American applicants and conduct personal interviews as well. Although certainly not a steadfast rule, the American applicants coming straight out of school were much better positioned to be successful in industry as engineers.

A typical U.S. student would have a Bachelor degree from a respected university and some engineering experience as an intern. They usually were confident (sometimes overly so) and had good answers to open-ended engineering questions that required creative problem solving.

In contrast, the typical Indian student would have a Bachelor degree from a university in India that I had never heard of, and a Master degree from a respected U.S. university with little, if any, engineering intern experience. They often struggled to provide examples of real-world problem solving, and would stumble over even simple engineering problems.

The quality of the Indian candidates was so poor considering their education level that I actually valued the single U.S. Bachelor degree more than a U.S. Master degree coupled with an Indian Bachelor degree. It was apparent that the quality of the undergrad engineering education in India was inadequate by U.S. standards.

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Anonymous
Answered Apr 9, 2016

In India

Indian universities is more about getting a job with high salary package. Anyone get admission in Indian engineering colleges by just getting those required marks.

Students also encouraged by parents and society to pursue engineering because they will end up having a secure good job after graduating. Engineering in India is all about getting a job.

Even media always shows that this person got around 1.5 crore package salary, they not motivated by engineering they motivated by money. I have asked so many people around me that why do you want to get into IIT? and guess what everyone said they you will gonna have job in US with very high package.

So it clearly shows that Indian's are not passionate about solving major problems in world, they are not fascinated by engineering. But not everyone is like this, I mean mostly. If you're reading this and thinking that I'm not like this and don't get angry I said most people but not everyone.

In US

In US, engineering is more about solving problems, innovating new technology to make people's life more easier. They are more motivated by their work and not by how much salary package I'm gonna get after graduating.

US university admission is also very different from Indian university admission. In US if you want to study engineering then you have give to SAT, SAT Subject Test, SOP, recommendation letters from teachers, extracurricular activities. So it clearly shows that it's a holistic process in US university admission. You have to be really passionate about what you are going to study.

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Deblina
Answered Apr 24

There's a common saying among common men of our nation; it says – "Pelt a stone at crowd and 90% chances are that it'll hit an engineer!" It sounds funny, but it's alarming at the same time. Various surveys performed across the nation have revealed that engineering is the most wanted stream in India currently.

India has produced some of the **greatest engineers** who have brought pride to our nation. Indian youth is inspired and motivated like never before to showcase and explore their talent on global scale. However, there are certain obstacles faced by aspiring engineers in India due to various inevitable factors. Indian students are heading to foreign countries for engineering and if you believe the experts, it's a good decision on their part!

Here are some points that'll illustrate the main difference between Indian and foreign engineering:

- Curriculum in most of the Indian engineering colleges is mostly theoretical and less emphasis is given on practical knowledge. Whereas in foreign countries, practical learning is given more importance, which ignites creativity in the mind of youngsters.

- Competition is common among all the streams in India but when we talk about engineering, competition touches a new milestone every year. This surreal race forces millions of students to take a drop or compromise their talent by taking admission in a low grade engineering college. Abroad, there is no rat race of this kind.

- In India, IITs are the epitome of engineering studies and getting selected in IIT is not a child's play. There are very few seats and if by extreme hardwork and perseverance, a student manages to become 'eligible', he/she has to face the wrath of 'reservation'. In foreign countries, there is no concept of reservation. students get selected on the basis of their aptitude and merit.

- In India, field visits and industrial internships are considered as a mere formality by both students and faculty. It's just a check box in to do list of a normal engineering college. In foreign colleges and universities, industrial internships are specially designed to make sure that the students get optimum exposure of their relevant industry.

- To tap on the extreme competition and demand of engineering studies, many private bodies have opened small scale engineering colleges on a massive scale in India. There are so many small time engineering colleges in India that it is not a tough task to get admission for B.Tech or http://B.SC , but the quality of education is so low that when the campus drive begins, most MNCs declare the students 'unfit' to work in a reputed firm. In foreign engineering institutions, they ensure that their students become global players and are suitable to work in any esteemed organisation.

In India, the educational scenario is changing, there's no doubt about that. But the revolution will take long time and the students who want to fulfil their dream of becoming world-class engineers don't have that much time in their hands. That's why, most career oriented students plan to go abroad to get engineering degree from a reputed institution. This not only saves their time, but also makes them eligible to get hired by any of top notch companies in the world.

If you have bigger dreams to accomplish and for that you're planning to go abroad to study engineering from a reputed institution, get in touch with us.

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Ash Murthy, Ex-Googler, Co-founder @
www.ProgrammingInterviewPrep.com
Updated Nov 30, 2017

Take a look at these two questions below and see the difference in the skills being tested

Question 1: *Name the fields in the header of Internet Protocol in order.*

Question 2: What would happen if the 'Time to Live' field is deleted from the Internet Protocol?

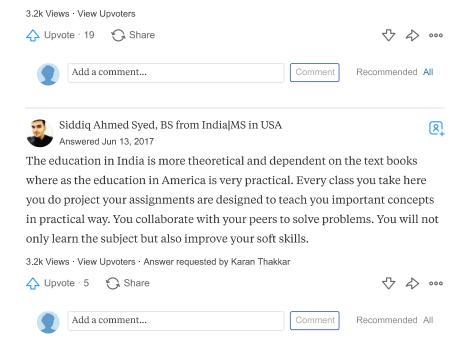| 4-bit	8-bit	16-bit	32-bit		
Ver.	Header Length	Type of Service	Total Length		
Identification			Flags	Offset	
Time To Live		Protocol	Checksum		
Source Address					
Destination Address					
Options and Padding					

Do you see the difference in emphasis?

I encountered question 1 in India. Indian education system emphasizes memorization — remembering the details as accurately as possible.

Question 2 is on the same topic. It was asked in an American university. American system prepares engineers to apply computer science concepts to solve problems. After all, what is the point in memorizing the exact details — we always have wikipedia at our disposal!

In fact, some professors in the US, allow open book exams — this is virtually unheard of in India (with rare exceptions).

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Siddiq Ahmed Syed, BS from India|MS in USA
Answered Jun 13, 2017

The education in India is more theoretical and dependent on the text books where as the education in America is very practical. Every class you take here you do project your assignments are designed to teach you important concepts in practical way. You collaborate with your peers to solve problems. You will not only learn the subject but also improve your soft skills.

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