To determine the technical skills education

Contents

- BECOMING A GOOD ENGNEER:

As an applied scientist today, many expertness are necessary for them to travel frontward in their occupation. It is a common misconception that an applied scientist will merely heighten his or her proficient accomplishments and it is all that is needed to really travel into a occupation. Based on today ' s occupation demands, holding proficient accomplishments merely is non a good thought when using for a occupation. When an applied scientist stairss into a occupation fresh after graduating, he or she will go a First-Line director. This will necessitate an applied scientist to possess Management accomplishments and besides soft accomplishments. Having multiple accomplishments of this sort will enable an applied scientist to really take their lower degree workers good. An applied scientist needs to demo their employers that they have all the mandatory expertness in order for them to win in their function as portion of the company ' s plus.

Aim:

To find the proficient accomplishments and non accomplishments needed for an applied scientist in the on the job universe today.

Scope:

Our range is to happen out what are the demands that calls for the necessary accomplishments that is called for when an applied scientist is stepping into the on the job environment. We will hold to happen the types

of accomplishments that many immature applied scientists in assorted Fieldss bring into drama to help them.

Engineering Skills:

Engineers have to fix themselves with a great assortment of Engineering Skills. These accomplishments will so assist them to travel through their working accomplishments easy and without problem. They will besides be able to be a better leader to their workers and their down line. When speaking about technology accomplishments, we have many accomplishments that can be associated with applied scientist. But we can categorise this great assortment of accomplishments into 2 chief classs. Those are Technical Skills and Non-technical accomplishments. When we talk about non- proficient accomplishments, it branches out into many other accomplishments.

When we talk about Technical Skills, we will automatically tie in it to those professionals whom attend to proficient and scientific affairs. Engineers are largely trained to heighten their proficient accomplishments before graduating. When they are ready for their working environment, we can safely presume an applied scientist is capable of covering with things that require proficient accomplishments. When we discuss about proficient accomplishments, it can ramify out to many other accomplishments under it. Technical accomplishments vary between one technology field to another. For illustration a Mechanical applied scientist may hold a wholly different proficient accomplishment when compared to a Robotics Engineer. A robotics applied scientist will hold more cognition in electronics and a

mechanical applied scientist will hold knowledge in the mechanics of machines. As we can compare them, although both appears to be technology field, different working environment necessitate different accomplishments.

Non-technical accomplishments are referred to accomplishments that are other than that taught. Normally non-technical accomplishments are attained as an applied scientist enters the on the job environment. Non-technical accomplishments are really subjective and are non found in any applied scientist books but alternatively learned through experience and people. Non-technical can besides mention to many major accomplishments chiefly soft accomplishments, interpersonal accomplishments and direction accomplishments. Soft accomplishments sometimes may mention to people accomplishments. These accomplishments are non specific to one technology field but can use widely. Some illustrations of Soft accomplishments are duty, time-management and optimism. Interpersonal Skill is really of import to current on the job environment and to today ' s employers. What characteristic they look for in applied scientists is the kernel of leading, communicating accomplishments and teamwork.

An applied scientist must be able to work in a group and give productive work to the company. As many companies interviewed, they have stressed that many applied scientists have the needed proficient accomplishments but most lack the necessary soft accomplishments and interpersonal accomplishments. Most technology alumnus today think that as an applied scientist, all they need is merely proficient accomplishments but the fact is holding merely proficient accomplishments will ne'er acquire them far in their working surrounding. Harmonizing to T. W. Hissey in his Journal entitled

Education and Careers, IEEE, Vol. 88 No. 8, 2000, industry leaders have said that immature technology alumnuss do non hold the excess accomplishments that include written and unwritten communicating aptitude, basic marketing- related cognition and fiscal affairs either in quality or measure.

Basic Skills that applied scientist necessitate:

No.

Basic Skills

Definition:

1.

DESIGN AND PLANING SKILLS

The ability to place an alternate class of action.

To be able to put down realistic end

Carry out a program efficaciously

Good clip direction

Able to foretell future tendencies and form

2.

INFORMATION MANAGEMENT SKILLS

To be able to screen informations and objects

To Use information creatively

3.

Research AND INVESTIGATION SKILLS

The ability to utilize smart methods to entree information

Use variable methods to prove the informations cogency

The ability to place job that arises

4.

COMMUNICATION SKILLS

To be able to pass on efficaciously

Able to talk fluently in the needed working environment

Able to ease communicating utilizing computing machine plans

5.

INTERPERSONAL SKILLS

The ability to maintain employees on mark and travel together to accomplish the purpose.

Understands the feeling of others

Willing to learn a accomplishment, construct or rule to others

6.

MANAGEMENT SKILLS

The ability to pull off other technicians

Able to form people in a certain mode.

7.

IT SKILLS

Able to hold on the common cognition about computing machines.

Able to entree computing machines to specify any jobs related to technology field.

Table 1: Basic Skills

Example of Specific Skills for Engineers in specified Fieldss:

1

AEROSPACE ENGINEERS

-Develop Airplanes Skills

-Spacecraft Skills

-Missiles Skills

2

AGRICULTURAL AND BIOLOGICAL ENGINEERS

-Technologies And Biological Sciences To Develop Skills

3

BIOMEDICAL ENGIEERS

-Medicine And Biology Skills

4

INDUSTRIAL Engineers

-Manufacturing Facilities Skills

-Designing Production Processes Skills

5

MARINE AND OCEAN ENGINEERS

-Design Skills

-Build Skills

-Maintain Ships Skills

6

MATERIALS Engineers

-Develop The Material Used To Create Various Products Skills

7

Chemical Engineers

-Combine Engineering Chemistry Principles Skills

8

Mining Engineers

-Focus on Locating Skills

-Extracting And Processing Coal Skills

9

NUCLEAR Engineers

-Determine The Processes Skills

-System Necessary To Tap Into Nuclear Energy and Radiation Skills

10

Petroleum Engineers

-Oversee Searches Around The World For New Sources Of Oil And Natural Gas Skills

Table 2: Specified Skills in Respective Engineering field

On-line Article:

Harmonizing to T. W. (Ted) Hisey, IEEE Director Emeritus What separates high-voltage applied scientists, who quickly rise within their organisations to places of great prominence and leading, from those who do non progress? Why are some applied scientists capable of transforming their proficient

cognition and experience into successful entrepreneurial ventures, while others fall short of this financially honoring achievement? Or, as a dedicated single subscriber, what will outdo prepare you as your organisation embarks on the widely awful restructuring, downsizing or right-sizing exercising? Highly successful professional applied scientists are non merely technically sharp, but besides frequently possess some of the excess or soft accomplishments that many experts believe are necessary for applied scientists and scientists to progressively encompass as we move frontward in the twenty-first Century.

Therefore, the thoughts presented in this article are based on interviews with assorted industry executives and directors, and industry-savvy authorities leaders, every bit good as academic leaders, from both the USA and around the universe. The consensus consequences indicate that applied scientists and scientists should understand the calling heightening value of the soft accomplishments in order to come on in today ' s planetary unfastened market economic system. The paper discusses the importance of developing these accomplishments through educational and other professional enrichment activities. It is expected that these accomplishments will be required for the members of the planetary work force of the twenty-first Century. This will besides be an epoch in which the duty for calling development is no longer the responsibility of the organisation but instead that of the single applied scientist.

[T. W. (Ted) Hisey (2000) Education and Careers IEEE. 88 (5) , 1367-1370]

Enhancing proficient and non-Technical Skills:

Technical accomplishments are really easy to be cultured by applied scientists because fundamentally the whole nucleus about being an applied scientist is to cover with issues that require the nucleus of technology. An applied scientist will hold to larn to give the cognition and apprehension. Engineers in the on the job field will finally and specialise cognition in his or her major. Each technology major will specialise in different facets of technology field. As per cognition in proficient portion, one time necessary proficient accomplishments is accomplished, an applied scientist will be able to work out jobs related to technology field and design systems though utilizing resourceful and ground-breaking thought.

Technical accomplishments are normally sharpened during graduating old ages. This is where Engineers learn their most critical and besides basic technology accomplishments. Some illustrations of these accomplishments are mathematical, technological and scientific accomplishments and the ability to utilize with easiness the tools related to those accomplishments Engineers are besides taught to measure and interpret statistics to derive informations. These are all learned in the university or third instruction degree where their basic revolves around.

Following, applied scientists enhance their accomplishments during their practical preparation. It is one of the most of import periods where applied scientists are taught the existent kernel of working. After graduating, applied scientists are normally trained for 6 months before working or even when geting a occupation, they are sent for 6 to 10 months for competence classs.

This is when they really apply their cognition and acquire the hands-on experience of being an applied scientist. This stage is really of import to cognize the accomplishments of utilizing a really scope of cogwheel, setup and package and the techniques to utilize them for their specific field.

When we talk about non-technical accomplishments such as soft accomplishments and interpersonal accomplishments, it can be really subjective. An applied scientist will non larn these accomplishments in schoolrooms or from any difficult stuffs. These accomplishments are really learned and incorporated in an person over clip and old ages of working experience. A good applied scientist will hold a good bid of both accomplishments, proficient and non-technical. A good communicating accomplishment can be learned when speaking with equals or take parting in a talk or presentation. They will besides able to pass on good with a good bid of linguistic communication, largely English as its most used linguistic communication worldwide. This has to accomplish by a adept applied scientist by unwritten and written method. IT is besides of import for a good applied scientist. This can be learned by holding a reasonably good computing machine accomplishment. This can be trained easy as everyone is reasonably experienced in IT.

Other interpersonal accomplishments include the ability to work together. An applied scientist has to portray his or her ability to run along a multi-disciplinary squad. This is particularly of import in technology field as its really common for applied scientists to be involved together when working in undertakings. This accomplishment can be acquired during the twelvemonth of working and besides when involved in undertakings whether in schools or

working environment. Creativity is besides of import for applied scientists as they need to happen a solution for a job and creativeness and invention is of import for acquiring an thought. This can ne'er be taught anyplace but is found in each applied scientist as they progress. Other soft accomplishments include rational unity, self motive, and enthusiasm that can be achieved through group work and working experience.

Fishbone diagram: Engineering accomplishments for current universe

Consequences and Findingss from the study conducted:

Figure 1- Learning manner that is important to go a good applied scientist

A study was conducted for 30 technology pupils in Multimedia University. Figure 1 above shows the consequences for larning manner that is important to go a good applied scientist chosen by the pupil ' s. There were two peculiar group ' s of pupil, 11 each chose that hands on lab experiences and all the three larning manners is important to go a good applied scientist. Next, 5 pupils chose merely assignment based acquisition will assist them to go a good applied scientist. Finally, 3 pupils chose that test based acquisition will assist them to be a good applied scientist.

From the consequences we can reason that the two peculiar groups of pupil had working experience in a company. This is due to most of them which chose these consequences stated that they went for industrial preparation after sheepskin and grade. Meanwhile, the pupils which chose tests based acquisition and assignment based acquisition had no on the job experience.

Therefore, they think with that sufficient cognition they can work in a company.

Figure 2- Qualities to go a good applied scientist

Figure 2 above shows the consequences for qualities to go a good applied scientist chosen by the same pupil ' s. A sum of 15 pupils chose that holding the ability to place and work out old and new jobs as it arises is the of import quality to be a good applied scientist. Meanwhile, another 9 pupils stated that holding practical accomplishments on the several technology field is the better quality compared to others. Therefore, another 6 pupils chose holding wide proficient cognition on the several technology field is one of the indispensable qualities to be a good applied scientist.

From the result we can reason that bulk of the pupils chose holding the ability to place and work out old and new jobs as it arises because they know from their old working experience that these are the chief quality needed to go an applied scientist where they need to work out all the jobs in their day-to-day life. Students which chose holding practical accomplishments on the several technology field assume that practical field accomplishments will heighten their public presentation in a company. Finally, fewer pupils chose wide proficient cognition on the several technology field due to the custodies on lab experiences they get from their surveies.

Figure 3- Important survey attack that are used for working experience

Figure 3 above shows the consequences for of import survey attack that are used for working experience. 22 pupils chose lab experience as of import

survey attack that is used for working experience. Next, 5 pupils chose lectors and tutorial category and eventually, the staying 3 chose assignments are of import survey attack that are used for working experience.

In decision, bulk pupils that preferred lab experience had antecedently undergone their industrial preparation. Which they find lab experiments is something relevant to the working environment they went through. The minority pupils which preferred talks, tutorial category and assignment as their options had different sort of attack where they assume it will assist them to derive proficient cognition on the several technology surveies.

Decision:

Harmonizing to the study and interview conducted with the former applied scientists and pupils we have come to a decision that in the current on the job universe today immature applied scientists need to posses two indispensable accomplishments in order to develop their calling. Those are proficient accomplishments and non proficient accomplishments. Normally proficient accomplishments learned throughout their studying period and applied scientists sent for preparation for the first few months to derive the proficient cognition in a company. Therefore, when it comes to non proficient accomplishments, soft accomplishments are one of the chief concerns in the on the job universe today. Harmonizing to research, many executives interviewed stressed that many of the soft accomplishments were missing in most of the alumnus applied scientists today.

Young applied scientists who desire to come on frontward in an organisation should set attempt to obtain, and so better, the identified accomplishments and features to the finest of their abilities. Experienced veterans of the technology profession should go on to spread out and keep these accomplishments. Furthermore, it is imperative for the applied scientists to develop excess aptitudes or accomplishments, which will let them to separate themselves among their equals. These accomplishments improve personal and professional image and therefore function to solidify one ' s place in an organisation.

Appendixs:

Degree centigrades: UserskesavaDesktopmyteo. jpg

Interviewed Person: Teo Mooi Yeow

Previous Post/Position: Engineer in Infineon

Current Post/Position: MMU lector

Q & A ; A:

Q: What sorts of work were you involved in your company?

A: I was involved as the First-Line Manager

Qs: Does your company happen it difficult to engage fresh Engineers for their accomplishments?

A: I do n't believe so. Our Engineers are really adept in proficient factor.

During interviews, we have many campaigners with first-class

accomplishments. We do n't happen it hard to engage fresh applied scientists.

The HR section will automatically delegate each campaigner to their respective forte, so the issue of an applied scientist non run intoing our proficient demand will non originate.

Q: What kind of accomplishments lack in fresh Engineers?

A: I find that many applied scientists lack non-technical accomplishments. Engineers today are largely equipped with the necessary proficient accomplishments but non other relevant accomplishments. What companies today are focused on are the soft accomplishments and interpersonal accomplishments. They play a large portion in engaging an applied scientist. One accomplishment that I think applied scientists today deficiency is the practical accomplishments. This refers to their accomplishments that are harnessed during their practical session or industrial preparation. We learn a batch of theory in category but in the terminal what matters is that we know how to use these theories in the problem-solving. In my old on the job topographic point, a new applied scientist will necessitate at least 6 months of preparation to successfully complete their undertaking.

Q: What do you believe about the soft accomplishments in applied scientists?

A: Quite a few deficiency these accomplishments. But every bit far as I ' ve seen, MMU is fiting its pupils with necessary soft accomplishments. Students are taught how to speak in category, do presentation and piece at it, they learn how to heighten their computing machine accomplishments such as

how to make PowerPoint slides. Somehow many applied scientists still lack these computing machine accomplishments and I believe it ' s of import to hold these signifier of soft accomplishments as a readying during working.

Q: So do we utilize a batch of soft accomplishments such as computing machine expertness in the working environment?

A: Well, it depends on the on the job Fieldss. Some applied scientists need it often and others non so much.

Q: What about direction Skills?

A: For new applied scientists, when they come out newly after graduating, the beginning of their calling will go around about proficient accomplishments and really less on direction accomplishments. When we say direction accomplishments, we can state applied scientists will utilize them when covering with the technicians. It takes a batch of pattern and old ages of experience to really pull off the applied scientists or the company. For illustration, through my experience, I had to pull off my technicians and make up one's mind whether they need overtime, what are their demands? This is when we use our direction accomplishments.

Q: What do you believe about Interpersonal Skills?

A: As an applied scientist we might necessitate more interpersonal accomplishments and Technical accomplishments.

Q: As you said earlier, you worked in Infineon. Do they engage foreign applied scientists from other states?

A: It ' s really improbable. But there are times where they exchange applied scientists from China.

Q: Why do you believe this occurs? Is it because Malayan Engineers deficiency critical technology accomplishments?

A: No, this is because of concern instead than to state we lack proficient accomplishments or non-technical accomplishments. When we get China ' s concern, for illustration Infineon, they can merchandise fortes and put up a subdivision in their states, really we are really supplying them with the necessary accomplishments.

Q: What betterment would you wish to see in our fresh Engineers?

A: I ' d wish to see betterment in attitude. They need to inquire inquiries and non merely blindly take orders.

Make More! What fresh applied scientists need is to take the excess enterprise to carry through something and travel further in the on the job environment. Never skip occupations and do the occupation that you feel that you can make and wish. In technology, you will merely larn more when you are more involved in the. When you keep exchanging occupations ; you will stop up non larning anything.

Q: Which skills do you believe is perfectly necessary and unequivocal for person to be successful in this technology field?

A: I think that would be Interpersonal Skills. You need to understand the psychological science of your colleagues. You need to read their head and understand their demands so we can hold them work for you voluntarily and at easiness. You need to give them a positive influence.

Interviewed Person: IR Ali Askar

Previous Position: TNB Manager

Current Position: Uniten Lecturer

Q & A ; A

Q: Sir, my inquiries are related to technology accomplishments for today ' s working environment. Traveling on to the first inquiry, what kind of work were you involved in?

A: Basically I was working for the TNB for the District Power Distribution

subdivision. I was the director for that division.

Q: Make you happen it difficult to engage fresh applied scientists?

A: For fresh applied scientists, we are non that concerned on their proficient

accomplishments but more on their communicating accomplishments,

direction accomplishments and other soft accomplishments. We besides look

into their attitude. Technical accomplishments can be taught and learned

really fast but soft accomplishments and interpersonal accomplishments

must be incorporated in every applied scientists.

Q: How do you heighten proficient accomplishments among fresh applied scientists in the working environment?

A: Before I came to learning, I was the Human Resource Development

Manager. From the minute engineers come in, they do non come in

technology sector but applied as preparation executives for 10 months in

competence classs. This will develop their proficient accomplishments

specifically required for their several occupations.

Q: What sort of accomplishments do you believe deficiency in fresh applied scientists?

A: I think the most of import accomplishments in applied scientist that they should hold on are mathematical accomplishments. The proficient accomplishment depends on the peculiar technology field. They need communicating accomplishments which is of import. What is of import is their attitude to larn what is necessary. What we learn in University is surely deficient.

Q: Do you believe Engineers today have better working accomplishments compared to past applied scientists?

A: I think what is different is the attitude. In the yesteryear, applied scientists are willing to larn from technicians and lower people. But now, the applied scientists like things easy. They want to sit in the office and have less engagement.

Interviewed Person: Dave Lim Chot Hunchlim

Previous Post/Position: R & A ; D Engineer

Current Post/Position: MMU Lecturer

Q & A ; A

Q: As you said earlier, you worked in Infineon. Do they engage foreign applied scientists from other states?

A: It ' s really improbable. But there are times where they exchange applied scientists from China.

Q: Do you believe applied scientists today have better or worse working accomplishments compared to the yesteryear?

A: They are worse compared to the yesteryear. This is due to, applied scientists back so were adept presents accomplishments are non required because machines perform all the undertakings. In illustration, antecedently mechanical applied scientists used to make the construction of a machine. But now applied scientists use AutoCAD to pull a construction. In this modern universe everything exists so applied scientists merely modify the old work.

Q: What betterment would you wish to see in immature applied scientists to run into their accomplishments demand?

A: First of all they need to be independent and execute the occupations by themselves because when fresh alumnus enter the on the job universe there will be no 1 to steer them this will be a whole new experience for them. So if anyone tends to assist or portion his cognition with you ever thank them. Therefore, if your supervisor does n't acknowledge what you ' re making for the company try non to be down work harder.

Q: Which skills do you believe is necessary for an applied scientist to make good in a company?

A: communicating or soft accomplishments to be more specified. Usually engineers posse ' s proficient accomplishments in order to show that accomplishment they need soft accomplishments. If an applied scientist can pass on good this can work out many jobs. This will cut down the communicating barriers between the subsidiary.

Survey signifiers:

1) Sexual activity: MALE FEMALE

2) PROGRAM Year: BETA GAMMA

DELTA EPSILON

3) Plan MAJOR… … … … … … … … … … … … … … … … … ..

BECOMING A GOOD ENGNEER:

4) TO Be A GOOD ENGINEER, WHICH STUDY MODE DO YOU THINK WORK

BETTER?

Handss ON LAB EXPERIENCES

EXAM BASED LEARNING.

ASSIGMENTS (PROBLEMS SOLVING) BASED LEARNING

ALL OF THE ABOVE

5) AS AN ENGINEERING STUDENT WHICH OF THESE QUALITIES ARE THE

BEST?

HAVING BROAD TECHNICAL KNOWLEDGE ON THE RESPECTIVE

Technology FIELD.

HAVING PRACTICAL SKILLS ON THE PESPECTIVE Technology

Field.

. HAVING THE ABILITY TO IDENTIFY AND SOLVE OLD AND NEW

PROMLEMS AS IT ARISES.

6) DO YOU HAVE EXPERIENCE WORKING IN AN Technology

FIELD (INCLUDING INDUSTRIAL Training) ?

YES No

7) IF YOU DO BASED ON YOUR WORKING EXPERIENCES WHICH PART OF

STUDY MODE IS CRUCIAL?

LAB EXPERIENCE

ASSIGMENTS

LECTURES AND TUTORIAL CLASS