

Advice from TIP students

These comments were collected from various reports written by students at the end of their internship.

The advice I would give students who are about to start an internship placement is try to apply their knowledge into the work environment. When you shift from a school environment to a work environment, you realize how different work is. I was trying to understand how software were developed. In school we learned there were 5 steps. When I talked to a co-worker, he confirmed that he took the same 5 steps in order to produce the software.

My advice to other students is to learn as many as skills as they can before starting their job, even though random. You never know which skill comes in handy, and even if they don't use them directly, a collection of skills gives them understanding and insights of other technologies, so they can use analogies to better understand new challenges.

A transition that made it harder was the aspect of self-study. School has professors that are pretty much a single point of reference besides for the textbooks that you read. Any questions can be asked to them and they'll always give you an answer. Professors will also give assignments that are self-contained; usually only what you've been learning in class is what will be on the assignment. At work, the manager will give you an assignment but you won't be able to ask the manager questions because he won't have answers (unless it's about the specifications of the assignment). You need to collaborate with your team or others outside of the team to get help with those matters. As well, not all work assignments will use the same technologies that you've normally been using and so you must self learn them in a very short period of time to complete the project before the due date.

The best advice I could give to students who are starting a new internship is to not be so nervous and be confident. I noticed that the people that work with would be confident in you, if you are confident in yourself. If you have suggestions but are scared to say them just because you are 'new', don't be. Speak your voice and even if your suggestion gets shot down, don't take it personally. Your coworkers will know that you can think of ideas on your own and may even ask for your help in the future.

Going into my internship, I knew that I needed to put myself out there and make sure I was able to work to the extent which I am capable and not hold back. This meant that I had to show my team members that I was willing to complete all work, correctly and quickly, even if the assigned work was boring. This showed that I was trustworthy and

that my team members could rely on me to complete the work. Over time, I was given more interesting work and soon I was even doing most of the development work on the team. So if there was one thing I would say to students starting their internship, that would be to not be lazy and don't feel put down if the work you start off with is not what you had expected. At the start, your team members usually want to get a feel for the type of person you are and they want to know to what extent they can trust you and what they can expect from you. Because I was in charge of the new intern, I felt this way when he started. I was unsure of what he was capable of, so I started him off by giving him small tasks so I could determine what he was capable of and whether he was willing to learn new things. Although there were things which he was unfamiliar with, he was not hesitant to ask for help. Which is also something new interns should keep in mind. If they are unfamiliar with something, they shouldn't hesitate to ask for help, because chances are, they are not expected to know about it but rather it's something they need to learn.

I attended bi-weekly cryptographic courses, given to the Key Management Operations team by the Senior Cryptographic Consultant. These courses are an hour in duration and through them, I have learnt more on Asymmetric Keys, SSL and PKI Certificates and EMV (Europay, MasterCard, and Visa) and Cards.

I mainly learnt by reviewing the slides before the session, doing side research into what I did not know or understand, and then speaking to the Senior Cryptographic Consultant if there were things I still were having trouble to comprehend.

Learning new things at work is different than in school. In school there is a very structure schedule that is taken to make sure students learn everything they can and should know about a subject. I have had to develop new methods for learning now because there are no textbooks for the things I do at work. When I am migrating pureQuery there is hardly a guide on the steps to take, in fact I am writing it. I have to learn by collecting different documents, talking to other people and trying things. I have gotten very good at learning about things without having any kind of plan or schedule on how to learn about them

Programming in a team

In the last work term, I was first exposed to this concept fully. Now, I have some more perspective on it. When you look at a piece of code and ask yourself: "what kind of moron wrote this?" it can easily turn out to be your own. Even code that you wrote, say, a year ago, may seem foreign and unintelligible at present. The skill required here is to be able to change your perspective entirely. Instead of asking "How does this code solve

this problem?” a different question must be asked. The question is something like “How does this code solve this problem and provide room for future extension?” For example, when writing code for one operating system, think what could be done to make it easy to extend it to another OS.

Furthermore, the issue of documentation, it seems ridiculously obvious what a piece of code does when written, yet give it some time and it will look like a foreign language; especially so for your teammates. Indeed, comments must be made extensively to explain the flow of your code.

My advice to future TIP students is to prepare them to come into the workplace with the attitude that one must never stop learning. Education doesn't end outside of school. If anything, interns need to be aware that even greater learning is demanded in the field than in the classroom. In addition, students should strive to develop a strong rapport with their departments as well as their peers and superiors. Building connections within the company is essential to increase the likelihood of continued employment, especially after graduation. Time management skills and prioritization are also integral for the student to meet the requirements of the position and to deal with a constantly shifting backlog effectively.

Keep going to study every course you are learning, and try to communicate with your classmate and professors.

My opinions regarding this remain unchanged from last term and again I stress the importance of the sentence below.

In my opinion it is a big mistake to think your university “training” is intended to directly prepare you for the practical skills you will need for a job. Moreover, the use of the word “training” is very much incorrect as it suggests, like a college might, that university courses are suppose to train you on how to use the software/tools you will need at work. The education I garnered through school prepared me for my internship quite well, not from a practical level though. The courses I took in programming taught me how a language is structured and the elements common to any programming language. With this experience I was able to quickly and effectively learn how to use perl, but I was not directly taught this in school. None of the courses I took were directly relevant to this internship but all of them were indirectly important and played an important role in preparing me. My experience in school also taught me we what are considered good coding styles and how to efficiently program. What I greatly lacked was experience debugging large pieces of code.

Take initiative. It'll provide for a more rewarding experience.

Additionally, I would encourage future students to challenge themselves during their internship. After working for the first four months and getting oriented in the role, I made a conscious decision to try to take on things that were new or intimidating. I found that in doing so, these things soon became second nature, and it became easier to push myself to attempt more new things. With this confidence, I feel as if I am making a difference in my role. Furthermore, by challenging myself, I am able to look back on my internship position not only for the technical experience gained, but also for the personal growth and the realization of personal potential gained throughout the experience. I can confidently say that coming out of this internship, I feel that I am much better prepared to enter the “real-world” in whatever direction I choose to take after graduation, which is what I was looking to get out of the internship in the first place.

Other than basic knowledge of programming that students acquire in CSE1020, CSE1030 and CSE2031, and more advanced topics in software design that are taught in CSE3311, I do not find the content of any of other courses directly related to what I am doing currently. However above all skills that I learned in the school is the analytical thinking. This is the skill that is challenged every day and I believe that is the single most important asset of all interns. As a non-native speaker of English all the communication skills that I have developed in different courses have been great asset for me.

Future TIP students can better prepare themselves by putting an emphasis on developing soft skills as well as technical skills. Employers are always looking for employees with strong soft skills, such as communication skills, negotiation skills and ability to work with the team. This is especially true for an IT position that requires relatively less hard-core technical expertise. Most of the times the employers can easily find a candidate with strong technical skills, but it is much more difficult to find someone with strong soft skills as well. If an employee is not technically strong enough initially, he or she can typically improve their technical skills by taking trainings and constant practices, but if he/she is lacking some soft skills, these skills cannot just be “taught” to the person with a few training sessions. Strong soft skills will give you a better chance in landing an internship position and in being a successful employee at work.

Having an open mind, be curious and creative, prepared to learn new techniques quickly, and try to communicate with others effectively and efficiently.

Students should be very confident they are best for the position. Showing confidence and interest in the position will help get positive reply from interviewer. Don't be reserved, be very social and try to make regular conversation.

There are lots of things, inside school and outside school, need to be studied. Keep learning! IT is an awesome field!

I will communicate more with my manager and other team members in the remaining time of internship.

What I would have done differently during my term is to request 1-on-1 meeting's with my manager every 2-4 weeks. My manager and I started doing them in April every 2 weeks and we have had two so far to date and they are extremely helpful. This way my manager can see how I am doing and I can ask any questions I have because I don't have much interaction with my manager besides these. I wish I had known before starting that the managers like you to show off what you are working on to them and other members of your team. Take the time to show the project you are working on or just finished to your co-workers and ask if they see anything that you should add/change. The more feedback your manager hears about you the more likely they will extend your work term if that is an option. Your manager, if like mine, will have to base his decision on extending your term by what he hears about you from those you are working with, as they are generally in meetings all day and not having much interaction with you. I could have better prepared for my work term by learning more about Eclipse and developing plug-ins for Eclipse as there is a lot of information on the internet and books written on these subjects. Most teams at IBM develop using Eclipse, but not all teams are developing plug-ins for Eclipse, so you would need to ask your manager about that ahead of time. Also learning JUnit and its integration into Eclipse would have been beneficial though I haven't used it yet, but will be during my next work-term.

Firstly I would suggest students entering the TIP program to be patient and not to expect that they will become an equal member of the team from the very first day. Sometimes it's hard, because most of the TIP student used to get very good grades at school and play

an important role among other students. In workplace it's different; usually it takes time to prove yourself even though in some cases students are not less qualified than they coworkers.

Secondly I would advice internship students to take responsibility for the job they are doing. In IBM students work on real projects, these projects sometimes can be boring. However that doesn't mean that they are not as important as other projects. Usually when supervisor gives project to a student he/she expect it to be done unless projects given in University, which not necessarily need to work or can have partial functionality.

Lastly, I want to say that I really enjoy being in this program. I believe that it's very important not only for getting practice and working in the real environment, but it also very important live experience, which helps not only to find a job after graduation, but also feel comfortable in the future job when you are hired as a regular employee.

I have lots of advice to dispense to future TIP students. Firstly, one thing I wish I had been aware of before the internship began was that there would be a period of adjustment in the beginning. I went into my position with the mind set that I would automatically fit in and start working on projects immediately. However this was not the case. I started off very slowly by taking time to learn how the software applications worked. I kept to myself most of the time and went home feeling unhappy. Over time I began to interact more with my colleagues, got to know other people in the office and generally started to feel more comfortable there. It doesn't matter whether you have had a job previous to your internship or not. Every work environment is different in its own way and it takes time getting used to it.

Secondly, don't be afraid to speak up. If you feel that you have a valid point then see to it that the rest of your team members hear about it. At the beginning of my work term, I kept many of my thoughts and opinions to myself. When something did not make logical sense to me in the software I would usually bring it up to Dino and express my concern. He would then justify why the software did what it did and I would simply accept his answer and carry on with what I was doing, even if I still disagreed with him. Later I realized that I was going about it the wrong way and began to voice my opinions when I felt strongly about something. You shouldn't have to hide how you really feel and I wish I had learned that sooner.

Lastly, I feel I would have been better prepared for the experience if I had attended the TIP experience workshop. There I could have connected with other students who had already completed the internship program and gained a better idea of what the

experience would be like. I also could have picked up some tips and tricks that would have eased the transition from school to full time work. Furthermore, I recommend doing some research on workplace ethics and etiquette before starting your internship. The school environment and the work environment are two separate worlds. I think it would be very helpful to be aware of the customs and unwritten rules of the workplace so that you will have an easier time getting into the swing of things.

All I can really say is to go into your work term with an open mind, and with enthusiasm to learn new things and take initiative. If you want to get the most out of your time, make sure that your supervisor knows you want to work. There will never be a shortage of learning and working opportunities.

- Take a training course before you start the internship position if possible, it will prepare you well and you will feel confidence when you start your internship.
- Do a research on the company that you will work there, try to understand the culture of the company.
- Do some reading related to the job position before you start your internship.
- A lot of time the problems need to sit for a couple of days before you see the solution, so keep searching before you find the solution.
- Some problems require a lot of thinking, so think thoroughly before you make some decision.
- Always have people you can talk to about technical questions.
- I've found that working through all of the problems on your own is essential for really understanding the material. However, once you finish the problems, or if you can't, go talk to your team members. You will find far more issues working with them than on your own, and learning how to talk and communicate technical ideas clearly.
- Don't hesitate to ask other team members for help if you are not clear about something. He won't chase you away.
- Understand the big picture and how everything is related.
- Work hard and have fun.

To make yourself better adapt to the intern position, first, improve your communication skill, second, do some research on the technology skill used in workplace and try to learn them by yourself (I'm pretty sure these skills won't be taught by University)

The biggest piece of advice I would give to future students is to get involved in the company they are working for. During the summer I had the opportunity to take part in

many of the activities organized by Future Blue, the student organization, and the Toronto Lab and Tivoli Test team itself. This allowed me to network with many other students, as well as full-time employees, and makes working much more enjoyable. This work term, I have also taken the opportunity to attend Future Blue Activities meetings and help brainstorm and plan events for students. I have also taken part in a lab tour for prospective internship students and spend time networking with them and answering the questions they have about the program. Additionally, I have been able to take part in a round table discussion regarding the presentation IBM gives to university students interested in doing an internship. These have allowed me to see how much this company cares for their employees and how much effort they put into the EPIC internship program. It has also given me reason, above and beyond the job I am doing and the people I am meeting, to care for this company.

I have a few advices for future TIP students as the followings:

1. Try to find out what the team does including you role in the team as mush as possible, since you may face a different situation than you expected.
 2. When you actually start working in the team, quickly grasp the technology that the team is using, and get yourself familiar with the project that the team is working on.
 3. Be detail-minded, careful with the task that you are assigned to do.
 4. Meet the project deadline.
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My advice to future internship students is to work hard and take this opportunity to get hands-on experience. You will not regret this, as it is a good way to complement your studies and apply what you have learned. It is a great valuable experience and a step closer to finding a career that is right for you.

Be organized right from the start. Document all of your work. When you provide assistance/support to someone, document the person's name, the time/date, the issues and what you did to resolve it. Organize your files (email, documents, etc.) so that you can easily relocate them in the future if necessary, which is often the case. When you propose a project/task delivery date/time, take into account the worst case scenario, which is that you may have to deal with other tasks and issues in the meantime.

Work hard, be positive, never give up and don't be afraid to make any mistakes, because if you are, you will never learn.

Don't expect to be too busy at first, bring something else to do while they set everything up for you and train you. Don't be afraid to ask a lot of questions, even if you think they are dumb.

I think it's important for people to understand that the work they do here matters, and that they will be treated according to the interest and effort they put into it. As long as they're willing to work and overcome challenges, projects will be important and challenging. I also think it's very important to get to know the team, or as many people in it as possible. Every person's knowledge can be an asset, and it's very good to have different people to talk to and ask questions to when you first arrive, and start on a blank page without any previous knowledge of the job. Finally, I think it's very important to be confident and ask questions. Lots of times people might get stuck and not know what to do – while it's important to be able to learn and figure things out on your own, people need to find a balance between that and asking questions. It's not a good idea to spend 3 days on something someone could've explained to you in a minute. People are generally helpful and I think it's a good idea to take advantage of that, and ask for help when it's offered.

Try to think about long term career plans and choose an internship that will help you reach your goals. Also, choose the company you work for accordingly. If you want to go into business, don't go for a highly technical software firm. If you want to go into technology, don't work for a bank. Also, university courses have an enormous effect on your performance at work. Even though you will be trained for your job, nothing can replace having previous experience with a skill from a course. It really helps you make a solid impression at work.

As a computer science student, when you are assigned a certain task, think about how your knowledge and concepts that learned can be augmented into it. Take a while to do requirement analysis, build a proper architecture for your project even when you are working on a tiny tool kit.