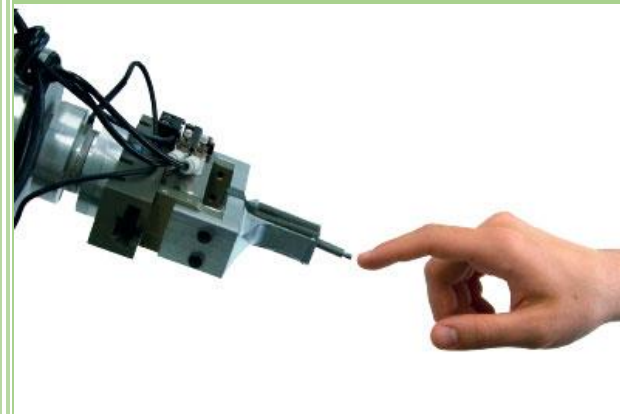


I Semester 2015-16

PS-II Newsletter



Birla Institute of Technology & Science, Pilani



From the Desk of Editor

Practice School has been one of the unique and distinguishing characteristic of BITS, Pilani Academic Program. Practice School has been a major part of BITS education system is 1973 making BITS Practice School a pioneer in India.

The main objectives of Practice School are

- Meet the rapidly changing needs and challenges of a professional workplace
- Enable students to acquire learning by applying the knowledge and skills they possess, in unfamiliar, open-ended real life situations
- bear an economic relevance to society.

These objectives are achieved by bringing the reality of the world of work into the process of education. PS creates the required setting for experiential and cooperative learning and education, by providing students with an opportunity to work on relevant assignments, under the guidance of professional experts and under the supervision of faculty.

This newsletter celebrates the spirit of Practice School. Various stakeholders – students, Industry mentors and PS Faculty have shared their experience during PS- II is this newsletter.

This is our first effort to bring out such a newsletter and I would like to thank everyone who has participated in this activity, the students, the mentors and the faculty for sharing their experience. I am sure with such overwhelming support we can up with more such editions.

I would happy to receive any feedback regarding the newsletter. Pl feel free to email me at psd@goa.bits-pilani.ac.in or at anupkr@goa.bits-pilani.ac.in

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PS In- Action

Student Experience

Domain - Chemical Engineering

Company: Aditya Birla Chemicals (Thailand) Ltd.

Name of student: Rishab Kapur (2012A4PS276H)

Discipline: Mechanical Engineering



This PS station is unlike any other. Not only because it is in a new country, but also due to the company and work culture.

We got to work in a company where you can see both the plant operator and Company President eat beside each other. Where our mentors are not Assistant Managers, but Assistant Vice Presidents, and we interns were given the same respect and treatment as any other employee. Such is the atmosphere there!

Initially when we arrived, we were a little scared and unsure of our role here. But once the projects were assigned and work started, we slowly got comfortable. The best part was that we were not given any kind of spoon feeding. We were taught to expect help only in things related to the plant. No one told us where to find a solution, only that we had to find one. And this was the biggest factor in helping us transition from Academic Learning to Industrial Application.

Working in the projects department in Phosphates Division, we were assigned either old unsolved cases for giving a fresh perspective, or a new problem which needed a solution. When giving our first report, our mentor checked it so thoroughly that it surprised us. That was the time we realized that they were not just keeping us busy, but actually expecting practical solutions from us. This renewed our zeal to work hard for any and every task given to us. The motivation that stems from seeing your work appreciated was greatly felt, especially by the fact that the company was considering implementing our solutions. And this was true of all of us. The interns working in the Saraburi plants have achievements to boast of as well. At the Thai Peroxide plant, production has improved by 2 MT/day, and at the Sulphites division, the feasibility analysis for a new product will help them expand into a new 3 Billion \$ market. Each of us was also involved with preparations for the 'World Class Manufacturing Awards' assessment, which is an initiative of the Aditya Birla Group. And when our plants won their respective awards, we felt proud to have been able to contribute.

As for life outside of the work place, we were living in a completely new and unknown country, where we initially couldn't speak the local language. We had 23 weeks in front of us, and we *lived* them one week at a time. We were part of a good routine which kept us in top mental and physical health. And it is definitely the best thing that happened to us. On the weekends, which we interns spent together, we would explore a new fascinating place, try out some unique and amazing food and gathered memories worth remembering for the rest of our lives. We got a

firsthand experience of Thai culture and living, while working in an amazing environment. It really was a dream come true PS for us.

To conclude, I would like to recommend this place as an option for all Mechanical and Chemical Engineering students who want to experience working somewhere you will feel independent and important. Our sincere thanks to PS division and to Aditya Birla Chemicals (Thailand) Ltd. for this opportunity and good luck to the student readers.

Company: Atul Ltd. , Valsad, Gujarat

Name of student: Bibhu Padarabinda Nayak (2011B1A1675G)

Discipline: Chemical Engineering



ATUL LTD. is the oldest privately owned chemical organization in fact the first private chemical company to be established after Indian independence. The techniques used in the manufacture of various colors, dyes, paints& other reactive intermediates help a chemical engineer to practically see whatever he/she's been taught theoretically through books. The vast amount of operations or rather unit operations taking place in every process are critical to the understanding levels of a student. It serves as the best platform for the foundation of conceptually strong chemical engineers because the basics are polished and it helps one to implement these concepts into progressing into a project further and advanced developments.

The engineers as well as the highly qualified operators here at ATUL helped us in understanding the processes taking place as well as where were they related to in the field of chemical engineering. The books namely "McCabe smith" and "Treybol" were referred to incase there were a few problems in clarity or understanding. But the expertise of the above mentioned people hardly let us face any kind of problems. Frequent on site visits, online course referrals, deliberate meetings as well as consultations with various departments made the 51/2 month experience a fruitful one.

Speaking from the point of view of a fresh graduate, industrial experience isn't just about working on projects or other academics related stuff. It is about the etiquettes and manners to work in a corporate environment, how to manage yourselves formally, learning to live by the company rules and regulations and learning to behave accordingly. That switch of lifestyle is what defines industrial experience. Also the capability to think out of the box, practicality as well as problem handling efficiency are also required tools for a successful career.

The trained and experienced engineers over at ATUL were extremely patient and understanding towards us in case we had any problem understanding a process taking place, just being in groups, listening to their conversations, deliberate meetings between the various department heads and frequent on site visits did raise our intellectual levels and helped us have a firm grasp over things happening and the day to day happenings in the plant. The concepts learnt previously actually started making sense.

At the end of our training period, we can confidently walk into any core chemical industry without being hassled and unaware of various unit operations that happen over there, also the exposure at ATUL has made us strong identifying as well as designing various equipment that are principally used in a chemical industry like distillation columns, cooling towers, reaction vessels (CSTRS & PFRS), filter presses and etc. Now without any further struggles we can explore things for ourselves and can actually contribute towards the development of any company that we settle into because our training has been that solid and overall top notch.

The industry is divided into various sheds under which the production of numerous intermediates takes place. Each such shed has its own processes and equipment. Therefore, problems are bound to happen.

one such problem was with merging two intermediates namely (528 & 542) each of whom required me to draft a separate p&id after studying their process and finally merging the products to create an entirely new product (quinizarine), i had to draft the entire process, scout the equipments, make a list of whatever was to be needed. So made a list and asked to place the order after further reviews. The amount billed was about 0.12cr, and after the equipments arrived, trials were held and right now the product is feasible.

Secondly, there's another interprocess discrepancy resolved by me. (int 528) could be broken into two finished products namely 528p and 529, where the production of 528p was being done with excessive losses (about 60% of input), i proposed a change in mechanism where i asked for further acidification in the secondary step by concentrated H_2SO_4 and then passing it through filter press with a brine wash, thereby lowering the acidity and therefore decreasing the water added in the previous step and also being able to recover a major proportion of the product without letting them being washed away with water. My idea was reviewed and it was found to be chemically sound. Trials are being awaited. If this happens, the company can decrease the product wastage by about 10-15% as well as increase yield as well as quality.

Company: Grasim Industries Limited, Nagda

Name of student: Varun Patel (2012A1PS328P)

Discipline: Chemical Engineering



Edited by: Samir Kale, Assistant Professor (OC) and Faculty Incharge, Grasim Industries Limited, Nagda

During my PS at the viscose staple fibre division of Grasim Industries, Nagda, I studied the viscose manufacturing process and sodium sulphate production in detail. The study of the process operations helped me study the difference at the industrial level from the academic knowledge. The continuous research for the projects helped me refresh the basics of chemical engineering along the way. During the PS, I learnt working with a number of engineers from different branches with a lot of industrial experience as a team. The PS experience also taught me how to trouble-shoot real-life problems faced in the plant on a day-to-day basis. It gave me a glimpse

on the type of work I will be doing in the future. This will help me in the transition from academic to industry more quickly and effectively. I think that the things I learnt from the PS will prove to be invaluable for the future.

Major Achievement/Contributions:

The project was on the multi-stage flash evaporators (MSFE) which are used in the auxiliary department to remove the excess water in the spin bath to maintain its concentration. The aim of this project is to improve the performance of MSFE by decreasing the steam requirement and increasing the capacity of the MSFE. It also focuses on suggesting methods to improve the heater performance. Some of the sulphur from the spin bath is flashed with the water from the spin bath and is circulated through the shell side of the heater. On cooling down, it gets deposited on the outer side of the tubes. This salt and sulphur deposition in the heat exchanger decreases the steam economy. Due to this, caustic circulation is carried out every 20-30 days in the heaters of the MSFE to remove the sulphur and scale of the tubes and improve the heat transfer.

Suggestions: Caustic circulation removes the salt and sulphur deposits from the tubes but it also causes damage to the rubber lining of the preheaters (A-1 to A-8) in the long run. So, if we can delay the caustic circulation as long as possible without decreasing the plant performance, then the damage to the heaters can be prevented which will prolong the heater life.

The following things can be tried for prevention of scale and salt deposits. (Accepted for trials at GIL)

Use of low molecular weight polymers as anti-scalants

The low molecular weight polymers are generally polymers of carboxylic acid or sulphonic acid groups with average molecular weight over 2000 g/mole. The most effective ones are polyacrylic acid, polymetacrylic acid and polymaleic acid. They are mostly used in boilers to prevent scaling. They have also been tried in some desalination plants. These polymers are added to the scale causing solution in small quantities (generally 5-30 ppm) according to the concentration of the scale causing salts. These polymers either disperse the flocs of salts formed in the solution or form a micro-film on the heat transfer surfaces. They don't completely stop scaling but they do decrease the rate of scale formation to a great extent.

How they can be applied in our MSFE: The polymers have to be tested in the laboratory to study their impact on fibre, spin bath and salt. If they pass the tests, then they can be added to the spin bath tanks to maintain a specific concentration. A polymer testing kit can be used to check the concentration regularly and accordingly, the polymer can be added to compensate the loss in various processes.

Targeted Benefits:

- The polymers inhibit both salt and suspended solids deposition. So, the sulphur in the system will also remain in the suspended form in the spin bath. Due to scale inhibition, the caustic circulation can be delayed and steam economy of the MSFE can be maintained for a longer time.
 - The polymers are acidic in nature so, they can withstand low pH values. Their concentration is in ppm so, there will be no effect on the acidity and quality of the spin bath.
 - The spin bath system is a closed system i.e. all the spin bath returns back. So, there will be negligible loss of polymers making it cost effective.
 - The polymers will decrease the damage caused by frequent caustic circulation. It will also prevent flash vessels.
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Domain - Civil Engineering

Company: Central Building Research Institute (CBRI), Roorkee

Name of student: Yashaditya Vyas (2012A2PS536P)

Discipline: Civil Engineering



My 5½ month experience at CBRI, Roorkee has been a great teacher to me both personally and professionally. Being a research oriented institute, CBRI did not as such gave me much with respect to industrial experience but the learning opportunities are huge here. It definitely did help me in regaining an interest in my discipline which I had begun to lose after continuous academic sessions. Seeing how my research would be used in real world applications definitely helped me appreciate the nuances of civil engineering. My work gave me exposure to FEM based analyses of real world problems which find a huge amount of application in a variety of fields including structural analysis and my career prospects look positively brighter after the PS-II. Besides the professional gains, the true gems I gained from my stay in the small town of Roorkee were rather more personal. I got to have more alone time and that gave me the time for self-reflection and rethinking my priorities which was of utmost necessity. My stay also gave me the insights into the work culture of a top level government institute, which is going to help me in making more informed career choices.

Company: Central Road Research Institute, New Delhi

Name of student: Amandeep Singh (2012A2PS614P)

Discipline: Civil Engineering



The major learning that I acquired in my 5 and half months of exposure at CRRI, one of country's most prestigious institutes, are twofold. The first was the technical aspect of things and the second was of character building.

The technical aspects include me mastering the statistical software known as IBM SPSS and also acquiring the skill set to tackle the problems relating to Level of service criteria that falls under Traffic Engineering and Safety. Apart from this aspect, the humility I saw in my mentor and his colleagues has left its impression on me and will help me go a long way.

This time period has definitely prepared me for a future in the industrial side of civil engineering. The immediate exposure to real life problems in the industry along with responsibility attached

with the work that I conducted has left me with a sense of professionalism and taught me office-work ethics.

The project I was working on determines the level of service of the urban arterial roads in the whole of India. The sheer magnitude of the project appeared daunting at first but over time, under the guidance of Dr. A. Mohan Rao, I learned to focus my problems and solve the problem at hand one step at a time in a swift but organized way. This gave me the confidence that will in the future empower me to tackle any problem at hand. This attitude I feel will be important when I will be responsible for a complete project in the future.

In my time here, I learned how to work alongside other people and learned the true meaning of teamwork and how important colleagues are in an office space. From my seniors I learned the way to guide a person working under me. The way my mentor listened to my doubts and provided me with the right amount of help, not too much but just enough to set me in a path of self discovering the solution.

I would like to round by saying that working at CRRI has left me stronger both cerebrally and spiritually. This has been an experience of a life time and has definitely made a better engineer and a better person.

My major accomplishments include not any medal or certificate but the trust and confidence that my mentor showed in me while doing the work load. My ability to solve the problems in the way advised and also in the time allotted is definitely an accomplishment for me.

Company: VMS (Vakil Mehta Seth) Consultants Private Limited, Mumbai

Name of student: Vishal (2012A2PS588P)

Discipline: Civil Engineering



It is no secret that experience is invaluable in any industry, especially the construction industry. During our Practice School at Vakil Mehta Sheth Consulting Engineers, we gained a lot of experience in the field of structural design. There was a lot of non-textbook learning like the structural workflow for the design and execution of a project. The various technicalities involved procedures to be followed, documentation to be prepared. A major learning was the interpretation of standard codes of construction, both Indian and foreign. We also learned a lot about dealing with lateral forces, particularly seismic, their various parameters and their calculations. We also got to learn a lot about the detailing of various members. We hadn't worked with shear walls in our courses and it was a new introduction to us here, at VMS. And the same thing can be said about flat slabs also.

The 5 and 1/2 months of working at VMS Consulting Engineers was a smooth transit from academia to the industry. While studying from books, we do not have a lot of clarity about the practical applications of the theory that we have learnt. However, at VMS, we got the

opportunity to work on live projects and that really improved our understanding of the basic concepts.

Working in the industry, as expected, is very different from studying at the institute. However, the learning opportunity and the new environment were incredible. There are a lot of things to take back, and the technical aspect is only one of them. This experience helped us build relations in the industry, something very important for any profession. The office work culture was an entirely new experience as we haven't had the opportunity to work at a single place for this long a duration.

Our knowledge base was broadened merely by the experience of working here. We got a full overview of how a project is initiated, what the role of the structural design consultant is, how that role can be further expanded etc. Something invaluable that we gained was an understanding of the way of a professional structural engineer role in the vast process of construction. The perception of general public of a civil work is merely limited to site work. But we experienced how structural engineers work is crucial for smooth, efficient and timely completion of a project.

This time has helped me realize that work we learned is of great significance in the entire construction work. The importance of work has helped me be more inclined towards the construction industry. I also want to be involved with some research project which consists of both research scholars and practical engineers and work towards making the complete cycle more efficient. I would love to work in some startup in structural industry, where our work will not be limited to structural design but various types of work for my complete professional development.

This time helped me learn how to work in a professional condition. We learnt how to work under extreme pressure hike doing work with huge efficiency under time constraint. Whichever field one joins in future, this type of experience is useful everywhere.

Domain - Electrical & Electronics Engineering

Company: Analog Devices, Bangalore

Name of student: Apoorva Agarwal (2012A3PS287H) Discipline: Electrical & Electronics



One of the most important thing that I learnt in my PS-2 experience, however minor-league it may sound, was the importance of understanding something to its deepest possible and being very clear about it when explaining it to someone. I understood how important my basic concepts need to be for the other person and myself to be on the same page when discussing about something. PS-2 was our first application of theoretical knowledge to practical and it is very important for theory to be well understood to proceed with designing anything out of that theory. Industrial experience from academics was a welcome break and it made me realize that here there is no short-cut and everything needs to be really accurate. I think this experience will

make my second transition -from industry back to academics for next 6 months really different from how I approached my previous academic courses. This is what I will be taking back from my experience here. You keep on working till you come up with a solution, a correct one. Also, I would like to share here about how I realized inter-disciplinary knowledge is important for industrial work! It is not sufficient sometimes to know about only one thing – but to know some things about all and be good at some. My knowledge base was broadened by learning about the application of DSP to the world of MEMS. I previously knew a small application-model making MATLAB, now I know how an actual industrial sensor would be completely modeled in MATLAB. I worked with a real product of the company that would be sold to customers at a later stage. This experience of working with a team on a product is something that would help me in my future. This sensor product has been released with many updates over the past few years for different applications, but this is a first for the company when the sensor model will be releasing with the Self-Test Model inbuilt within.

Name of student: Praneeth Khanna Bala (2012A3PS061H) Discipline: Electrical & Electronics



PS II helped me to understand the corporate culture, culture of a core electronic company. Getting in touch with people of ADI helped me realize the field of implementation of the courses which I had studied in college. Because of PS-II I was able to get a hands-on Cadence, which I would have neglected if not for my project. I learnt a lot about amplifier analysis. I came to know about Monte Carlo, corner process and the use of F10 for multi run simulations. I was also able to design a chebychev analog filter of third order. Since the system provided had Linux OS now I also have a working experience in LINUX. Because of PS-II now I am more inclined to work hard and learn newer things. PS-II also made me learn the importance of money as I did manage myself without too much help from home.

Name of student: B Santosh Singh (2012AAPS007H) Discipline: Electronics & Communication



I have improved a lot on Verilog and also learnt about synthesizing and implementing these codes on FPGA board. I have also learnt to understand and rectify the timing errors that can occur in a design. I have seen how the practical scenario is very different to the theoretical one; I have learnt that a lot of second order effects have to be taken into account while designing any model which we normally neglect in theory. I have explored about machine learning and how those techniques can be used to solve real life problems. It boosts my CV that I have been as an intern at Analog Devices, the fact that I have done a project on FPGA helps me going forward in that field. I have successfully implemented Support vector machines algorithm onto FPGA board.

Company: ARM Embedded Technologies Private Limited, Bangalore

Name of student: Amal Sony (2012A8PS386G) Discipline: **Electronics & Instrumentation**



My experience at ARM was quite a pleasant one. The working environment and the employee – intern relationship were commendable and are definitely things to be mentioned explicitly. My time there completely transformed my theory backed mind in to a more practical one. Most of the things we learn in campus are not exactly how these companies get things done. While learning we take many assumptions and while working there I had to go beyond those assumptions. I had to always take the worst case scenario.

Speaking about my work there, I got a chance to work in the ATEG department, which is Architecture and Technology Engineering Group and the work they do there required me to know about Microprocessors and Computer Architecture, which was what I wanted, considering the fact that I didn't get a chance to learn Computer Architecture back at campus. So never once I felt bored of what am doing. I must say that those 6 months really helped me look beyond the academics, made me more result oriented and taught me how to get things done in a short period of time. The PS experience will definitely augment my future career prospects because now I know the skill set required by those companies and I will be able to develop them. Getting to learn about the company culture and etiquette is yet another bright side of my time there.

Name of student: Mohammed Abdul Mugeeth (2012A3PS062H)

Discipline: **Electrical & Electronics**



I was assigned the memory team. The work they do in the memory team is designing memory instances for the customers based on their specifications. Initially my work was based on SRAMs. We used design tools to design the SRAM bit cells and simulate them. We followed a certain methodology to do the margin analysis on single port SRAMs. The latter part of my project involved on a different type of memory called CAM. I had to design everything from scratch. Do the timing analysis for different operations and plot the graphs to compare the variations in timing parameters in different processes.

All the work I did here was completely new which we were never taught in college. This gave me an exposure of what people do in industry. I understood how different the industrial exposure from classroom experience is. I gained a lot of knowledge, both theoretical and practical, in this 5 ½ month period. I had hands on experience on some designing and analysis tools which would not have been possible in college labs.

The PS experience gave me exposure to how life after college would be and helped me get ready used to the practices followed in the industry and to face the challenges that we encounter. It also gave me an idea of what interests me and what I might take up in the future.

Name of student: Naveen B Kurian (2012A8PS330G) Discipline: Electronics & Instrumentation



I was part of the Memory Team during my internship period at ARM. Working with the memory team has helped me realize the leap from theory to practical implementation to a huge extent. Knowledge of courses which I had covered in college, mainly Microelectronics and ADVD were put into use during my project. My manager provided me with an environment conducive to work and learning. The organized way in which ARM works provided me a lot of industrial exposure and helped me understand the transition from academics to industry. The working hours were flexible and the work culture and atmosphere inside were also nice. There were very few B-tech graduates inside our team, as they prefer post graduates usually. The internship helped me strengthen my basics on Microelectronics and has also given me some knowledge on VLSI Design. I could also learn Perl and shell scripting during my time. Working in the memory team will help you if you plan to study VLSI Design for higher studies. Added to this, the experience you gain can increase your chance to get into companies having a Physical Design team.

Name of student: Pervela B L Prathyusha (2012A8PS272H) Discipline: Electronics & Instrumentation



My experience at ARM was quite a pleasant one. The working environment and the employee – intern relationship were commendable and are definitely things to be mentioned explicitly. My time there completely transformed my theory backed mind in to a more practical one. Most of the things we learn in campus are not exactly how these companies get things done. While learning we take many assumptions and while working there I had to go beyond those assumptions. I had to always take the worst case scenario. It greatly helped me to understand the practical applications of the things we learnt back in college.

My work is with the SYEG department (System and Software Engineering). My work is mainly based on coding and architecture. I had a chance to learn coding and also work on architecture. I must say that those 6 months really helped me look beyond the academics, made me more result oriented and taught me how to get things done in a short period of time. The PS experience will definitely augment my future career prospects because now I know the skill set required by those companies and I will be able to develop them. Getting to learn about the company culture and etiquette is yet another bright side of my time there

Name of student: Rohin Arora (2012A3PS179P) Discipline: Electrical & Electronics



We would like to thank PS for giving us this opportunity. It was a good industry experience. We worked in Memory Design Team in ARM Noida. It taught us about SRAM design. In college, we were taught how things happen in theory but seeing them in industry taught us about challenges faced in real implementations. It was a good exposure. The team we worked with was very supportive. We learnt about various types of SRAM's, 6 transistors to 14 transistors implementations, SRAM architectures, timing analysis, clock generation techniques, SRAM assist circuits, read, write assists, POR circuits, ADM, WRM, SPICE, reliability of electronics, second order affects etc. We did a lot of literature survey. We read over 40 IEEE papers. Most of these things were new to us. It broadened our knowledge base. These are used all over industry and we hope they help us in our future endeavors. The 5 and half month experience taught us things we could not have possibly learnt in college. It also gave a flavor of corporate life. We were sponsored a free trip to ARM Bangalore to celebrate ARM's 25 year anniversary. The assist circuit that we implemented was a new technique never used in industry before. It

allowed operation of 6 transistors SRAM at 0.3, 0.7 volt – something never done before. It will be very useful in future. ARM is heavily investing in IoT(*Internet of Things*) arena. IoT requires ultra-low power consumption because wearable electronics is required to last from days to months to years (like pacemakers in heart patients). Most energy consuming part of electronics is the SRAM memory. The energy consumed scales down with square of voltage. Earlier the supported voltage was 0.45, 0.7V. By allowing operation at 0.3, 0.7 V, it will be very useful in future. In last few weeks, we also worked on an idea for which patent was filed. It is under review so we can't disclose the details of idea. We worked on obtaining its results for RF1HS compiler. These results occupy 30% achievement of the patent filed. Hopefully our work will help us in applying for MS in future. It was a good industrial experience

Name of student: Shreyas Dixit (2012A8PS284P) Discipline: Electronics & Instrumentation



Practice School is an integral part of the academic process, My PS II experience at ARM has been very enlightening about the work culture that one has to integrate into after getting a B.E. My project was on generating verilog timing test benches for multiple families of cells. This required a working knowledge of Verilog and a basic understanding of latches and flip flops. As the project progressed, I began to understand a number of different aspects of standard cell design and validation. It is important to realize that as interns, we are expected to go with the workflow that is present in the team and this internship is not about path breaking research but smaller changes to optimize or improve this workflow. The first step is always to understand the system in place, understand what is being done and why it is being done. During this five and a half month long internship, I have had to learn a number of different things like Tcl, Shell, etc. Asking your manager/mentor is the best thing to do about any doubt or anything you want to learn. Internet is the next best thing. Spending more time on any problem that I faced, seemed to bring new solutions. Some of these solutions were acceptable, many were not. One of the tasks was to create a script for reading a file and making specific modifications. My solution was to read the whole file, make Modifications and rewrite the output file. This should work ideally, but the aspect I overlooked was that the file size can vary. Better solution is to read the file, line by line, make corresponding changes and write the output file, line by line. In academic work, ideal scenarios are assumed for tools, like the RAM will not crash but in industrial work; the worst case scenario has to be considered. A number of times, I have not understood why I was asked to do something by my manager/mentor, but later, the reason appears. Experience does matter. Two months are required just to familiarize with the settings, to do something concrete and meaningful, more time is required. The first test bench took around 1 month, the second took around two weeks and the third took about 3 days. One important aspect of coding jobs is that the code should be developer independent. For this, it is necessary that proper comments are present. Career wise, this is a very good point to have on a resume. The outlook I had regarding working in electronics has changed during this period. This experience gives a reality check on what to expect in any non Research and Development job.

Name of student: Vishal Thakre (2011B4A3565G)

Discipline: Electrical & Electronics



During 5.5 months of internship at ARM I have been part of the Memory Team. Courses studied in campus like Microelectronics and ADVD were put to great practical use during this period. The work culture in the team is very good and the other team members have always been helpful. This internship also gave me the perspective of what changes we should expect when moving from theoretical study to practical applications. Most of the employees working in the memory team are post graduates and have many years of experience, thus I learnt a lot from them. I am certainly improved my basic understanding of MOSFET's, Leakage Analysis and SRAM Compilers during my project term. This experience would certainly help me in getting into other core companies which are working in physical design. The work done in this team would certainly help in building up the resume for higher studies in VLSI design.

Company: ARM Embedded Technologies Private Limited, Bangalore

Name of student: B V Sri Sai Chanakya (2011B1AA704H) Discipline: Electronics & Communication



Getting selected in BROADCOM as an intern is the thing that I would cherish throughout my life. I got the opportunity to do internship in DESIGN VERIFICATION team under Mr. BALAJI KALIRAJ which gave me an immense knowledge on the verification process. I worked on transaction based acceleration method which decreases the simulation time to a greater extent (100x) when compared to the usual simulation acceleration method. Mr. VINAY DAGLUR, my mentor always encouraged me to come with the own and new ideas and do independent study on all the steps in the verification process, which helped me grow both professionally and personally. The topics which I have studied in ADVD (Analog and Digital VLSI Design) course helped me to understand the project very easily. I have learned SYSTEM VERILOG which is a hardware description language during the course of the project and I have eventually done debugging in SYSTEM VERILOG. SYSTEM VERILOG is very important when it comes to design verification process. I have also learned PERL which is a scripting language and gained some knowledge on tcl. I have gained knowledge on every step in the verification process. I had hands-on experience on chip architecture and various verification methodologies. I had experience on the hardware (EMULATOR) which is used in Pre silicon validation process. I have also gained knowledge on

other projects which my other ps2 mates have taken up .We shared our knowledge on the projects we worked on so that every person gets the idea on what other person was doing. Industry experience has very much influenced me .I want to take up career in VLSI design verification after graduating for college. Employees here are very knowledgeable persons. They have influenced me a lot. They gave me great suggestion to be in hardware industry. At first I was so slow but I eventually picked up the speed and could able to complete the project on time. I would like thank my mentor VINAY DAGLUR, my PS instructor MRS. A REKHA and PS division for giving this wonderful opportunity to work in an industry which I would cherish throughout my life.

Name of student: C S Gayatri (2012AAPS105H) Discipline: Electronics & Communication



At my PS Station, Broadcom, I have learnt majorly in the domain of Computer Architecture, and Digital Signal Processing, particularly about the optimization techniques used to enhance the performance of the processor. Through this project I also learnt how the architecture design of the processor is important so as to implement certain special kind of instructions called intrinsic which are way faster than the normal category of instructions and cause significant reduction in the number of cycles when used. I also learnt about the various decoders and encoders of Broadcom. I emulated the entire on chip decoding, encoding and transcoding processes and tried fixing any issues if there was any debug required. Through this, I learnt about the decoding and the encoding algorithms, and observed how the equivalent code is written and what are the most common debugs involved etc. The internship definitely gave me an exposure to the implementation of the concepts learnt in the course work and helped me gain clarity over the same. From the entire experience, I have definitely gained a lot. I have learnt to lead a professional life and have understood how things work at an office. The PS experience has helped me gain knowledge about C coding hacks that help the processing time, the architecture of Broadcom's processor, its advantages and drawbacks, on chip encoding and decoding procedures for Broadcom's processor, debugging issues and a lot more. In terms of future career prospects, I have definitely gained a little edge as the projects I worked on helped me get a grip over my basics which would help me in the long run. Major achievements would be that I successfully completed the DTS certification project assigned to me with the available resources and provide some sort of closure regarding most of the cases. I also optimized the codes using all the techniques learnt and caused a significant amount of reduction in the number of cycles and enhancing the frequency of the processor by almost up to 7 MHz put together for the Opus encoder.

Name of student: Kolisetty Ramudu (2011B2AA678H) Discipline: Electronics & Communication



I got the opportunity to pursue my PS II at BROADCOM Communications Technologies Pvt. Ltd., Bangalore which opened a door to an incredibly enriching experience for me. I worked in Audio Team of Broadband and Communication Group (BCG) under the supervision of **ANIRUDDHA SANE, Sr. Manager- IC Design Engineering**. I worked on Verification of Digital Signal Processing (DSP) Subsystem at Chip and Core Level Environment in Audio Block of the Set-Top Boxes and Chip Level Script Creation using Broadcom Verification Library (BVL). I gained knowledge about Test bench writing and Test Environment of Chip Design under Test (DUT) and Verification Methodology. I have understood the Simulation Environment which plays an important role in Front-End Verification of SoC. Verification and Improvements in current run script for DSP Subsystem and various test scenarios have been included in the script. Uniform run script had been created for verifying the all the SoC. Based on the current and future SoC requirement, the script has been formulated in such a way one can easily launch the simulations. Apart from the project, Organization provided me to learn about the Perl Scripting and Audio-Video Compression Techniques.

I feel like some learning modules which are specific to organization has to be given to students prior to joining the organization because out of 51/2 months nearly 1 to 2 months of time is spent on the learning basic things required apart from project related concepts. Through this program, I had hands-on experience to work on latest architectures while interacting with industrial experts. Academics thought me the basic concepts and the practical applications and scope of it, I understood through industrial experience. PS II experience helped me to know how industrial exposure will be a good advantage whenever I go for my higher studies.

Besides the professional work, I had lots of fun too. I visited the tourist attractions in and around Bangalore along with my fellow interns. I actively involved and participated in the activities organized by Broadcom. In retrospect, this internship is not only enjoyable experience, but also immensely enriching my understanding in the field of electronics.

Name of student: Murali Krishna Sai Sriram (2011B3AA375H) Discipline: Electronics & Communication



PS2 project discusses about the performance and characteristics of cable and satellite systems in particular set top boxes, Different tests of set top boxes and different instruments used for set up of those tests and design of passive filters present in set top boxes have been discussed

Filter Design through ADS Tool

Scripting through Visual Basic in Broadband Studio

Learned about Various Tests such as Adjacent Channel Test and Receiver Sensitivity w.r.t to CRC errors and Bit error rate and fully automated them.

Filter Design: - Learned the way of designing filter through ADS tool and designed some filters.

Adjacent Channel Test: - This test is critical to the chip due to presence of adjacent channels. This test is fully automated and presently used at organization for testing the boards (Satellite Set top Boxes)

CRCFE Test: - This test is also fully automated. It's about finding receiver sensitivity through inputting Video and finding mismatch in CRC. This test is fully automated and presently used at organization for testing the boards

Receiver Sensitivity:- Earlier Organization used SNR values for getting receiver sensitivity. But they found out its not accurate. So, they asked me to do receiver sensitivity w.r.t Bit Error rate. I did it through Bit Error rate and replaced the existing test. This test is fully automated and presently used at organization for testing the boards

I learnt regarding all the above tests and automated them.

During period of 5 ½ months, I had gained practical knowledge and soft skills that would help to shape my future carrier.

I had broaden my knowledge by reading, talking to co-employees and doing experiments in lab.

Achievement is automated different tests for Broadcom chips that are used now for obtaining performance characteristics of Chips.

Name of student: Prathiba Ramesh Rao (2011B3AA513H) Discipline: Electronics & Communication



I am currently doing my PS at Broadcom Corporation, Bangalore. I am working in the V3D and M2MC Core verification team here. V3D is a 3D graphic processor core which is used in various Broadcom chips for set top box systems or multimedia systems. This team comes under the broad group called Broadband and Connectivity Group of Broadcom. Thus working here has been a good experience overall with the opportunity to learn real industrial projects. I have gained the basic knowledge about set top box, video and audio encoding and decoding techniques and the general flow of any project here. Since I am working in the verification team I initially got a project related to power analysis of the V3D core. I learned Perl scripting here

and wrote a script to get the power values and store into a database from which it can easily be accessed for analysis. The second project I did was to decode a .gd file again using Perl Scripting with the help of architecture specification of the V3D core. During this project I got to learn a lot about the architecture and about the operations inside a quad core processor. I also got to learn about the graphic processor's parallel computing concepts. Thus these two projects related to V3D core helped me to get a good idea about the core architecture, functions and power consumption. Apart from the projects themselves, the environment of verification taught me the methodology of verification, simulation and regressions, testing etc. By working here I learned that the level of complexity and abstractness is very high in the real world working designs and modules. Getting to know the entire flow of the product from design to the actual tapeout of the chip from the industry is definitely a different and more efficient way of learning than learning from the textbooks. These 5 ½ months experience in a core company has helped me to decide my career path, has opened up the different paths which I can take from hereafter depending on my interests. I now know the different departments and teams here and the actual work they do. I now know what skills I would require to work in this industry and have already started to learn them here. I am going to continue at this PS for next 6 months as I can see a lot of opportunity to learn. I will be helping with the verification of M2MC core now, running regressions and getting coverage of the tests. In this I will be dealing with the test file and complete the process of verification. Thus I will learn about the verification methodology which is a great plus point for my career ahead.

Name of student: Rohan K Mehta (2011B5A3376P)

Discipline: Electrical & Electronics



My project title was “Wireless Standards for LAA-LTE and Wi-Fi 802.11ac”. I was in the Standards Development Team of Systems Design department. Our job was to simulate the WLAN 802.11ac standards. It involved working on improvement of License Assisted Access (LAA) scenario for LTE-U and Wi-Fi. A number of companies across the world are working together on this project under the group called 3GPP. The aim is to present the results of our simulation, along with suggestions for improvements, at these conferences happening regularly throughout the year. I worked directly on the problem statement and contributed in publication of results at RAN1_#82 and RAN1_#82bis conferences. The transition from academics to industrial experience was smooth, mostly because of the background knowledge already present by doing the elective course of Data Communications and Networks, and in C, C++, and Tcl programming. With the help of this knowledge, grasping of the latest concepts of coexistence scenario of Wi-Fi and LTE was comparatively easy for me. I was able to catch up with my team's work quite fast, and then help them in publication of results, contributing towards development of Wi-Fi 802.11ac standards, and further the company's agenda. With the knowledge of the basics from college curriculum courses, and

of the latest concepts from this industry experience as an intern, I can now confidently take my next step into the industry as a full-time employee. The PS2 experience will surely help me further in my career as I have always wished to pursue a job in the same field.

Name of student: Alampally Santoshi (2011B2A3563H) Discipline: Electrical & Electronics



Got a first-hand experience of what happens in a typical day on the verification engineer job, how important the verification is to industry. It not only involves just verifying the design, it also involves various development works to test the design.

It also gave me an opportunity to understand how differently the things are done at academic and industry level. Got to learn about various aspects of the industry from the most experienced people and their valuable insights into the industry.

Finally it gave me a very good opportunity to choose my career interests and to understand how the industry actually works.

Name of student: Shivkumar Chauhan (2012A3PS150G) Discipline: Electrical & Electronics



Practice School 2 has been one of the most beautiful experiences of my life. In fact, because of PS-II the transformation from academic to professional life would be extremely smooth for me. Working with the research division of Broadcom has helped me develop the necessary skills for working in a team that is striving to accomplish the goals of a long term objective. Moreover, this internship has provided me exposure to multinational corporate environment. I learned the application of concepts learnt as a part of academic curriculum, especially the knowledge gained from computer programming and microprocessor courses proved extremely useful. I gained a lot of knowledge in the field of audio encoders and decoders and about Digital Signal Processor programming. In addition to this, working with this team helped me improve my soft skills and other professional skills needed to excel in professional environment. During optimization of

opus encoder I learnt about various optimization techniques involved and used these methods to successfully optimize the encoder. Mine being the third round of optimization on Opus, I reduced the encoder complexity by 7 MHz. Also, while adding LOAS support for MPEG-4 ALS decoder I learned about the various tools and the overall structure of this decoder which helped gain more insight while developing the LOAS parser code. Furthermore, I have also added support for a faster platform on number of codecs and fixed the mismatch issues for this platform for AMR narrowband encoder. I have successfully completed these projects and opus encoder with better performance and ALS decoder with an extra feature will soon be released by the company. In a nutshell, my work here was a mixture of product design, testing and improvement and thus gave exposure to different kinds of work environments which I might encounter later in my career. Moreover, working in Broadcom has also familiarized me with the current industrial research in the field of signal processing and communication. Additionally, I got an opportunity to meet people from other campuses of BITS and experience the diverse Bitsian cultures. Overall, I must say that PS-II was a life changing experience for me.

Name of student: Tejas Bhalla (2011B1A8862P) Discipline: Electronics & Instrumentation



The major learning in my PS2 duration is how a chip is designed in an industry. I got a brief understanding of the entire process, right from the point where the customer gives out his requirement until the chip is taped out. Being a part of the physical design team, I was mainly focused on learning the physical aspect of designing the chip. I learnt the flow of the different tools like ICC, AP and how one has to achieve the desired results using them. It also helped a lot in the transition from academics to industry. The job done in an industry depends on inputs from other teams as well as other companies which design the tool. I got this experience from my internship. My take back from industrial experience is how competitive one has to be. People constantly strive to innovate new products, new methodologies, which can make the life of community easier. The ability to constantly accept new challenges and achieving the desired outcomes on time is what I would take back from my experience here. I learnt about how the technology has scaled down in semiconductor industry, what all challenges were encountered in the path and how they were overcome. I went through journals, explored the tools used by my team, learnt about the techniques used at 16nm technology node. My experience here gave me more insight on things that interest me and what I would like to pursue in future. It gave a feel of how a technical job looks like and what all it takes to be successful in the same. This will surely shape all my future endeavors. For now, I plan to stick in the same industry and wish to work on different platforms & different projects.

Name of student: Thumkunta Anusha (2011B2AA687H) Discipline: Electronics & Communication



The major learning's are the IEEE 802.11 protocols especially the MAC protocol. I have learnt the importance of MAC (Medium Access Layer) which is a sub part of Data link layer which is the second layer of OSI. It was interesting to learn the way MAC consider to be as micro-controller and the way it functions and how it is used in case of coexistence of wireless devices.

As in the present world wireless technology has been widely accepted by the users instead of the wired network. With the increasing demand of wireless networks both WLAN (Wireless local Area Network like Wi-Fi) and WPAN (Wireless Personal Area Network like Bluetooth) which occupy the same frequency band , has developed interest in studying the Coexistence technology. The coexistence of WLAN and Bluetooth results in mutual interference between them as they are present in the same ISM 2.4GHz frequency band region although they use different technologies. The interference between them lead to the significant degradation of performance of both. Then learnt the problems causing the interferences, coexistence issues and also coexistence solutions that have been developed.

In this five and half months I had good working experience which made to me to implement my Knowledge what I gained from the college through subjects like Communication Networks, Modern Communication systems(Wireless communications), Microprocessor, computer architecture which gave had helped me to understand the basics of the project.

This experience has taught me how to analyze the thinks in various ways and being friendly with all and discussing with everyone has increased knowledge. This experienced made me to learn about the concepts of Bluetooth and its functionalities about which I didn't have much knowledge before. I learnt about various ways of treating WLAN like station, softAP,P2P devices.

Overall experience of PS-2 helped me to know the field of my interest and understood that Networking and Wireless Communication field would be my best career option compared to any other field.

Company: Cadence Design Systems India Pvt Ltd., Bangalore

Name of student: Kandepu Manindra (2011B1A3742H) Discipline: Electrical & Electronics



PS has been a great learning opportunity and has exposed me to the practical world. The courses taught in the college were very helpful for giving me a head start into the project. I could easily relate the course content to the work done in industry.

My experience at Cadence has taught me the spirit to work in teams and coordinate among team members to achieve the goal within the defined deadlines. The exposure to a tool like Cadence Virtuoso (used widely in semi-conductor industry) which is used for designing the circuit is a key learning of my PS.

PS, being my first exposure to the corporate world of designing has surely generated a lot more interest in me to pursue a career in designing of circuits. This has also exposed me to the challenges faced by companies in real-time and some methods which they employ to solve for these challenges.

Major learning for me during the PS was the process involved in building a circuit which will be used in real time applications. The internal blocks used for building a circuit are mainly depended on aim of circuit. This process involves configuring their values to meet the aim.

Name of student: Tanmay Deshmukh (2012A8PS278G) Discipline: Electronics & Instrumentation



First of all, I would sincerely thank my college to give me this opportunity to work with recognized company like Cadence.

In these 5 and 1/2 months of internship, I had hands-on experience of application of knowledge acquired in academics. The project offered to me was on 'Enhancement of DDR High Speed IO Buffer Test benches' and it was quite challenging and it helped me to understand life-cycle of the product development.

It was a wonderful experience of working with all the expertise in VLSI field and it helped me to be up-to-date on the recent enhancement in the technologies. I thank my PS-instructor Mr. Sreedhar Madichetty who has been constantly supporting and offering help in the due course of this project.

With the knowledge and confidence gained through this internship it's definitely going to give me a head start in my future career and it will put some weight in my resume too

Name of student: Patil Aashish Raosaheb (2011B5A3537H) Discipline: Electrical & Electronics



PS2 experience in Cadence Design systems© was a great learning experience. My internship was in PCIe verification team. The work was to enhance Back to back test bench for functional verification using Verilog. Initial knowledge required was AXI4 protocol, PCIe Protocol and Cadence PCIe Core. Basic knowledge of Linux was also required. The experience on these tools is beneficial from an industry point of view. The knowledge of these protocols will give a head start for career in semiconductor industry. Working on these tools helped me in my concepts and gave me a broader scope of positions to apply for in the VLSI field. Cadence Design Systems enabled me to understand the VLSI industry. Verification flow and importance of verification engineer in semiconductor industry was understood. The company gave me opportunity to understand verification methodologies and practices followed. The knowledge base definitely broadens when you enter a company like Cadence Design Systems. Most of the work involved understanding PCIe, AXI4 and controller design. These topics are not taught in academics and have to be learned from scratch. After my internship, I feel that I have working understanding of PCIe, AXI4 and Verilog. Lot of effort was required to understand the protocols as it was entirely new territory. My mentor Sushrut Veerapur and people company helped tremendously and answered all of my doubts and queries. I was always welcomed to ask doubts at any time. It was a great learning experience and best mentor one can ask for. The user-guides and specification documents which Cadence provided were helpful. Our PS-II instructor would also keep enquiring, making sure we aren't facing any troubles. The internship has definitely increased career prospects and understanding of professional working environment. Cadence Design Systems© is truly a great place to work at. My manager Mr. Raju Pudota and mentor Mr. Sushrut B Veerapur have helped me understanding industry and professional environment. I thank PS Division and instructor Dr. Sreedhar Madichetty for their proactive support and guidance.

Name of student: Ankur Omar (2012A8PS296G) Discipline: Electronics & Instrumentation



It was a great experience working with cadence design systems. The things which we have learned in the course curriculum were being used in the real industry. My work majorly focused on integer-N and fractional-N phase locked loops and voltage controlled oscillators. It was great to know that how deep this field is and how these are changing our day-to-day life. These five and a half months have really helped me in getting to know the working of industry, their work culture and ethics to be followed as well. Whether I join cadence or any other company in future, I will be completely equipped with the prerequisites of working in a professional manner. Since, now I have a 6 months industry experience it will surely boost up my profile and will provide a cut over others. The major achievement for me working in cadence was to work on a completely new paradigm on perturbation projection vectors which are yet to be introduced more explicitly in the industry.

Name of student: Lavish Bhutani (2012A3PS137P)

Discipline: Electrical & Electronics



I had my PS2 in Cadence Design systems©. It was a great experience both educationally and socially. At Cadence I was a part of the PCIe verification team. The work assigned to the interns was to enhance the existing Back-to-Back test bench, which is used for the functional verification of the PCIe Controller, using Verilog.

The pre-requisites to work on the assigned project basic knowledge of Digital Architectural Protocols like AXI4& PCI Express and Cadence PCIe Core. Moreover, basic knowledge of Linux was also required. Our mentor supported us a lot and gave us ample time to understand the protocols and the design. I was always welcomed to ask doubts of all sorts at any time.

A person's knowledge definitely expands when you get industry experience. Same happened with me at Cadence. The topics that I worked upon are nowhere taught in academics and need to be learned by self. That requires a lot of dedication and hard work.

The work at Cadence Design Systems helped me understand the Industry requirements and the structure of the Semiconductor Industry. Only after working in the Verification Team, I realized the importance of Verification and understood why verification phase is longer than the design phase.

The experience that I had through the course of the internship was beneficial in many ways from the industry point of view. The knowledge of the Digital Architectural protocols and Verification Methodology can give a head start for career in semiconductor industry.

Name of student: Rohit Pentapati (2011B4A3448H)

Discipline: Electrical & Electronics

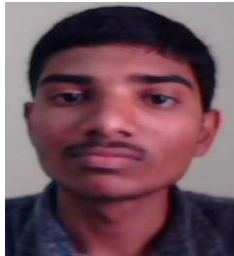


PS2 experience at Cadence Design systems© was a great learning experience. My internship was in the Validation and Systems team. The work was to modify the existing system of configuring an FPGA through a micro SD card. The existing system only supports SD cards with memory less than 2GB. I was given the task of extending this to cards till 32GB.

The company gave me opportunity to understand design methodologies and protocols followed. The knowledge base definitely broadens when you enter a company like Cadence Design Systems. Most of the work involved understanding FPGA's, communication protocols, file systems and fundamentals of operating systems. These topics are not taught in academics and have to be learned from scratch. After my internship, I feel that I have working understanding of these. Lot of effort were required to understand the protocols as it was entirely new territory. My mentor Vivek Sharma and people company helped tremendously and answered all of my doubts and queries. I was always welcomed to ask doubts at any time. It was a great learning experience and best mentor one can ask for. The user-guides and specification documents which Cadence provided were helpful. Our PS-II instructor would also keep enquiring, making sure we aren't facing any troubles. The internship has definitely increased career prospects and understanding of professional working environment. Cadence Design Systems© is truly a great place to work at. My manager Mr. Rajkumar Chandrasekar and mentor Mr. Harishankar Aravindakshan have helped me understanding industry and professional environment. I thank PS Division and instructor Dr. Sreedhar Madichetty for their immense support and guidance.

Name of student: S V K S Sai Ram (2011B5A3494H)

Discipline: Electrical & Electronics



PS2 experience in Cadence Design systems© was a great learning experience. My internship was in Behavioural modelling and design verification. The work was to come up with a script that can compare 2 netlists and find any port mismatches. Initial knowledge required was Verilog-AMS and Perl. Basic knowledge of Linux was also required as all the EDA-tools run in Linux environment.

The experience on these tools is beneficial from an industry point of view and scripting languages are required to process all the information the EDA tools give out and automate their functionality. The knowledge of these EDA tools will give a head start for career in semiconductor

industry. Cadence Design Systems enabled me to understand the VLSI industry. Verification flow and importance of verification engineer in semiconductor industry was understood as 70% of the time is spent on verification. The company gave me opportunity to understand verification methodologies and practices followed. The knowledge base definitely broadens when you enter a company like Cadence Design Systems which I can say is a leading company in EDA. Perl and languages like Verilog-AMS are not taught in academics and have to be learned from scratch.

After my internship, I am comfortable with Perl and how to use in this field of industry. Lot of effort were required to understand about these new languages. My mentor Vinayak Hegde and people in the company helped tremendously and answered all of my doubts and queries. I was always welcomed to ask doubts at any time. The user-guides and specification documents which Cadence provided were helpful.

Our PS-II instructor would also keep enquiring, making sure we aren't facing any troubles. The internship has definitely given me an opportunity to know how things work out in VLSI industry and Cadence Design Systems® is truly a great place to work at. My manager Mr. Somasunder and mentor Mr. Vinayak Hegde have helped me understanding this industry and professional environment. I thank PS Division and instructor Dr. Sreedhar Madichetty for their support and guidance.

Name of student: SHIBALIK MOHAPATRA (2012A3PS219P) Discipline: Electronics & Instrumentation



My PS II at Cadence Design Systems was a wonderful and exciting experience. I interned in the Digital PD team working primarily on power and rail analysis. Apart from the concepts gained on Static Timing Analysis, IR drop and EM analysis, I was exposed to Cadence Tools like EDI and Voltus. I have even worked on mentor graphics tool- Apache. The experience on these tools is beneficial from an industry point of view. Working on these tools not only helped me in my concepts but also gave me a broader scope of positions to apply for in the VLSI field. With the experience on tools, I can either work as a design engineer or as an application engineer and this widening of opportunities is very useful. Cadence Design Systems also helped me understand the VLSI industry better. Since it is not very departmentalized and organized, I benefited from the company learning on topics outside my primary domain. I have written scripts in Perl and Tcl languages- which are essential text modification scripts. I got a greater idea on the ASIC flow as I have worked with multiple teams. The company also lets you work on some IP projects, solving timing issues and sign-off. The knowledge base definitely broadens when you enter a company like Cadence Design Systems. I came out of my third year of college having some knowledge on VLSI and Digital Design. However, none of that matters to the extent we feel in an internship. Most of the work involves subtopics of VLSI and in my case STA in Digital Design. Most of these topics are taught in M.Tech and thus the pressure makes you learn a different course in detail. After my internship, I feel that I have a commendable knowledge on STA, Library Characterization and

on languages like Verilog, Tcl and Perl. Initially knowledge broadening happened out of necessity rather than curiosity. It was essential for me to learn on concepts related to timing arcs, slack time and solving various timing violations. However, being a very interesting and logical subject, curiosity made me dig further in the field and learn. The tools, user-guides and RAKs which Cadence provides are also very helpful. The people in my team were also very friendly and helpful, making it easier. Our PS-II instructor would also keep enquiring, making sure we aren't facing any troubles. The internship has definitely increased career prospects, as it gave me exposure to the semiconductor industry at a relatively earlier age.

Name of student: Y VENKATA S BHARADWAJA BHARGAV (2012A8PS232P) Discipline: Electronics & Instrumentation



My PS2 experience in Cadence Design systems was a great learning experience. During the internship I was in Systems and Validation team. The work assigned was to integrate Cadence multi-protocol PHY IP and cadence USB controller IP to make a USB mass storage class device (USB pen drive) and then perform USB-IF certification. Initial knowledge required was PIPE protocol, USB protocol, APB protocol, AXI protocol, Verilog and Xilinx Vivado. Basic knowledge of Linux was also required as every software in the company runs on Linux. The experience on these tools is of great use in the semiconductor industry. The knowledge of these protocols will give a head start for career in semiconductor industry. Working on these tools helped me in my concepts and gave me a broader scope of positions to apply for in the VLSI field. Cadence Design Systems enabled me to understand the VLSI industry. I understood how difficult it is to make any device. Starting from designing until testing and verifying functionality every team works months on one single IP. The company gave me opportunity to understand verification methodologies and practices followed. The knowledge base definitely broadens when you enter a company like Cadence Design Systems. Most of the work involved understanding USB and system design in Xilinx Vivado. These topics are not taught in academics and have to be learned from scratch. After my internship, I feel that I have working understanding of USB, Xilinx Vivado and Verilog. Lot of effort was required to understand the protocols as it was entirely new territory. My mentor Mr. Yash Kothari and people in my team helped me in carrying out my project. They always took time of their work to help me in mine. It was a great learning experience and best team one can ask for. The user-guides and specification documents which Cadence provided were helpful. I also learnt about TypeC USB which is going to change the way we use USB. Our PS-II instructor would also keep enquiring, making sure we aren't facing any troubles. The internship has definitely increased career prospects and understanding of professional working environment. Cadence Design Systems is truly a great place to work at. My team leader Mr. Raja P and mentor Mr. Yash Kothari have helped me understanding industry

and professional environment. I thank PS Division and instructor Dr. Sreedhar Madichetty for their proactive support and guidance.

Company: Central Electronics Engineering Research Institute, Pilani

Name of student: Keshav Kumar (2012A3PS210G)

Discipline: Electrical & Electronics



The project assigned to me was related to Python Coding. It was very interesting and educational project. And my mentor was very helpful and supportive. The industrial experience was awesome. The working environment was friendly and supportive. It helped me to understand how to deal with practical issues. It will help me a lot while pursuing a job in IT sector. **[VIPIN]**

PS-II experience in CSIR-CEERI, Pilani was great. I think every graduate student need to have such an experience in order to get clear understanding of concepts learnt. Till now I couldn't understand, how all the subjects which I learnt during my academic years will help me in future? But after this I learnt how basic concepts such as PID controller, OPAMP etc are used in practical applications. My project mostly dealt with embedded systems, control algorithms, electronic interfaces etc. Concepts for aforementioned work were known but I don't know how to transform theoretical knowledge into practical applications. PS-II programme helped me a lot in achieving that. I even got to know about few concepts which I never understand during my academics. It was completely and undoubtedly an awesome experience. I learned in detail about embedded systems and how they are influencing our day-to-day life and also about control algorithms. I implemented most of the known control algorithms using microcontroller and found out the functionality and use of those algorithms. I always wanted to pursue Masters in Electronics but I'm not sure of whether I can do that or not. After my experience in CSIR-CEERI, Pilani, path for my future was clear and I now definitely know that i can and I will go for higher studies without any hesitation. We worked on a product based project sponsored by Department of Electronics and Information Technology, DeITY, India. We presented our work in the form of a poster in an INDO-UK workshop, FluidicsHD, 2015 conducted in CSIR-CEERI, Pilani. Research article based on aforementioned work, Gas sensing and detection system, was also prepared and communicated to reputed journal, "SENSORS AND ACTUATORS, PHYSICAL, ELSEVIER". Finally, I would conclude this by saying that PS-II programme was an extraordinary experience and It helped me a lot in shaping up my future plan. **[RAMA SAI VINAY]**

My experience was fantastic mostly because of my excellent mentor Dr. Anil Kumar, Chief Scientist of Sensors and Nanotechnology Group and my colleagues at CEERI, Pilani. I have worked on several literature reviews and got the opportunity to work in their class-100 clean room. I was allowed to work on my area of interest and also encouraged to do research, right from the beginning. Because of this experience, I have come to know the working of a research lab and how to approach a research problem. I have learnt about how to simulate and make

devices in Silvaco and also gained practical experience, working at Micro and Nano scale in clean rooms. I believe that my experience here will help me later, while working on my own research projects. In this duration, my simulation results have been communicated through a poster presentation at an international conference, Emerging Technologies: Micro to Nano, 2015 and as a paper in AIP Conference Proceedings. **[CARIAPPA]**

My experience at CEERI Pilani was really good. It has helped me to get a better understanding of real world problems. Working in a research centre like CEERI had always been my dream. The PS-II program has also updated my knowledge about the ongoing research in the field of electronics, especially Control Systems. During my 5.5 month training I basically worked on two things-(i) Modified the existing PID algorithm and came up with a new algorithm. This was tested on a 60 rpm DC motor. The motor was interfaced with microcontroller using a signal conditioning circuit.(ii) The second part of project was developing a robotic arm, this project is a subproject of the designing of control system for AUV (autonomous Underwater Vehicle).My task was to handle the pitch angle control part. The robotic arm was interfaced with a gyroscope sensor (RK1278-MPU6050).The microcontrollers that I worked on were PIC24 and Arduino. **[PRABHAT]**

I have learnt a lot in these 51/2 months of period of time. This was a great opportunity to implement all my knowledge and experience from three years of my engineering. I have also learnt how to work in team and extract every bit of knowledge from my seniors and mentor as they were true guide for my progress in this project. I myself feel change in my personality after this precious PS-2 period. In the early stage it was slightly difficult or I can say a very new environment for me. Of course there were hurdles and problems in the beginning but my senior and other project fellows guided me well. Here, I have learnt various concepts of underwater communication and its transmission using electromagnetic waves and acoustic waves. The task was to make a real time GUI which will give optimized carrier frequency at different depth and range so that data can be transferred with maximum data-rate and minimum power consumption. This PS was really helpful as I am looking for higher studies and a practice school in a best research institute of India will definitely going to help. One major achievement which I want to talk about is that I have simulated and implemented full channel characterization for electromagnetic carrier and acoustic carrier as well. But EM is very recent and hot topic in this field. So it gives great platform and introduced me to a recent trend in this field. In future I am also planning to write a journal level paper as I have conducted a deep analysis of channel condition. **[KESHAV]**

Company: Infinera, Bangalore

Name of student: Harnoor Singh (2012A3PS208G)

Discipline: Electrical & Electronics



As we know that in the job-hunting world, it is difficult to get your resume shortlisted, if you don't have some sort of relevant work experience. Internship at Infinera will provide a great resource for that. I

owned the pleasure of working as Verification Engineer, in ASIC team Infinera as an intern during my senior year at BITS Pilani, Goa.

My journey of gaining valuable experience was directed by my mentor, Mr. Paritosh Joshi, Senior Manager ASIC Design Engineering. From beginning to end, he was instrumental in guiding me whatever I needed to know and ultimately preparing me for my first job. The beauty of Infinera is you got to work closely with senior level positions and hence even your basic work gets appreciated.

The teams are small, hence your work gets recognition easily. I worked on *“Verification and Validation Infrastructure Enhancement for Mapper Chip”*. I studied Verification Flow, tried to get familiar with Coverage's, designed a tool to automate Interface Spec of ASICs/ FPGAs and finally converged upon Device Drivers and Sequences. I got enough chances to apply my technical skills in real life scenario. It was a memorable experience which will be cherished forever. One such achievement worth mentioning is when my tool development was accomplished and it worked perfectly, and uploaded to deploy in Infinera. This will be used continuously in future also to aid the verification process.

These five months in Infinera provided lot of opportunities to hone the skills and develop interests while here. Out of many things I learnt, big and small, I would like to share one beautiful experience. Switching from academic to corporate, can sometimes get you in a little awkward situations. The difference between a Professor in College and your Mentor in Company is what took little time for me to understand. Calling mentor not by his name but 'Sir' can offend him sometimes and create embarrassment for you. Referring him with his name along with a polite salutation is a stepping stone for good relations with him in long run. These small things teach Great lessons in life and create sweet memories.

There are many lessons which I learnt from here. The one worth mentioning is team-work. Working for a company towards a same target itself means the same. This includes sharing the work of your co-worker during his break or coming out with a great thought together to meet the deadlines. Infinera treats employees and interns equally in all respects and hence it boosts the confidence of an internee. Infinera is epitome of people's skills and has the potential to make good things tick. This Positive Attitude is what I tend to carry forward in my life.

Name of student: Sirupa Sushanth (2011B4AA516H)

Discipline: Electronics & Communication



It has been a journey where I got to learn a lot. Getting to know the insight of the company very well is the first that comes up in the list. Flow of Verification and validation process and how to enhance them is what we have focused on. It has given me a chance to explore many aspects which contribute to the enhancement of the Verification and validation plan. Our Project was ***“Verification and Validation Infrastructure Enhancement for Mapper chip” mentored by Mr. Paritosh Joshi.***

Well these 5 months taught me that the industry work is a whole lot different from the Academic activity but the basic principles remain the same. Personally, I used the concepts of Digital Design and Computer Architecture to some extent but these play a small role in the process. Major take away from this that at the beginning of the career, we need to explore a lot to know where our passion lies as our Director said and rightly so.

Coming the stock of my Knowledge, Perl scripting, Automated Interface (HTML features), Database concepts and many other tools which help to enhance the process have been added .It has definitely given us the taste of verification and validation in ASIC. We got know the details regarding it and hopefully we would get to utilize this knowledge somewhere in the future. All in all, we see it as an experience.

We have successfully created the tool to automate the interface specifications to aid verification which will be deployed in Infinera for the first time. Spec to Flow Tool, after many discussions, we now have the script which can perfectly create Device Programming Spec file, and hence the Device Driver. Proved that the current version of Verification Planner is not feasible to be deployed in Infinera.

Apart from this, the work culture has been simply magnificent. I'm grateful to have a manager who has taken care and made the work environment so comfortable. Learnt a lot from him. I can simply say "Thank you for a delightful experience"

Name of student: Vaibhav Kashyap (2012A3PS143P) Discipline: Electrical & Electronics



Infinera India Pvt Ltd has both software and hardware profiles for the Practice School Program. I am in the software profile. Here I have worked on creating graph plots in JavaScript and web scraping. I had worked with JavaScript before but not with graph plotting. For graphs I learnt and used a library Nvd3.js and for web scraping I used JSoup. The learning here at Infinera is at par to the industry standards and the work culture is quite amicable. Regular meetings with the mentor and the team helped me learn about the process of the development of the various products and their review.

I think this exposure to the industry will definitely help me in my future endeavors. I learnt how to actively inquire into the progress of your own work and got feedback from team members and mentors to tone my skills and adapt to the changing demands of the project. This was an opportunity to learn from everyone around, actively discuss and establish a network with professionals. Overall the PS-II has been a great learning opportunity and a very efficient exposure to the industrial applications of the technologies learnt.

Name of student: Vamsi Krishna Meda (2012A3PS196P) Discipline: Electrical & Electronics



Infinera India Pvt. Ltd., Bangalore provides both hardware and software products to its clients. The company has a departmentalized structure and offers projects in Systems engineering, Network management, Software development and Product Testing departments. Pursuing my PS-II at Infinera, Bengaluru was a major learning experience and it greatly enhanced my technical as well as interpersonal skills.

In the duration of five and a half months I faced many workplace challenges every day and got a hands-on experience of the corporate world. With an employee friendly work culture, it was quite easy to approach anyone and ask for help. It was a completely different experience altogether and I got an in-depth knowledge of the working of a top tier organization, the arrangement of departments and the division of power and work load within the organization.

Industry exposure made me explore various career paths and got me acquainted with my interests. PS-II was an opportunity to practically apply all the things that I learnt in class and put it into application. The transition from academics to industry was perhaps the most difficult challenge that I had to face during the PS-II. Working on an existing real product is quite different from the projects completed as a part of academic curriculum. Becoming used to the modern industry practices and the company specific technologies and tools used required effort from my side. I learnt to adapt to sudden market shifts and technology changes and also learnt how industry responds to such sudden transformations professionally. The corporate exposure brushed up my knowledge about existing technologies and market terminologies.

Interning at Infinera improved my technical as well as soft skills. It improved my observation skills and boosted my confidence levels. The active interaction with the company employees not only from my team but also from other departments helped me learn more about other project fields and about the various cycles of development and delivery of a software product. With a supportive manager and a helpful mentor, I received all the guidance required for the successful culmination of the project. The continuous assistance and the appreciation and encouragement received on completion of major tasks kept my spirits high.

The PS-II experience will definitely help me in my future career prospects. Learning about my strengths and weaknesses and getting feedback from my mentor has helped me improve my skills and also develop new ones. This was an opportunity to learn from everyone around, actively discuss and establish a network with professionals. Along with establishing an industry professional network, I also made some very good friends during my PS-II. The PS-II experience has definitely made me ready to face the corporate world and helped me grow professionally.

Company: Intel India Technology Pvt. Ltd., Bangalore

Name of student: Abhishek Madan (2012A8PS389H) Discipline: Electronics & Instrumentation



PS2 was a great experience, got to learn a lot about functioning of the Intel. My work was in Formal Verification team at Intel. Microprocessor designs continue to increase in complexity. This can mean better performance, but the challenge of validating the design increases exponentially. The effort and time requirements of dynamic simulation are greatly increased. As the complexity increases the number of bugs also increases. The major challenge confronted by the semiconductor industry for the last few years is the problem of designing System-On-Chips with far more complex functionality and domain diversity than in the yesteryears, in significantly lesser time. The biggest problem is that of verification. Close to 70 percent of the resources are dedicated to the purpose of verification.

Simulation has been traditionally used to verify the correct operation of systems. They are heavily dependent on the use of test benches. Test benches contain a set of input vectors, expected results, environment constraints and other necessary data. The input vectors are applied to the design under test (DUT) and the result obtained from the DUT is compared with the expected set of results for correctness. Real world designs will have a far greater number of ports resulting in millions if not hundreds of thousands of vectors. Simulation times will be significantly high, and as a result will not satisfy the time-to-market, which is counterproductive.

Formal Verification has emerged as a method in ASIC design to reduce verification times, not by accelerating simulations but by eliminating them once the initial design has been functionally validated. FV is basically an act of proving or disproving the correctness of a system with respect to certain formal specifications. Formal Verification algorithmically and exhaustively explores all possible input values over time. Currently the FV effort is not to replace simulation based verification. Instead it is to augment pre-silicon validation by proving total correctness of high risk functionality. Design simulation would catch bugs, but FV is used to ensure that no corner cases are missed.

FV is increasingly playing a central part of all functional verification. For the Pentium 4 processor, FPV was primarily responsible for verifying the correctness of the entire arithmetic logic. It was possible to ensure 100% design coverage in this case. It was found that no design errors were detected in areas of the chip that were formally verified. Further FPV is capable of chip-complex protocols that are beyond the scope of simulators.

Formal Verification helps overcome the shortcomings of dynamic simulations. Formal verification is the act of proving or disproving the correctness of intended algorithms underlying a system with respect to a certain formal specification or property, using mathematical reasoning.

Traditionally the SoCs are verified by simulations (Dynamic Verification), but as the simulation works according to the inputs specified the complex scenarios are not covered. If this bug gets skipped to manufacturing it leads to redesigning of SoC which increases the **Time to Market** and the cost. To encounter this problem **Formal** uses tools and technique which try to verify the SoC design by **Synthesis** instead of simulation. For synthesis formal uses a third party provided **Design Ware** library. As this library is made for simulations, there are few constructs which are not synthesizable. The aim of the project is to create a library free of un-synthesizable construct which is functionally equivalent to the Design Ware library already available.

Name of student: Charanjit Nayyar (2012A8PS334G) Discipline: Electronics & Instrumentation



For any student to be thrust into the industry, straight from the protective womb of their college, introduces them to a whole new change of lifestyle in terms of academia as well as their daily routine. Over the course of the last 5 ½ months, Intel labs have made us students grow immeasurably as professionals as well as impart us with a whole new range of skills.

Our primary experience in the industry has been the introduction to the core value of 'team ethos'. We have learnt how the entire enterprise is one functional family striving to reach a common goal. In a technical team, every individual brings their skill set to the table in order to create one entity capable of tackling any and every problem they face. Be it in signal processing or software debugging, every member is a valuable asset. Another important lesson that we take back is the cloak of office conduct which we erstwhile believed to be far more constrictive than it really is. Simple decorum aside, an office is a whole lot conducive to liberal work and creativity than the rules and regulations would have us believe.

In terms of expanding our knowledge base, Intel has served us lessons in the technical as well as the management realm. We have either picked up or practically implemented several key concepts which were previously limited to a classroom or a controlled lab environment. Also, we have learnt how to meet hard deadlines in producing results, balancing time and monetary resources in equal measure and several other learning's which would exceed the scope of this newsletter in their entirety.

It is our strong belief that the PS experience has certainly strengthened us mentally and technically towards enhancing our career goals. It has introduced us to new roles within a company and we have seen how these individuals have reached their current positions as well. In this regard, I have nothing but the highest praise for the company in providing us a fulfilling experience over this entire duration and would strongly recommend this corporation for future interns.

Name of student: Midhun. C (2012A8PS377G) Discipline: Electronics & Instrumentation



Ps2 has been one of the best learning experiences I've had till now. It was a drastic change from the normal academic studies to working at an organization. Intel has been very supportive and helpful throughout my internship. Mentors made sure that they gave us the adequate amount of support at times. Most of my misconceptions about a company was changed after joining Intel. Employees and managers were equally supportive to all interns. Intel provides same amount of facilities to its employees as well as Interns which was a surprise to all of us.

My project area was in the area of verification. During the course of this 5 ½ months I was able to understand a lot about the industrially used tools and techniques for verification purpose. I was able to broaden my knowledge in the field of verification and power analysis. I could also learn more about system Virology which used more in the industry these days. I'm sure this experience would help be for my future career endeavors. More than just an internship it has helped me evolve my thought process from a student's perspective to an employee's perspective.

Name of student: Mustafa Shamsi (2012A8PS682G) Discipline: Electronics & Instrumentation



Throughout my 3 years at college I always tried developing my skill set for a hardware profile and tried to avoid software components as far as possible. When I was allotted Intel as my PS-2 station, I filled my preferences with great care so that I get a department of my interest. I was finally allotted the Graphics Hardware Architecture Group. I was very excited as I was allotted a department which matched my interests. However it was a few weeks later when I learnt that my work was going to be related to software in spite of the group being a hardware architecture group. I was lost as I had lost familiarity with the basic C/C++ syntax and had no prior exposure to computer graphics and I was expected to work in this and deliver results as fast as possible. Today as PS-2 comes to an end, I have not only revived my programming basics but also added new software skills. I have come to realize that programming could be fun. During the course of my internship I was exposed to a number of technical topics of which some include CUDA

programming, DirectX programming, Media Compression standards and the 3D Graphics Pipeline. My experience at Intel taught me various things both technical and non-technical in nature. Frequent discussions with my mentor at Intel led me to realize the importance of software in the industry, in the years to come. I got various insights into the electronics industry and its requirements in terms of knowledge, skill set and educational qualifications. I learnt the basics of 3D Graphics and Media Compression which can provide numerous openings in the years to come. The various difficulties and challenges I faced during the course of my internship gave me exposure to various aspects of working life. Overall the experience at Intel helped increase my knowledge base in the technical domain and also in terms of industry requirements. I realize that a mix of hardware and software skillsets lead to a plethora of opportunities. Today I am motivated towards pursuing a Masters in the field of Computer Science. My internship at Intel gave me an opportunity to discover my true interests and abilities. I am grateful to the Practice School Division for providing this great opportunity.

Name of student: Rohan Aggarwal (2012A7PS129G)

Discipline: Computer Science



An internship at Intel is a dream comes true for all pursuing hardware and software engineering as a career. I became a member of the above group of people when I was informed that Intel had selected me for a 6 month internship. This was my first major industry experience and it was a breath taking ride. My major achievement during my 6 month internship was my role in **Intel India's Software Professionals Conference (SWPC) 2015**, which will always be the first important landmark of my career. Intel India's SWPC is an annual event where Intel's brilliant minds with a thirst for innovation come together to present/demo their ideas.

It all started when **my manager, Mr. Praveen B. S.**, asked me to develop 3 apps for the conference, the basic purpose of which would be to enable users to rate/rank teams of 3 different contests at Intel. Based on these ratings/rankings, the winning teams would be announced. There was a presentation contest, a poster contest and a demo contest. The presentation rating app required the user to rate a presentation out of 5, while the poster and demo rating app required the users to select their top 3 posters and demos respectively. The end result was the development of 3 windows store apps which were successfully deployed on various tablets and laptops during the conference for the users to rate/rank the 3 different contests. This project not only involved the development of these apps, but also the development of batch scripts and windows console application programs to perform tests like merging of files collected from the various devices and the removal of duplicate entries. Once the entire contest had been rated/ranked by users, the next step was to merge the files and eliminate duplicate entries by the means of these batch scripts and windows console application programs. These programs Produced a final score sheet by the help of which the winners of the 3 different contests was announced. Achievements during the course of this project:

- 1) This was the **first time ever** that apps were being used to rate/rank the 3 different Contests at Intel India's SWPC. The earlier process involved pen and paper.
 - 2) This was the **first time ever** I was developing an app. This was an independent project where all the 3 apps, batch scripts and windows console application programs were solely developed by me. **My mentor, Mr. Ganesh Kamath** and my team members were always there throughout to resolve any problems I was facing and assisted me in testing these out.
 - 3) Constant interaction with the panel that was responsible for organizing the event this year. The panel included the **Director, Mr. Chak Sriprasad**, and my manager apart from other important people.
 - 4) This year's Intel India's SWPC had **over 400 registrations**. I got a huge platform to Present my potential and capabilities. This project was a huge success for me both in terms of my technical proficiency and my personality development. All the credit goes to my manager for having such tremendous faith in an intern.
 - 5) I was really appreciated by my team and the panel for all the efforts I had put in. Once the conference was over, I was called on the stage by the Director himself and was awarded a Dell Venue 7 tablet.
- Apart from this I worked on 2 other projects from which I learnt a lot as well.
- Overall, as I mentioned above, my internship indeed was a breath-taking ride. It now is a memory to be cherished by me forever.
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Name of student: Rohit Nagmoti (2012A3PS153G)

Discipline: Electrical & Electronics



My PS – II was in Intel India Tech., Bangalore. I was In a Structural Design team which deals with the physical VLSI design i.e. post RTL to pre tape-in flow of graphics processing units (GPU).

As Intel India has been in top of list of 'best companies to work for in India', work culture is pretty good and friendly. They provide good corporate services such as food, free bus/shuttle, healthcare etc. The best thing working here was, employees here don't differentiate between interns and full time employees. So the transition from academic to industry was pretty smooth.

My PS – II project was "Analysis of Intel Process Libraries". Intel has developed their libraries which are used in the structural design. My work was to write checker functions and calculations to analyze these libraries and improve their functionality. I used Perl programming for this as this is industry standard. I also learned about physical design flow which includes various processes such as logic/physical synthesis, placement and routing, clock tree synthesis. Apart from good programming knowledge, I also got familiarized with the tools used here such as IC Compiler. My mentor Mr. Naveen as well as whole team members were really helpful. CDCs like

VLSI design, Microprocessor and Microelectronics were also very useful and I understood how all these concepts are applied in industry in chip designing.

Overall experience was really good and it will help me in future career as well. Finally I would like to thank BITS Pilani for having such really good components in curriculum.

Name of student: Suraj Ananya (2012A7PS047G)

Discipline: Computer Science



I did my internship (PS-2) at INTEL Corporation, Bangalore. The team I was inducted into was working on a project based on Docker containers. In order to ramp up to the project I was told to understand a new programming language GO. I learnt a lot about Docker and how cloud systems work. The main goal of the project was to come up with a sustainable solution for security threats in Docker. There were various areas or so called layers like File system, Kernel, and Hypervisor etc. In the process I got familiar with file systems working, syscalls flow through the layers and various security policies and technologies used in the anti-malware world. This internship not only helped in broadening my knowledge base but also helped me learn the various nuances of working in a team. Regularly having deadlines helped me understand ways to cope with the pressure and get the work done. The continuous support from my PS instructor as well as my manager was a major prospect of my work here at INTEL. During the entire project durations I was lucky enough to get to work on various levels like the user space, Kernel, and even learn about various Hardware solutions. This definitely was good experience as many interns don't get to work on such broad areas in such a short period. Working in the security industry was not only challenging but also fun. Overall PS-2 was an amazing experience of working in an MNC and learning the ways big corps work.

Company: Lantiq India Pvt. Ltd., Bangalore

Name of student: Saketh Dahagam (2012A8PS424H) Discipline: Electronics & Instrumentation



PS helped me to understand, learn about digital subscription line ADSL, codeswap, DMA, CO and CPE and various other software tools such as winhost, teraterm, codelite, perl command line. These helped me to understand the backend technology that works between CO and CPE for

providing internet to its users. The team I worked with are very much dedicated to their work, this had inspired me a lot. This five and half month training helped me to understand the work culture and need at the industry and how it is different from academics. This industry experience gave me an opportunity to assess my talent and what other talents I need to learn and improve so as to achieve my future goals. PS2 experience broadened my knowledge base by introducing new technological terms such as DSL, new software tools, which I never used in academics, such as teraterm, winhost, codelite, tftp32, parser etc. PS experience augmented my career prospects in communication field. My major achievement is making a software ADSL parser to separate out and display the messages.

Company: National Instruments Systems (India) Pvt. Ltd., Bangalore

Name of student: Anurag Chakraborty (2011B4AA727H)

Discipline: Electronics &
Communication



My PS-II involved working on 2 projects whose titles are given below and about which I wish to express my experience in working on those domains:

1. “Common Frame Synchronization for all Measurements”: In this project I learned the internal Lab VIEW code segments of how intricately the process of signal measurement of various mobile standards like LTE/4G occurs. I looked into the varied possible uses of Lab VIEW to implement some measurements like Adjacent Channel Power (ACP), ModAcc (Modulation Accuracy), etc. This broadened my academic knowledge to a much wider spectrum of industrial applications and their thorough and meticulous implementations. The small part of code that I was asked to implement would enable an accessory functionality in the bigger picture of entire measurement. All this helped me get inspired and quenched my curiosity regarding the industrial treatment to a given problem. I learned many OOPs concepts also in Lab VIEW language and their immense dynamic usage to create multiple functionalities in a system. The scope of development was huge and innovative approach to solve within the industrial constraints was the challenge. It prepared me better to compartmentalize thinking to build the bigger picture. The PS experience did help give me an outlook of the industrial expectations and situations.

2. “Auto-Detection of DMRS parameters”: In this project I got to know a much wider application of reference signal usages in channel estimations. I got to work closely on developing a robust algorithm to recover reference signal parameters from noise corrupted ones. The task seemed simple at first sight, but soon seemed to overwhelm the possibility of any solution. This project taught me an important value – perseverance, which is a very important value in the both academic and industrial perspective. In spite of multiple failures from many different approaches to the same problem, I got to exercise many mathematical ideas which actually increased my exposure and outlook towards a problem with respect to timing, resources and

success rate. This project taught me more with each failure. But finally getting the solution was an ecstatic feeling making all the efforts worthwhile.

On the whole, the PS experience gave me a comprehensive exposure of the industrial arena wherein I got introduced to many new academic topics, different programming methodologies, cultivation of many values of work-ethic and professional habits including group discussions, seminars and maintaining records of daily progress for later review. I also had the good opportunity of getting to know many new people including the employees and our supportive PS faculty, share their ideas, gain outlook to current developments in the technical market and finally also be a part of the company's team spirit in the form of taking part in its annual technical and cultural meets. I am thankful to BITS for creating and letting all of us students are a part of this industrial - academic amalgamation which has supplemented our awareness and competence in the comprehensive sense.

Name of student: Sai Krishna Aditya B (2012AAPS018H) Discipline: Electronics & Communication



Prior to this internship at National Instruments R&D, I've only had a basic knowledge of how a communication system works. But now I'm confident that I know many advanced topics in Digital Communications. I've implemented the IEEE WLAN 802.11ad Standard for Single carrier Systems. Since I did this project entirely in NI Lab VIEW, not only did I get to learn many concepts in Digital Communications, I also got accustomed to programming in an environment which was completely new to me before, i.e. Lab VIEW. I've implemented both the transmission and reception part of this standard. During the course of my project, I've now learnt concepts like Pulse Shaping, Symbol Boundary detection, Frequency Offset Estimation, Timing Synchronization, Channel Estimation, LMS Equalization, etc.

I plan to continue my education further, in the field of communications and signal processing. This project heightened my interest towards further research oriented education. I also think that this internship provided a great platform for me, both in terms of my increase in knowledge base, as well as having a perfect research experience in the field I'm interested in.



I came to NI hoping for a decent project in Communications which would help boost up my resume a notch higher but what I got here is much more than that. I got an awesome project, a wonderful mentor and an excellent platform to develop professionalism. The project that was allotted to me was 'FPGA Accelerators.' The main idea behind this project is to implement different communication blocks on FPGA. The challenging thing here is that very few people in NI Bangalore (Hardly 10 people) including my mentor had previously worked on Hardware Implementation on FPGA using Lab VIEW. Most of the Hardware development happens at NI Austin. So basically I have to learn to code on Lab VIEW FPGA all by myself with very little help from others.

In the beginning I used to get struck on little things because of lack of information on how to use the software. I felt that if only I had someone in NI who knows the software and can help me then I could get the little things solved easily and move on to solving bigger problems. I was impatient. After a few weeks I was slowly making progress but I couldn't work to my fullest with that nagging feeling in the back of my mind. I used to get dispirited. I used to feel that I am not able to use my full potential on these silly problems. Then came my Mentor Gaurav Goyal to the rescue. Though it's true that he had never previously worked in Lab VIEW FPGA, he has an amazing insight into how things work. The project itself was his brainchild. He taught me things both technical and non-technical. He taught me to do things in a step-by step process. He made me realize the virtue of Patience. It looks like a small thing but made a lot of difference. I was able to give my fullest after that and with constant support from my mentor I was able to complete my project. I was able to master many FPGA concepts and reduce the hardware implementation time by half which is a pretty big deal considering the fact that I was able to do it in my limited Ps-2 time and completely by myself starting from scratch.

Needless to say I learned a lot of technical things through my PS-2 which will help me in my career prospect. But I think more than that this PS-2 experience of mine packs a whole lot of other things which will help me become a successful individual. I sincerely thank my college BITS-Pilani for providing me such an amazing opportunity very early in my life. With no doubt this experience of mine will be huge help in my future. Thank you.

Company: Nvidia Graphics, Bangalore

Name of student: Atif Jan (2012A3PS013P)

Discipline: Electrical & Electronics



The 5 month internship at NVIDIA has been a game changer for me. The transition from college to industry is huge and NVIDIA made that easy. The learning has been enormous and as we come to the end of it, I feel more complete as an engineer.

I worked on Formal Verification of CPU for NVIDIA. It is an exhaustive methodology to verify RTL design across the entire state space of the chip with maximum efficiency. At NVIDIA we abstract the behavior of CPU modules and model those using constraints and assertions that help verify that the intended specifications are retained inside the implementation. This involves the knowledge of SystemVerilog, SystemVerilog assertions, Perl scripting and a good overview of CPU architecture.

My knowledge about computer architecture and design has grown many a fold. It has opened my perspective about computer micro architecture and helped understand where I can benefit this industry the most. The new methods of verification at NVIDIA are very genuine that accelerate not only the code coverage of the design but find and close bugs with full intensity. Formal verification is proving to be effective in every design cycle and is a growing infrastructure of the company.

As for the students who are looking for PS at NVIDIA, there are a whole lot of interesting things which are going to unfold your way. Especially the CPU team at NVIDIA is very enthusiastic about their work and meets more achievements every year. Students should read up on the company and work to build their skills to better fit the teams here. A better understanding of computer architecture, design modeling and scripting is all that will make your internship worthwhile.

Apart from the technicalities, NVIDIA has helped me grow as person who can fit in the industry environment and function as a crucial contributor to the team. I am more interested in looking for the success of the company now than at the time I joined, which makes for a huge transition. This PS experience at NVIDIA has been very inspiring. The zest for better design and speed is what we desire and that is what engineers at NVIDIA deliver.



My PS-II station is NVIDIA Bangalore. I have been working here as a part of software development (multimedia) team. Past five months have been an amazing learning opportunity for me. I was introduced to various programming as well as operating systems concepts and was provided with a platform to implement those concepts. Major chunk of my project involved modifying a multimedia framework to incorporate audio playback functionalities. For the implementation of the project, I had to learn various concepts like queues, mutexes, semaphores, buffer pools, multi-threading and some basic knowledge of shared libraries and architecture of a real time operating system called qnx. Apart from this I also learnt various aspects of media processing specific to the audio component of the input stream. These media processing functionalities included de-multiplexing, packet parsing, decoding and rendering of audio stream. As part of another task I have worked on modifying the server to support UDP based media streaming. This task helped me become familiar with basics of networking technologies and socket programming. It also introduced me to various network layers and their respective protocols.

Apart from learning various software related concepts, I have also realized how working in industry is different from academic projects. In industry there is a lot of emphasis on correcting the corner cases associated with a given program. Also, the programs are subjected to large number of stress tests so as to make them as bug-proof and future-proof as possible. The programs are also reviewed by various people to reduce possibility of bugs. Moreover, even while writing a program, a lot of emphasis is laid on making it easy to read, understand and manage. These kinds of programming practices are very typical to industry.

Practice School experience has also helped us become familiar with the required professional attitude and the working environment of companies. We also got an opportunity to interact with and learn from many professionals who already have a lot of experience of working in industry. The constructive feedback from them has helped us in developing new skills as well as refining other skills. Hence Practice school has provided us ample opportunity to implement the techniques learnt in classroom as well as learn new concepts. I sincerely believe that due to this hands-on experience we are now better prepared for the future and experienced gained here will help in smoother transition from academic to professional life.

Name of student: Indira Venkataraman (2012A3PS157P) Discipline: Electrical & Electronics



My internship at NVIDIA was from the 6th of July to the 12th of December. It has been quite a remarkable experience, the transition from college to industry. The people at NVIDIA are very friendly and accommodating, making it easy to fit in to the office environment. Getting a firsthand experience at the industry will certainly help me a lot in the future.

I worked in the Power Estimation team in NVIDIA. The power of chips is estimated before the production, for various input conditions, and major decisions are made on the basis of the estimates. I could get an overall view of the working of all the teams, and how the chip moves from the design to the final production stages, and the post fabrication procedures. The estimated power is compared with the actual values and the backend code is accordingly modified, to get as accurate results as possible.

The team has always helped me out whenever I had any issue or whenever I got blocked anywhere. Not just the team, all the employees were very helpful, and that made the experience in NVIDIA a pretty smooth one. I have learnt a lot in this short period of time, and am sure all my friends have, too. The internship has played a major role in preparing me to work in the industry in future.

Name of student: M. Sai Nikhila (2012A8PS364H) Discipline: Electronics & Instrumentation



My work experience at Nvidia Graphic, Bangalore helped me to develop firstly my coding skills. The System Architecture team, I have worked for encouraged me a lot during my ramp up period and improved my learning skills. Got a very good knowledge on Systemic platform which is the major learning advantage I have acquired in my whole internship period. This platform has a very good significance presently, to develop and test every unit on SoC.

Initially, my ramp up period helped me to develop my skill set needed for the intern requirement here. Got to know about the work space setup and how to build the platform for my own. Then the tasks assigned to me gave me a practical experience on the live projects and got to learn more and more about the team's job. The work culture here at Nvidia best suits for interns giving them a very good learning opportunity.

The learning experience I have acquired in my whole internship period and the way how we mingle with the working team and people around us in an industry.

My knowledge base has been improved to very good extent all because of the training I got here. The concepts I got to learn here are completely new and I could successfully work on the same all through my internship with a whole support from my team mates.

My work experience with Nvidia Graphics, Bangalore undoubtedly gave me a pretty good chance to develop my skill set which helps me to fit into industry and also gave me a clear idea on my interests.

Name of student: Mudit Jain (2012AAPS106H)

Discipline: Electronics & Communication



At NVIDIA, working as an intern in the System Software Team has been a great experience for me. In this process I saw an entire overview of the process that a particular software module goes through from being conceptualized to being delivered to the customer. One major point that I noticed during my PS2 is that in the industry/professional world, you don't have to be good at a lot of things. If you know your subject properly, or have a skill that people can depend on, that is more than sufficient. Having technical acumen is not enough, the communication skills are as necessary to engineers as their technical expertise. When I mean communication skills, I mean the ability to accurately understand what the customer requires and converting that into technology. From a technical perspective also I have improved a lot during the course of this internship.

It has helped immensely. Now I think I have a general idea of how things work and will be much more equipped to step into this world. I have also learned how to interact with people on a professional level.

This internship has created an interest regarding Embedded Systems which lay dormant in me for some time. I would like to explore this field more and learn regarding the same. Even though I have implemented and delivered a product to Nvidia's customers, I have realised that I do have few shortcomings and this will require me to hone my skills.

I have broadened my knowledge base in C programming, Shell Scripting, Operating System, Version Control System like GIT and Embedded Systems. I also have developed a good understanding of the entire software development cycle.

This has given a very good understanding of how things work in the industry. It has helped me decide what career path I should embark upon and also it has given a glimpse of what my career could be in this field.

I have interacted with a lot of people in the course of my project and it has helped me broaden

my knowledge base and improve my communication skills.

I am the sole engineer who has been working on this project; I have conceptualized the software module, designed it, implemented the same, verified, and finally documented it. It was delivered to the customers and I am working on maintaining and enhancing the same for the next release. I think this is a good achievement for me. I have learned a lot in the process and have helped in developing something that will have some real consequence.

Name of student: Neeraj Kothari (2012A8PS895H) Discipline: **Electronics & Instrumentation**



When I submitted my PS preferences my first choice was Nvidia Graphics Pvt. Ltd., but I had doubts if I will get it. And when got it I was very excited. It was a nice experience working in the Industry and learnt a lot during my 5 month internship. It really enhanced my classroom learning by gaining real world experience.

I worked for CPU Formal Verification team. The Formal Verification is the methodology where we test the RTL design using formal methods of mathematics. We check the design for all set of inputs as such we find the bugs easily.

Initially, I started with learning Linux commands, perforce commands and then understanding the flow how we compile the design and run the tool and debug the issues.

I worked on the Second Level Clock Gating (SLCG) set-ups where we verify comprehensive clock gating by employing Sequential Equivalence Checking (SEC). While logic is being introduced to help with power optimization the basic functionality of the product should remain unchanged. It becomes important that we check the sanity of all the features and hence verify all the aspects of the design with / without the power optimization enablement. I compared two tools VC-SEQ and JG-SEC, used to verify SLCG and gave my feedback on both of them and suggested ways to improve the tools.

Apart from this I worked on system coherency block where we maintain coherency between the different levels of caches and memory.

Internship here helped me in gaining knowledge of System Verilog, System Verilog assertions and good overview of CPU architecture and also Perl scripting.

Transition from academic to industry was huge. But my team made it much easier for me. The team was really enthusiastic about their work and helpful. In the internship, I got the opportunity to interact with people on a professional level as such improved my interpersonal skills. This internship helped me in improving my communication, problem solving skills which are really helpful for my career. It helped in building my confidence. I learnt how teamwork helps in increasing efficiency and also about work ethics.

Internship in Nvidia was really inspiring and really helped in accumulating new skills.

Name of student: Samrin Jalal (2012AAPS002H) Discipline: Electronics & Communication



My experience at NVIDIA as an intern has been really amazing. It proved to be a stepping stone for my career. It made me realize the transition from an academic life to an industry life.

I was in Graphical Processing Unit (GPU) team. I worked on Physical Design and Advanced Timing Constraint Analysis Techniques. It dealt with the long flow of Placement and Route of ICs. At NVIDIA, we use electronic design automation tools like ICC and EDI to complete this task. We intend to design a particular block which has to be optimized with respect to timing and congestion. Addition to this, the block should be free from any timing or DRC or LVS violations. Other multiple tests like preDRC, Antenna, EM checks, etc. are also carried out to ensure that the block functions properly.

The background of the project lies in VLSI Physical design, basics of CMOS, Static Timing Analysis, and knowledge of PERL scripting. Referring to the courses taught as a part of our academic disciplines, it deals with Digital Design, Analog and VLSI Design and Computer Architecture.

At NVIDIA, I learned a lot. It helped me to enhance my knowledge on digital design and timing analysis. As I came across different tools, it helped me to develop my skills. It also gave me an overview of PERL scripts. It gave me an opportunity to learn the complete flow of designing a chip, and an insight on the methods to validate those designs.

For the students looking for PS at NVIDIA, it is a great place to learn and work. For the electronics students, it would really prove to be beneficial, since the work is relevant. Students should be clear in their basic knowledge of digital design and timing analysis. Practicing PERL scripting would be really helpful to enhance their learning. It adds to the Physical Design Engineer.

At NVIDIA, not only I came across technical aspects, but it helped me to improve myself in social aspects as well. It helped me to grow and accommodate myself in this industrial culture. It filled me with an enthusiasm to explore more and learn more.

Domain – Mechanical Engineering

Company: Bharat Forge Ltd, Pune

Name of student: Ankur Gaikwad(2012A4PS227G)

Discipline: Mechanical Engineering



The Internship at Bharat Forge Ltd. was a good learning experience for me. The experience made me realize the stark contrast in Academic and Industrial Environments. As my project was on the area of Fuel & Energy consumption, I got a realistic perspective on the energy scenario in the Manufacturing Industries. My knowledge base on the metallurgical aspects of manufacturing was greatly broadened. This experience will definitely help in my future career & work.

Company: Divgi Warner Pvt Ltd, Pune

Name of student: Mihir Phadke(2012ABPS393H) Discipline: Manufacturing Engineering



During the 5 ½ months at DWPL, I have learnt quite a lot. I got to indulge with a lot of employees due to the projects I got. The kind of exposure and opportunities given were truly amazing. Even though I was just an intern, my views and suggestions were always discussed and if they were good, they were also implemented. The mentors were really helpful and always encouraged to try new things. They guided me very well and helped me throughout my project. To start off, DWPL provided me with textbooks, manuals and international papers to strengthen my knowledge. They even challenged me with some difficult assignments to enhance my skills. I even got to work on machines which most companies would not have let. This shows the level of exposure I got in the company. From this PS-II program, I have learnt how to apply technical knowledge in the industry and achieve set targets. I have learnt about the working of a company and how every department of the company contributes to the success of the company. I have also learnt a lot about Certifications and Legal Requirements. Apart from just technical knowledge, I also got a lot of practical knowledge. By attending meetings, I understood how decisions are made and taken by weighing risks and efforts. With the help of this experience, I wish to expand my horizon in the field of operations. I have really taken a liking to this field, all thanks to Divgi Warner. I have really enjoyed working on my project and the employees of the company.

Company: IFB Industries, Goa

Name of student: Akul Bajaj(2011B4A4698P) Discipline: Mechanical Engineering



There was major learning in the PS 2 in every respect. Be it academic wise or in regard to the industry exposure and experience in the same. During my project work, I came to know about various marketing techniques and how to conduct various types of consumer and customer surveys. After conducting those surveys results were collected and analysed to generate a problem statement that would address the customer needs. Now corresponding to those needs and problem statement possible solution ideas were generated. In college we are given theoretical knowledge as to how basic machines and mechanisms work. Practice School on the other hand provided a first-hand experience of how we have to integrate knowledge gained in college with hands on experience to generate an overall successful individual. Apart from the learning in the marketing department, there was inter-departmental work also. As my background is mechanical engineering I had very little knowledge about sensors and their working in systems. However in the company we came to know there is a very close relationship between mechanical and the electronics department. One cannot function without the other. Hence I had to learn the working of sensors too, in particular turbidity sensor because it played a major role in the prototype that we were developing as a part of my project. In a similar way, a study on weight sensors was also done which were to be integrated in the system. One major thing we learnt from the practice school was the value of teamwork and how biased our opinions can be sometimes towards something that we have developed despite that fact that it might be having a lot of drawbacks. To solve this problem of biasing, we conducted brainstorming sessions with other people in research and development division who provided us ideas and improvements that can be done in the solution that we were working on. After including the inputs from other people in the solution making process, the old model was improved and a new solution was developed. Aside from developing a working model, during the course of project we were also taught how to do solid modelling of any prototype for rapid prototyping in a variety of softwares and simulate the results.

Overall the PS 2 helped a lot in getting good industrial exposure and developing a profile which will definitely help in securing a job in core mechanical sectors with the knowledge that we obtained from the experience.

Name of student: J M Madhoolika (2011B2A4590H)

Discipline: Mechanical Engineering



PS2 is one of the best platforms offered by BITS for better understanding of concepts learnt in classroom and also understanding the industry. In the 5 months that I have been working here I have gained a lot of insight into how exactly an industry functions. I got an opportunity to understand the production line in a production industry. We got to see what are the different types of machines that are used to produce the desired products and also the assembly line. We understood that both automation and labour force is required in achieving the desired target of units per day. Now, in my project I had a little knowledge about the different kinds of materials and about the reinforcements. I had the theoretical knowledge about the different kinds of matrix materials and the kind of reinforcements used with different kinds of matrices. In my project of replacing the Stainless Steel drum with that of a reinforced plastic I had gained a lot of exposure as to how to approach and tackle the problem of choosing specific materials to our product from the vast range available in the market. I have had good exposure to the principles of Materials selection using Ashby methods, Product design, Design for manufacture and assembly and BOM study. The project had also helped me in enhancing the knowledge of modelling in ProE and simulation techniques. Apart from the things which we already knew the project had helped me to understand that changing a part in the product does not only involve the engineering and science which we learnt but also the economic point of view. I'm currently learning how to do cost benefit analysis for the shortlisted materials so that we can select the best possible material available in the market for our product. This is one of the best things of the PS2 experience because as a dual degree student we couldn't explore much of the other disciplines but here we got a fair idea of costing and marketing.

Overall the PS 2 helped a lot in getting good industrial exposure and developing a profile which will definitely help in securing a job in core mechanical sectors with the knowledge that we obtained from the experience.

Name of student: S Venkatesh (2011B5A3251G) Discipline: Electrical & Electronics



IFB being a major player in Home-Appliance sector boasts of a very good culture of Research and Development with many products and ideas patented by them. It was a very diverse learning experience right from the beginning. With Production Plant housed in the same place,

we've got to learn the different mechanical systems that go into the making of a washing machine right from Injection Moulding to Paint shop to the main assembly line. We also learnt of the different Quality testing procedures and the kinds of testing and benchmarking methods that any company follows. It was a phenomenal experience to watch how much organised work in the form of human and machine labour, systematic thought goes into the making of an appliance that ends up making our life so easy. More than anything it was beginning to appreciate and realise the nature and duty of engineers. I realised the method that goes into the making of any product that is from the product conceptualising stage to benchmarking stage and then coming up with a feasible idea and then turning it into a lucrative idea so that at the end of the day your brainchild becomes something tangible. From academic side too I've learnt a diverse range of topics like Microcontrollers, Power electronics, Analog Electronics and Electrical Motors. Though these were mainly the areas of study I've worked on I learnt not to restrict myself to a particular field and also learnt about Sensors and their Interfacing, PCB layout and schematic design and Embedded System programming. Working to realise a project that has been entrusted to me has challenged to erase my boundaries and involve in any sort of activity that ensures its fruitful completion. This is the major takeaway I'd say working in an industry does to a student just out from academics because a sense of responsibility and trust makes us matured enough to make a few compromises so that the goal is achieved on time. In its nascent stage the project was just a integration of a sensor but benchmarking other dryers by rigorously conducting a whole range of tests through Power analysers, Humidity sensor and Temperature Sensor, we were able to convince the company executives to go ahead with an upgraded automatic Dryer which would be in market next year. To realise that goal I had to begin with drawing a circuit for the main Power board, Interface board then prepare a hand soldered PCB for both the boards. Then I had to draw the electrical wiring diagram, prepare a hardware design required document (DRD) and software DRD. For software DRD I had to work with experts to design a program rhythm flow for all the programs that are going to be introduced in the dryer and conduct individual component test and validate the whole circuit. Now I would have to complete software development for the dryer and show a proof of concept to the company executives by the end of my term here. The learning I would take from here would not just be help in procuring a job in home-appliance sectors but also in any company that expects someone with good managerial skills to expand its operations.

Company: National Aerospace Laboratories, Bangalore

Name of student: Bharath Patnaik (2012A4PS366H)

Discipline: Mechanical Engineering



This was a wonderful learning experience since I could learn a subject which was literally unknown to me and I could actually do major research in the same. Friendly mentor was really helpful and was really knowledgeable who could answer any doubt I had. I can't honestly say ps2 helped me transit academic to industry since mine was a learning project. My knowledge

base had broadened by a pretty big margin. I can apply for many good schools (abroad) because the project that I have done is core mechanical.

Name of student: L S Balaji (2012A1PS429G)

Discipline: Mechanical Engineering



As every other student, I too was quite excited about my Practice School 2 (PS2) which I chose to take in the first semester of the academic year 2015-16. While scrolling through the list of companies and research organizations, I stumbled into CSIR – National Aerospace Laboratories in Bengaluru. A number of projects were available ranging from nanotechnology, fuel cells, solar energy which would attract any student who aspires to pursue pure research. I was really tempted to choose CSIR-NAL due to my interest and background in fuel cells. With a generous stipend provided by BITS and praises from my seniors, I chose CSIR-NAL.

I did not regret my choice. Overflowing with scientists from IISc, IITs and even BITS, CSIR-NAL was a melting pot of intellectuals. I was allowed to choose my project (which was fuel cells) and started my literature study to get a grip on a topic which has so much scope and potential. My instructors were helpful and understanding regardless of their outstanding background which made me realize the reason for the success of this organization. Ample funding for projects was helpful in acquiring the necessary equipments and materials that were required for my work. But one minor setback which I often faced was the slowness of the organization albeit it was expected due to the size and complexity of it. It will take some time to adjust to the pace for someone coming from the very fast, flamboyant and flexible BITS culture.

Apart from the slowness, the sheer perseverance exhibited by some of the scientists was a surprise to me. Patience is the only partner at times when you don't get the results you expect. This is something which really affected my approach to pure research. Also the inclusiveness of all peers irrespective of their background in project discussions however small it may be was another rarity. At the same time, a chain of command does exist as much it does in any major institution and exposure to the same for first time was different experience which will yield fruit in future endeavors. Research work in CSIR-NAL is an amalgamation of both openness and closeness, were projects students sometimes work on multiple projects or are asked to focus on only one.

Overall, the experience in CSIR-NAL taught me to how to handle tight deadlines, manage resources, delivering at full capacity which is expected in any corporate environment.

Name of student: Sharad Chauhan (2012A1PS555G)

Discipline: Chemical Engineering



During these 5 and ½ months, I worked on the “Modeling of a solid oxide fuel cell” in the SED division. Apart from literature survey, I worked on MATLAB and later on COMSOL 5.2 I believe the experience will help me go a long way. The professional environment gave me an insight of how an institution works and how you have to find your own role in it. Working at one of the top research facilities with such intellectual people is a dream come true for any prospective graduate. The learning happens not just by reading or doing experiment, but also while discussing a problem or interpreting your result with your mentor. To see how quickly they reach the root of the problem, makes you realize that you have a lot to learn and a lot to experience.

The project allowed me to dig deeper into my fundamental knowledge of chemical engineering, be it mass transfer or heat transfer or even thermodynamics. The pervasive nature of the project helped me to understand and then bring together the knowledge while modeling the various aspects of a solid oxide fuel cell. Practical application of theoretical knowledge is the biggest challenge for any engineer and I believe this project has helped me shorten that gap

Since I plan to do pursue higher studies, this independent research project has helped me prepare for higher degree. I feel more confident now after completing this project at NAL about myself.

Company: Tata Motors, Pune

Name of student: Ashok George (2012A4PS267P)

Discipline: Mechanical Engineering



Since July of 2015 to December of 2015 I was enrolled in the BITS Practice School program as an intern at Tata Motors, Commercial Vehicle Business Unit's Dharwad Plant. The plant is where Tata Motors produces the Ace Zip and chassis for various Light Commercial Vehicles.

The internship has been an eye opening experience for me. It has taught me how things work within an organization such as Tata Motors, the organizational hierarchy, the organizational culture, the actual work being done and a lot else. It has been a unique experience in seeing how the things learned in the classroom is being implemented and refined.

The biggest take back for me from the program has definitely been the knowledge garnered about the manufacturing process, the process systems and the quality control techniques being used. An in-depth understanding of how a vehicle is assembled has given me a new level of clarity about the concepts I've learned in the classroom

As mentioned earlier, the program has helped in broadening my knowledge base. It has helped in understanding all the processes and systems involved in a vehicle manufacturing organization moreover since my project was in the quality department, it has helped me in understanding the various schemes involved in quality control in a manufacturing setup.

The PS program will definitely be a huge step forward in my future career. It has taught me several invaluable lessons not just concerning about technical know-how but has also helped me in advancing several soft skills. It has helped in understanding how to deal with people, how to put your ideas across in an effective way and getting people onboard with your idea. This will definitely help me in getting forward.

Name of student: Kshitij Patil (2012A4PS097P) Discipline: Mechanical Engineering



The most important of the things I learned from my PS-II at Tata Motors Pune is professionalism. Thus far in my life, I have learned or worked in a more liberal setting, which cannot be expected to continue forever. Thus, this duration of 5 and a half months have inculcated in me values and skills that will be expected of me and will help me establish myself in whatever field I choose. Watching the concepts learned through courses on campus in practice has improved my understanding of them even further has given me a sense of confidence over my knowledge and implementing some of them. Seeing first hand the workings of an organization of such a huge scale has made me aware of the various processes and functions that are required for it to operate smoothly. This and the insights I gained through interactions with industry experts are my key takeaways from this experience. My knowledge base was broadened by exploring new domains such as finance, sourcing and strategy. Having this experience on my profile will give me an edge to start my career.

Name of student: Rohan Anand (2011B2AB758P)

Discipline: Manufacturing Engineering



Major Learnings:

I was familiarized with the wire & tube layout of various models that are being produced in TML. Also I came to know functioning of various sub-system of the vehicle. While solving the issues during manufacturing I employed various Quality control tools (Ishikawa, 8D, Pareto, Why-why analysis) used by TML to solve them.

51/2 month experience & take back from Industrial experience

It was very enriching experience for me morally & professionally. The time I spend interacting with operators, senior managers helped to boost my confidence and also improved my soft skills. I also realized the importance of coordination & cooperation among various agencies for smooth functioning of the industry.

Broaden my knowledge base:

On campus, I had Study Oriented Project which was based on Quality Control at Conceptual Stage, while on PS 2 the main focus area of the Project assigned to me was related to Quality Control. Key learnings from my SOP & linking them with the knowledge from my PS 2 project I was able to fully grasp & appreciate the broad spectrum of the topic Quality Control.

PS experience augment my future career prospects

PS experience will certainly help in my future endeavors. Experience of How to interact with Senior managers, operators on the shop floor, Presentation skills these are the major contributor towards building my career in professional world.

Any major achievements:

TATA motors organized a CRICKET TOURNAMENT for Quality Department & I participated in that tournament. Our team won the tournament & I was awarded with "BEST BATSMAN OF SERIES"

Domain – Computer Science

Company: Akira Consultancy Private Limited, Bangalore

Name of student: EVR Nikhil (2011B1A1673G)

Discipline: Chemical Engineering



PS-II provided me an opportunity to put my theoretical knowledge into practice. It gave an industrial exposure and an experience of the real world scenario suitable for my technical background. After having spent duration of five and a half months at my PS - II station, Akira Consultancy Pvt. Ltd., I can positively say that I have gained a lot of confidence and expertise to face the challenges in the industrial world.

At Akira, my project is on Data warehousing and analytics. We gather data regarding the sales from our clients' servers, process the data, cleanse it, and feed it into our databases which were designed based on requirements, this is done using software like SQL, Management studio etc., Data in those

databases won't be able to express much unless reports are constructed. Only then data can be visualized by the individual. Once the reports are build, using Qlikview, clients are given access to them, so that they can take executive decisions based on their sales performances.

I learnt some cutting edge technologies as a part of this project which will definitely help me in my future prospects. Apart from my core discipline knowledge, I gained knowledge regarding few software like SQL, Qlikviewetc, which are used even in Chemical engineering (experimental data) and Biological Sciences (genetics) in handling huge data. Not just the theoretical knowledge, but a hands-on experience.

Apart from the project PS-II also gives us industrial exposure. I learnt how coding standards are in an industrial environment. Modulation of the code is of utmost importance. This is because a major concern of the institutions is scalability of the code. The code should remain usable even after a particular person is off the project. It should be understandable to everyone. Thus, variable names, packages, documentation etc. need to follow certain rules as specified by the company.

In an industrial environment, professional conduct is also of a lot of importance. PS-II gave me an exposure to this area as well. Addressing your colleagues and documenting all conversations via emails is very important in a work environment.

It is my first experience in an industrial environment and this program has helped me to smoothly build my way from an all-academic environment to an industrial environment. Five and a half months is ample time for this transition. PS - II expanded my knowledge domain and built up my confidence to lead myself in this competitive industry.

During my internship at Akira, my design of the reports that were built, were appreciated and approved. It was a minor achievement, where my efforts in the fields of art, data analysis and coding were appreciated.

I decided to continue my PS II in this company so that I can improve my skills further.

Company: Amazon Development Centre, Gurgaon

Name of student: Abhinav Misra (2011B2A7580G)

Discipline: Computer Science



I joined my intern at Amazon on 13th July 2015 as software development engineer-intern. I was fortunate enough to work on some cool projects, which helped me grow as an engineer by developing my core skills and knowledge. This was a great opportunity for me to bring my coding standards at par with the professional world.

The discussions with my peers, regarding the designs have provided me with deep insight to OOP principles. I have learned that it is important to be biased for action; there can be N number of solutions to a problem but we got to choose that is the best for us, both in terms of resources and sustainability of the code.

The technologies that I have worked on-Java, Dynamo DB, SQS, and other AWS tools, UI frameworks like AUI, etc.will provide me an edge in my career ahead. Today everyone is using these Amazon tools to get their work done in a simpler and easy way, having a good understanding of these will enable me to mark out my presence among others.

There are very talented people at Amazon, I make sure to read the code written by them as it not only makes me understand-how, when and why to use features of Java but also introduces me to some new Java8 features-like streaming functionality.

To conclude, I will say, the practice school program of BITS is simply awesome. This provides us with the opportunity to implement what we learn in college. It also gives us an environment, where we can dive deep to understand how things are working in professional world and make our decisions wisely for our career ahead. I will say these six months should be used to make mistakes, learn and grow from them, have a thorough understanding of our subject, so that when we enter our industry as full-fledged engineers, with BITS-Pilani degree to back us up, our peers should have nothing but respect and appreciation for us. In short, the goal for internships should be nothing but professional excellence

Company: Belong.co, Bangalore

Name of student: Nirant Kasliwal (2012C6PS694P)

Discipline: Information Systems



Belong.co was my top choice for two simple reasons. It is a fast growing startup. It was the best opportunity to specialise in Machine Learning in industry. In hindsight, I am more than happy with the decision. The team at Belong entrusted me to redesign and build one of the fundamental product features. Belong introduced me to two helpful external mentors. One on engineering aspects, and other on Data Science aspects of the same.

I designed, built, tested and deployed a machine learning model in production. One of the primary objectives when building this was to enable faster iterations. This capacity build should allow for incremental improvements.

One of the key learning from this experience has been understanding the gap in both my software engineering and machine learning skills, even more so from an industry perspective. Luckily, I have a semester ahead to fill some of those gaps.

A lot of learning has been experiential. This could include working in agile teams with daily scrums & sprint planning and the like. I have come to imbibe the importance and discipline of tracking the correct metrics. I am more appreciative of the importance of customer success and sales teams in a business.

The experience of seeing the team grow from 30+ to 70+ people has been phenomenal. The learning curve has alternated between acquiring knowledge and wisdom. These lessons will serve me for as long as I can remember them. The time at Belong has not only helped me discover my weaknesses. It has also helped me leverage my strengths to create impact. E.g. The infrastructure now in place can

scale to 5-10X times the present number of records. We can handle upto 50 times the data variety with only needing to write wiring code for the same. The accuracy of the feature has improved by 15-25%. *At the moment, we are the best in the world.*

It was a humbling and rewarding experience. I am grateful for the support and guidance from the team at Belong. And even more so to the mentors for enabling me to be better than yesterday.

Company: Blue Jeans Networks India Pvt. Ltd., Bangalore

Name of student: Adyasha Padhi (2012A8PS332H)
Instrumentation

Discipline: Electronics and



Blue Jeans is a Bitsian startup, which deals with cloud based video conferencing in commercial world. It was founded in 2009 by Krish Ramakrishnan and Alagu Periyannan.

The experience at Blue Jeans was highly enriching and educative. It helped me hone my skills and gain confidence over coding more. It also provided me with better personal communication and industry experience. I am sure that I want to pursue my career in Networking, than anything else. The working culture of the office is extremely good. The teams go for regular outings and parties to rejuvenate and revive ourselves. The food provided is awesome there.

The first two weeks was introduction to what architecture the company uses and then to various working groups in the company. Then, we were allotted our respective groups. I was allotted NFT (non functional testing). The team is extremely amiable and helpful. I was guided very well by my mentor and team mates. I worked on two projects which individually provided me with introduction into Ruby, JavaScript, Haml, Bootstrap and MongoDB. The experience was highly enriching and helped me gain confidence over my coding skills.

My project was highly appreciated and I gave a demo in front of the entire company including folks from Mountain View, California as well. I was finally offered a Pre-placement offer by the company and I am planning to join here next year. The facilities and perks are really appreciable. The company takes care of its employees prior to anything else. I am truly happy and obliged to all who helped me get here and prove myself.

Name of student: Avinash MSRSR Vakkalagadda (2012AAPS197H)

Discipline: Electronics & Communication



'Great place to work' is how I would describe Blue Jeans Network. The company aims to bring great minds together to meet, share ideas and reach their audiences through the power of video collaboration. Blue Jeans' cloud-based platform has made video communication easy, secure and scalable, giving thought leaders in business, education, entertainment, and media the power to interact face-to-face with anyone, anywhere.

It's a great opportunity for me to work for Blue Jeans Network. I was assigned to work on two projects which were challenging and helped to prove myself. For the first project, I had to deal with lots of data and prepare perspicuous reports which can be used to analyse video call quality. As part of the second project, I have developed a new web application which acts as a handy tool for automated execution of load test. The tool is currently being used by my team members and they are thankful to me for automating their daily task of performing a load test. Also, I have got an opportunity to present my work in the company's 'Engineering all hands' meeting which made me well-known to all others in the company.

The 5½ months practice school experience helped me to imbibe corporate culture. I have learnt to face complexities and to manage expectations, all in a fun and safe environment. The work has broadened my knowledge of programming which would certainly augment my future career prospects. Apart from work, recreational activities like organising a chess tournament, playing foosball, participating in dance performance has made my internship a full-fledged one.

I feel blessed for getting a job offer from the company. What a delight it will be to work for Blue Jeans Network!

Company: Bundl Technologies Private Limited (Swiggy), Bangalore

Name of student: Dushyant Kumar (2012D2TS976P)

Discipline: General Studies



Practice Schools have always been a great learning and a plus point for all the students as they get a fair idea about how to work in the organizations, what is the work culture like, how to approach the solutions in the most efficient and professional manner. This not only give them a hands on experience

of the professional words but also up to some extent clarifies if they would want to work in the same field or not in the future.

So when we talk about major learnings, one would be definitely the way of communicating at a professional level. No matter how good one is when it comes to communication but channelizing the communication in the right direction is what one would learn from Practice Schools. Like uttering the most appropriate piece of information so that it gets easier to work on their respective tasks. Team work is also an important skill which you are likely to acquire during Practice Schools. Transition from academic to Industry depends on what kind of work is allotted to you. If you get work in the area that you are interested in or something which is relevant to the courses you have done in the college, then definitely you could feel the transition. Transition from learning the basics to actually implementing your learning in the professional word. Whereas the transition might not be that smooth if the work doesn't fall under your interest area or is not relevant to the courses you have done back in college.

Talking about the take away from these five and a half months work in the industry, as already highlighted, team work, channelizing the communication skills in right direction, how do we on a professional level. In some way I am more than just glad that I got a start-up as my PS Station and hence got an opportunity to dig deep into the core functionality of the company so it helped me figure out how is the working culture in the startups and you might end up working on strange projects which are nowhere relevant to your field. But that's like an glimpse of you stepping out of your comfort zone and trying to put in more efforts. Gelling up with the team, so that the work is more of a fun task rather than burden.

Name of student: Rishav Gopalka (2012D2TS967P)

Discipline: General Studies



Swiggy is an Indian online food ordering and delivery platform founded by Sriharsha Majety, Nandan Reddy and Rahul Jaimini in August 2014. The company is based in Bangalore, Karnataka as Bundl Technologies Pvt Ltd.

The company runs each delivery on its own, with an indigenous delivery fleet, thereby minimising dependence on the already burdened restaurant systems. The delivery fleet consists of both full time employees and part-timers, who are allowed to make as many deliveries as they want, with no fixed targets, and are paid accordingly. Recently, Swiggy introduced a feature that allowed for live-tracking of each order.

So it's a Start-up so, lot of learning should be there. I learn lot of things from here, which helps me in my future. Here I got lot of opportunities to take care of new initiatives.

Here I worked in Finance and Marketing Department. In each department I learn something new, new technology on the work. In marketing I specially worked on these:

Trade Marketing

Channel Marketing

Sales

The whole 5 1/2 month is quite interesting and lots of learning for me. I learn many things from a huge supportive staff, they helps a lot. In future for coming people I thing they can learn so many things from this start-up. This is a fast growing start-up.

This PS Station help me out in my future because basically I work here according to my profile interest and to that they allotted me a project and I start worked on. Lot of new things I learn and worked during my whole PS. I surely gain a lot things from here it is definitely going to help in future. Good part of start-up is you have to initiatives and work and the friendly environment everyone is ready to help.

I always work for the swiggy order promotions. As a team leader I have to work, I have to manage all things. Plans everything's selects the best restaurants in that city that creates basically it is trade marketing how we promote swiggy outside. Work for the major event i.e. Bacardi NH7 Weekender events for Delhi, Pune and Bangalore.

Name of student: Saksham Phul (2012A1PS519H)

Discipline: Chemical Engineering



I was allotted Swiggy (Bangalore) as PS -2 station. I was excited to work in a startup & diversify my spheres. Initially I was dip into communication channel & aim was to optimize channels to improve customer experience. I gain significant knowledge of communication channels & their impact on customer experience. Later, I moved into a new project under the head of recruitment at Swiggy. I took charge of new initiatives at Swiggy. I was given responsibility to micro-manage which stand unique project allotted to an intern at Swiggy. I learn to deal with people, deadlines & this managerial experience would stand vital weapon in my resume. I improved both verbal & written skills at my ps. Knowledge base also widen in the field of business & communication channels. I'm taking back significance experience of 5 and half months of managing. I learn some of the protocols incorporated at industry which will be useful for me in near future. Getting into industry was difficult as we have to be punctual & responsible. It ignited a sense of responsibility along with dedication. At last, i would be going back with some vital contact from Swiggy.

Name of student: Sneha Suman (2011B1A1798P)

Discipline: Chemical Engineering



During these five and a half months of Practice School, I worked with a number of departments ranging from Human Resources to Operations to Marketing. As a startup, Swiggy plans to broaden its horizon and reach out to a wider base of people. For this, they need to define and establish their prominence on various social platforms. Also, in order to expand Swiggy, the company plans to recruit from top tier colleges. For this, they need to create awareness across various colleges and strategize processes for hiring. On this aspect, I studied other startup models and worked on innovating strategies best suited for the company. I worked on reconciliation of errors. Reconciliation involves studying the causes involved in errors that happen in billing and cash exchange. The project involves finding out a solution and develop a SOP to minimize the errors in Bangalore. Brainstorming and interacting with people from various teams was an important part of my project as I worked to create standard operating procedures for problems and processes in their inchoate stage. My knowledge about MS Excel was enhanced along with my people's skill and adapting to the dynamic environment of a start-up.

Company: Carwale (Automotive Exchange Pvt.Ltd), Mumbai

Name of student: Sandhi Tarun Reddy (2011B1A1673G) Discipline: Chemical Engineering



Students should have a good idea of the concepts that the company expects us to know before we come here. However we did have a good help from the mentors here at the company. so we were able to learn the concepts and start working on the application development.

Knowledge Required:

Objective - C, XCode, Git and some concepts in iOS application development. The significance of these concepts is it helps in understanding how the app development in iOS works. Also these concepts help in creating and development of apps.

PS-2 experience helped in transforming the academic knowledge I gained in college to implement in the company work. It helped in developing the skill set required to perform in industry. This 51/2 month experience has been helpful in acquiring knowledge in application development in iOS which I had no clue before coming here. This experience helped me in learning how to be a part of team and how to share and complete our tasks as expected on time.

I learned how the company works and how the various teams in the company function with a sole target in mind, but with various tasks the teams are expected to complete. The cooperation the teams in the company have is amazing and that's what is important for the successful run of the company.

I learned the concepts regarding iOS app development and how a company like Carwale works. I also learned some other important concepts like Git, OOP, Objective - C as part of my PS-2.

How will the PS experience augment your future career prospects?

I think my PS experience will help in laying the foundation for my future in app development and also made me open to pursue my career in IT industry.

Name of student: Saumya Jain (2012A1PS426P)

Discipline: Chemical Engineering



Switching to a new industry in a short span of 1 month

Learnt the world of Computer science and Mobile application development. Coming from non CS background, I knew nothing about Mobile App Development. My PS-2 company Carwale needed software engineers only, and hence was asked to do work on Software development. I started with OOP and completed the course in less than 1 month (covered during one full semester in college). Well the studying didn't end here. I started with Objective C- a new Mobile application development language (10% C, 20% OOPs, 70% Objective C concepts). It took 1 more month to complete and learn about it. After 2 months I had no knowledge what i will be doing exactly, but things turned.

My first feature for app went live by September. After that it was like a sea wind. Sometimes easy and sometimes harsh. I worked on a total 4 live features in 3 ½ months after my learning period. And some of them are live, while some will be live by December end.

After the unprecedented opportunity of the computer science world, I am kind of confident about making an application on iOS platform and entering the world of computing.

Well, I got my answers to how a Startup works, how backend of any App works, and how is data being circulated in cloud computing. I got to know how WhatsApp works from one live feature I worked on.

As basic programming is required in each and every field, this PS2 gave me a head start for my future aspects of career. It also prepared me for another profile which was missing from my resume, and I was craving for that sector to be there.

Knowing a startup. Increasing contacts from one university to various universities of India. Improving human interaction capability. Preparing myself for a LIVE PROJECT and work culture of corporate sector. I think these powerful achievements do conclude my really turbulent journey in a streamlined one.

Company: Cisco Systems (India) Pvt. Ltd., Bangalore

Name of student: Neethu Shaji (2012C6PS327H)

Discipline: Information Systems



I always thought I knew networks by knowing only application layer programming. But it all changed after being part of Cisco. Lots of learning happened.

It helped me to evaluate my performance and understand my strength and weakness, on the basis of which I could decide the future course of action.

My mentor's hard work inspired me a lot. I shall work harder in life keeping him as my inspiration.

Having industrial exposure, I came to know how things were done practically in networking, hence improved my knowledge base.

I am going to build on the concepts I have learnt in this span of 5 1/2 months.

Company: CSR, Bangalore

Name of student: D Bhargav (2012AAPS121H) Discipline: Electronics & Communication



I am currently pursuing my PS-II in CSR, Qualcomm Company which is a pioneer in Bluetooth chip manufacturing. The project I am working in my PS-II is "Automation of PTS testing on Bluetooth chips" which requires me to automate the testing procedures of P.T.S (profile tuning suite) performed on a Bluetooth chip manually. The project gave me a great scope to learn about overall functioning and internal stack structures of Bluetooth chips. Apart from that my project demands coding in python, so I got myself well versed with the python and also coding. I have to work on various Bluetooth devices with different utilities to test them and understand them thoroughly.

During the course of Practice school, I got to work in a project which requires a lot of coordination from other team members. my team members helped me a lot in these issues. I got to know how a real time working environment looks like in a multinational company. Moreover during my PS the company CSR got acquired by Qualcomm by which I got to see how prospects and culture of a company change when there is an acquisition by a giant company .I got lucky to experience two work cultures at same time. I learnt how a real time working experience is and how a team needs to plan and work in coordination to achieve the goals. I have also learnt how a team is led by team manager who decides the goals and also the means to achieve them.

As I have mentioned this project has helped me to understand the how a Bluetooth chip functions and relate to the fundamental concepts I have learnt in my academics. It helped me to learn python programming which I was not well acquainted with earlier and also helped me brush up my coding skills. The Practice school has taught me how I need to work in a team coordinating with them and also taught me how I need to keep learning and updating my knowledge base and apply them in work life rather than just acquiring bookish knowledge. I have made many god friends in my company who helped me with my project. By working on a project that is very significant to the team and attending office like other employees, this course has helped me to learn many new concepts that would help me in future and also helped me to learn what a work life is and how it differs from college life.



In terms of learning, the experience was wonderful. The time at PS-2 has helped me in areas, such as understanding corporate life, expert guidance, apprehending new technologies and their developments and building a professional character.

In terms of academics, the training holds a lot of scope on a significant scale. One is expected to learn, work and develop on new technologies applying one's university education, which is, in itself, a mammoth task to achieve.

PS-2 provided a perfect opportunity to learn and acknowledge the differences. It is mainly about deadlines and work, but challenges are interesting too. Work experience is amazing; and it helped me realize my potential in this fast growing industry and moreover, the aspects where I can improve to be a better professional.

Things learned from college is just a foundation stone to develop into a good professional and is just not enough. The industry is way ahead than academics but the basics are still the same and everyday there is a new challenging task to be done. The experience was encouraging and got to know the importance of a teamwork thoroughly.

Books, Internet and expert advice (this was a daily routine and is the efficient way of increasing knowledge). Recommended books/documents by your team are a necessary read. The initial two weeks in the company are all study no play, but that is exactly what sets a tone for the next five months at office. The amount of knowledge acquired from the internet is vast and almost solved every troublesome aspect of the documents/books by the company. While there was limited material related to my project, the basics were still all there.

PS-2 helps one to build their persona, knowledge base and interact with industry experts. The experience at PS-2 has made me aware of the current industry standard and situation and that adds to better chances at scoring/developing into a better professional at a workplace.

The project I am currently working in my PS-II is "Automation of PTS testing on Bluetooth chips" which requires me to automate the testing procedures of P.T.S (profile tuning suite) performed on a Bluetooth chip manually. The project gave me a great scope to learn about overall functioning and internal stack structures of Bluetooth chips. Apart from that my project demands coding in python, so I got myself well versed with the python and also coding. I have to work on various Bluetooth devices with different utilities to test them and understand them thoroughly.

Name of student: K. Sai Madhav (2012AAPS114H)

Discipline: Electronics & Communication



I had been allotted a project on, testing whether the codes (SYMPHONY,SYNERGY) abides by one of the protocols(DFS)set by the Wi-Fi alliance, this entire thing had been tested manually until now, there were some basic automation scripts written for (SYNERGY), I had modified and improved those scripts and checked whether it is functioning as expectedly for all the cases, which could now serve their needs. I had further made major changes in the code to accommodate the flow differences between the Symphony and Synergy.

In my course spanning 5 ½ months, I had learnt some basics of Networking, some protocols of Wi-Fi especially the DFS protocol, apart from the above mentioned learning's, I had also covered all the basics and some advanced concepts in PERL,PYTHON, SHELL SCRIPTING. PERL being the toughest and widely used language gives me an edge over the others. Shell Scripting had helped me in getting familiar with Linux Terminal System administration tasks.

I had learnt to keep into implementation, the concerned knowledge I gained from the college, and studied few more technicalities which are required for our project.

During this period I had learnt about various fields (Protocols) the Industry will be working on, and the concepts and skills their work requires. Had a taste of how office environment and how it's work style will be. I had to work to reach up to the targets set for us by our manager (Working under stress). I got to acquire some new skills, which had given me a strong backing and confidence to enter into the competitive world.

During the PS-II my interest in the field of Networks had further increased, which helped me to narrow down my career prospects to Communications, Networks and Software fields.

Automation of the testing procedure, which I had done as a part of my project, can be used by the company from here onwards, which requires small changes with time, as these scripts are following protocols; much of a change in the script is not expected. This automation significantly decreases the testing procedure duration, which could be very useful to the Testing Team, in which they are keen on.

Name of student: Sagar Shah (2012A7PS051H)

Discipline: Computer Science



In terms of learning, the experience has been nothing short of terrific. The time spent at PS-2 has been a great teacher in various spheres, including but not limited to understanding corporate life, expert guidance, apprehending new technologies and their developments and building a professional character.

In terms of academics, the training holds a lot of scope on a significant scale. One is expected to learn, work and develop on new technologies applying one's university education, which is, in itself, a mammoth task to achieve; so much that PS-1 appears to be a joke when compared to its senior and significant counterpart.

For starters, it has made most of us early risers unlike the lazy slobbs we were at college. Yes, academic experience is necessary, but the industry is a different ball game altogether; and PS-2 provides a perfect opportunity to learn and acknowledge the differences. It all boils down to deadlines and work, but challenges are interesting too. Employee experience is great; and it helps build the initial industry contact base for future prospects.

Things taught in college are just not enough. The industry is working on feats that are a century ahead of what is taught as academics. Sure, the basics are still the same; but constant learning is not a myth- it's the very reality we exist in and PS-2 has just been a reminder of the same.

Books, Internet and professional guidance; or expert advice – as you may call it. Recommended books by your team are a necessary read. The initial two weeks in the company are all study no play, but that is exactly what sets a tone for the next five months at office. (In my case, I gorged on Robin Heydon's "Bluetooth Low Energy"- borrowed it from the company library)

Do not shy away from browsing the internet. The amount of knowledge base on the internet is beyond tremendous and almost every troublesome aspect of books is explained in the simplest of terms. While there was limited material related to my project, the basics were still all there.

Finally, a human touch to all of it is necessary. Helpful mentors make the cut here, and almost all the seemingly unresolved questions find answers with these people. Etiquettes and professional personalities are rarely taught by books and internet.

PS-2 helps one to build their persona, knowledge base and interact with industry experts. The experience at PS-2 - if not affect my future career prospects - has at least made me aware of the current industry standard and situation and that adds to better chances at scoring a workplace.

I have successfully completed one project on template creation of automated generation of tests reducing the workload of testing BLE devices in the company by at least 90%. Also, my other project- Development of automation test framework for BLE devices- is nearing an end and will soon be employed for industry devices.

Company: DreamWorks Animation India, Bangalore

Name of student: Shivasankar Kannan (2012B1A7697H) Discipline: Computer Science



I found DreamWorks Animation India internship as one of the most major turning points in terms of inspiration and knowledge. The first thing that strikes you when you enter such an office is the passion that you see in artists who work there. In an office where majority of the employees are artists, there are very few technical people who support the whole animation pipeline very efficiently.

Even though it's a very niche industry the learning is pretty overall and complete. Right from the some applications that require deep knowledge in graphics, to web design, data modelling, neural networks, virtual reality, computer vision etc.- every kind of application is done here in the studio. The best part about the whole thing is that the system is extremely flexible to accommodate one's interests.

I got the opportunity to develop and support the animation pipeline and since I was exposed to both the development and the pipeline side of it, it was a very good balance. This not only expanded the knowledge I had but also made me work more efficiently. Hence the quest for learning gradually develops to a very good level even without one realising it.

The people at DreamWorks (mentors and colleagues) are a big motivation behind all this. They are there for clearing doubts and teaching whatever and whenever necessary, which helps a lot when you are a fresher in any industry.

This PS experience will most certainly help in having a clearer picture of what to aim for in the future and the mentoring and contacts made through this program are more valuable than anything else.

To sum it up, DreamWorks is the right place for someone who has that thirst for learning new things and having a passion for the VFX/Animation industry.

Company: Exotel Techcom Pvt. Ltd., Bangalore

Name of student: Dharmana Priyatham (2011B3A3401G) Discipline: Electrical & Electronics



Having worked as an intern at Exotel Techcom Pvt. Ltd. for the past 4 months i have been exposed to various popular frameworks and platforms in the software industry. The ones among them that i find the most important are using an open source operating system like ubuntu which gives you the root access and allows you to pretty much to do anything on the OS. The other one being SSH, which is used to access the remote web servers (often called as cloud) to manage the code base and run instances of the software. With the whole industry moving towards a cloud based infrastructure this happens to be one of the technology that cannot be missed out.

These past months have went really well with the company's work culture being very easy to adapt and this helped a lot in easing up with the new work environment. The best thing I have experienced is, there's no micro management at the workplace. We were given work, but we were never told to finish it in only a certain way. We were let to think of solutions that can solve the problem on our own and experiment with it till we got comfortable.

This internship has also helped us to closely see how code is written at the production level as we only experienced it at a developer level. It was amazing to see how the very basic concepts learnt since the beginning have a role at one or the other stage in the development process. Never have i thought they are so closely applicable in real life.

Building a web application from the scratch for development has also made us prioritize the documentation process. We got accustomed to proper code documentation and a few standards that need to be followed to effectively maintain the code in repositories. I also got acquainted with SQL more now and got to work with a few CRMs like Pipe drive and Intercom.

This internship experience certainly adds weight to my experience and resume as well and prepared me to avoid the mistakes that can possibly happen while designing an application's architecture.

Name of student: Shivangi Singh (2011B1A8783P) Discipline: Electronics and Instrumentation



I have been working on a web application at Exotel for the past 4 months. Having worked here as an intern has given me a huge exposure to IT industry. I came across various popular frameworks

currently being used by web developers like Ruby on Rails and Larvae. We worked on Amazon web servers, familiarized ourselves with SSH, which issued to access the remote web servers. We also used different types of APIs to access data from different CRMs like Intercom and pipe drive.

Exotel, being a start up and growing at an exponential rate taught me how to handle different situations. The work environment here is very friendly and flexible. Most importantly, everyone's view is taken seriously and thought upon. We are encouraged to find the solutions in our own way.

Building a web application from the scratch, prepared me to avoid the mistakes that can possibly happen while designing an application's architecture. Object Oriented Programming (OOP) concepts helped me to develop architecture efficiently. I also understood the importance of documentation and standards to be followed to maintain the code repositories. This internship has also helped us to closely see how code is written at the production level as we only experienced it at a developer level.

This experience has enormously helped me with my practical knowledge and towards the implementation of different concepts that I learnt. It will play an important role in making my professional life more productive in future.

Company: Fiorano Software Technologies Pvt. Ltd., Bangalore

Name of student: Mohit Sudhakar (2012A7PS676G) Discipline: Computer Science



I learnt a lot during my PS at Fiorano Software Technologies Ltd. Some of the technologies used by the company were JMS (Java Message Service), J2EE, and other Java server technologies. Apart from these areas, my manager also encouraged me to learn about various advanced web development technologies (both front-end and back-end) such as, JavaScript, jQuery, AJAX, AngularJS basics and Node.js. Learning these various technologies is going to be significant since startups nowadays work on the latest technologies such as Node.js and AngularJS. The last 5.5 months in the industry have helped me transition from academic and theoretical learning to the practical implementation of various concepts learnt in BITS. Often the concept may be simple but the practical implementation may give rise to many unforeseen problems and issues, which must be quickly addressed. Before PS, I only knew C++ and Java, whereas the PS experience helped me gain knowledge about a wide variety of web-based technologies and how to use them in order to create a scalable web application. I also learnt how to write and deploy a stand-alone web server (written using Node.js) in Heroku and Open shift, since traditional web hosting sites do not generally support Node.js. I believe learning new technologies is beneficial for a person's career, since he can then keep track of the various developments in the field of computers to build better applications. In fact, even some of my seniors working in the company pointed out that web development is a useful skill to add to one's skill set since there's a lot of demand in that area. Following this advice, I created 2 web-based apps, apart from the company-related software automation project. The first app acts as a foreign country moving helper app, made to help people moving to foreign countries to better understand their environment.

It was created using AJAX, equerry along with 5 external APIs (hosted at <http://livenomad.in>). The second one is a web chat app using Node.js and Socket.io with public and private chat functionality, hosted at <http://onenodechat.herokuapp.com>. Learning new technology side-by-side along with the company project is very important in the transition from academics to industry.

Company: Flipkart Internet Services Pvt. Ltd, Bangalore

Name of student: Tripathi Kartik Sanjay (2012A3PS164P) Discipline: Electrical & Electronics



My name is Tripathi Kartik Sanjay, ID No. 2012A3PS164P and I did my PS II from Flipkart Internet Pvt. Ltd. Bangalore. I come from a non-CS background and I opted this PS Station Purely from my interest in competitive coding I did in college. I was assigned to a team that mostly had work in android programming. I had basic knowledge of OOP and DSA but the work here required more advanced knowledge in the field so I had to work hard towards studying the Android basics which also covered the OOP basics for me. Apart from our major project which was on Flipkart's delivery app's front end, we worked on multiple small projects and each one of them was a new challenge and required us to learn completely new things. Our work also involved us making multiple scripts for which we had to learn Python as well. Although Flipkart has grown so much as an e-commerce company but the startup culture still prevails here. You can have flexible working hours but the most important thing here is that you complete your work under the stated deadlines. So I learnt to complete my work assigned to me under strict deadlines. I also learnt how to work with a huge team because while you are working towards a feature in the app, someone else is also working towards something else in the same app so we had to co-ordinate with a lot of people so that multiple people don't affect each other's changes. Here I got to meet a lot of smart people and they helped me learn more about this industry as well as help me with my projects. Overall this PS was a great learning opportunity for me where I learnt the industry standards for working and otherwise.

Name of student: Trishu Dey (2011B1A7689G)

Discipline: Computer Science



PS-II provided me an opportunity to put my theoretical knowledge into practice. It gave an industrial exposure and an experience of the real world scenario suitable for my technical background. After having spent a duration of five and a half months at my PS - II station, Flipkart Internet Pvt. Ltd. , I can positively say that I have gained a lot of confidence and expertise to face the challenges in the industrial world.

At Flipkart, my project was based on Android App Development and implementing some UI components from time to time. As UI/Android developments are not a part of any course structure, getting a project in this domain gave me a good opportunity to expand my knowledge base. Technologies like angular.js, d3.js, android etc. are rapid growing technologies and are in much demand in the IT market. Having gained a firsthand experience in these has increased my working domain. In the current times, where Smartphone's have become an essential part of everyday routine, learning to build android apps shall be very useful in future.

These technologies learnt as a part of this project will definitely help me in my future prospects.

Apart from the project PS-II also gives us industrial exposure. I learnt how coding standards are in an industrial environment. Modulation of the code is of utmost importance. This is because a major concern of the institutions is scalability of the code. The code should remain usable even after a particular person is off the project. It should be understandable to everyone. Thus, variable names, packages, documentation etc. need to follow certain rules as specified by the company.

In an industrial environment, professional conduct is also of a lot of importance. PS-II gave me an exposure to this area as well. Addressing your colleagues and documenting all conversations via emails is very important in a work environment.

It is my first experience in a industrial environment and this programme has helped me to smoothly build my way from an all academic environment to an industrial environment. Five and a half months is ample time for this transition. PS - II expanded my knowledge domain and built up my confidence to lead myself in this competitive industry.

Name of student: Tushar Poonia (2012B4PS981P)

Discipline: Mathematics



It was really an amazing opportunity to get internship at the e-commerce giant of India. I belong to Mathematical background with a keen interest in programming. Not being a pure Computer Science student never came in my way to perform tasks and learn new things here. I was assigned to a team which has most of it's work done in Android. Since I pursued Object Oriented Programming at campus, learning Android became easy because of it. Besides android, I was also required to write some scripts to fetch different data. For this purpose, I learnt Python and was able to get the desired output. It was great to implement academic knowledge to fulfil the objectives I was supposed to do.

Flipkart is a well established company now but the startup culture still prevails here. The working hours are very flexible. The most important thing here is that you complete your work under the stated deadlines which made me learn to complete tasks assigned to me under strict deadlines. I also learned how to work with a huge team because while you are working towards a feature in the app, someone else is also working towards something else in the same app so we had to co-ordinate with a lot of people so that multiple people don't affect each other's changes. Here I got to meet a lot of smart people and they helped me learn more about this industry as well as help me with my projects.

It was my first exposure to IT culture and this programme helped me in every possible way to make transition from an all academic environment to an industrial environment. Five and a half months is optimum time to get acquainted with these changes. PS - 2 broadened my knowledge and boosted a lot of confidence in me.

Company: Garg Webtech Pvt.Ltd, Bangalore

Name of student: Akash Achanta (2012A8PS251H)

Discipline: Electronics and
Instrumentation



Embedded systems were the major field in which I did my project. In my first project I worked on designing FOTA update for MSP430BT5190 a micro-controller which comes in the category of medium level embedded systems. It is very advanced technology considering the storage space of this micro-controller and due to limited RAM space many cautions were taken in developing FOTA.

Coming to the experience which I got through is PS program is huge. It is a startup company so all the staff used to work for long hours. I got to learn working in teams. Support from mentor helped me a lot in implementing the design. It's completely different from what we learn in academics and what we implement. Practical problems are more than what are generally expected theory wise.

I have learnt managing my life in various circumstances in outside world. Language problems, money management etc.

For the first time when I came here I had no knowledge about embedded systems, the logics used and few other concepts regarding interrupts, but I was able to learn the required theories fast and implement them. My last project about app development using Cordova helped me learn about html and CSS.

I got a clarity about what is my field of interest and which areas I am good or bad. I can focus more on my career now which I wish to pursue in the field of embedded systems.

Implementation of FOTA for the micro-controller seemed like a major achievement for me. I sincerely thank my mentor for his support which helped me a lot.

Name of student: Y S P Anirudh (2012A8PS414H)

Discipline: Electronics and
Instrumentation



I learned about embedded systems and how to communicate with different IC's and about different software's. My first project is related to c language and interacting with a microcontroller, we need to update the code inside the firmware via Bluetooth and this is very interesting and easy as it doesn't require any wires.

My second project is about the Schematics of IC. My projects helped me to understand the subjects in a different perspective. The subjects we studied in the class are a bit boring and I learned here are interesting, they are same but with more depth and more subjects combined and made the work here interesting. Without the academic subjects I wouldn't have done the work with ease, It just that they can introduce new courses about these topic for the interested students as Discipline electives or Open elective.

There was no Industrial experience as the company I worked was a small startup.

I studied about the things that I didn't understand and with the help of my mentor I have broaden my knowledge

It helped me understand the core subjects and look at them in a new way. It also helped on understanding the work we need to do in a company.

The first project about updating the Firmware, it worked and I was a part of this project with little contribution from my side.

Company: Global Logic, Bangalore

Name of student: Sai Priya (2012A8PS363H)

Discipline: Electronics and
Instrumentation



Over the last 5.5 months I've had the privilege of interning with Global Logic, Bangalore. The working environment and the employee-intern relationship were commendable and are definitely things to be mentioned explicitly. My time there completely transformed my theory backed mind in to a more practical one.

Speaking about my work there, I got a chance to develop an IoT platform that lets connected

devices easily and securely interact with cloud applications and other devices. The platform makes it easier to ingest incoming data from devices using standard gateways and protocols like MQTT and HTTPS. I essentially worked on developing a device network using standard protocols, which is responsible for the entry of data through the help of sensors.

The internship was a good learning experience. The theoretical knowledge I have, has been put into practice. But more importantly, the understanding of working as a team, being committed to your work was the most important take away from the experience.

I must say those 5.5 months really helped me look beyond the academics, made me more result oriented and taught me how to get things done in a short period of time. The PS experience will definitely augment my future career prospects because now I know the skill set required by those companies and I will be able to develop them. Getting to learn about the company culture and etiquette is yet another bright side of my time there.

Company: Here Maps - A Nokia Company, Mumbai

Name of student: Srimukh Sripada (2012C6PS477G)

Discipline: Information Systems



Through the Practice School-II programme, I got to not only apply the skills that I've acquired over the past few years on campus, but also got my hands on new technologies that are relevant in the industry today.

I feel fortunate to have gotten an opportunity to work in the field that I love - User Experience and Frontend Web Development. It enabled me to gain experience in building efficient UX components for web apps. I was constantly in talks with the UX/UI designers during the whole process. I learnt how the client requirements are carefully understood and design specifications are drafted. My job was to implement the components based on those design specifications.

I got to not only hone my technical skills, but also gain an insight into the working of an organization. Like, I had a chance to actively involve in the Agile process of software development - taught as a part of our Software Engineering course.

Also, I believe the 5 month term is appropriately long for one to develop that professional edge that is needed for one to confidently tackle real world problems.

And working with my mentor, and the team, was surely a delight. The environment was very conducive to new ideas and a lot of learning.

Company: Housing.com (Locon Solutions Private Limited), Mumbai

Name of student: Sakshi Udeshi (2012C6PS628G)

Discipline: Information Systems



People have argued that, as an intern, I have seen more in five and a half months than a regular person might see in more than 10 years in his career. If I sit back and count the things, then maybe three CEO's, countless start-up struggles, watching the friends I made get laid off, the innovation, the parties, and last, but, by no means the least, the people is maybe too much for five or so months. But it's all a part of this world. This dynamic, fast paced, and in my opinion, amazing world.

We hit the ground running in our first week at here. We were assigned projects and were expected to familiarize ourselves with the stack fairly quickly. There was no moment where we were considered less capable because we were interns. That gave us an immense boost and push to code and contribute. In my first two weeks I contributed 900 lines of code and was already intimately familiar with some parts of the repository.

The most impactful thing I've learnt as an intern is the approach to solving problems. There has to be an attitude of immense relentlessness amongst interns. Most students who are trying to contribute code to many open source projects usually get dejected, because of a roadblock in their first few days. One must remember that many people have faced the same road blocks, and Googling and seeking help is completely accepted, and in fact, encouraged.

The industrial internship is one of the finest places to see the "hacks" that people implement in crunch times. It's great to realize what actually matters and what doesn't. You come to realize that memory complexity isn't as important as it is in college. Time is important. One of the other major things one learns is how to install things and setting up an environment. That is usually the first roadblock when people start to code. And more often than not, it's pretty easy to go wrong. One needs to be persistent.

All said and done, my time at Housing was a wonderful experience. I made a lot of friends and I learnt cool, new tech that I might not have learnt at other places. I would recommend anyone who is interested in a career in the industry to carefully consider their options, learn about the companies that seem interesting, talk to people, apply and, get the internship.

Name of student: Tushar Gupta (2012A7PS664G)

Discipline: Computer Science



My decision of preferring my PS-II at Housing.com was a pretty easy one. Housing was at its peak in the months of May 2015 being valued at Rs 1,500 crore. The work culture received great reviews and the person in charge of this ship was Rahul Yadav, undoubtedly the most (in)famous startup founders during the time. Not only this, the job profile needed an Android Developer, something which really interested me a lot.

The build-up to the internship was pretty intense. Lot many things at a time. Staying in the “City of Dreams” for the first time, kind of work expected, kind of people in the station and PS mates. Adding to this was to get a PPO in the station.(Who wouldn't want their first job in such an enormously growing startup). I was looking forward on working with Housing, the next big step in my life.

The past 6 months have been awesome to say the least. The initial week was basically getting to know about the company, how its divided into clusters, the work culture etc. The best part was getting to choose your own team. I wanted to work with the Android team and I was assigned the Solutions' cluster Android head, Ravikiran Sahajan as my mentor. A lot depends on how the mentor assigned to you is. Ravikiran saw us, me and the freshers that had joined along with us, as an investment. He was a constant help throughout the internship program. I was given the app's source code and I along with the other freshers, Vinil and Rohit, in the Android team began understanding it, package by package. Ravi was always there to help us understand code we did not understand. Just by reading code one gets to learn so much. Various code practices used in organizations, smarter ways of doing the obvious steps, managing space and time complexity.

The first code snippet written by me was pushed into Housing's main Android app somewhere in August. It is a special feeling when your code goes into production and such a platform is given by both PS-II and Housing.com policies.

I learned a lot during my stay here. Most of us have a clear field that we would want to follow by the end of PS-II. I too was able to get a clear path of what I wanted to do. Having coded basically in Android, I got to learn a lot about Java and how to efficiently write it in Android.

PS-II is a great experience before our placements. I got a lot of exposure about different potential fields which I could work in future and this was only possible because of PS-II. I got to know how actually one works in a professional environment and yet having much fun as interns.

Name of student: Utsav Tiwary (2011B4A7651P)

Discipline: Computer Science



I did my Practice School (II) at Housing.com in the first semester of session 2015-16. Housing.com, founded in 2012, has been working actively to solve India's real estate problems of buying, renting and selling properties by making the entire process seamless and completely online. With humongous amounts of data being generated through their online platform each day, it becomes imperative to mine the data for knowledge discovery and leverage it to improve the overall user experience and generate profit for the company.

Housing's backend is a polyglot system with numerous microservices written in Django, Rails, Flask etc. Data storage is done using MongoDB, Postgresql, Elasticsearch, Redis and Memcache for caching. These are technologies which a person just hears about in college. The main takeaway was to actually work on these technologies in real life. Identifying points of failure, optimizations to achieve speed-up in data access, using version control to make changes to a large repository, adopting best practices for software development in general were some of the key learnings.

Learning about the workflow - conceptualizing and planning a product, writing clean, modular code with documentation, pushing it to production post peer-review and monitoring the performance to identify issues that could possibly arise - will definitely help in transitioning from academia to industry.

Company: [24]7 iLabs, Bangalore

Name of student: Jahnvi Paliwal (2012C6PS628G)

Discipline: Information Systems



[24]7 Innovation Labs, Bangalore is focused on providing software product solutions to its clients in the customer service area. The offers projects in product engineering, data sciences and service delivery. Pursuing my PS2 at [24]7 ILabs, Bangalore was a major learning experience and it greatly enhanced my technical as well as interpersonal skills.

The span of five and a half months was completely devoted to the organization, facing workplace challenges every day and getting a hands-on experience of the corporate world. With an employee friendly work culture, it was quite easy to approach anyone and ask for help. It was a completely different experience altogether getting to know about the working of an organization, arrangement of departments and division of power within the organization.

Industry exposure made me explore various career paths and acquainted me with my interests. PS2 was an opportunity to practically apply all the things learnt in class. The transition from academics to industry was the most difficult challenge. Working on an existing real product is quite different from the projects completed as a part of academic curriculum. I learnt to adapt to sudden market shifts and technology changes and also learnt how industry responds to such sudden transformations professionally.

Internship improved my technical, soft, observation and leadership skills and boosted my confidence levels. The active interaction with the company employees not only from my team but also from other departments helped me learn more about other project fields and about the various cycles of development and delivery of a software product. Regular team outings enhanced team bonding and informal lunch discussions with colleagues about recent discoveries in the technical field broadened my knowledge base.

I received all the guidance required for the culmination of the project from my manager and mentor. The continuous assistance, appreciation and encouragement received on completion of major tasks kept my spirits high. Regular meetings with mentor and daily standup meetings with the team kept me in sync with the tasks assigned to other team members.

The PS2 experience will definitely help me in my future career prospects. Learning about my strengths and weaknesses and getting feedback from the mentor has helped me improve my skills and also develop new ones. This was an opportunity to learn from everyone around, actively discuss and establish a network with professionals. Along with establishing an industry professional network, I also made some very good friends during my PS2. The PS2 experience has definitely made me ready to face the corporate world and helped me grow professionally.

Company: Lexinnova, Gurgaon

Name of student: Aman Singh (2011B1A8682G)

Discipline: Electronics and
Instrumentation



My PS-II internship at LexInnova, Gurgaon was a very enlightening and unique experience, as I was introduced to intellectual property and patent litigation that we, as undergraduate engineers, are not too well versed with. It is an extremely specific domain that combines technical knowledge of engineering concepts, patent law and consulting. One understands the importance of patents in the constantly evolving technological landscape.

The 5 and a half-month experience acts as a bridge between our academic learning in the past 6 years and meeting the expectations and deadlines of clients in the industry, including top Fortune 500 firms. My knowledge of electronics courses, along with my basic computer programming knowledge and analytical skills was put to the test, and I was often revisiting concepts taught in courses such as Analog & Digital VLSI Design and Transducers & Measurement Systems from my third year, along with electives such as Satellite Communication. However, it was even more important to have an idea of existing and upcoming technologies in different fields of technology, which was something I constantly read up online on blogs and in magazines.

The company did not strictly enforce long working hours on the interns; rather, it left it to us to get involved in the projects we felt passionate about. Time management and the search and analysis methodologies were vital for submitting the deliverables on time. One must also pay attention-to-detail and be thorough. Presentation of the reports and the marketing material also play a key role – data must be categorized neatly, and laid out in a manner that is lucid.

The work involves query-based searching in databases, similar to SQL, along with a proficiency in Excel formulae and other Microsoft Office tools. The patent portfolio analysis allotted to me was primarily related to memory, chip architecture, networking, cloud storage and radio frequency integrated circuits, and my research on their applicability to the latest technologies enhanced my knowledge of the modern electronics and telecommunication industry.

Our landscape reports and schematics, which highlight the strength and relevancy of patent portfolios of companies for divestment and review, not only drive mergers and acquisitions, but are also utilized by famous publications such as the Wall Street Journal and Forbes. Invalidity and validity analysis assignments prove to be vital for companies launching products in a country for the first time to avoid

future litigation pertaining to infringement. All these analyses are therefore crucial in important business decisions.

The analyses also involved consulting fellow Intellectual Property team members from BITS Pilani and IIT campuses, and experienced, well-qualified experts from universities such as Cornell and Stanford. Knowledge-sharing sessions and Six Sigma workshops are held regularly, and the company requires you to gain proficiency in soft skills as well.

The internship gave me a solid foundation in litigation consulting, and helped further my career in the world of business consulting and analytics. Good feedback from the reporting managers at my PS-II station also ensures future employers that I am a sincere, well-skilled employee who puts dedication and commitment in his project.

My superiors recognized my contribution to the projects and gave me an award for the same, and I was also listed as a co-contributor in some of the reports made by LexInnova. I also obtained Six Sigma certification from the firm.

Company: MSCI Barra, Quantitative Equity Research, Mumbai

Name of student: Siddharth Devarakonda (2011B3AA381H)

Discipline: Electronics &

Communication



MSCI is a firm that is an independent provider of research-driven insights and tools for institutional investors. With increasing emphasis on quantitative measures to indicate even qualitative events, rule based index investing is becoming the next big thing in the financial markets and MSCI has been a leading player, providing indexes for benchmarking as well as investment by clients. They boast of over 7,000 clients include pension funds, sovereign wealth funds, mutual fund companies, hedge funds, wealth management firms, banks and insurance companies. Specifically, the MSCI Global Equity Indexes are widely tracked global equity benchmarks and serve as the basis for over 500 exchanged traded funds throughout the world.

Specifically in Quantitative Equity Research, interns work in three major divisions which expose them to different aspects of the industry. These are New Product Development, Index Management Research and Factor Research.

In the New Product Development team interns are involved in developing indexes by applying suitable methodologies in their construction. The main aim is to test various new ideas to create viable indexes for customers. Interns were involved in developing indexes like based on various quantitative measures. The key takeaway here is interns get to work on new and sought after investment methodologies.

Index Management Research focuses on maintaining various indexes which are in use by clients. The work here entails responding to queries on the various indexes provided by the firm as well as creating new customized indexes based on requests by clients based on specific sets of quantitative measures.

Also, tools and methods to efficiently manage indexes are developed here. As an intern, a student is involved in providing support for the specialized team developing modules in MATLAB and JSON while extensively working with database management tools like SQL.

The Factor Research team provides a consistent, scalable, analytical framework to help investors answer the performance, exposure and investability questions the results of which are incorporated into index factor selection and combination. Under this project interns had to develop a software platform that auto-generates factor research reports at the click of a button. This was accomplished with extensive use of JSON and MATLAB programming on the Equity Research Platform. The projects also involved analyzing the Risk Return metrics of Multi Asset Class Indexes developed by MSCI and comparing the statistics with those developed by S&P.

Interning at MSCI, QER has been a distinctive learning experience. The teams in which one gets to work are small and close knit groups of highly talented individuals. Each one of them brings to the table a specific expertise which is unique to them. Thus, for an intern this is an excellent opportunity to learn about the working of the financial industry from the employees. Also, the firm has an excellent work culture as the people are very welcoming, treating the interns as a part of the team like any other employee rather than as outsiders. All in all, MSCI makes a great work place and is a very good place to learn for people who aspire to create their future in the financial industry.

(Article by Siddharth Devarakonda with material sourced from Suhani Jain, Shabda Singh and Rishabh Sinha)

Company: Opera Solutions, Noida

Name of student: Aditya Mangle (2012A7PS209P)

Discipline: Computer Science



Practice School is the perfect opportunity to enable a smooth transition from academy to industry. My experience has been a great learning experience. Opera Solutions is a cutting edge technology firm dealing with Data Analytics and Machine Learning Applications to diverse business domains like healthcare, spend intelligence, banking, aviation etc. The company represents the confluence of technology and services in an intensely competitive yet healthy and nurturing environment. The experience became particularly rich because of a flat hierarchical structure, enjoyable work environment, supportive management and motivational peers. Even though the company is well established in the niche area of big data analytics and has a wide global imprint with a talented pool of employees, it continues to have a start up like culture encouraging independent entrepreneurial thought without compromising on accountability. The particular project on which I was staffed, involved backend development work, caching technology, database operations, proof of concepts for new solutions and client interactions. I worked intensively with technologies like Python, R, MySQL, Redis, Spring MVC, MongoDB etc. This experience has indeed helped me in developing an in depth understanding of the corporate world and one cannot ask for a better start to one's career. Gratitude to BITS Pilani and Opera Solutions for providing such wonderful mentors and giving me this opportunity.

Name of student: Darshika Khandelwal (2012C6PS574P)

Discipline: Information Systems



The experience in Opera Solutions is one that has proved to be more practical than anything else taught academically. It has been brilliantly enlightening in the sense that any student who wishes to experience the real application of his/her learning during his/her career can do that on the Practice School 2. It can be specially helpful to those who wish to decide on a career path by getting actual experience.

During my internship period at Opera, I learnt a whole lot of stuff including major technologies, communication skills and management skills. The technologies include R, SAS, Spring Framework, Flex, major modelling techniques etc. , which are not usually taught in the academic syllabus.

There is a difference in writing simple code and creating useful client based services by coding and this one difference was the highlight of my stay at Opera. I got to interact with the client, work according to his needs, handle real time issues that the client faces, manage the work by interacting with the team members, peer program, brainstorm on which technology to use to result in optimum efficiency, integrate the pieces of code to form something tangible and so on.

All this clearly had a lot for me to take back. It has been a unique experience and clearly a brilliant initiative by BITS. It helped me broaden my knowledge base in terms of both technologies and learning to apply at a personal level.

I believe my major achievement in Opera Solutions was to reduce the time taken for a client critical process to run by 25%. It had an impact on the client as well as my manager. I managed to learn a completely new technology(R), understand a complex piece of code written in it and make sense out of it and later optimize it to be the completely efficient.

Company: Oracle India Pvt .Ltd., Bangalore

Name of student: Dilip Ramesh (2012A7PS045G)

Discipline: Computer Science



My intention of choosing PS2 in my seventh semester was to get a first hand experience of the industry and of working in an MNC to figure out if this is what I want to do in the future. Oracle has helped me come closer to figuring this out. There were a lot of differences from life in college to life here at Oracle and it took me a while to get adjusted. I wouldn't say that one is better than the other, but both have

their merits and demerits. To start with, at PS2 there is almost always an objective that we are working towards – maybe a simple bug that needs to be fixed in a hour or a big enhancement that has to be released in the next two months. There is always someone – in my case, my manager, who is taking a keen interest in what we are doing and how we are progressing.

The first few weeks were filled with anxiety as everyone was new. Since my team is filled with experienced people and very few freshers, every conversation was a learning in itself. There is a lot of emphasis laid out on grooming newcomers. Even the higher line managers spend a decent amount of time talking to interns and learning about our experiences with the view of making it better for us and the company. The career advice that I have received from my mentors and manager have given me valuable insights into what my strengths are and what I should be focusing on. There are some things that can be incorporated in our academic courses - especially the disciplinary electives - as projects which require students to use the toolkits that are employed in the industry. It will be interesting to have an academic project that goes through the cycles followed in the industry - design, development, testing, documentation, deployment.

The technologies that I worked on here were new to me and something that I hadn't come across in any of the courses at college. It was in the domain of data mining and had some aspects of cloud as well. Since these toolkits were open source, I also had a chance to look at the source code and interact with the user and developer community. Other learnings involved exposure to continuous integration toolkits and automation using shell scripting. It felt great to get a project in the field of data analytics as this is my area of interest. Though I had worked on a few projects in this field before, this project introduced me to a new sub-domain and I feel I have gained enough experience to explore further on my own.

All in all, PS2 was an enriching experience. I have a lot of learning to show for it and I'm sure that it'll play a major role in my career and future.

Company: Rovi Corporation, Bangalore

Name of student: Avinash Singh (2012C6PS480G)

Discipline: Information Systems



My experience at my PS-II Station Rovi Corporation, Bangalore, involved complete and overall industrial exposure to the corporate IT lifestyle. There were no office timings, and the choice of my office timings was left up to me. In the long run, this instilled a sense of responsibility in me, since I was responsible for my working hours and completing the tasks given to me in the span of those hours. Additionally, all the projects I had done in college had never been tested in a practical environment, by actual users. I learnt here how different the practical applications are compared to the academic work done earlier.

I was a part of two teams for the last 2-3 months. This taught me how to multi-task and simultaneously focus on all tasks assigned to me. Although recruited as interns, we were treated as full time employees, and hence were required to showcase similar professionalism from our end. Another

major difference in developing any code/software is debugging. All the work that I did was thoroughly tested, and kept in check by regular meetings where we were to share the updates on the work that we were doing. As such, any errors/bugs that were reported in testing had to be corrected by me again and again until the code was flawless.

The work that I completed at Rovi belonged to the Web Development & Design domain. I had a brief understanding of the domain, but there was a tremendous amount of learning involved at Rovi, that I had to undergo before I could start actual work. The learning curve was pretty steep, and we learned how to adapt to that. The basic technologies that I had to learn were Backbone.js and Django. With a pre-existing knowledge of MySQL, I was then given full-stack web development work in one of the software's (DOM) used at Rovi. Working in the second team, also taught me a few other technical aspects in Web Development, like running parallel backend servers, to handle miniature script executions along-side the major application. I also spent a lot of time understanding Cross Domain Resource Sharing (CORS) Errors and techniques to somehow overcome that, as it was essential in the work that I was supposed to complete.

Overall, besides the technical aspect, the experience at PS-II helped me attain an overall growth in all aspects of my personality.

Name of student: Sharvani R (2011B4A7560G)

Discipline: Computer Science



Working in a corporate organization can be intimidating, but the PS – II experience is far from it. The fact that we can work and be treated as employees in a corporate organization, but at the same time learn at our own pace, speaks volumes about the benefits of the PS-II program. When I first started working at my PS-II station, the transition from an academic to a workplace environment seemed daunting. There were a lot of things to take in and a lot more to learn. This program helped me bridge the gap between theory and practice.

With just the right amount of help from my mentor, manager and colleagues, I gained a lot of exposure to the kind of tools used in workplaces, from Version Control Systems to all the technologies I've used this semester. Working in a team taught me the importance of collaboration in workplaces, and also helped me conform to the high standards of work expected. Brainstorming with people from diverse backgrounds (educationally) was an experience in itself – one I strongly believe taught me to consider all possibilities before embarking on a new task assigned to me.

I was a python novice before this semester, but I can say with conviction that I've gained enough experience writing code in python to be able to confidently write a few lines of code without consulting Google or Stack Overflow. The leap from the constraints imposed by Java (my language of choice and proficiency) to the freedom provided by python scared me to death initially, but after 2-3 mini projects written completely in python, I don't feel the same way anymore.

I learnt how to create ontologies for natural language query answering, write Flask applications to provide services, make my code readable, document it and many other things. The second half of my

semester involved feature selection, which I have theoretically explored on campus, but had an opportunity to work on it hands-on, and most importantly, required me to use my put my knowledge of both my disciplines in practice.

This program has definitely enhanced my knowledge base, and improved my future career prospects.

Name of student: B. Varsha Rao (2012C6PS317G)

Discipline: Information Systems



Interning in Rovi Corporation, Bangalore as a part of Practice School -2 was an amazing experience. Having learnt the basic courses of Computer Science in college, this experience provided a platform to practically implement our knowledge. My major learning experience was in the field of Web Development. This was one area that I had hugely neglected back in college as I thought it was very trivial and not really necessary for my growth. But after coming here I realized how heavily dependent industries are on this skill and that it is no child's play. It requires a lot creativity, design aptitude and knowledge in the field of JavaScript and the large number of supporting frameworks available today. I realized academic learning is of no use if practical application was not involved, and this is what I learnt to do here, in the 5 ½ half months I spent in Rovi Corporation.

My learning began with brushing up of complete basics of Web Development that is, HTML, CSS and JavaScript. Since the product I was working on used backbone.js at the front-end, I began learning backbone mostly through the code used by Rovi and on-line tutorials. This process took about a week after which I began coding by taking up very small tasks which took quite some time initially till I got used to it. As my proficiency increased I learnt a lot thing like code optimization, and looking for loopholes in the current code. I was able to point put my own mistakes while coding and correct them immediately. This gave me a lot of confidence. After doing a few tasks in the front end I went on to learn django web framework and code in python. This gave me exposure to back-end development. And I learnt to look for new features to implement and optimize existing features. I also learnt to work in a team and be able to estimate my own progress as we had to constantly provide ourselves with practical deadlines. The valuable experience I gained by working has definitely enhanced my knowledge base to great extent and has improved my future career prospects by gaining valuable industrial experience.

Name of student: Vikas Bhatt (2012A7PS039G)

Discipline: Computer Science



My experience at Rovi Corporation was full of learning. I thought the transition from academia to the industry would be scary, but the PS –II program made it an easy one.

My take back from this program is the following:

I learnt a lot of things, from using basic linux commands to version control systems. I got to do a lot of work in C, which definitely enhanced my understanding of the language. I learn to use the GNU Debugger to ensure my code works properly. I also learnt to work in a team and work within the deadlines imposed by the corporate lifestyle.

I mainly worked on increasing the functionality of a custom server. It was too much to handle at first, but with the right amount of help from my manager, and mentor, who let me figure things out, I gradually got comfortable with the system.

This will definitely help me in my future endeavors.

Company: Sabre Holdings (Formerly Sabre Travels, Bangalore)

Name of student: Jyotsana Kochar (2011B1A8695G)

Discipline: Electronics and Instrumentation



My PS-2 program at Sabre Travel Technologies in the GetThere team was one of the best periods in my graduate study that I would cherish for a long time. It is a complete package any student would aspire to have before one starts his/her professional career. Sabre embodies the true global characteristics in a local atmosphere with great excellence. The PS-2 program is well structured, extensible, and intensive with a lot of learning opportunities.

The project that I was a part of was very exciting, providing me an opportunity to learn and apply cutting edge software technologies in various projects. My Manager, my mentor and other team members were very open, friendly and helped me realize my potential. My role in this team as software developer was to develop a mobile app for GetThere using HTML, CSS, JavaScript, Angular JS, Cordova, MySQL, PHP etc. which involved the following: 1) Integrating the existing mobile UI of GetThere in the app 2) Creating an auto-login feature after one login 3) Adding new

features to the app like managing and storing trip specific expenses and contacts for corporate travellers.

This internship at Sabre also emphasized on being a complete professional who has both technical and business acumen. A competition “*Global Hackathon*” was organized for all the employees and interns to showcase and implement their hack ideas and present it in a 3 minute long video. I was overjoyed to work along with my fellow interns and my mentor on a challenging hack idea. This *Global Hackathon* project was the highlight of my internship with great mentoring support, interviewing and sharing ideas with top executives of the travel industry. We secured the 2nd position in Global Hackathon under the ‘Payments’ category which is a proud moment for me and my teammates. I was amazed to experience the close knit culture that Sabre embraces, where an intern like me was able to meet top executives and openly share ideas.

Sabre is a great place to work with amazing work-life balance and is constantly striving to be the number one in travel industry through various initiatives. I also had great time at Team lunch outings and various team building activities. Apart from the technical projects, I was also a part of the organizing committee for Employee Development Day and Sabre India’s 10 year anniversary celebrations which were a huge success. I amaze myself every single day with the amount of ways I see myself maturing and growing into the type of professional woman I’ve always admired.

Lastly, my PS faculty Mrs. Preeti N.G. was very supportive and provided her continuous guidance and encouragement in successful completion of my Practice School at Sabre in a smooth fashion by conducting timely evaluative components like quizzes, group discussions, presentations and report submission which helped me a lot to enhance my technical skills as well as soft skills.

This unique experience at Sabre has been totally rewarding, enriching which is a big stepping stone towards my professional career. Without any doubt I would recommend this to any student who wants to learn, explore and enhance his/her academic skills and more importantly apply those skills in the corporate world.

Name of student: Sugandhita (2011B1A8674G)

Discipline: Electronics and Instrumentation



My Practice School 2 at Sabre Holdings, Bangalore began on 6th July 2015 with my placement in the Host Tools team of the Product and Technology staff group of Sabre. Mainly, a TPF tools development team, they gave us a brief introduction on the work of the team, its significance for the Sabre community and the plan for our internship. One major form of assistance that we got from our team was in terms of training sessions in the first month for the major technologies used by them – Java, MySQL, Flex, Apache Tomcat and JDBC Drivers. Being completely new to the domain of Web Development, this with some small assignments really piqued our interest. Self-study was encouraged by our team-mates and doubts were effectively and promptly clarified for our projects further. I have

learnt a lot of technologies in a few months and built a certain level of proficiency in them. This definitely bolsters my technical skills which were at a very basic level as I was academically an Electronics student.

My project work was to solve the performance issues of a web application used by the QA teams at Sabre and add further useful features to enhance its functionality. I had to learn 7-8 technologies for this web development task. I had to also understand various other tools used by the QA teams which are used as sources of data for this web application. My peers got work ranging from building Android apps to Junit testing, so there was a plethora of work to choose from and learn.

Our office has a great work culture and organized a lot of events this past semester of which we got to be an important part. Ranging from fun events like the Sabre Annual Day to innovation-focused events like the Global Hackathon, we got exposure to a lot of activities here and learnt immensely from them. Our mentor, Mrs. Preeti NG, was supportive of all our activities and motivated us for participation in addition to making sure that our project work would never suffer. She also helped us in developing soft skills by giving us some team-building and organizing work in addition to smoothly conducting all evaluation components. I have had a great experience which has built my confidence in terms of solving real-world problems through technology and interaction with my peers and superiors. PS-2 is honestly the time at which you can control your own learning curve and assimilate as much knowledge and industrial culture as possible for your self-development and easy transition to the industrial world as a responsible employee

Name of student: Sunandan Gokhroo (2012A3PS688G)

Discipline: Electrical & Electronics



Everything we do in life is affected by our past experiences. The results of the past shape the decisions of the future. But there are some things which require spontaneity or rather it's the only option. It's good, it's exciting but it can't always ensure success. Sitting for campus placements or getting out of the college and searching for jobs often ends up being sudden and unplanned for most of us. Keeping that in mind, BITS has designed the Practice School Program.

Practice schools allow students to have a trial run at industry life while still being a part of the college. This is something exclusively offered to its students by BITS Pilani. Not only do these Practice Schools offer a rare opportunity to experience industry life before actually being a part of it, but also to learn newer and exciting technologies while working in the industry. They offer work experience to shape future career decisions.

Personally this has helped me further my skills to a newer level. I have had many opportunities to learn and work with technologies, which I haven't used before. This has been tremendously helpful, as I come from a non IT background but with a love for IT. Being a part of SABRE, India under the guidance of Mrs. Preeti NG has been one rare opportunity where not only have I developed my

technical skills, but also my non-tech skills, which I learned from my industry experience, are equally important.

This experience has allowed me to broaden my career prospects as well. I believe the skills developed here will definitely allow me to think far and beyond the conventional job opportunities. Other than the expansion of knowledge PS offers something very important and unique, which I believe is of importance above all, Soft Skills.

Today industry needs people who are not just good at their work, but also have excellent Communication Skills, Team Work, Adaptability as well as Conflict Resolution. These skills can't be found in any books, these can only be learned through practical experiences. Being part of a team, solving problems together, managing things under pressure and then presenting the results in front of all the leaders with high expectations from you is something that college life can't offer. The Practice school program solves this problem very efficiently.

It's also very important to understand that PS is not some sort of isolated experience, where you are cut off from your college. On the contrary it's a rare amalgamation of both which is very diligently ensured by the PS instructors. It is ensured that the learning at the industry is relevant as well as beneficial to the student.

PS can be effectively summarized as a crash course to industry life, where you not only learn technical skills but more importantly life-skills. You develop a new viewpoint like never before, a viewpoint honed by practical experiences. These experiences are crucial to shaping one's ideology and hence a personality, that is ready to be a part of something more, something bigger.

Company: SAP Labs, Bangalore

Name of student: Akhil Gudavalli (2012A7PS028H)

Discipline: Computer Science



This Internship is my first experience at an IT company. I gained a lot of confidence and it also helped me understand the working style of the corporate based companies. Initially I had some problems adjusting to the team but later with their constant support I have been able to successfully complete my tasks.

My work at SAP is developing an internal SAP portal to automate the One-Time IP Scan Requests. The Platform for development is Grails Groovy. HTML, CSS, Java Script and Angular JS are used for frontend. Technically I have been much more comfortable effectively completing the given tasks.

My team is an inter-continental team including the teams at Germany, China, Canada and India. I have been exposed to tackle the situation of being able to handle the pressure and the absence of team members in the team in India. This gave me a great insight into making decisions by myself and increase my soft skills presenting on the platforms like skype for business.

This Internship helped me decide to pursue masters before in hands experience of work. As for me I am not able to study while working, Hence I thought of completing my master's and then start to work.

Name of student: Akshita Tyagi (2012A7PS119G)

Discipline: Computer Science



My PS-II project was on SharePoint App-Part model - Research and Development. It was a very good learning experience for me. The fact that I could contribute to an industry level product instilled a great sense of confidence in me. New technologies which I have learnt during the course of internship include Restful Web Services, JSON format of communication, JavaScript, HTML, CSS and dot-net application Development. The innovation projects brushed up my java skills which included front end development in html and JSP files and JDBC connection and communication with the backend SQL database. Whereas, in App-model development, Front - end is CSS, HTML and JavaScript coded which makes a call to restful APIs using JQuery ajax commands with json being the data format of communication. Basically, it gave me an overview of web application development to quite an extent. Apart from the development, I had to conduct an extensive research on the previous architecture of our product's integration with SharePoint which helped me in learning c-sharp and debugging dot-net applications. In college academic, we learn each of the components of product development separately, during the internship we get to combine all those concept and try to shape them to the useful component of the product. Now, that we are able to create something substantial it boosts the confidence and prepares us for the upcoming interviews. As, a product enterprise is trying to adopt newer technologies always, I got to learn new technologies and got to implement them as well. These, and a lot more are the learning I am taking away from this internship. I hope my contribution was credible to them as well. The previous SharePoint integration has serious installation issues for the customers and debugging issues for the developers. So there are a lot of customers looking forward new model of SAP Business Objects integration with Sharepoint. With the prototype being successfully implemented they can now launch it in their 2016 version release.

Name of student: Ambar Mehrotra (2012C6PS596G)

Discipline: Information Systems



Practice School 2 has taught me a lot of things including various new technologies as well as how to work on a big project with a lot of people. It also taught me how to communicate effectively the requirements to various other people involved in the project as well as take their help. All this learning

made me familiar with how the work goes on in a large scale industry. I got to know about the various tools and techniques used to make the work more convenient and collaborative development.

My main work included solving customer related issues and writing scripts for automating various things. I worked with technologies like Java, .NET framework, C#, PowerShell and python. My work helped me enhance my coding skills as well as gave me knowledge of various new technologies used frequently in the industry. It also taught me how to effectively log the useful information and error messages. This knowledge will be greatly helpful for me in my future endeavors. I also learnt how to integrate systems running in two different stacks and run them seamlessly.

I learnt about tools like splunk, SVN, Crucible, Confluence, JIRA, etc. These tools are used in almost all the industries for effective and collaborative development. The knowledge of these tools will greatly help me in future projects as well. I also worked on writing a script for integrating these platforms and generating an integrated set of information to avoid the hassle of going to various places for various kinds of information. It also helped in regulating the check-ins that are going in and alerts the right people if some check-in has gone in without any code review. This helped me to get familiar with the subversion, crucible and JIRA APIs. It also helped me get a better understanding of REST APIs and how to work with them. Also, I learnt a lot about writing scripts for automating tasks.

Another major thing that I learnt from my PS-II experience was the importance of the code reviews. Proper code reviews are absolutely necessary before the code is checked in. These reviews should also need to happen from a number of people instead of a single person as it will help bring out the fault in the code for sure. Checking the code for errors is of utmost importance in any kind of software development scenario and it becomes even more important if multiple people are working on the same project and changes made by one person may affect the ones made by others.

Apart from work I also had a lot of fun at my PS-II station and enjoyed my duration here. This experience helped me improve my personality as a whole and helped me learn how to interact with people in a much better way.

Name of student: Anurag Hota (2011B5A7411G)

Discipline: Computer Science



I came across a lot of open source software. I learnt about Apache Camel and how it helps in the flow of exchange from a source to a sink, yet having a very low memory footprint. I then learnt about the OsGi framework, Felix and how it helps in deploying bundles at the runtime. I developed some OsGi based bundles having Camel routes in it. I also learnt how to write Junit Test Cases and wrote the test cases for all the components I made.

It did improve my java skills a lot. SAP has really helped me in tuning my coding skills. Now I know the dos and don'ts of writing production environment code. It has helped me write error free codes with exception handling etc. Moreover continuous seminars have improved my speaking and presentation skills.

The experience has actually helped me in understanding the need of the customers and the requirement of the current industry. Now I know what all takes for a software to be released adhering to all security standards, bug solving, PMD trends, fortify fixes, coverage of the Junit test cases etc.

As I mentioned earlier, I have improved my advanced java skills. I can easily write error free codes with exception handling and security standards etc. Moreover, I have learnt about Apache Camel, OsGi framework Felix, Tyrus (Websocket Library), Maven etc.

I was lucky to have a project on Internet of Things (IoT). This is one of the fields that is on rise in the industry and I am lucky to have developed some components for the IoT Connector. This would definitely give me a lot of scope in the industry.

I developed the deployer component for the IoT Connector 2.0 , which is responsible for lifecycle management of all the components in the framework.

I also developed the monitoring component which monitors the performance of all the components.

I wrote Joint test cases for the same.

Name of student: Rajat Gupta (2012A7PS096G)

Discipline: Computer Science



Working at SAP is always an opportunity to learn the latest technologies. Various backend tools that are being used in various service-oriented companies are built and improvised here. Working in HANA CLOUD PLATFORM (HCP) team adds an edge to your experience. SAP has a really great work culture. Within SAP, one can really enhance his/her knowledge by cross-team working.

My Project is totally different from the work that my allotted team is doing. This project actually aims at growing SAP in new direction. Its objective is to use chatting for triggering various functionalities based chat semantics. An Android App is built based upon few targeted use-cases. Learnings in this project include Android App Development, Web Sockets, Web Services (RESTful services).

Being part of such an employee-friendly organization helps in building personalities. Various qualities that one learns are punctuality, meeting deadlines, presenting idea, and building business model of the work. College to Company life involves an immense change in your behavior. This 5 months internship gives you considerable exposure of industry-life.

Few things that I personally have experienced in last 5 months includes that it might be a bit difficult to ramp up in an organization during initial phase to match their frequency but gradually that difference decreases with one's effort and determination to learn new stuff. The best way to get maximum output is to keep on learning new technologies and try to work on different platforms to remain updated.

In achievements, the Android App that my team is developing is selected for **HCP Demo Jam 2015**. This is one of the 11 projects that would be showcased all over SAP. Team work, organized structure and support from peers sums up to this success.

Name of student: Siddhartha Sahai (2012C6PS672P)

Discipline: Information Systems



The BIP Server team is a highly motivated and productive team to be working with, and by working on these projects with my team members, I have learn a lot about the architecture of the Business Intelligence platform, and the design process in general of major software products. I have learnt about the phases of development of multi-million dollar enterprise solutions, how many stages are there in the product lifecycle, the importance of feedback from customers, and the need for software maintenance after its release. I've learnt of the need for constant testing and integration to ensure high code quality.

I understand the significance of why so many people are needed for building and maintaining software – because software is hard and complex, it is easy to introduce bugs, and non-trivial to collaborate on major features on large codebases. I understood the need for HR and IT and other departments, to help in the smooth functioning of a large number of employees.

By participating in daily Standup Meetings to share our progress, I realized the value of professionalism and teamwork in industry. I definitely saw the discipline needed in industry is different from that in academics – reliability and collaboration is a must. I will take back a strong sense of discipline and direction while working on projects, to constantly evaluate myself on my progress as well as have constant communication with team members so as to build up a positive momentum.

I have gained relevant technical experience in Java and C++, along with a confidence to work on major enterprise products supporting many users. I have learnt the use of tools for collaboration and workflow, along with principles of Business Intelligence platform. SAP Labs is a prestigious organization that is an asset to my resume. A major achievement was successfully showing a Proof-Of-Concept modification to the existing codebase that reduced the upload time of logging files by a factor of ten.

Company: Symantec Software Solutions Pvt. Ltd. , Bangalore

Name of student: Sujata Sharma (2012A7PS004P)

Discipline: Computer Science



Good learning experiences always mould and change us in ways more than one. The internship I pursued at Symantec Software Solutions Pvt. Ltd, Bangalore for a period of approximately 5.5 months, indisputably has worked on similar lines for me.

Working at Symantec, I largely dealt with Network Security and User Verification and Identity Protection. The prime motivation is to keep track of your sensitive data in motion, at rest, or in use give access only to users who need it and encrypt your data in case it falls into the wrong hands. I essentially worked on Verification and Identity Protection's Enterprise Gateway, handling security policies and identity management. It involves working with LDAP Directory Synchronization Service to support load balancing and failover, multi-server User Stores and third-party User Stores, performing Cloud + VIP based validation services (first and second factor authentication).

The internship was a good learning experience as I had the mammoth task of not only familiarizing myself with cloud based security and information security issues, but also work on it, in real time.

But more importantly, the understanding of working as a team, the necessity of working with expectations and deadlines and being committed to your work was the most important take away from the experience.

I can safely say I got a lot to learn in the past 5.5 months. It is in terms of understanding how the industry works, what should be your code of conduct in an organization, the kind of expectations you are to work on and to perform as a team player. It has certainly put me at a better place, where I can easily bridge the "experience gap" between understanding and performance, which otherwise was missing. From the day I started to date, as I calculate, I see that my learning curve has been a steep, increasing one. It is perhaps the best learning experience I've had, where I prepared myself for the industry, bettering each day.

My zest for network security and authentication services has soared. I started from scratch and after all these months of learning and working, I can confidently put it up as one of my interests and skills. I am more disciplined as a person and I am looking forward to similar experiences. The industrial experience provided good expertise and the confidence to go ahead and be a part of such an ecosystem.

Company: Tonbo Imaging Pvt Ltd., Bangalore

Name of student: Deval Shah (2012A3PS259H)

Discipline: Electrical & Electronics



My PS station is Tonbo Imaging. Bangalore. Interning here was the best experience i could ever get. I learnt a lot from this industrial setup. My major learning would be enhancing my coding skills which help in every field these days. Time spent here helped me to understand how industry works and how a growing start up works. Working here constantly was a new challenge for me. Solving different

problems helped me to widen my gaze of knowledge. My communication skills, leadership skills and many more aspects of my personality were affected positively. I thank PS division to provide me such an opportunity.

Name of student: Kshitij Patil (2012A7PS024G)

Discipline: Computer Science



PS 2 experiences was a novel experience in terms of learning perspective. All the misconceptions that we had before PS 2 about working in the industry were cleared and we have a new outlook towards working in an industry.

Major learning took place in the form applications of the projects completed. I learned lots of new concepts related to camera calibration, thermal sensors and processing on thermal videos. This was a novel experience as working on images and videos captured from thermal images is uncommon. During the learning process, I got to code in many languages from C, C++ to matlab and python. The conversations with fellow employees were most fruitful. We got to learn a lot from their experiences in the industry and the knowledge they shared.

The internship experience has definitely cleared all the doubts or misconceptions we had about working in the industry. The daily routine of an employee in any organization is very different from the daily routine at the college. Having expected the change that the experience would bring the transition was very smooth.

Working in industry was a good experience. I got to learn a lot of new concepts and met people with similar background and yet had variety of experiences. It certainly has changed my outlook towards working in an organization.

Every day in the organization I learned something new. Primarily, the knowledge gained in the process of calibrating a camera and the logic behind each step in the pipeline broadened my knowledge. Other than that, the intensive conversations with the employees about technical concepts, day to day issues in the industry and even problems that we face while living in a particular city, in short, for problems ranging in all the aspects of our life added to our knowledge base.

The PS experience has a major impact on my perspectives in the future. The concepts that I have learned at the organization has prompted me to go deeper in the field of my interest. The knowledge gained has increased my curiosity to learn other areas in computer science as well that can help in making the algorithms implemented more efficient.

Major achievement would be the first project I completed at the organization. The software developed by me is being used in every product that came after the software's completion. The work that I have done in 5 months has become a vital part of the process flow at the organization.

Name of student: RR Sreekrishna (2012A3PS180G)

Discipline: Electrical & Electronics



The Practice school program conducted by BITS Pilani every semester is an experience that bridges the gap between academic learning and Industrial experience. Engineer is a person who solves real world problems. As students we are rarely introduced to such problems which have a huge impact on day to day issues. The PS II programme conducted by BITS Pilani is a boon for budding engineers as it helps us use the concepts learnt in classroom to solve real world and day to day problems. This programme has helped us understand the requirements of people working in the industry and their expectations from fresh graduates. As an electronics engineer, we are taught courses in Digital design, Analog and Digital VLSI design. The course contents are so much that we usually don't get to see the bigger picture i.e. applications that these courses would have in solving real-world problems. My current project is related to Real time Video and Image processing. During the course of the internship, I have used software tools that were introduced to us in College but the application and the theory behind video processing is something that we weren't aware of. The combination of the theory learnt during the past 5 1/2 months and the knowledge gained from academic curriculum has helped us solve some of the high end problems. This programme has helped widen my knowledge about Real time signal processing. Having worked with professors back in college, we were only working with some 1D signals. But through this programme we have worked on implementation of some of the complex algorithms for even 2D and 3D signals. The projects that I have worked on has helped me widen my future career prospects. Because of this project I can apply for my Masters or even work in an organization that deals with similar fields. I can also apply as a research assistant to some of the best programmes in the country.

PS II programme has been helped me transiting from an engineering undergrad to becoming a responsible engineer. This programme has opened up a lot of career opportunities for me and I am grateful to the institute for introducing such a brilliant programme.

Name of student: Suyash Yeotikar (2012A7PS023H)

Discipline: Computer Science



My learning during this period of 5 and half months as a part of the Practice School-2 programme has been steep. I have gained great depth of knowledge in the fields of Computer Vision and Image

processing, pertaining to my projects. The reason behind this being that, the dataset being worked upon in Tonbo Imaging is unconventional, in the form of IR and thermal videos. As not much of external help was available over the internet, out of the box thinking was required to build algorithms for processing.

During the tenure of the PS-2 programme, I have been exposed to the industry to a great extent which has led to me a better understanding of it's functioning. Apart from understanding how organizations function, I had opportunities of interacting with the client directly which helped me in understanding their requirements, and also how to go about fulfilling them. I have learned how one needs to take accountability of the work done, and ensure that work done is robust and efficient.

The major take back that I have from this industrial experience is that, every employee's contribution is integral to a company's development. I have also learned that planning is as critical as the execution of the project.

The medium for broadening my knowledge base has been mostly through reading of papers and through interactions with my mentor, who would provide me with a direction. Exploring the direction would be through reading articles and gaining knowledge of concepts through internet.

My aim is to study Robotics and make a career in it. One of the major premises of work of Tonbo Imaging is Computer Vision which is also a very important part of Robotics. The projects and work done in Tonbo Imaging has given me an insight on the kind of work that I will have to do in future, if Robotics will be my career path.

Apart from gaining knowledge, it gives me immense satisfaction to have completed the challenging projects assigned to me which I consider to be an achievement.

Company: VMware Software India Pvt. Ltd., Bangalore

Name of student: Juhi Acharya (2012A7PS122G)

Discipline: Computer Science



The industrial experience in a prestigious and widely accredited company like VMware has enhanced my coding skills up to a great extent. It has taught me the actual application of coding in the real world, which has developed a strong understanding of the field. Also, there is a difference in coding for a normal lab question and for a company. For example, in a general question, one can simply name a variable as x, y, z, i, j, etc., but while coding for a company, every bit matters. It is required to give proper names to all the variables, so that a person who looks through it can perceive the purpose of

usage. It is quite imperative to have proper indentation, proper spacing etc. Also, to account for the future needs, the designed code should be as simple as it can be.

The kind simply and helpful mentorship here has helped me a lot to broaden knowledge base. I have learnt how to write RESTful APIs and also to debug any given code. Apart from Java, three other languages (HTML 5.0, Angular JS, and CSS) were also used in my project, which helped me to develop insights of the same. Writing generic functions, using JSON Object, or any other POJO, using Hash Maps, etc., which seemed to be a nightmare for me earlier, have now become quite an easy task to pursue. I used these throughout my project, and now I can use them anywhere without any hesitation. This PS experience will augment my future career prospects as it gave me such an excellent Industrial exposure.

Hence, I am highly grateful that I got this opportunity to work with people of such high designation and quality at VMware.

Company: Zynga Game Network India Pvt. Ltd., Bangalore

Name of student: Gourav Dhama (2012A7PS066P)

Discipline: Computer Science



For the start, Zynga has been my first tryst with the corporate world and it was a lot different than I imagined it to be. As a college student, I never adhered to the timing and ways of getting work done, but here timing and procedures are the most important thing. Things I learned here at my PS was how to work with people as a team, a lone wolf can't and won't survive in these settings. And no matter how clueless you are on some topic or subjects, it is always good to shed the inhibitions and ask someone, it doesn't matter how small the doubt is. Increase in tolerance and handling frustrating situations calmly are also the major takeaways from PS. On the materialistic perspective I learned how to handle Servers, make flash animations and work with complicated databases.

There is a great difference between academics and industry work, though tools and ways are same, in college all we care about is working on ideal laws and deliver best solution possible, while in industry all that matters is "getting things done" until it works well for everybody and doesn't break things. Before my PS, I never worked on such a large codebase where a small change needs hours of searching and alterations. This kind of experience is unimaginable in the college. This PS will definitely augment my future prospects as now I would be entering in the world with a firsthand experience. I think I am more prepared now, than I was, for tackling issues both single handedly and with a team. Also working in such a reputed company for more than 5 months is a statement in its own and will not be overlooked in my future ventures.

I am delighted when I look back on my projects and their importance to the company and how they trusted a completely inexperienced person like me on these things. I worked on AWS migration which was backbone of the game and blob reduction which is one of the most ambitious project

FarmVille team is working on. Also I was given the responsibility of being a release manager whose work is very important as every change in the game goes through him and anything can break and create havoc if not handled with care.

I believe that Practice School is a fantastic opportunity for the students as it give the simulation of real world less the pressure employee face and where few errors are tolerated on the account of being inexperienced.

Domain – Economics Finance

Company: Bain Capability Center Pvt. Ltd , Gurgaon

Name of student: Deepak Madan (2011B3A3587P)

Discipline: Electrical & Electronics



PS- II at Bain Capability Center (BCC) has been an amazing experience. I was always interested in working for a consulting company and BCC proved to be the right choice.

My stay at BCC can be divided into two parts based on the type of projects I was part of. For the first part, I was working in a General Pool (GP) Team which essentially caters to adhoc project requests from foreign Bain offices. I worked on different type of cases including market entry, benchmarking, due diligence, TSR etc. Our work involved research and analytics for specific requests on these cases. As an example, we worked on finding monetization model of video streaming services like YouTube, Twitch etc.

Second part of my stay was with the procurement team. This is a new capability Bain has developed as a part of its offerings so it was interesting to see how a new capability is developed from ground at a multinational consulting firm. To start with, we worked on category specific 'How to Guides' for lubricants, bearings etc. It involved market research on these industries, leveraging Bain case experience and populating slides in standard Bain format.

Next we started working on our first live case. It was for a large multinational mining company with procurement spend running into billions of dollars. It was interesting working on this top down diagnosis with a 10+ membered team with strict timelines. A lot of learning came out of it on a plethora of subjects ranging from learning dynamics of explosives industry to general Excel tricks

Overall, I got to know how consulting industry works, dynamics of multiple industries, how to use MS office suite including Excel, Power Point etc. and a number of other things.

All this training would be very helpful once I start working full time at any place.

As a part of professional development, I had a few chats with my supervisors and managers which were very encouraging. I was communicated on places where I need to hone my skills further. This was very helpful for me both professionally and personally.

Company: Credit Suisse, Pune

Name of student: **Rajat Bartaria** (2012A1PS521H)

Discipline: Chemical



After Joining Credit Suisse as an intern I have been on boarded with Project-P7 team, under Finance change department at credit Suisse , Pune. In past four months with credit Suisse, I have seen a steep rise in my exposure towards global financial sector. Finance Change basically provides high-quality, cost-effective services to support various Credit Suisse business divisions. During my brief stint with Credit Suisse I was able to understand the process how the change management works. We (Project P7 team) works with Product Control division of credit Suisse providing them with better solutions and optimizing Process they use to perform their daily tasks thereby saving man-hours and cost for Company. As Product Control division works on finalization and providing Signoff for each trade that happen in CS across Globe , It became necessary to understand how a transaction/trade is performed i.e. starting from Front Office where trade is booked to Its final posting in general ledger. Because of this, past Four month have been very helpful and resourceful to me to grow professionally as well as increasing my knowledge about various instruments used in financial sector. This internship has helped me to decide in which field I would like to direct my career in financial sector. I have also got a brief insight on complexness of financial sector, and how each decision taken is driven by strategic requirement needed. I would like to add that knowledge gained from direct industrial exposure is more brief and vast then we learn from class room knowledge. At Last I can say I have keep up with my managers expectation and done exceeding well.

Name of student: **Salvi Porwal** (2012A5PS616P)

Discipline: Pharmacy



I am in the Consolidated Reporting team in RAFDAR. I work in Backtesting team which is crucial for the Regulatory Capital Management of the CS group. The entire process was full of learning

for me. It involved VaR calculation using scenarios and P&L strips in historical simulation method. It is performed on T+2 basis using VaR for T-1. Then comes comparison of VaR and P&L for each business level of the CS group. In case an exception arises, it is to be investigated as to why the exception arose. Through this procedure I got a flavor of the industry and understood how every market move impacted different business lines of the company. I could actually analyse the trades more closely and arrive at a conclusion explaining the correlation between the market fluctuations and the exception that arose.

In all these months I have learned a lot and at the same time also realized the places where I lack knowledge and need to brush up. This will help me become more competent in my future endeavors. I can work on those areas in the next 6 months period I have in college.

I feel the very purpose of PS2 is fulfilled as I got to work as a part of a team where synergies make a big thing come true. I learnt to perform in pressure conditions with accuracy. I got clear about my future prospects and learned the fact that this is where a person starts and eventually grow. When you work as a part of a big firm and you share responsibilities, you need to be confident for every step you take as at the end you are answerable for any outcomes. So it was a good experience here in Credit Suisse, lot of things learnt, a sudden change of mindset and I am sure eventually these things will be reflected in my daily actions too.

Name of student: Sankalp Kothari (2012C6PS845H)

Discipline: Information Systems



I am a Credit Risk Analyst in Derivative Products at Credit Suisse, Pune. We compute and verify the exposure that CS is facing from Counterparty. The role here we get is at par a full time employee in terms of work and culture. Getting a 6 month internship in industry and company of my choice made me realize "what it looks and we aspire from outside the industry as a student" and "what it is really when you are in industry and work". It helped me realise where I want to direct my career **"and where not to"**. I will say that this part of 4-year should not be of Theoretical learning rather Industrial experience, meeting people and learn about their actual experience (which is very different from what we see in videos and seminars). I can surely say that Interns have out-performed most of the full-time colleagues and exceeded expectation of their managers and Credit Suisse by a large difference.

Name of student: Shruthi Pandey (2012A2PS049P)

Discipline: Civil Engineering



The Practice School Program was a major transition from theoretical based learning in College to a real world implementation in the industry. Since it was finance based and I worked in the risk management team.

I have learnt key aspects of risks existing in various investments, the importance of keeping a check on those risks and the entire infrastructure that is involved in this elaborate process. Credit Suisse as part of its risk management deals with majorly three types of risks- Market Risk, Credit Risk and Operational Risk. As part of Market risk Scenarios team, I got to learn about various factors that decide the profits/losses made in the portfolios example the movements in Interest rates, Forex and Commodities. An important feature of keeping a cap on these risks is to be able to foresee the major market moves which necessitates generation of Scenarios on our portfolios or also called the What If analysis. In this analysis, the idea is to bump various parameters like the Spot price, the Volatility or the Correlation and then see the impact of these bumps on our portfolio. Finally the drivers of our losses are figured out and according to the risk limits that we allot, information is conveyed to the traders. The significance of risk management has risen following various financial crisis events involving collapse of major financial entities and hence being a part of a team like this helped me develop an understanding of the crucial processes that are driving the trades being placed in the front office.

The duration of the internship was optimal in the sense that it gave me time to both learn the basics that I was going to use in the months to come and also implement those leanings in a gradual manner. In the initial few months, my focus was on learning as much as I could about our team, the workflow, the basics of risks and risks managements across asset classes. This also included honing my Excel skills and learning concepts in VBA which would be useful in accomplishing the daily deliverables in my team. After the initial phase of learning, I was involved in the team work and took up some existing reports and was given the chance of starting new reports as well. This initial phase of helped me a lot in the process and enabled me to smoothly transition to an industry environment.

Industrial experience is a good way of broadening your knowledge base and at the same time enables you to practically understand the end to end process from placement of trades to managing risks in these trades and making profits. It is a platform to be able to take up key tasks and also be responsible for the timely delivery of schedule based deliverables. The experience helps one to discipline oneself in terms of deadlines and accuracy and also allows the space to implement any new changes that can make the processes more efficient and innovative.

Credit Suisse has provided an excellent platform for learning in the form of various Study modules, guest lecture sessions and also weekly meetings to discuss concepts within teams. In the initial months, many of the modules that were rolled out to us were mandatory. Apart from that, whatever free time was available between day to day work could be utilized for going

through many more of these modules. They cover a huge scope of topics from basics of financial markets to studying Exotic options and complex Option strategies. I have learnt a lot of concepts through these packages not just pertaining to our team but across the entire industry. The guest lecture series was also an enlightening experience with people holding years of experience giving their valuable time in guiding the interns. Also, in my team the weekly meetings entail very useful sessions for discussion of Market moves and a broad arena of concepts.

Credit Suisse is one of the best places to start with for an undergraduate. This is because it helps you attain a gradual learning experience. As a part of the team, you meet people with varying years of experience who cooperate with you in not just learning the team work but also share their insights into the work and the career prospects one has during and after some work experience. I would like to start my career in a place like this, learn for few years and then make good utilization of my work experience in a firm like this to opt for higher studies. Having done an internship here also broadens my chances in applying for a firm that aligns well with my requirements and expectations.

As I mentioned previously, the internship process gives you the freedom of coming up with new suggestions for the team and also participate actively in team activities. I have taken up initiatives in my team to accept new tasks as part of the daily work and have participated in the Weekly sessions. I organized two presentations during the course of the internship using Excel and VBA models. My way of approaching the concepts was well appreciated by the team and it also helped me bring forth my ideas in front of others and hence open up confidently to everyone around.

Company: DBOI (Deutsche Bank), Mumbai

Name of student: Ghantasala Sai Krishna (2011B3A4604H)

Discipline: Mechanical



Deutsche Bank is a German global banking and financial services company with large presence in Europe, Americas, Asia Pacific and Emerging Markets. DBOI Global Services is a wholly owned subsidiary of the Deutsche Bank Group and is an integral part of the Global Business Services organization. Established in 2006, DBOI India provides world-class operating infrastructure for Deutsche Bank's businesses.

As a part of the Practice School program, interns are hired in DBOI's Market Risk Management (MRM) and Global Credit Rating Team (GCRT). Interns are assigned to different teams in both departments and are employed to function as full time employees after the preliminary weeks of training. The organization is open to offering pre-placement offers, conditionally. For the first time, in January, Product Control – Emerging Markets is also hiring BITS interns.

My experience in Market Risk has been thoroughly engaging yet demanding. The highly professional setup provides a huge learning opportunity. I was assigned to Market Risk Change (MRC), a team which works on the various strategic infrastructure of the bank. With the growing

complexity of the banking structure along with increased regulatory requirements, banks need to continuously improve their risk framework. MRC works on applications which are more efficient and also comply with regulatory requirements such as BASEL III and FRTB.

In the initial weeks, I spent my time learning tools such as Excel VBA, SQL, and MS Access. Although I have used Excel in college, it is only after coming here that I realized its potential. Handling large and complex data is a part of market risk's work and it is imperative to be proficient with Excel. The job requires knowledge in derivatives, Greeks and several concepts of risk management. The course Derivatives and Risk Management has helped me understand much of the work the department undertakes.

In summary, I found the internship to be fast-paced and stimulating. It is important to be proactive and it helps to have an eye for detail. The organization expects everyone to learn quickly and be hardworking, which can be said about any finance company. Overall, I think DBOI is a good place to begin one's career. I will be continuing in the same role in my final semester of college.

Company: Genpact, Bangalore

Name of student: Panchumarthi Anil Kumar(2012A5PS960H)

Discipline: Pharmacy



GENPACT Limited is a multinational business process outsourcing and information technology services company. It is a leading US-based equipment finance organization needed to introduce analytics-based decision making into its corporate culture in order to eliminate silos and improve cross-functionality between departments

When I initially joined this organization I was skeptical about the industry and I can understand about yours and I was also scared about the perception about the people about this Genpact wouldn't fetch you any value in the society and many things but I can say you that I have learned many things like analytics, Management, Finance and some aspects of personal skills. I would like to recommend Genpact for its great work environment, organized structure, and systematic way of working and good benefits. It's a smart company which takes good care of its employees so that they could grow, could extract out their best in favor of their company. It gives Good Work Life Balance to an employee and it has a Nice Work Segregation .It is very good at Management but a company where promotion is easy but your salary is pea nuts. It gives the Best Training Program and also the Job Security for the employers. Genpact has a very reputed name in the industry. It's a great brand in itself. Join Genpact for good and smooth career growth and being smart to smarter in all possible ways. All the best!



The first day of the internship was one of the most nervous days ever for me as we were going into an organization as newbie's and with high hopes with the fire to achieve something in our heart, came the first day. All dressed up in formals made us feel responsibility holders and gave us a feeling that from now on life is about to change from the old college life. But irony played its role as we were the only ones dressed in formals and all other employees were dressed in smart casuals and were staring at us as if we were the odd ones. Then we were allotted to our teams and our managers told us about the organization and the type of work that is done in the team. We were also told that now-a-days not much focus is given on the formal dressing way but smart casuals are more preferred. I still remember the first thing my manager told me on the first day which is- "Life in an office is all about your capabilities and the way you tackle your problems. No one is going to see what you are wearing or how many hours you are working, all that they see is whether the work is done or not." Listening to this gave me a little motivation and at the same time my heart was also gripped by the thought that this is the place where I am going to learn a lot.

Soon the work began and we were allowed to attend various client calls and watching our mentors talk to the clients helped us in understanding how exactly to deal with the international businessmen. Soon I started talking to clients and I was allotted to a client in France with whom I was working on my R-Programming projects. He and I used to solve various problems together and working with him gave me a very detailed glimpse of the work culture in Europe. I started learning the basics of R programming after I joined the organization and soon I got a little better at it and most of the R prog work in my team was done by me only. Work wise I got a chance to work in the field of my interest and I also got to apply some of the Mathematics concepts which I had done in college.

Work was not the only aspect of our organization. We had lots of fun in office too. Every evening I used to play chess with some employees and sometimes carom or Table tennis also. The office hours were not strict and the work environment was also very friendly.

Working in this organization has helped me understand that in order to excel in what we do, we not only need to have great skills but also a good personality and right decision making ability. I will never forget my experience here.



If anyone asks me to describe my internship experience first think comes to my mind is the unexpected weather and glowing offices on the roads if you go for a roll at nights anywhere here which I think justifies its name as IT Hub. I came here to feel the life of an startup city, I was not able to resist the temptation of it and decided to go to Bangalore.

It happens that I was assigned to a data analytics company. This time, I expected myself to go beyond my limits, to learn as much possible and be a major contributor in the work of my team. But things were pretty much different here from my imagination. Being a Data Analytics company, I had anticipated taking more from them than what I would be able to give to them since my background is of mechanical engineer. I was tasked with analyzing data and putting it into right format, all done manually. I figured that out that there is a need in a change of ways the people were doing work in the team. Initially it felt to me that our team was called a team only for its sake and instead of work and interests it is only the team name which connects us. I learned a bit of coding and automated a manual task which turned out to be much effort saving. My mentor and team mates applauded me for that. Since most of my team-mates were not having any knowledge of coding, I explained to them it's working. Meanwhile I continued on my coding and started replacing part by part of our process with codes. Helping each other and mutual benefit of knowledge makes a team sustainable and everyone participates in decision making, where no one is leader and everyone is a leader in himself.

These elements I wanted to create in our team. But I guess that the period turned out to be short for doing this. I did not have expected myself to learn coding but things usually go different from what we had planned. I do not know to what purpose in future this coding may come to my use but I know that a computer science course studied in my first year came to use in my internship for which it was not taught initially in the first place. Automating in analyzing data is need for every industry and this is what industries aspires for.

An experience of corporate sector has taught me more about people than I can claim for about work. Since our work methods were not up to the mark, there was a room of improvement. And I myself felt lucky that it became a chance for me not only in a way to put value addition to our work but also to get the people learn useful things which could matter in their work.

Apart from all of it, the codes I made amounted to save an estimate of \$5000 of company in terms of saving its man-hour.

Company: Goldman Sachs India Pvt. Ltd., Bangalore

Name of student: Amitabh Aggarwal(2012A2PS472P) Discipline: Civil



I think of working at Goldman Sachs as more than just a job – Goldman Sachs is a holistically rewarding experience that works to maximize your potential not only as a financial analyst, but as a leader and pioneer. Despite being from a civil background, I got a chance to lay my hands on something that had deeply interested me-Big Data Analytics. My learning curve started the moment I entered Goldman Sachs from working across time zones to building a network of my own. And the technical knowledge I received from the project was icing on the cake. I learnt about data warehousing and analytical reporting tools which majorly impacted functions across the division reducing their reporting time from monthly to daily basis and drastically reducing manual labour, hence increasing the efficiency, which I believe is a major achievement for the firm.

The Goldman experience helped me understand how the corporate world looks and works like. It helped me apply my technical knowledge to practical scenarios, transitioning from learning in college to application in the firm. The most important thing that I take back from this whole experience is grooving yourself around people and deadlines. I learnt to chart out the agenda and deliverables and then plan the timelines accordingly.

I would take this opportunity to bring into the picture the vast amounts of technical knowledge I learnt in the form of tools that helped me expand my knowledge base in Big Data domain. This experience gave me a further boost in this space which will come handy for my future projects and greatly increasing my chances for career in analytics.

Name of student: Vineet Chaudhary (2011B3A2405P) Discipline: Civil



These last 5 months in Goldman Sachs has really been a life changing experience for me. In the beginning, I was unsure about how to carry myself in a corporate environment, that too in a corporate giant such as Goldman Sachs.

The first few weeks I spent observing carefully my team, how they carry themselves and commit to their work. It didn't take as long as I expected to blend into the corporate environment. I was given a project on automation and analysis, and my team had no prior experience in these fields as all of them are from a commerce background. The team was heavily banking upon me to think

of automation and process improvements to make their work efficient and easier. I grabbed this opportunity, learnt Visual Basic to code macros in Excel and didn't stop making macros until my last day at Goldman Sachs. I also performed analysis on historical data to arrive upon trends which greatly benefited the team. I also gained a significant amount of knowledge regarding the international market and trading world from my team.

I have a lot to take back from the 5 months I spent here. This was my first internship where my work had an important role to play in the day to day performance of the team. I learnt how to manage my time and plan ahead to meet deadlines. Goldman Sachs has disciplined me in multiple ways, be it following a strict login time every day or how to conduct myself in front of Vice Presidents and Group Leaders. I have observed how my team covers for others when someone is on leave, which reinforces the importance of teamwork in the success of any organization. The professionalism displayed by my team when it comes to communication as well as handling issues is surely something which I have imbibed during the course of my internship. Also, the humility displayed by the Vice Presidents and Group Leaders has left a deep impact on me. I look up to these people and strive to achieve excellence in every walk of life.

The kind of work I have done here has surely given me a head start in a career of analytics. I look forward to continuing my career in Analytics and leave a deep impact on whichever organization I join next.

Company: J.P. Morgan Chase., Bangalore

Name of student: Pradyumna Kodali (2011B1A1710H) Discipline: Chemical



JP Morgan Chase is one of the biggest banks in the world. It was a great opportunity for me to have an internship with such a multinational firm. JP Morgan Chase in India, primarily has all its back offices to support the work being done in New York, London etc. The major learning from working at JP Morgan is that I have a good understanding of how Trade Finance works and the various financial products that are used in the same. As I have particularly worked in the performance management team, I have analyzed the work being done on a weekly basis using Excel which helped in the transition from academics to industry. During my time at JP Morgan I have picked up some other skills such as automation which will be of great use to me in the future, hence broadening my skill set and knowledge in finance related work. The works that I have done in the last 5 ½ months well definitely boost my future career prospects along with the tag of JP Morgan Chase that I now have.

Name of student: Sumir Swarup Kapur (2011B2A2688H) Discipline: Civil



Overall, the experience at JP Morgan Chase, Mumbai has been holistic. It is the perfect place to understand the Back end activities of an Investment Bank and what exactly it takes to serve clients. I can definitely say that this experience has trained me immensely in the skill set, attitude and dedication required to work in corporate life. After working in a firm as huge as JP Morgan, anyone will be able to assimilate with any kind of corporate environment.

I worked in the 'Custody and Fund Services' vertical of Corporate and Investment Banking. My team is a specialized Project Mgmt. team. The work in my team isn't financial research intensive but Financial Operations intensive where we work on a day to day or month to month basis fine tuning business operations or solving crisis driven situations. The work might not be challenging intellectually but requires a great deal of hard work and accuracy.

My team was mostly involved in income related cash flows generated from Equity and Bond markets. Hence, I learned a fair bit of Fixed Income and Equity. In a few tasks, I had to apply concepts of Quantitative methods like Fundamental and Technical Analysis, sampling and various bias like Data Mining, Look forward bias that come with it.

The biggest advantage of working in big Multinational firms like JP Morgan is that you are groomed really well to handle the rigors of corporate life. An experience like this will definitely help those who aspire to work in managerial roles in the future. The transition from academic to industry wasn't smooth since on campus, we lead a much laid back, carefree life but industry demands a slightly more intense outlook.

The major take back that I have taken from this internship is that it has widened my knowledge base and awareness of the workings in Investment banking. It will definitely be of a great help in planning my career more pragmatically.

Since, I didn't have an academic background in Finance; it did take me some time to catch up with financial jargons. But working at JP Morgan has helped me realize my interest in Finance. I plan to do CFA. I have appeared for my CFA Level I examination this Dec.

The PS experience has helped me not only in improving my skill set and knowledge base in Finance but also; create a good network of colleagues and mentors that have guided me immensely in setting my career goals in the field of investment banking.

During my tenure of 5.5 months at JP Morgan, I completed two projects. The impact of the first projects has resulted in a value addition in efficiency by 10%. The other project has helped JP Morgan optimize its Bloomberg expenses reducing the incurred costs in Custody and Fund Services alone by \$240000 annually. I have been lauded by my Managing Director and Senior VPs on different occasions for accomplishing these milestones.

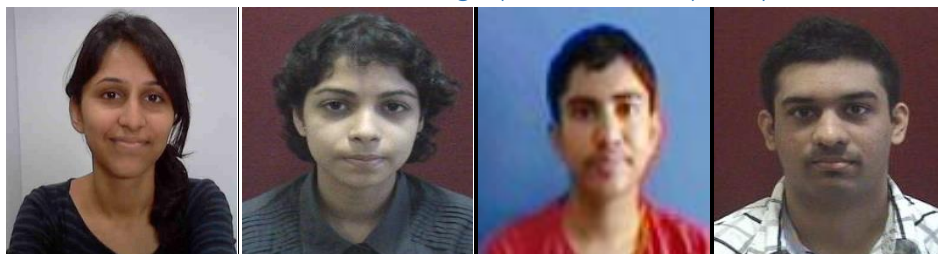
Company: KPMG, Bangalore

Name of student: Nafisa Poonawal (2012A4PS333H) Discipline: Mechanical

Name of student: Chantal De Souza (2011B1A1676G) Discipline: Chemical

Name of student: Prathamesh Hosing (2011B4A3686P) Discipline: Electrical & Electronics

Name of student: Teles Mevlon Domingos(2011B2A3664G) Discipline: Electrical & Electronics



We walked into the office of one of the Big Four with high expectations, crisp shirts and nervous faces. It was the first day of our internship. We were greeted by one of the HR members who had been our point of contact during the summer break who then introduced us to the whole team. The rest of the day involved introductions and first day procedures. We had multiple training sessions over the next few weeks with the team which gave us insight into the work that they did. We learnt how to work with Excel, how to handle huge amounts of data and analyze it, licensing metrics of various publishers, how to do research on prospective clients and publishers etc. Work was assigned to us after that.

The transition from college to work life was tough in the initial stages. There was a thorough revamp of our daily schedule from college. The new schedule demanded more advance planning and punctuality which was in stark contrast to our schedule in college where time-tables were flexible and there was room for spontaneous planning. Both the life styles have their own set of pros and cons. As we went through the rigors of day-to-day work and faced new challenges, we realized the importance of being one step ahead of the herd, which was very similar to the set-up in college, albeit in a less competitive setting. Internalization is a trait that needs to be honed, when in the corporate setup.

While the transition from an academic setting to a professional one can be both considered a challenge as well as a learning experience, there are a number of skills a person can gain which goes beyond his or her technical knowledge base. These are commonly called “soft skills”. Soft skills are those skills which cannot be gained by merely reading a book or listening to a lecture, but continuous interaction with peers and seniors in the firm gives you a perfect platform to hone them. Example of such skills are interpersonal skills, language ability, social graces, leadership, interacting with clients and negotiating with an opposing party to reach a mutual consensus. The PS-2 experience gives a student the perfect opportunity to gain these soft skills which can prove to be extremely important for his or her career in the future.

Being one of the ‘Big 4’ auditors and a well-reputed MNC worldwide, this company instills in anyone working here, a sense of professionalism, tact and ambition. Naïve and clueless as we were, interning at this company gave us a definite direction and cleared our uncertainty about our future goals and career choices. These five and a half months have given us a peek into what our life would be after college and prepared us for the same.

Company: Morning Star, *Mumbai*

Name of student: M Anusha(2011B4A3413H)

Discipline: Electrical & Electronics



With a stint of five and half months as an Intern at Morningstar, my substantial learning's encompassed everything from basics of Finance, Excel, SQL to Indexing i.e., Construction Methodology, Index Maintenance. My disciplines were MSc. Mathematics and B.E. EEE. With a very marginal familiarity with Finance, I would undeniably say my transition to industry was a complete turnaround, introducing me to an absolutely diverse stream. Apart from increasing the knowledge base, industrial exposure trained me in being professional and working in teams which would indeed help me throughout my career.

I would attribute the whole learning process to the projects assigned to me and enthusiasm of the whole team at Morningstar to guide me through every task. After the initial exposure to this field, I would definitely pursue my career in finance.

Name of student: ~~Polasana Srikar (2011B3A3497C)~~ Discipline: ~~Electrical & Electronics~~



Morningstar is a very good Place to work and learn new things in the field of finance. For a beginner like me, it was a great experience to work with one of the top investment research firm like Morningstar. We at Morningstar support various functions within Morningstar Credit Ratings business unit. We work on live structured finance transactions with the team in NY-USA, automate workflow to extract process efficiencies, conduct statistical and financial analytics using concepts from statistics and finance. We also maintain global single family rental (SFR) database, create monthly chart books using value added analytics. On the RMBS research front we work on the research publications that include transaction specific pre-sale reports, new issue reports, monthly research publications and other new research ideas using SQL, VBA & JAVA Overall it is an awesome experience to work at Morningstar Inc. Credit Rating division.

Company: Mordor Intelligence, Hyderabad

Name of student: Shashank Reddy (2012A1PS402P)

Discipline: Chemical



I learnt about all the skills that an analyst would require, to succeed in his career. I learnt what market research analysis is and techniques utilized in analyzing a market.

PS has taught me how to work in a team and work professionally.

Learnt about market research analyst and mastered the technique involved in analyzing a market, by working with my team.

The PS experience has widened my future prospects in analytics field and would give me an edge over other students when I wish to enter market research analytics field.

Company: Nomura India Pvt Ltd, Mumbai

Name of student: Sindhu Eluru(2011B3A7469G)

Discipline: Computer Science



This internship has given me an insight into practical applications of Probability, Statistics and Finance.

Learnt the functionalities of excel and VBA. Acquainted myself with company specific software tools, to carry out the daily work processes.

The internship has helped me understand the dynamics of a corporation; in particular with the formal communication skills, organizational hierarchy, punctuality and many more, which are best learnt in a workplace.

I'm enthusiastic in building a career in finance. Even go for further higher studies in the same field, and this experience will be crucial.

Worked on a default correlation model, which dynamically generate multipliers which can be employed to amplify the haircut charged for concentrated portfolios.

Mentor Experience

Domain - Civil Engineering

Company: CSIR-Central Road Research Institute, New Delhi

Name of Mentor: Dr A Mohan Rao

Designation: Principal Scientist

The BITS student was working at CSIR-Central Road Research Institute for his project he has been associated one of the ongoing Research Project titled "Development of Highway Capacity Manual for Indian". The intern students who are pursuing their project/trainings are expected to prepare the literature review and prepare the state of the art report of their selected topics and the BITS PS-II students are prepared the literature review reports excellently. The Students are assigned a small topic related to the ongoing research project are asked to formulated a topic within the scope of the ongoing project, asked to take a case study and collect the data and analyze and produce the results. The results are validated in the field also. The alights of the students from your organization quick grasping power and comprehended the literature in meaning full way and apply to the field. The student learnt many practicalities which can be faced while applying the text book theories on the field and also learned to communicate effectively convince the ideas generated during discussions.

Domain - Electrical Electronics

Company: ARM Embedded Technologies Private Limited, Bangalore

Name of Mentor: Mr Vivek Asthana

The students have been intern at ARM, Noida since July this year. Their responsibilities were the following:

- a. To evaluate a solution for the near threshold voltage (vddpe) memory.
- b. To do literature survey for near threshold and sub-threshold memory solutions.
- c. To help with bit cell metrics for presales activity and help with the porting of schematics.

My expectations were to have an evaluation of near threshold memory solutions and to conclude with a solution to be put on a test chip. The literature study and evaluation of solutions was well done but he could not work on the test chip implementation due to the lack of time. The pre-sales activities and schematics porting activity were done with full satisfaction.

Students were quite energetic and vivacious learners who were able to learn new things at a tremendous pace. Students were very curious, had taken good interest in memory design, seeked input from all possible sources and analyzed the information well. They had good acumen for research. They also integrated very well with the team and has also got positive feedbacks from others.

Students had shown very good dedication to the work assigned and has put in lots of hard-work. They demonstrated the ability to work independently with great creativity and enthusiasm. They were very sincere, punctual and follows the instructions very well.

Name of Mentor: Mr. Vimarsh Srivastava

Designation: Graduate Engineer

I have been working with ARM for around one and half years now, and it has been a great learning experience. I was fortunate enough to guide three interns from Bits-Pilani in my team and it was a great experience. As I had been in their shoe earlier, I knew the challenges and difficulties that they would face being new to the company, and I hope I guided them well. Six months is not a huge time for an intern to accustom with all the flow and work of the team, but yes, it's descent enough to experience the corporate exposure, interact with some of the finest engineers in the industry and help the team in its productivity in some form or the other and most importantly learn, not only the core engineering concepts, but also the behavioural and interpersonal skills. I would like to congratulate the PS division of Bits-Pilani for providing such exposure to the Bitsians, which I am sure will help them a lot in their future.

I hope the interns too enjoyed their time in ARM and learned quite a bit during their stay. I wish them all the best for their future endeavours.

Company: Broadcom India Pvt Ltd, Bangalore

Name of Mentor: Mr. Sudeep

I would like to take this opportunity to thank BITS for providing me with a very effective and hardworking interns. They worked very hard and many hours to be a very industrious and diligent intern. The following letter should serve as my written evaluation for them.

First of all, they were extremely dependable. I could count on them to be where he was needed and deliver all of the work that I asked them to do. I never had any doubts that they would do the highest quality job at every assignment that I gave to them.

I did not have to micro-manage their activities. I was able to give them high-level objectives and turn the responsibility over to them. They were able to manage all of the details themselves and provide high quality work. They seemed to immediately grasp the importance and scope of what I asked them to do without much explanation or description on my part.

They were assigned to work on two projects which had to deal with new technologies and massive amounts of data and they managed to work through the complexities with ease and at same time learnt how to manage expectations, communicate effectively with stakeholders.

They were technically sound. They were given the automations for few RF Front end tests which they completed well in time. They saved us the trouble of doing those test manually which took a lot of time and energy. They were enthusiastic and supportive throughout the internship.

In conclusion, I would definitely give them a solid A for their strong effort and performance as a tech intern.

Company: Intel India Technology Pvt. Ltd., Bangalore

Name of Mentor: Mr. Hardik Shah

They were hardworking and sincere. They were not having hands on experience of the C++ programming language but they were able to quickly learn it and were able to contribute to the project. Most of the time I have seen them sincerely working or trying to find solutions by involving with other team members. They were quickly able to grasp different technologies

required for the project like Audio, XML, C++ etc. One feedback I would like to give about them, is that self-confidence and communication skill is seriously lacking in some of them. Because of which they are not able to convey their ideas/design to the team in effective manner. They do office work in timely and neat manner, but lacks completing reports and presentation in timely manner. Overall they are good team players and their work will be of great impact to us and Intel customers.

Company: National Instruments Systems (India) Pvt. Ltd., Bangalore

Name of Mentor: Mr. Gaurav Goyal

I generally look for following

- 1) Quick learner
- 2) Minimal hand holding
- 3) Focus to reach the objectives

They excelled in each of the above.

They had a pretty quick ramp up time, and he could work with minimal guidance.

They were able to get a measurement accelerator working on FPGA, which helped us speed up 2x. Now, we have a good prototype which can be taken further.

They outperformed my expectations from an intern. They were working on a project where there were lot of unknowns, and is not our core expertise. Neither did they had any prior experience.

They almost independently equipped themselves with all the information needed.

Many times they encountered hard problems but they kept progressing in some way and finally nailed down each of them. These were times when the momentum slowed down a bit, but not the courage or the optimism. I never saw them getting weak or asking for external help.

To meet the project objectives smart work was not enough to pull us through. They at times had to work 15-18 hours, sometimes even on weekends to achieve the goals we had targeted. They demonstrated a true sense of "Ownership" while executing this project.

Company: Nvidia Graphics, Bangalore

Name of Mentor: Mr. Praveen Wadikar

When they joined the team they had an uphill task of not just understanding the flows but also learn new technologies like SystemC/TLM2. They ramped up quite well and had the SystemC based model checked-in. They not only finished the model on time but also helped new team members joining the team. They created slides for C++ training and also helped new team members with creating SystemC based framework. Their next task was on performance models. This was again a new technology and they helped the team in getting the flow cleaned up and move from "hard-code" based design models to more configurable model. Overall the team is happy with their progress.

Domain - Mechanical Engineering

Company: Bharat Forge Ltd, Pune

Name of Mentor: Mr. Ameyraje Sawant

The main thing I, as well as any organization would look for in an intern are sincerity, humble attitude with a technical inclination. I observed these qualities exhibited by the students thought their period of Internship. During their project they were integrated with the Maintenance Team and KTSL Furnace Engineers. They also displayed enthusiasm throughout their internship as was evident by their regular shop floor visits. As one of their salient highlights of their stay here, they contributed some meaningful ideas during maintenance work of hydraulic press manipulator, which were appreciated and executed by the Maintenance team. Another noteworthy characteristic of the student was their systematic thought process and equally systematic notes taking during their shop floor visits. Overall they were an organized, sincere, humble and very helpful interns.

Company: CSIR- National Aerospace Laboratories, Bangalore

Name of Mentor: Dr Harish Barshilia
Head, Surface Engineering Division

Designation: Chief Scientist & Joint-

I have had the immense pleasure of working with many students during my long standing research career. In this context, students from the esteemed BITS Pilani Practice School Program have become an integral part of my research life over the years. Since 2002, I have worked with around 30 students from BITS, and I can confidently say from my association with them that they are very astute, knowledgeable and possess the ability to tackle a wide variety of problems. I have had a very satisfying experience working with these young, inquisitive minds and have also learnt a lot from them. Being a physicist, working with students from areas of Mechanical and Chemical Engineering has given me a very different thinking perspective, enriching my experience as a veteran researcher.

I generally tell my students at the beginning of the project that there is a simple rule to work in my group: the student must publish one journal paper during their ~5 months stay. I am extremely proud to say that I have largely succeeded in accomplishing this goal with the students from BITS. The students have also benefited a lot from these publications as many of them have gone on to pursue higher studies in the United States and they are doing really well in their respective careers.

Here, as an example, I will give my account on Aaditya Anand, a Mechanical Engineering student from BITS Pilani, Pilani Campus who started working with me in January 2014. Aaditya was involved in the entire design and analysis of a Solar Thermoelectric Generator setup which is currently on display in my laboratory. This was way beyond the scope of the initial project that was assigned to him. He would diligently conduct experiments on the terrace everyday with one of my group members and it was clear that he was very enthusiastic and keen to take part in such kind of experimental research. At the end of just six months, we were able to submit a paper to the Journal 'Solar Energy Materials and Solar Cells', and I am happy to say that it has recently been accepted for publication. I feel that this is an outstanding achievement as I never thought that this would have been possible at the start of the project. It was made possible because of Aaditya's hard work, genuine interest in the problem and sound knowledge of the fundamentals along with very good writing skills. Aaditya is now pursuing his MS in Mechanical Engineering at Purdue University, USA.

I look forward to having many more fruitful experiences through this collaboration with BITS Pilani.

Domain – Computer Science

Company: Flipkart Internet Services Pvt. Ltd, Bangalore

Name of Mentor: Mr. Deepak Shevani

We solicit close collaboration between industry and academia, primarily because companies which do not have close relationship to the academic community are expected to advance slower. At the same time, academic community also requires alignment with industry requirements. This translates to better job prospects for students and improves their contribution in any domain they work for. BITS Practice School is one such construct where students are getting opportunity to explore and gather industrial experience. We look for interns who are already equipped with basic skills - learn ability and adaptability. On technical front, students willing to intern with us, should be strong with core computer science concepts and proficient in at least one programming language of their choice. With this setup, interns can join us, understand the project requirements, hone their skill set and then do magic. Their work makes us proud and they feel satisfaction of contributing something in real project. We at Flipkart, have got some of the most awesome workforce who joined us as intern at one point of time. More often than not, they pick up an independent module after discussing with their mentor or manager, understand the business requirement, solutioning and creating a prototype as proof of concept. In this process, interns realize the importance of good coding practices, proper designing and deployment practices in the company. And yes, of course there is fun part attached to day to day activities like playing foosball, going for outings, random discussions etc.

Company: Garg Webtech Pvt. Ltd., Bangalore

Name of Mentor: Mr. Arun

Students were quick in learning the technology and adapting to the project, because of that irrespective of the task assigned they were able to shorten their learning time and deliver the results. They worked on 2-3 different areas of the project including microcontrollers and web technology and worked with same efficiency in all of them. One important thing to mention is, given the architecture, they implemented FOTA (Firmware-Over-The-Air) feature entirely on their own for the MSP430BT5190 controller. They were helpful in implementing few of the modules of the project. They helped in finding the assembler directives required for the implementation of low level code in microcontroller. They created a program to separate hex files used for Over the Air update. They were able to create circuit schematics for a new project.

Company: Nutanix Technologies India Pvt. Ltd., Bangalore

Name of Mentor: Mr. Murali

For the first time we explored the option of having internship candidates from BITS into our Testing & Automation team; They joined us in July, and have since impressed us with their ability to understand and contribute effectively to the complex HCI technology. We put them in separate tasks that involves automation of test scenarios using Python and PowerShell, and till date they have been meeting upto all our expectations.

Also, getting young people into the team also enables our senior engineers in honing their mentoring and coaching skills. So it is a Win-Win situation for the Interns and their mentors. Also, then have been able to gel well into Nutanix culture, which is given more importance than their technical abilities and performance. Overall, I am glad to have them on the team.

Company: Rovi Corporation, Bangalore

Name of Mentor: Mr. Ajit Singh

Designation: Engineering Manager

Dedication and enthusiasm to learn are two main qualities that we are looking for in the interns and BITS Students had both the qualities. They started with very basic knowledge of HTML & Javascript and went on to achieve proficient in both, as well as in backbone.js & Django frameworks. They fitted in the team quite well and finished all the tasks assigned to them within the deadlines.

They had been working on two major products, “DOM (a web application that manages search & recommendations related dynamic services)” and “Jarvis (a Demonstration Web Interface)”. They developed a user management system for DOM and made other additional DOM & Jarvis features.

They are hardworking and have the attitude to get the work done quickly. Their learning and work efforts in these 5 months has been outstanding and has impacted our team in a very positive way. All their work done will be used in the organization production system in the upcoming releases. We appreciate all their dedications and efforts.

Company: Sabre Holdings, Bangalore

Name of Mentor: Mr. Hari Subramanian

Designation: Project Manager

I always admire the young and energetic force of college outs as they exhibits tremendous enthusiasm and curiosity on any tasks that leads to completely different perspectives and ideas comes out that immensely benefits customers.

In our project BITS Students were such a force that helped to solve a long awaiting problem of not able to measure our quality of deliveries in terms of code coverage metrics release by release and project team by team.

They came up with an algorithm and implementation with latest technologies in a real quick way that currently support our metrics measure and track the code quality issues well in initial stages of development cycles that helps to save significant time and so money and quick to deliver our product enhancements to the customers

Company: Bundl Technologies Private Limited (Swiggy), Hyderabad

Name of Mentor: Mr. Akilesh

Designation: Operations Manager

BITS Students are energetic and enthusiastic when it comes to work. Once given a task they co-ordinate with whoever required in Swiggy, on their own and ensure that the work is done on time. Their analytical skills are pretty amazing and they have played a crucial role in solving critical operational issues in Swiggy.

Company: Tonbo Imaging Pvt Ltd., Bangalore

Name of Mentor: Mr. Prakhar Kumar Verma

Designation: Member of Technical Staff

As an employee working in the industry, I would expect an intern to be thorough with the academic curriculum of BITS Pilani. The work that was allotted to them was related to testing of certain features of the product along with development of one of the most important features which is used by almost every product of the organization. Students from BITS Pilani have always performed well as interns in our organization. The best part about them is that they have gelled very well with the whole team. They are very quick in understanding the concepts and completes the work pretty fast. They will certainly leave a void in the team when they leave us.

Name of Mentor: Mr. Shyam Sunder

BITS Students have been very prolific and useful asset to the company with their attention to detail and innovative approach to solving problems. They have contributed significantly to the various projects in the company with great success. Their programming and problem solving skills exceed expectations by a quite a margin. They have proven to be great interns and an important part of the team with their skills and communication abilities.

Company: VMware Software India Pvt. Ltd., Bangalore

Name of Mentor: Mr. Venu Gopal

Designation: Staff Engineer

I am currently mentoring interns from BITS Pilani. Initially, we assigned them a simple tool, which will assist our admins with configurations of our service. We are impressed with the pace and quality with which they delivered the tool. With this confidence, we asked them to develop two features that are critical to our customers. They didn't disappoint us; they understood highly complex VMware innovations in very short span of time and delivered good quality code. Great job from them during their internship at VMware.

Domain – Economics Finance

Company: Media IQ Digital, Bangalore

Name of Mentor: Mr. Abhimanyu Garg

Designation: Campaign Analyst

Ours team , Business Intelligence (BI) is a very small team. Most of the work load got shared and they did an awesome job of building us so many Dashboards and very important ones. They polished their SQL skills to a great extent. We look for sincerity, discipline and also skilled with SQL skills and they had all of them. They also mixed well with all other people in the company and it was definitely a boom for having them in my team. We also got the Best team award this year and they also received a trophy as well as certificate which indeed is a big achievement for them as well for the team. We also hoping that they would continue with us in the next semester. Hence, we are very relieved right now.

Company: TESCO Hindustan Service Centre, Bangalore

Name of Mentor: Ms. Shruti Garg

Thank you very much for their invaluable contribution to the team. It was amazing how they picked up the work with minimum support and supported the team during resonance crunch. They have done a superb job and I can proudly say that they have been the best intern we had got.

Name of Mentor: Mr. Barry G

Thank you very much for all the efforts in producing valuable insights and analysis into the Late Delivery Not Fication Product. The output has enabled us to roll out this across the state and help serve Britton's shopper a little better every day.

Faculty Experience

Name of Faculty: Prof Anita Agarwal

Centre: Goa

My Experience during PS II



PS2 is one of the best initiatives taken by BITS where the students get an actual understanding and implementation of the concepts explained in the class. This also gives them a feel of the industrial environment before they move into it after the completion of their undergraduate or graduate programmes.

The PS-II programme is not only beneficial to the students but also to the mentors who are a part of it. I have been associated with this programme since three years and I have really gained an enriching experience. I could get an insight of the working environment in the industries. I get to interact with the industry personnels and discuss with them about the expectations they have from our students as far as the course contents and the knowledge of different tools are concerned. This is then shared with the PS cell through the academic progress report on the PSD website so that the PSD can actually work upon ways and means of updating our curriculums accordingly. It also helps me in implementing the same in the courses that are engaged by me.

Overall the PS 2 helped a lot in getting good industrial exposure which when used with teaching adds to its effectiveness.

Name of Faculty: Prof Anita Ramachandran

Centre: Bangalore

My Experience during PS II



I had the opportunity to interact with my students and their respective mentors in the software industry during the last 4 months, as part of the PS2 programme (1st semester, 2015-16). The programme provides students with an excellent platform to explore the world outside of academics, and provides insights into the various avenues for choosing the right career. One recommendation point worth noting – this came as feedback from a PS2 station - is to encourage the students to get involved in online coding competitions/events like TopCoder, SPOJ, CodeChef, HackerRank etc. Participation in these events enhances students coding skills and builds confidence in them to face practical software issues. Another feedback I had received initially from another PS2 station was that students from BITS-Pilani are not quite familiar with software development setup like version control systems, IDEs and in some cases, Linux shell commands etc., while students from other universities came equipped with these skill sets. However, over their period of internship in the organizations, our students ramped up quickly on the necessary tools required in their projects. Not just that, the students were praised for the sincerity and ownership they showed in the various stages of project execution and delivery. In my own observation, the students worked hard to find ground and be productive in their projects during the first half of the internship, and the second half saw them developing deep understanding of their projects and related domain areas. This was evident from the depth of technical knowledge they displayed during the end-semester seminars.

It was also good to see the companies treat students on par with their own employees. While some organizations have quite high expectations from the students in terms of CGPA cut offs and skill sets they possess prior to commencing their internship tenure with them, once they get associated with the company, they become an integral part of the ecosystem. Dreamworks is one such company which sets relatively high standards for the students during their association. During my first visit to Dreamworks, I was taken on a tour of their office premises and given an overview of the various departments and the kind of work they do at each. They have a dashboard in the cafeteria which displays photos and names of all their current employees, and it was a pleasant moment to see photos of five of our students' happy faces also displayed among them.

Name of Faculty: Prof Ankur Pachauri

Centre: Pune

My Experience during PS II



I had opportunity to monitor the PS2 internship of students at PS2 stations. Below is a short note on projects at each of the Stations:

The projects in Reflexis Systems India Pvt Ltd., Pune

- **Refleis Predictive Analysis**
It enables the store owners to plan and forecast their supplies and workforce for various parts of the year. It uses mathematical model of prediction like Arima, Correlation Analysis and best fit curve to predict the load on the store during various times of the year including outliers like festivals and holidays and even natural calamities. The defining functional effect of these technical approaches is that predictive analytics provides a predictive score (probability) for each individual (customer, employee, healthcare patient, product SKU, vehicle, component, machine, or other organizational unit) in order to determine, inform, or influence organizational processes that pertain across large numbers of individuals, such as in marketing, credit risk assessment, fraud detection, manufacturing, healthcare, and government operations including law enforcement. It fetches its front end data from .json files using angular js. The technologies used in the project use till now ar JSP, Angular JS, CSS3 and HTML.
- **Reflexis Workforce Scheduler**
It is a tool to manage workforce in any organization, and it forecasts profits and other workforce related data, well in advance for managers to schedule work accordingly. There are various functionalities that are missing in the current version of the project, and our task now is to write restful web services to carry out few of the tasks that would be desired in the next version of the project.
- **Kernel**
Kernel is the heart of all the products of Reflexis. It is an attempt to centralize every product through a central system. Currently every product has its own set of tools, and access points. Kernel is a means to centralize every application, so that there is no need for separate maintenance of the products.
- **RTM Daily Planner Blocks**
Dailyplanner Planner is a Reflexis product used in maintaining the records of projects. The Dailyplanner contains a series of "blocks" depicting information regarding the projects undertaken or currently active. Currently, the company is planning to use IBM Cognos Reports to maintain the said records, owing to their security and reliability. My task is to get the SQL queries governing the data in the dailyplanner blocks by debugging the code and use them to create Cognos Report Blocks, using IBM Cognos Report Studio.

The projects in IDeaS- A SAS Company, Pune

- **Inventory management and Function Space Automation**
In Function Space Automation Comparison of opt_price_smry table with its corresponding benchmark table for every evaluation.
- **Recruitment Portal**

To design recruitment portal for company. Mainly for HR team to ease recruitment process.

- Web Application for Inventory Management, Support Workbench
It's a web based application to manage an office inventory. There are separate functionalities for administrator and general users.

The projects in Sokrati Technologies Pvt. Ltd., Pune

- Automation of HTML5 Ads
Making HTML5 ad templates and creating a whole animated HTML5 Ad by getting some parameters from user in an automated fashion
- Mobile Deeplinking Research
Researching data on mobile deeplinking so that it could be implemented in PLA ads, helping find alternate solutions such as opening apps from chrome intents, etc.
- Outbound Business Development
Tasked with outbound prospecting and initial reach-out to potential clients and setting up qualified meetings with the Sales Representatives

Name of Faculty: Prof Ashish Narang

Centre: Delhi

My Experience during PS II



Internship is a means to expose the students to real world business environment besides bridging the gap between theoretical and practical learning for the students. Also, it provides the organizations with the innovative young talent. Practice School Division is one such entity dedicated towards fulfilling demand of students and organizations by bringing them in contact. It helps in providing quality internships to the students.

I am fortunate to become a part of Practice School Division and contribute towards arranging internships for the students. Within a year, I have coordinated with more than ten partners from different industries. During this process, I contacted not only the divisional technical heads but also leaders from the top management. Our conversation primarily focuses on key areas like latest project assignments, intern's evaluation criteria, performance feedback and scope of improvement in PS program. I knuckled down to attract the projects pertaining to the skills and interests of the students that will benefit not only the student but also provide the organizations with the expertise in the respective area. I hold frequent discussions with students regarding their project work, bringing to their knowledge the areas of improvement and mentoring them to bridge the gap.

Networking with the industry professionals from different sectors exposed me to the latest advancement and technologies in those segments. I got to know about some of the technologies like R, SAS, Python etc. in data science field. I learned about patent industry and the related terms like patent invalidation, patent infringement etc. Apart from that, I came to know about

business and revenue model of emerging startups in Gurgaon region. These startups will be the face of India in coming years. I also got an opportunity to work with PS-1 industry based on infrastructure domain, unlike my experience in IT industry.

Name of Faculty: Prof Brajabandhu Mishra

Centre: Bangalore

Let us close the gaps



I started my journey into academics from January 2015 and NVIDIA was my first experience into Practice School as a Practice School instructor. Spending more than 17 years in the hi-tech industry, academics was a new experience from me.

After getting familiar with the practice school way, I was involved in determining the skill gap exists between the students and the industry expectation in Semiconductor Industry. I thank our respected Dean from the bottom of my heart for this. NVIDIA and Broadcom were sample for this activity. After discussing with Students, Mentors and Managers, I consolidated the skill gaps and recommended few courses, which the students should have gone through before coming to PSII semester.

We all will definitely agree that there is a gap between Engineering Institutes and the Industries. In industry, majority of the work in hardware is related with VLSI Design, VLSI Validation, which in turn requires knowledge of Computer Architecture, Verilog, System Verilog, System C, Perl, Python, C++, Verification technologies etc. Whereas, embedded domain is synonymous with Linux Internals, Device Drivers and Middleware technologies etc. In fact in the industry involved in embedded devices, the application level work involve skills in Java, HTML, JQuery etc. The list will grow.

This is also the feedback I got from the managers of the interns. In fact they expect "*industry-ready*" interns. Hence it is the demand of the time that the students must be familiar with these technologies before getting into industry. I observed that the "industry readiness" factor influences their pre-placement offer opportunities as well.

On the other hand, our students are generally very sharp in picking up new things, fast learners and hard working. So they pick up the new technologies in lesser time.

Evolution is the process of improvement and adjustment with the environment. So let us evolve ourselves continuously by innovating at all level and adapting to fast changing technological environment and industry expectation.

Name of Faculty: Prof Gyanan

Centre: Bangalore

Industry-Academia Interface: Need, Expectations & Avenues



We have been witnessing a lot of technological changes in this era with advancement in every field of the science and engineering. These changes, however, has created an alarming gap in the goal of the academics and the need of fast growing industry. This has hampered the aspirations of both academia and Businesses. On one side of the coin, the graduates from academic and research institutes lack the skills to cater the industry and on the other side businesses are losing the innovative solutions from the academia to help them increase efficiency and lower costs.

This has emphasized to have an industry - academia interface which will impart appropriate knowledge and skills to graduates in advance to sustain in the industry. Also, the industry gets chance to strengthen its resources must to knowledge-based businesses. It is thus necessary to understand the needs and expectations of businesses as well as academia.

Industry: Needs and Expectations^[1]

Goals of industry and academics is different. Industry aims for short range objectives. Industry selects proven solutions to minimize risk and costs. Large Business invests in technology development initiatives. Academic participation is minimal in minor technological innovation. Small scale sectors need support in the field of design, process improvement and machinery efficiency, etc. They also rely on processes to yield a product which already exists. In some cases, problem solving may merely extend to product testing and enhancement in terms of quantity and quality. In these kind of collaborations industry's expects time frames to complete the target and investment is directed towards efforts that assures results.

Academic Expectations^[1]

Academics emphasize more on the importance of Industry-Academia cooperation's. Academicians are inclined to engage in the R&D activities of the industry for funds to sustain their comprehensive research interests. An academician shows interest in issues that are intellectually motivating. Academician's areas of interests lie in the development of methods related to process and design improvement. Researchers prefer to work towards the creation of knowledge in their specialized areas. In academics the time frame for research is governed by guidance and teaching and admin work assignments.

Avenues for Industry-Academia Interactions^[2]

At present, businesses has the impression that the academic community is not geared to entertain the challenges faced by the industries and are not prepared enough to translate an idea into technological development. Academicians have a feeling that unless industry starts participating in the promotion of research in basic science and technology, this interaction will remain limited to developmental activities. There is a strong mismatch in perceptions of the two on the issues related to technology development.

A structured system is required to ensure a focused association of both academia and industry. At this point of time the interactions between academia and industry is limited to internship

programs, summer camps and interactions at limited levels. Initiatives involving people from industry and academia with the flexible and broader mindset could serve as the first step to explore other avenues of interface between academia and businesses.

Academic institutes should cultivate systems and procedures to guarantee that industry expectations are fulfilled without compromising academic aspirations. Academia should start by taking up short term and small budget projects, which will build confidence in businesses and encourage it to offer collaborative projects related to technology development.

The industry also needs to figure out its R&D efforts and understands its social responsibility in the development of a knowledge base in academic institutions. This process must be guided by a complete transition from business guided effort to a technology-driven, innovative set up like technology incubation centers. Academia should also look beyond the horizons of basic research to applicative research with commercial values. This can further develop into knowledge transfer, setting up entrepreneurial ventures, consulting services etc.

These efforts of bridging these gaps have to be initiated by one of the major institute and others can adopt these changes. Also, with the support of industry sponsor initiatives, such awareness and interfaces can be nurtured and promoted Universities nationwide. These efforts can be the answer to increasing gap and challenges faced by industry and academia.

Ref:

[1]<http://www.reengineer.org/stevens/Harry-Sneed-CSMR2009-Stevens-Lecture-A4.pdf>

[2]<http://thegradstudentway.com/blog/?p=251>

Name of Faculty: Prof K G Krishna

Centre: Hyderabad

Make a Difference to Your Career with BITS Practice School



“If I had my life to live over again, I'd be a plumber,” Einstein famously said frustrated with his plumber who had to frequent his home for fixing his leaky toilet. I am sure we all echo this sentiment whenever we are in desperation to fix that leaky faucet and summon our plumber *hero* after trying in vain with all the tools at our disposal. Knowing is not enough—we might have had enough knowledge of fluid mechanics, viscosity, and derived Navier-Stoke's equation in the examination scoring a perfect A-grade in the course—but the true test of our professional competence lies when rubber meets the road i.e., when we have to solve that nagging customer problem which may involve tapping the pipe at the right point, turning the pipe-wrench with right torque and applying the right fix to the problem. From a craftsman to technician to engineer, it is the practice that hones one's knowledge and skills to position oneself as true professional in the service of customers and society. Beyond technical knowledge which you anyway acquire during your stint in campus, learning about how organizations function, working in teams, negotiating with customers, product development, customer support, ensuring quality, managing resources and schedules, optimizing costs, ensuring customer satisfaction and balancing work-life, etc., are the facets of work-life you would get to experience as BITS Practice School (PS) student-intern when you step into organizations (*aka* PS Stations in BITS parlance.)

Confusion about the right choice of university, branch and courses, inner conflict of priorities, lingering self-doubt coupled with ignorance and peer-pressure are the inevitable facets of transformation as adolescent you would've had experienced when you transitioned from a school-boy to college-student. Now in your last phase of your journey as student in BITS, I am sure you would be experiencing a similar transformation when you have to step out of the comfort of your classroom and enter the workplace of your PS station as a student-intern. On the other side, the organization welcomes you with certain expectations about your skills, knowledge and attitudes becoming of a potential employee. It's often said that the first 100 days in any job is crucial for forming impressions about your performance and attitude towards work which in turn may shape your future opportunities and success in the organization. Armed with your confidence, poise and open mind, during the next 6 months of this *honeymoon* period, you shall discover your potential, forge a self-identity and make up your mind for a bright career ahead.

As a BITS PS faculty for the last six years for stations in IT/Electronics sector, and having had played the role of mentor/manager on the other side in my erstwhile career, in this article I will be sharing with you some of my insights and experiences that would certainly help you avoid the common missteps, misconceptions and prejudices that may retard your further opportunities. Whether you would like to be an employee in an existing company or dream up your own startup as an employer, learning on-the-project and adopting a professional working relationship with your PS project mentor and organization paves the way for your success.

“For the things we have to learn before we can do them, we learn by doing them.”
- Aristotle

More than Knowledge, Your Learnability Matters Most

Businesses exist to solve customer problems. Lasting organizations do not rely on few mavericks alone from BITS, IITs or MITs of the world. They are made up of systems and processes to transform the efforts of many ordinary people with average performance working as a team into extraordinary results. Technology is incidental to providing winning solutions to customer problems. As a BITSian when you enter the workforce of an organization, what counts is not your mere technical knowledge or expertise you carried in your head as a student, it is your learnability that matters—the ability to adapt and quickly learn the tools/technologies needed

when the project demands. Every project is unique in its customer profile, challenges, resources and time constraints. In your PSII internship period, you would get to experience at least two to three such projects or challenging tasks to demonstrate your problem-solving and leadership skills at work.

“A wide variety of work is being done at Amazon. It is like a 100 Startups, each team uses independent tools and languages. The team which you will be assigned to is going to be completely random. I can only give you a partial list of languages and frameworks being used in the company. Therefore, it makes little sense to ask your seniors about the type of work done at Amazon as a whole. You should come with an open mind. There are a lot of learning opportunities...”

- *Sankalp Bhatia (2011B3A7602P) PSII Student@Amazon-Hyd)*

In many IT services organizations, the new-age ecommerce firms including, technology is an underdog—barring few exceptions, it rarely matters which branch of engineering or science you graduated in or which courses in computer science you were exposed to. Looking at your CGPA score as a rough indicator of your learnability, HR managers or your potential project mentors may seek comfort in hiring you as an intern or employee. The projects in many customer-centric organizations are so diverse with solutions transcending boundaries of technologies and disciplines that the use of term ‘interdisciplinary’ in academic circles appears defunct and no better substitute than its medieval synonym ‘natural philosophy’.

“We didn’t know about computer programming, the Javas, the Dot-Nets, etc. I was working for Texas Instruments as VLSI Designer. Actually we went and bought books on how to write software. I knew C/C++, but I don’t know other softwares...we literally started with ‘Hello World’ program...We wanted to solve this problem, and our educational background has given us the analytical skills required...”

- *Phanindra Sama, BITSian and Founder of Redbus.in*

Irrespective of the listed discipline in your academic transcripts, BITS integrated cross-curriculum education comprising a broad selection of courses ranging from economics, mathematics, sciences, engineering to philosophy and theatre-arts, coupled with extra-curricular life-skills development ecosystem nurtured on campus culminates in unique BITS signature traits coveted by any industry. As a proud BITSian, if you are open to learn and willing to accept whatever challenges you encounter in your project without setting any pre-conditions for yourself or hard-expectations on the part of your host PSII station, rest assured that you would cherish your six-months of internship as most rewarding experience and a stepping stone for your future exciting career.

Your Project is What Your Customer Demands

Being passionate at times leads to self-centricity. That’s when you start drawing boundaries around your self-proclaimed competence and turn blind to the customer or organizational priorities at large. I deeply regret one such incident in my first job in the then ORG Systems, Baroda when I—as a rookie Software Engineer in R&D Division—refused to travel to Veeraval about 500kms from Vadodara in Gujarat, for installation and demonstration of new Winchester drive (hard-disks were known as in early 80s—heavy appliance of 2ft x 4ft weighing 25kg, 60MB capacity) to a prospective customer. I was so deeply involved in writing the device drivers and utility software for interfacing the new drive to the company’s flagship ORG-80 minicomputer system that I prided upon myself as techy software programmer and not some *lowly*

maintenance or salesman to be out on customer calls. In spite of persuasion by my manager—DU Kulkarni, a BITSian, who has appreciation for my work and hence considered me for the role—I refused to budge succumbing to my parochial view by citing some lame excuse. I felt deeply ashamed later when I was told that my manager himself had made the visit to the customer site carrying the Winchester as he couldn't find suitable engineer volunteering for the cause of the customer.

Delight the Customer beyond Meeting Requirements

As students, we worked for our grades expecting our grades would lead to good careers in good companies. In a university environment, you are the 'paying student'—the customer, being served by the Institution and faculty in enhancing your knowledge and shaping you for professional career outside. Once you enter organization, you become the 'paid server' or service provider—serving your 'paying customer'. Putting your personal goals subservient to those of the customer, undivided attention to customer and his/her priorities is paramount to your success. While this sounds as a 'no-brainer' saying, in practice it gets shrouded in several management interfaces that distance you, particularly for an entry level engineer, from the real face of the customer. As an employee or PS Intern, you shall have an assigned manager or mentor to supervise your work output, who will be your defacto boss for your project. However, that shouldn't deter you empathizing with real customer's pain point and advocating for its solution in all transactions with your immediate manager—be it in suggesting feature enhancements, user-friendliness of website, and productivity gains for the customer, etc. Many a time, we tend to take comfort in what the customer (or your mentor/manager) has explicitly stated in requirements document or in a planned meeting and be obsessed with delivering as per the same. Smartest are those who make a difference by thinking beyond the stated requirements and work for customer delight by putting him/herself in customer's shoes, as the below story of my experience with Japanese customs officer illustrates beautifully.

"It's not only the technical skills that are portrayed while working here, but also why we are doing what we are doing, how will it impact the Business/Operations team in turn, how will it impact our customers. This contributes a lot to the way we think about our work and also helps in designing things to make them more customer friendly."

- Utsav Misra (2011B3A7395P, PSII Student-intern @Amazon-Hyderabad)

It was sometime during mid 1996 when I had to visit a customer in Japan for a customer call. This was my second trip and I had already experienced the aura of Japanese hospitality. I was accompanied by my business manager for whom this was his first visit to that country. After we landed at Tokyo's Narita airport, we passed through the usual immigration counter, collected our checked-in baggage from the belt and proceeded to customs inspection area. It's when I realized that I misplaced the tiny key for the small padlock I had put for the suit-case. We halted at a distance to search for the key I thought I kept somewhere in one of several pockets of the hand baggage. I started rummaging my trouser pockets and the handbag pockets spreading over its contents on the floor desperately scanning for that tiny key. Tried in vain for more than 10 minutes. As a last recourse, I decided to break open the small lock and that's when my friend started wrestling with his fingers hard on the lock exercising all his muscles trying to break open it forcefully. It continued for few minutes when the customs inspector from a distance spotted us struggling with our baggage. He rushed in towards us wondering whether we're trying to play anything foul. He empathized with our problem (we couldn't open the lock by then) and feeling sad (saying *soone'....suimasen.suimasen*, means 'extremely sorry' in Japanese) he himself wheeled our baggage to the inspection table. Soon after, he walked into his office which is

located a few meters away, and returned with a big bunch of suit-case keys of several types (at least a hundred could be spotted in it.) Unexpected and delightful gesture, we felt. He started trying his luck with each key one after the other. We were lucky after sixth or seventh key. We paused reflecting how thoughtful and proactive Japanese were towards their customers to keep such a variety of keys anticipating such incidents, not just merely confining to their job of inspecting the passenger baggage for contraband items. Yes, it is their job requirement, we surmised. After finishing the inspection of the contents and that's when we were taken aback by his kind apologetic gesture when he offered me the key (detached from the big bunch) as a gift with a humble bow (*Suimasen...domo arigato gozaimashita*). After all, in how many countries do we experience the attitude of inspectors towards their customers as nothing short of treating them as subjects of mistrust and potential cheaters of the system unless proven otherwise to the authorities. Certainly, not in India (at that time) where the concept of customer orientation is far stretched for none other than customs inspectors. Even if they trust us, it is beyond our imagination that they would go this far to think of customers' potential problems and be ready with proactive solutions. Even if they do (with the current *Atithi Devo Bhavacampaign*) would they extend the service with a parting gift which delights the customer—beyond just meeting customer requirements!

“One of the main difference between college and the experience at Amazon is that at college we never had to worry about scalable solutions, the availability etc. At college the main aim is just to write code which is able to achieve the final outcome. Now, though we realized the importance of a solution that is not just correct but also scalable, efficient and crucially reliable.”

- SnehaTangaraja (2009HS12704P), PSII Student-intern @Amazon-Hyd)

Connect with Reality, Dirtying Your Hands

There are two ways to connect with your world: sitting behind the laptop screens and wishing your bits dance in tune with your designs (virtual world) or be live in the real world by interfacing your hearts and minds to the real people and things (brick-n-mortar world). In our IT integrated world, choosing either one is not an option where ideas encoded in software must necessarily be transforming the lives of people, enhancing productivity of businesses and contribute to wealth creation by driving profits for the organization's stakeholders. As in the saying 'the proof of the pudding is in the eating', the acid test of your software skills lies in seeing hard cash (revenues) in the till at the end of the day. Software or Hardware or Operations? Which project should I opt? – is never a dilemma for BITSian entrepreneur Phanindra Sama when he felt nervous at the Redbus ticketing website's office anxiously waiting to check whether his first paying passenger carrying the first computer-printed bus ticket would actually be let inside the bus by the conductor at the Kalasipalyam bus stand in Bangalore. “We were scared, would the conductor allow the traveller in? He would never have seen a printed bus ticket before, and he might say this is not a ticket” he says, “So we all went to the bus stand to board the customer, who was a lady from Infosys going to Tirupati. It was an auspicious beginning,” surmises the spirit of Phani who spearheaded the wave of ecommerce aggregator startups we see in India today.

The media is agog with stories of new breed of young entrepreneurs with innovative ideas entering the marketplace chasing their dreams. Whether you aspire to a challenging role in a leading firm or be part of nascent startup industry or be part of our Prime Minister's 'Start-Up India, Stand-Up India' initiative by being an Innovator-Entrepreneur, Practice School offers you an ideal platform to acquire the necessary skills, insights and exposure without ever leaving your

comfort zone of BITS and its PS support system. The top ecommerce players including Amazon and Flipkart have recently expanded their logistics operations with huge warehouses and fulfilment centres (FCs, warehouses as known in Amazon) across India offering many opportunities for PS internships in operations, logistics and quality management divisions. Students who enjoy working with 'atoms' in the real world instead of 'electrons' in the virtual world can opt for these shop-floor experiences.

"Tell me and I forget. Teach me and I remember. Involve me and I learn."

Benjamin Franklin

There are NO 'bad' Projects and Testing is no 'mean' Job

There are only three kinds of jobs in the IT-dominated world: a) those that require human ingenuity and therefore can only be performed by real people interacting with real people and objects; b) jobs that are so repetitive and mundane that can be easily relegated to robots or automation; and thirdly, jobs that identify potential activities in (a) that can be moved to (b) by defining processes and automating them. With increasing digitization in our lives, people and their time have become a precious commodity and leveraging their brains rather than brawn is the dominant growth paradigm in the IT services industry. Hence, it is imperative that if you are assigned any task, it is deemed to demand your intellectual skills or if you find it repetitive (as its purported image of 'boring testing'), it too demands your skills to identify that as potential candidate for automation and you move on to a 'higher-order' value creation role as software developer unless you wish to enjoy performing robotic tasks.

"The only source of knowledge is experience."

- Albert Einstein

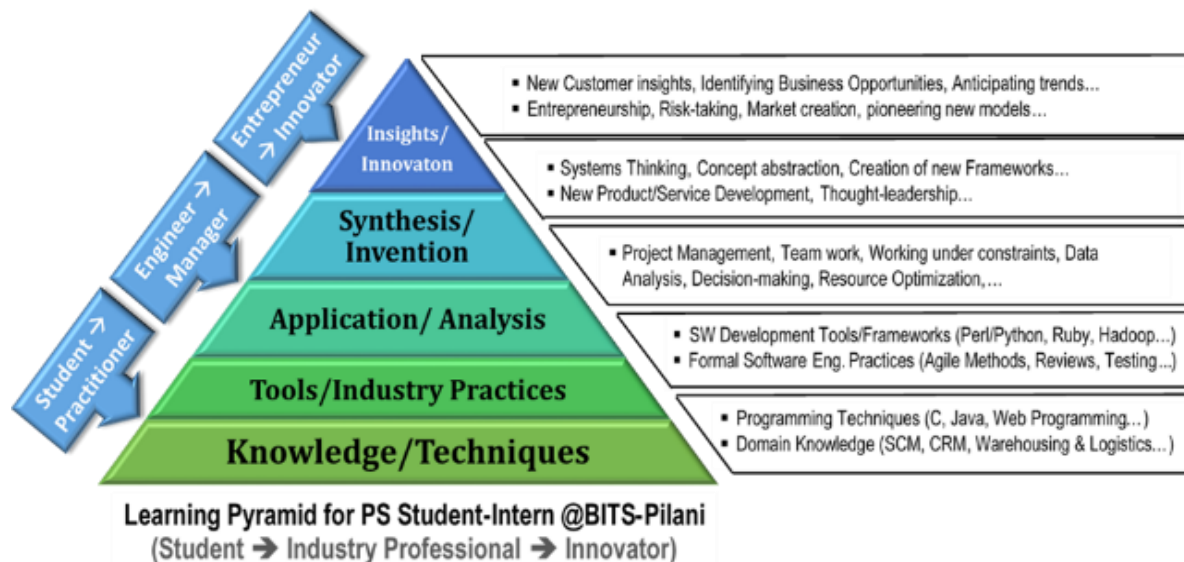
In V-Process model of Software Development Life Cycle (SDLC), testing or QA (Quality Assurance) effort goes in parallel with development and they are intertwined—you can't separate one from the other. Holding a myopic view that software testing requires a 'lower-order' skill than unduly glorified software coding is akin to saying that diagnosing correctly the disease of a patient by a doctor is menial compared to his role as surgeon to cut-open the patient to treat the disease. Testing, in fact, requires more innate knowledge of the underlying structure of the program as well as mastery of coding skills to identify latent bugs and potential risk elements in the system. In contrast, when the developers (software programmer) have freedom to write buggy code at the expense testing effort downstream, the role of tester/QA engineer becomes critical in deciding the cut-off date for release of product to the customer. By and large, at the heart of every successful product or service, there's always some kind of heavy-lifting or 'mean' work (if you call that may) that goes in. At one point, we considered cooking or making coffee a mundane activity leave alone thinking of converting that as an esoteric business till McDonalds or Café Coffee Day's entered the fray by glorifying it as a franchisee business with extensive process automation and customer service experience. The Japanese take pride in whatever work they do—wear badges at work that showcase their experience or Kaizen awards they received at work.

Thus the testers have great responsibility in any product-centric organization. They manage the risk by providing clear feedback on the current status of the software product and its readiness for release. We all know that when a developer says he's 90% done, he's just halfway there. We need QA team to inform the developers and their managers of the true status. As a representative of the end-user group for the product, at times playing devil's advocate, the

tester is no doubt the standards-compliant bearer of Truth within the organization. With the advent of automated test tools, many of the erstwhile manually performed test operations have now been taken over by test automation tools and the role of tester thus become of one of designing test-cases to smartly trap the potential faults lurking in the system much like a skilled forensic auditor or crime detective.

Do Your Job Right, Give Credit to the Team

Organizations are melting pots—every year students from different colleges and universities ranging from BITS, IITs, NITs to regional colleges and universities with varying academic qualifications and specializations join the stream of employees dreaming their careers. While it's perfectly alright to have your own aspirations on what you would like to achieve, you should never lose sight of the fact that organizations, after all, are business entities focussed on serving customers who in turn contribute profits to the company which in turn defines your stipend, salaries, increments, promotions and further opportunities. Your current specialization and academic qualifications are mere stage-gate criteria to facilitate entry into this melting pot. Once you are inside, unlike in your university where it's your individual effort and grades define your standing in the class, in organizations it's the team work that matters most—how well you integrate yourself in the organization by aligning to its business interests and customer priorities. Also, unlike university's academic cycles where you have a fixed set of classes, scheduled examinations and pre-defined system of grading/ranking and therefore as a disciplined student you can assume the comfort of being in control of yourself, in organizations



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the business dynamics, internal policies or politics at times test your patience, focus and perseverance. Therefore, you will be judged not by just your personal credentials but your performance in teams and delivering the results by skilfully navigating the organizational idiosyncrasies without every losing focus on your ultimate customer and business goals.

“Education is what remains after one has forgotten what one has learned in school.”

- Albert Einstein

The Learning Path to Your Dream Career

By now, you must have realized that learning has nothing do with static facts, information and knowledge assimilated in your head while you were in BITS. Unlike universities, business organizations are not structured around technology or learning disciplines. An idea to a particular customer's problem may come from any discipline. In the Googlized world, any information is available at fingertips. However, anticipating customer trends, analysing customers' problem, arriving at multiple alternatives, zeroing-in on the right cost-effective solution, and of course knowing the right 'keyword' to type in the Google search box are the competencies you acquire as you progress through your career. Every project is a learning opportunity whose experience and internalization of that knowledge help you migrate to higher-order thinking skills as depicted in the Learning Pyramid diagram modelled after Bloom's

"I will work with integrity and succeed with integrity...As a youth of my nation, I will work and work with courage to achieve success in all my tasks and enjoy the success..."

- Dr APJ Abdul Kalam

(part of 10-point oath he administered for every young student he met in India)

Taxonomy.

"There is no end to education. It is not that you read a book, pass an examination, and finish with education. The whole of life, from the moment you are born to the moment you die, is a process of learning."

- JidduKrishnamurti

Name of Faculty: Prof Krishnamurthy Bindumadhavan, CFA, FRM

Centre: Hyderabad

So.....you want to become an Investment Banker



I am writing to share my experiences in guiding PSII students at a few finance stations in Mumbai during this past semester. It is my hope that (by reading this and other such articles in the newsletter) students will gain a first-hand understanding of the kind of work and exposure that they can gain at a typical finance station, thereby enabling them to make the right choices when they are ready to put down their preferences for PSII!

First, let me share some of the good work done by our students at JPMC, Mumbai, a station that is generally known as a back-office process oriented station. But from the examples that follow it is evident that one can learn a lot about finance and accomplish some amazing work even in a back-office setting. Most banks, including JPMC, rely on proprietary information providers (such as Reuters and Bloomberg) for real-time financial market data. Such data is crucial for making the right decisions in a rapidly moving market like the stock or derivatives markets. While the data (from proprietary information providers) is both reliable and real-time it comes at a steep price! Mr. Sumir Kapur, a dual degree student from Hyderabad campus,

worked as part of a multinational team within JP Morgan Chase to develop and implement a reliable in-house solution for financial market data that will replace in large part the proprietary data terminals and thereby save the company hundreds of thousands of dollars per annum. By all means a stupendous achievement indeed! And this is not just a one-off case. Several other students have participated in challenging projects and won plaudits from their fellow workers and supervisors. For example, Mr. Kaushik Rondla, a dual degree student from Hyderabad, has automated several manual processes saving the organization significant amount of time, money, and manpower. For his hard work he won a "Certificate of Appreciation" signed by the senior leadership at JPMC as well as Rs. 30,000 to take his team out for a treat!

Our students at Morningstar, MSCI Barra, and Nomura are doing cutting edge work in the areas of financial analysis and risk management. Students are not only updating existing financial models but are also called upon to build new models and indices. All of which is really challenging and creative work! Case in point is the work done by Ms. Suhani Jain, a dual degree student from Pilani campus, who works in the Quantitative Equity Research team at MSCI Barra. Over the last three months, Ms. Suhani worked with her manager to conceptualize and develop a brand new index product. And the icing on the cake is the fact that the new product has already won rave reviews from customers, even before the semester has ended!

Similarly students at DBOI and JPMS are also doing some really exciting work relating to Risk Management and Equity Research respectively. Investment Banking in general is a domain where people are expected to put in long hours but as our students will vouch it is really challenging work and very satisfying to see that the "pitch" that you helped pull together (by burning the midnight oil) was ultimately accepted by the client, leading to millions of dollars in revenue for the company.

What does it take to succeed in a career in banking and finance? From my over fifteen years of global experience in the industry as well as interactions with senior leaders at various finance stations I can state unequivocally that an interest in finance combined with an analytical bent of mind are the key ingredients for success. Several of the senior leaders have stated that our students are generally very quick in learning new things and so a lack of specialist skills or knowledge in finance is not really a deal breaker. But rather a keen interest in the subject is most important. Of course taking some basic finance courses such as SAPM and DRM can be very helpful. As can be the pursuit of industry leading practitioner qualifications such as the CFA charter or the FRM title. But as a senior leader at Credit Suisse recently told me if a student puts "CFA Level I Pass" on his resume but is not able to answer some relatively basic questions on option payoff or return distributions then it is a big no-no! To address such concerns, I typically include case studies and financial modelling exercises (as part of the PSII course) to enable students to connect theory with practice and thereby build a strong foundation in the application of basic finance concepts.

Overall as can be seen from the examples above our students are doing exemplary work at finance stations and if you have an interest in finance combined with an analytical bent of mind then a PSII assignment at one of our finance stations can go a long way in giving you the much needed exposure and confidence to successfully start a career in banking and finance.

Name of Faculty: Prof Pawan Sharma

Centre: Pilani

My Experience during PS II



The Practice School II is the first exposure to the students towards experiencing the industry work culture and practices. There is no doubt that both students and industry benefit from the learning and the projects done with synchronized cooperation. After interaction with HR personnel and mentors of some of the major VLSI companies, it was noted that most of the students spend 3 to 4 weeks in learning or brushing up their skills before making a jump start on the project. Considering, one month spent on learning the prerequisites leaves students with 4 ½ months to complete the assigned job, which in many cases was too short. After mutual agreement, we thought of floating brush up courses in those areas which require special skill sets as a prerequisite to jump start the project. One such course on Digital VLSI Verification was developed and recorded with the help of industry experts from Mentor Graphics.

The students were timely guided based on their continuous feedback and monitoring. In Analog Devices, one student faced problems in using Cadence tools for his project and we found one of ex-BITSians working with Analog devices who happened to be an expert in Cadence tools and had worked with me on taping out the first micro chip when in BITS. It was also noted that now the companies are prioritizing skill set of students and the type of projects they had done on-campus, over CG. We have EDA tools from the top vendors in all the campuses but many of us didn't know that Synopsys conducts free training for two weeks on verification techniques every year at their premises in Bangalore. Similarly, other companies have similar programs which BITS can utilize for the benefit of their students.

Name of Faculty: Prof Preeti NG

Centre: Bangalore

My Experience during PS II



PS2 has indeed been a great and learning experience. Most of the PS2 students allotted to Sabre are from non- CS background and were provided orientation and guidance me based on previous projects in this station which helped them with their in the organization. The students picked up the required skills and were meticulous in understanding the assigned task and proceed with the projects. They were given various assignments and inputs to improve on the soft skills and

team building skills as well which are essential for progressing in their career. The experience was truly enriching for me as well as I got insight into latest technical skills being used in the industry. Also functional knowledge in travel industry was gained during numerous interactions with the students. There were timely and numerous interactions with the personnel at Sabre which helped making this bond stronger with the organization.

Name of Faculty: Prof R K Tiwary

Centre: Delhi

My Experience during PS II



Interaction is the defining component of the educational process that occurs when the student transforms the inert information passed to him or her from another and constructs it into knowledge with personal application and value. Interaction serves to develop links between new content and existing schema, allowing learners to build more complex, memorable, and retrievable connections between existing and new information and skills.

When the students joined ARM, Noida they had to learn many new things. My educational qualification helped me to explain them the basics of Microelectronics. Then I suggested them the books that would help them to a better understanding of subject.

During my regular interaction with the students I asked them questions on the subject and even had discussion with them on topics like Sub threshold conduction, different SRAM Architecture.

It was this discussion that benefited both me and the students.

The students had access to latest papers on SRAM technology and during discussion the students used to explain if not all at least few.

Then during my discussion with their mentors we always discussed about the performance of the circuit and the effort put by the students to develop them.

Name of Faculty: Prof Rekha A

Centre: Bangalore

My Experience during PS II



The students are working on various projects like implementation of a pipelined architecture of image fusion, to automate the calibration process in the camera which will reduce time taken and human error compared to the manual calibration, algorithm for vehicle count and classification for traffic Surveillance, improving the existing interface of the custom board for the DM365 processor, Optimization of the audio codec, verification of the chip, Physical design, performance analysis of cable and satellite systems, understand the co-existence of the wireless networks.

Shared document related to the various techniques for optimization like vectorization, loop unrolling etc to the students before they come for the internship so that they are prepared for the project on optimization. Also shared some of the soft copy of the books on system verilog, for video basics books like video demystified, linux device drivers etc. Also shared them some documents on the SIMD processors as some of the students in Broadcom are working on such processors before they come for internship.

Regular interaction with the students and the mentors to track the progress of the student and also identifying the skill gap. Scripting languages like perl, tcl, python and computer architecture, system verilog were some of the skill gap that was identified after interacting with the mentors. Suggested the online link to the students to learn scripting languages.

Discussed with the HR (Mr. Rajiv Balakrishnan) and the mentor for the projects to be given to the students. Meeting with the mentors/Manager and taking the feedback about the students performance and behavior. The mode of interaction with the mentors was through mail, Phone and meeting in person.

Gained knowledge about the tools and technologies used in the various projects.

Name of Faculty: Prof Mohammad Saleem J. Bagewadi

Centre: Bangalore

My Experience during PS II



I express true gratitude for the contributions made by the students and an understanding that these contributions were critical and exclusive to each individual. Industry mentors had wonderful capacity and the opportunities they gave to our students, helped to build strength and character. I asked students to be proactive in thinking before performance issues develop, I would like to put on record that because of hard work and interpersonal skills and efforts that students have put in to make the project to a great success.

Appreciate the great organizations, where general willingness to learn did not go unnoticed. I want to take a moment to share an incident, where the student were asked to develop the features that are critical to the customers. They didn't disappoint; they understood highly complex innovations in very short span of time and delivered good quality code. Great Job, it means you've made a difference.

Name of Faculty: Prof Sreedhar Madichetty

Centre: Bangalore

My Experience during PS II



I have had an excellent experience working with students who were coming for their internship at various industries with different back ground. Developing a set of learning goals for a course puts in to a shortlist of real concepts that can guide students and add clarity to teaching and learning. I use to design a learning process for students with clearly defined learning out comes that contribute to a structure that surrounds and can aid in enhancing the assessment. By guiding the students from various branches of engineering such as Civil, Mechanical, Computer Science and Chemical Engineering has given me a very different thinking perspective.

With the interaction of mentors of various industries, made me get in touch with cutting edge of technologies. For instance, the design of the voltage regulator which will provide a stable 3.3V for the chip by taking an input voltage ranging from 4.5V to 5.25V and can supply current up to 150mA designed in a 30 Nano meters.

I have had an excellent discussions with the mentors who are working on real time projects, for instance with Dr. S.T. Aruna, who is a principle scientist at National Aero Space Laboratories working on fuel cells. These are used in satellites and naval system for power generation. Which would treated as clean fuel technologies.

Finally, it is a great experience for me and feel more responsible to act as bridge between university and industry.

Name of Faculty: Prof Surabhi Bothra

Centre: Bangalore

My Experience during PS II



Practice School has the advantage of making students comprehend the industry and its needs even before going to a real job. They can not only enhance their skills by working on a live project but also prove advantageous to the organization by their innovative nature.

It has been a pleasure to be a part of PS-II curriculum and guiding students and interacting with them on the recent developments in industry. As a faculty, I could understand the challenges they are facing. For example, one of the students project was to optimise the correlator in FPGA

when FPGA is unknown to him. Similarly, one of the students worked in LTE 4G technology wherein he has to work on the receiver end. It's a challenging task as he needs to understand the LTE 4G implementation and how generally receivers are designed in practice.

Even though it's a challenging task to get involved in an ongoing project, with the advent of internet and help of mentors the students have given their best in the projects. As a faculty, I could address the technical issues they were facing. I could provide them with the relevant material to get more detailed information about their respective projects.

The students are motivated by getting live project and make sure that they don't leave any stone unturned to complete the tasks assigned. Not only did they complete the project on time but also represented their work to the entire organisation during a companywide conference, gaining recognition from all.

It's a milestone that some of them have been able to start from scratch- learnt a new technology and implemented it end to end. The guidance from the mentors and the atmosphere provided by the organization has been healthy and fruitful.

The students are heartily satisfied with their work and want to continue the same once they reach on-campus as well. It's a contentment to see people passionate about what they are doing and achieving it successfully. I hope to see some such endeavours in the future as well.

Name of Faculty: Prof Vimal SP

Centre: Bangalore

My Experience during PS II



It was a satisfying experience, mentoring 21 students during their PS-2 course at Flipkart and Nutanix. During the first two weeks of PS-2, I spend significant amount of time and effort in assisting students to in the process of getting familiar with the with the expectations from the industry and to orient them to make their learning fruitful. I was almost successful in working with the HR's and other managers to ensure that the students received opportunity to work on the area of their interest. I have always insisted that students should never hesitate presenting their ideas and different perspectives appropriately in the forums as both Flipkart and Nutanix encourages. Mentors assigned by the respective organizations played crucial role in shaping up our students skills and perspectives and hence and I ensured the students maintain healthy relationship with their mentors and team members. There were also some challenges in this front, and most of which I could address in positively. On every meetings with students, I first ensure that they are progressing in their learning, in addition to conducting the scheduled evaluation components. Mentors and the HR's from both organizations were very much accessible through phones / emails and I always received good support. The support from HR's and the managers were worth noting when a student at Flipkart found it quite difficult to cope up with the requirements. I could ensure she received her time and support from her team and few of our alumni who are employed there. It was quite exciting personally to mentor students at both Flipkart and Nutanix as I could see interesting applications of concepts I teach in the

classrooms. The understanding of inside working of an ecommerce industry, the kind of data they work with, the way decisions are being made, importance of efficient infrastructure and issues pertaining to supply chain management are significant. I could discuss technical, ethical and operational issues relating to the way they do business with the engineers and managers at Flipkart. In summary, mentoring students in these organizations is a significant learning experience for myself too which makes the job I do a lot satisfying.

Name of Faculty: Prof Vineet Garg

Centre: Bangalore

My Experience during PS II



I had opportunity to monitor the PS2 internship of students at four PS2 stations. Below is a short note on each one of them highlighting their salient points:

[24]7 iLabs: company is targeting to revolutionize the customer service industry through unified and seamless services and products integrating cloud, mobile and social networking. BITS Pilani students worked across all the domains of the company - data sciences, product engineering and service delivery. Students had opportunities to learn analytics, big data techniques, web development, testing methodologies and software development life cycle. As a PS2 faculty, I had opportunity to meet different company mentors during evaluation components. Some of them are senior company executives. The company environment is very supportive for the students and makes sure that the best comes out in the PS2 duration.

Belong.co: belong is a young and very energetic company started by few BITS Pilani alumni. Company offers data-driven solutions that help hiring teams of different organizations across different sectors to spot the candidates who best fit their requirements and are most inclined to move. Services also engage with the prospective employees through personalized interactions. During my interactions with the company mentors at different occasions, I found their work culture very contagious and there is no doubts we have a very positive feedback from the interns that they had wonderful and a great learning experience.

GlobalLogic: GlobalLogic provides full-lifecycle product development services, including software product design, product development, quality assurance, product support and consulting services across different sectors like medical, embedded, telecom and retail. Students worked on the cutting edge technology like Internet-of-Things (IoT) and had opportunity to work on various areas which are normally not done by the students like - evaluating the hardware vendors doing some proof-of-concepts, bring up the hardware board, develop customer demo systems etc. Company atmosphere encourages self driven approach and senior members of the team are accessible whenever assistance is required.

Symantec: The company works in a very niche area of software for security, storage, backup and availability. Managers and mentors encourage students to explore this area and permit time to become comfortable with the domain. Students had opportunities to work in the area of digital certificates, user authentication in the cloud scenario, secure web transactions etc. Students

who are looking forward to do their internship with Symantec must be familiar with network security, cryptography, and basic development skills in the web development.
