Birla Institute of Technology & Science, Pilani
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Practice School Division

CHRONICLES

Cement, Infrastructure, Mechanical, Textile, and Steel

PRACTICE SCHOOL - I

SUMMER - 2020

From the Desk of the Editor

It is my great pleasure to bring forth the 2nd edition of the PS-I Chronicles. This edition features over 1800 articles from PS-I students sharing their experiences during summer 2020.

The basic premise behind the release of PS-I Chronicles is to document the PS-I learning experience of students keeping the below objectives in view.

- To provide more information on the learning experiences by immediate senior students and PS-I faculty about stations, and thereby enlightening the learning opportunity among the student community.
- To provide the faculty with the enhanced information about the type and nature of work carried out at the organization.
- To transform the knowledge gained at the organization into class room teaching and also to identify the scope of deepening the collaborations with organization.

The articles have been classified into five categories based on the industry domain.

- Chronicle 1: Information Technology
- Chronicle 2: Electronics
- Chronicle 3: Chemical, Mechanical, Cement, Textile, Steel, Infrastructure
- Chronicle 4: Health Care and other
- Chronicle 5: Finance and Management

I would like to thank students for sharing their experiences during their stint at the organization. I would also like to thank Prof. Arun Maity and Prof. M. K. Hamirwasia for reviewing the articles and providing us the feedback. I would also like to extend my thanks to Mr. Om Prakash Singh Shekhawat, Prof. S Murugesan, Prof. G Muthukumar and Mr. Varun Singh of the Practice School Division, of BITS, Pilani – Pilani Campus for their help in bringing out this edition of PS-I Chronicles.

I would be happy to receive any feedback regarding the Chronicles. Please feel free to email me at psd@pilani.bits-pilani.ac.in or at anil.gaikwad@pilani.bits-pilani.ac.in.

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Name: SAAHIL PUDIPEDDI . (2018A1PS0034P) 197
Name: AARUSHI ARUN . (2018A1PS0055P) 198

Name: SHREYA KAPILA . (2018A1PS0538G) 199
Name: ABHIMANYU TYAGI . (2018A3PS0363P) 199
Name: PHUTANE KEDAR ABHIJEET (2018A4PS0495G) 200
Name: VISHAL KUMAR . (2018B1A80974G) 201
Name: SAACHI JAIN (2018B2A80197P) 201
Name: RATHI NIHAR DILIP . (2018B3A10264H) 202
Name: KOTA SATYA SURYA VINAY . (2018B3A80988H) 202
PS-I station: Nerolac Paints - Operations Management -2, Mumbai 203
Student 203
Name: MEGHNA GUPTA . (2018A1PS0476P) 203
Name: ZAIN ZAFAR . (2018A1PS0619G) 204
Name: AGRAWAL MADHUR RATNESH (2018A1PS0702P) 204
Name: ANKIT ASAWA . (2018A1PS0803H) 205
Name: ISHAN SHARMA . (2018A4PS0539H) 205
Name: MARGI VITHALANI . (2018ABPS0477P) 206
Name: SHIBASIS DUTTA (2018B1A40768H) 207
PS-I station: Nerolac Paints - Operations Management -3, Mumbai 207
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Name: NISHAD DINESH MAHAJAN . (2018A1PS0733H) 207
Name: ROSHAN REDDY BANAPURAM RAJA (2018A7PS1219H) 208
Name: KARTIK JAIN . (2018B2A30563G) 209
Name: OSHEEN ARORA . (2018B2A40599H) 210
Name: JALAN NIKHAR MAHESH . (2018B2A80361G) 210
Name: SHREY MEHTA . (2018B3A10944H) 211
Name: TULLURI KOUSHAL . (2018B3A20977H) 212
Name: SUNIDHI GARG . (2018B4A10864P) 213
Name: GANGULA VENKATA THARUN KUMAR REDDY (2018B4A20824H) 213
Name: SAMARTH JOSHI . (2018B4A20873P) 214
Name: ABHILASH SABAPATY . (2018B4A40990P) 214
Name: SHIVALIK GUPTA . (2018B1A20443H) 215
PS-I station: NIVEA India Pvt.Ltd.-Operations Management, Bangalore 216
Student 216

Name: HARSH KUMAR . (2018A4PS0035H) 216
PS-I station: NIVEA India Pvt.Ltd.-Operations Management, Kolkata 217
Student 217
Name: SHREYA GUPTA . (2018ABPS0601P) 217
PS-I station: NIVEA India Pvt.Ltd.-Operations Management, Mumbai 217
Student 218
Name: NAVYA BHANDARU . (2018A5PS0964P) 218
PS-I station: Noida Metro Rail Corporation (NMRC), Noida 218
Student 218
Name: AMAN CHAUHAN . (2018A2PS0713P) 218
Name: DEVANSHU MAHESHWARI . (2018A8PS1016H) 219
Name: ADARSH NARAYAN PANDEY . (2018B4AA0806G) 220
PS-I station: NTPC, Dadri 221
Student 221
Name: NAKUL VASHISHTHA (2018A3PS0044H) 221
Name: HARSH KUMAR SRIVASTAVA . (2018A4PS0053H) 222
Name: SOURAV A S . (2018A4PS0587P) 223
Name: APURV KUMAR SHUKLA . (2018A8PS0405P) 224
Name: C SRI DHARMENDRA . (2018B3A40869H) 225
Name: MANISH PRAJAPATI . (2018B4A40452H) 226
PS-I station: Plastic Water Labs - Actuators and Sensors in IoT, Bangalore 226
Student 226
Name: ABHIJAY KEMKAR . (2018A4PS0519P) 226
Name: ANGAD SINGH CHAHAL . (2018A4PS0595H) 227
Name: ANSH SANJAYKUMAR SHAH . (2018B5A40917P) 227
PS-I station: Plastic Water Labs - App development for VR/AR, Bangalore 228
Student 228
Name: PRASHANTH SREENIVASAN . (2018A7PS0160G) 228
Name: PURVIKA (2018A7PS0232H) 228
Name: MUNAGA SAI VENKATESH PRASAD . (2018A7PS0717G) 229
Name: RITIKA REDDY MUDUGANTI . (2018A7PS1224H) 230
Name: ASHWANI RAMESH KOTTAPALLI . (2018B4A70646G) 230

PS-I station: Plastic Water Labs - Industrial Augmented reality, Bangalore 231
Student 231
Name: PURAV . (2018B4A30751H) 231
PS-I station: Plastic Water Labs - Skill force training using Virtual Reality, Bangalore 231
Student 232
Name: ABHINAV SINGHAL . (2018B2A40704P) 232
Name: PARUL . (2018B4A40918P) 232
PS-I station: Plastic Water Labs -Machine Learning for defect analysis, Bangalore 233
Student 233
Name: SATYAM SINGH . (2018A7PS0178P) 233
Name: AKSHAT GOYAL . (2018B3A70864H) 233
Name: CHARKHA KEDAR SAGAR . (2018B3A70912H) 234
Name: SHRISH SHANKAR . (2018B5A70707H) 235
PS-I station: Proxima Corporate Services Private Limited - Manufacturing Management, Bangalore ... 235
Student 235
Name: BAANI AJMANI . (2017ABPS1189P) 236
PS-I station: Rajshree Cement Works - Civil, Malkhed 236
Student 236
Name: SHIVASHRI GUPTA . (2018A2PS0798H) 236
PS-I station: Rajshree Cement Works - Electrical Power Systems, Malkhed 237
Student 237
Name: JAYAKIRAN REDDY J . (2018AAPS0348H) 237
PS-I station: Rawan Cement Works - Control systems, Raipur 238
Student 238
Name: KRISHNA JAIN . (2018A8PS0438P) 238
Name: VEMULA REVANTH . (2018AAPS0404H) 239
PS-I station: Rawan Cement Works - Data analytics, Raipur 239
Student 239
Name: DEEPAL CHOUDHARY . (2018A2PS0078P) 239
PS-I station: Rawan Cement Works - Electrical Power Systems, RAIPUR 240
Student 240
Name: ANSHUL CHANDRA . (2017A8PS1185P) 240

Name: Gutha Pothuraju Mohith Chowdary (2018A3PS0465G) 241
Name: NISHIT DHAR DIWAN . (2018AAPS0397G) 241
PS-I station: Rawan Cement Works - Maintenance/QoS practices, Raipur 242
Student 242
Name: B JAI KRISHNA . (2018B5A20744H) 242
PS-I station: Sirius Motor Sports - Engine Efficiency & Emission Control, Chennai 243
Student 243
Name: M. Rahul Krishnan (2018A4PS0044G) 243
Name: SAI SRINIVASAN K V . (2018A4PS0342H) 243
Name: GAIKWAD SHANTANU KETAN . (2018A4PS0345H) 244
Name: PRITHVI RAMESH . (2018A4PS0502G) 245
Name: NIRMAL J . (2018A4PS0511P) 246
Name: NAMAN RATHI . (2018A4PS0933H) 246
PS-I station: Sirius Motor Sports - Engine Efficiency & Emission Control -2, Chennai 247
Student 247
Name: VEDANT BORDIA . (2018A4PS0088G) 247
Name: VISHNU SURESH . (2018A4PS0550P) 248
Name: R HARIKRISHNA . (2018A4PS0560P) 248
Name: MANTRI AADESH NANDKISHOR (2018ABPS0473P) 249
Name: DHANANJAY JOSHI . (2018B5A40895P) 249
Name: RAJ S PANDEY . (2018B5A41098H) 250
PS-I station: Sirius Motor Sports - Engine Efficiency & Emission Control -3, Chennai 251
Student 251
Name: DEVEN PAUL (2018A4PS0047G) 251
Name: ABHINAV KUMAR PAWAN . (2018A4PS0501G) 251
Name: Mullapudi Abhirama Karthikeya (2018A4PS0520G) 252
Name: ABHINAV KRISHNA . (2018A4PS0560G) 253
Name: HARSH . (2018A4PS0901G) 253
Name: KARTHIK SUDHIR KAIMAL . (2018A4PS1008H) 254
Name: PRANAV KRISHNAN IYER . (2018A4PS1113P) 254
Name: ANNAVARAPU VIJAY MOHAN . (2018B2A40493G) 255
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Name: GANDHAM MIHIR JESHURUN . (2018B4A40972H) 256
Name: BHANU SHARMA . (2018B5A40589G) 257
Name: GOVIND RAJ . (2018B2A40975G) 258
PS-I station: Solar Energy Corporation of India, Delhi 258
Student 259
Name: BANDARU BINDU . (2018AAPS0400H) 259
Name: MARYALA VINAY KUMAR . (2018B4A30964H) 259
PS-I station: Sundaram Auto Components Ltd (SACL) - Secondary research, Hosur 260
Student 260
Name: NILADRI NILAMADHAB . (2018A4PS0229H) 260
Name: NILADRI NILAMADHAB . (2018A4PS0229H) 260
Name: G AALWAR SUNDARAM . (2018A4PS0650H) 261
Name: DHRUV SETIA . (2018B3A40772G) 261
PS-I station: Texmaco Ltd., -steel casting, moulding and mould design, Kolkata 262
Student 262
Name: GUPTA AMAN NITIN . (2018A4PS0561P) 262
Name: A SHIVA SAI . (2018A4PS0811H) 262
PS-I station: TVS Motors Ltd -R or Python, Chennai 263
Student 263
Name: RAJ DEEPAK PATEL . (2018A1PS0949G) 263
Name: SARVESH NAND KUMAR KHETAN . (2018A4PS0947H) 264
Name: C PADMA SAI MEGHANA . (2018A4PS1047H) 265
Name: PRATEEK GOYAL . (2018A7PS0181G) 266
Name: SHAH KUSHAL SNEHAL . (2018A7PS0254G) 266
Name: RATNARAJ . (2018A8PS0297P) 266
Name: AMAN KUMAR . (2018A8PS0764P) 267
Name: MANAAL SANDEEP PARIKH . (2018B1A31038P) 267
Name: SONALI AGRAWAL (2018B2A30934P) 268
Name: NIKHIL JAIN . (2018B2A40710P) 269
Name: KANWARAJ SINGH (2018B3A80944P) 270
Name: DEVANSHH AGARWAL (2018B4A30889P) 270
PS-I station: Ultratech Cement Ltd., Kotputli 271

Student 271
Name: APURVA CHAUHAN . (2018A1PS0061P) 271
Name: AISHWARYA PRATAP SINGH . (2018A1PS0085G) 272
Name: RISHABH SINGH . (2018A8PS0085P) 272
Name: PRANAV MISHRA . (2018A8PS0469G) 273
PS-I station: Vikram Cement Works - Environment Management, Neemuch 273
Student 273
Name: SHUBHAM DAGA . (2018B4A10691G) 273
PS-I station: Vikram Cement Works - IT, Neemuch 274
Student 274
Name: ARIMANDA DHEERAJ REDDY . (2018A7PS0269H) 274
Name: RUTVI . (2018A7PS0350P) 275
Name: KETAN BANSAL . (2018B2A80512P) 275
PS-I station: Vikram Cement Works -Industrial Control and Automation, Neemuch 276
Student 276
Name: BULLE ABHISHEK MANOJ (2018A3PS0663H) 276
PS-I station: Viram Technologies - Civil design, Pune 276
Student 276
Name: RISHABH DEV . (2018A2PS0086P) 276
Name: MUKUND MADHUSUDAN JHA . (2018A2PS0739P) 277
Name: BODUGU VAMSI KRISHNA . (2018A2PS0842H) 278
PS-I station: Viram Technologies - Cognate Mechanism, Pune 278
Student 278
Name: EDWIN THOMAS . (2018A4PS0696H) 278
PS-I station: Viram Technologies - Design of Pressure vessels / Heat Exchangers, Pune 279
Student 279
Name: GOLLA UDAYA SAI KIRAN . (2018A4PS0586P) 279
PS-I station: Viram Technologies - Robot design & automation, Pune 280
Student 280
Name: SAJAY ALEX VARGHESE . (2018A4PS0379P) 280
Name: KARTIKEY SINGH BHANDARI . (2018A4PS0545P) 280
Name: KANDIAN VIHARI . (2018A4PS0689H) 281

PS-I station: Adani Power, Ahmedabad

Student

Name: B RAJA NARASIMHAN . (2018A3PS0428G)

Student Write-up

Short Summary of work done : In my report I have highlighted on circuit breaker which is which is one of the most important component of switch gear and how we can do proper maintenance, reduce defects and on new technology which we can try to adapt so that we can have proper smooth flow of electricity generation. I have specifically focused on circuit breaker which is which is one of the most important component of switch gear.

PS-I experience: It was a good learning experience and gave me the good insight into corporate world

Learning Outcome : Really Good

Name: DEEP PATEL (2018A4PS0526P)

Student Write-up

Short Summary of work done : My project was about prevention of corrosion in condenser in Circulating Water Piping, and condenser water boxes due to seawater. I was allotted Adani's Mundra plant. We were 2 students working on this project. First the causes for the problem were understood along with the operating details. A CFD analysis was done on Ansys Fluent to calculate the erosion rate. Similar problems in the industry were researched and solutions were proposed based on that.

PS-I experience: PS-1 at Adani Power was a good experience. Mentors were very helpful and always ready to talk. We were not provided the required data for our research due to security reasons over internet in a remote PS setup. Hence our project was mainly study based. A lot of creativity was required in those weekly PS-1 diaries. Meetings were held on Microsoft teams.The experience would have been even better, had we been on the station. Thermal Power Plant in Mundra has the largest installed capacity in India. It would have been a great experience visiting such a big plant.

Learning Outcome : Concepts of thermodynamics were refreshed via online gap lectures by faculty mentor. Some concepts of heat transfer were also introduced by the research papers shared by our faculty mentor. I learned about power sector and the opportunities available in this sector.

Name: PRATIK MADHAN . (2018A4PS0668H)

Student Write-up

Short Summary of work done : My project was entirely based on resolving the issue of Corrosion in condenser water piping and Cooling water piping in a Thermal Power plant. Prevention techniques for Corrosion and their maintenance costs millions to power plant owners each year. The slight increase in the efficiency of the process saves much and leads to a massive profit for power plants.
I initially worked on finding the cause of the issue and analyzing significant areas prone to Corrosion. We observed that the corrosion issue is due to the erosion of protective coatings in prone areas.
I measured rate of erosion by performing fluid simulation analyses in Ansys Fluent and developed a model for prone areas at given operating conditions and iterated for different impingement angles to analyze various contributing factors for high erosion rate. Through rigorous simulation, We obtained high erosion rate profiles on the pipeline and concluded about different parameters and their dependency on erosion rate.
My team researched on well-accepted methods for corrosion prevention, their feasibility, installation, and maintenance cost involved. The major challenge was their installation in a running plant and their compatibility with the existing ones.
My team has finally proposed a combination of three solutions that are feasible and compatible to install. These methods can successfully improve the efficiency of the plant and reduce maintenance frequency and time involved.

PS-I experience: My experience at Adani Power, Ahmedabad, was outstanding. Working on such an industry project which has vast implications and various economic challenges involved was great exposure for me.
Work from home PS has some drawbacks and limitations, but with the constant support from our industry mentors and faculty, we were able to overcome most of them.

Learning Outcome : My learning majorly revolved around how currently available resources can be used to make well accepted and expensive methods feasible and compatible according to our operating conditions. I learned about modeling and analysis for various operating conditions of the process in Ansys Fluent and simulated various fluid problems. Such projects which involved real-time analysis and observation have provided excellent learning exposure to me.

PS-I station: Adani Power, Tirora

Student

Name: SUSHANT KUMAR ROY . (2018A2PS0121P)

Student Write-up

Short Summary of work done : I with my two team mates made a complaint management platform for the Adani Power Maharashtra Limited (APML) Township Management. The Platform consisted of an application (android app) and a website. The app is to be used by those employees who are residing in the residencies provided by the company for their day to day problems like electrical, plumbing etc. The website is to be used by the company administration for the management of the complaints received and services provided to them and feedback received.

PS-I experience: The total number of participants in the Adani Power, Tirora internship were 11. For the first time practice school 1 was organised in online format. Of course, that was very new experience for me, and I think for our instructors too. This new format led in the shrinkage of total span of practice school 1 session to only 6 weeks.
Since the aforementioned company is in power sector so the instructors were mainly from the Mechanical Engineering background. So, the allocation of projects to students started one week after the PS1 date. Then we were allotted an off-campus mentor. It took another week to get in contact with the mentor and get all the doubts clarified about

the project title. So, now we were left with only four weeks to finish the project with no prior experience of app development. However, we started the project with the prototype development in power point presentation. Initially all of us were very passive towards the project because we got to know that the whole project would be completed by us without any proper training sessions from the instructors. But soon we realised that the deadline of the mid-sem report was coming. Then I got my guts on place and worked extensively. I worked at least eight hours a day for almost a week to complete the presentation containing the prototype of the app and website we would be building. I contacted instructors whenever I required help even at 2 am in the morning. However, the instructors were not of very much helpful by this time. But we were able to complete the prototype two days before the mid-sem presentation. We contacted our off-campus mentor to look into it and suggest changes if she had any. After seeing the prototype, her reaction was “how could you make such a beautiful presentation/prototype in such a less amount of time?”. “ I am pretty impressed with your work” she added. After then she suggested some changes and we were ready to make the prototype into real app.
The mid-sem report was over, but we had no idea on how to make a real app. Then we contacted our mentor. This time she was very helpful in providing resources. She gave us the access of BITS WILP platform and suggested some of the videos available there, added us as guest in some of the seminars, and provided some of the materials to read. At the start of the app development we, specially me, were very confused because our learning was very abstract instead of planned. But I worked very hard, at least 10 hours a day for 3 weeks straight. In the meantime, I got chronic lower back pain which made my days even harder. We took the help from various sources like friends, YouTube, stackexchange.com etc. There were lots of assignments which we had to prepare like group discussion, seminar, observations etc. So these things also killed our lots of time. But by the time the deadline of end-sem report came, we were almost ready with our completed project. But instead of the website for database collection about which we talked earlier, we made our app connected with the Google firebase. So, we presented our app to the industry and college mentors and they were very happy seeing that.

Learning Outcome : Overall, my experience was quite good in this PS station with the lots of learning. I learnt a lot about gaining the information from unsystematic sources. Got to learn about working harder and harder even when the situations are not as expected. And finally I really feel very good after the PS1 is over.

Name: HARI RAGHAVENDRAN B . (2018A4PS0514P)

Student Write-up

Short Summary of work done : My work was to conserve water from Cooling Tower Vapours of a Super-critical Thermal Power Plant. Many ideas were discussed and Ion

Beam method, based on Electrostatic precipitators were used. The final results proved basic feasibility, and requires in depth research, experimentally, to ascertain its viability.

PS-I experience: My PS 1 Experience was great, the mentors from both Industries and Institutes, really helped us a lot, with GAP lectures. The lack of availability of basic research data, proved to be a challenge, especially with the virtual mode of Internship. Barring that, the entire PS 1 experience was great and helped learn a variety of new skills and areas in the power sector

Learning Outcome : I learned to implement theoretical knowledge into real world solutions, A multidisciplinary problem helped me understand the need to have a basic graph of all concepts.

Name: GURNOOR SINGH . (2018B2A20011P)

Student Write-up

Short Summary of work done : The application we developed has the following salient features-

1) A User-Friendly Interface so that even a first-time user can utilize it easily
2) It has a secure platform as it doesn't easily let the user change his personal information, if someone does so out of a mischief.
3)It also has all the required phone numbers and the Email-IDs to escalate the matter in case the complaint is not addressed through the portal
4)It also gives a status of all the registered complaints whether they are still pending and the details of the person whom the complaint has been assigned to.

PS-I experience: We need to develop a complaint portal for the APML township management system.In order to help the people of APML Township to address their housing concerns of plumbing, carpentry, masonry, electrical and other issues, our team from BITS- Pilani had been in the process of developing a complaint management portal for the past 6 weeks, as a part of our Project for PS-1, which would be completely user friendly and would make it very easy for the residents to get their complaints addressed by the concerned authorities. This application will help to get their problems get solved at the earliest. It has a secure platform as it doesn't easily let the user change his personal information, if someone does so out of a mischief. We used

Android Studio in the development of the application as an IDE(Integrated Development environment).

Learning Outcome : Our team has developed a user-friendly complaint portal (mobile application) through which the concerns of the township people at APML can be managed effectively and looked after. In case their concerns are not looked after, people can use the contacts and email-IDs provided in the Application to escalate their complaints to the highest level of authorities. Thus our team delved deep into the knowledge of Application Development.

PS-I station: Aditya Birla Chemicals - (SCM) - Industry Benchmarking, Halol

Student

Name: VIHANG SUBHASH HIWASE . (2018B4A10159P)

Student Write-up

Short Summary of work done : The present-day scenario of supply chain and its management requires continuous improvement and constant optimization at various levels and at various time intervals to achieve the best cost optimization of the product and the processes. To accomplish the above-mentioned task, Performance Metrics Benchmarking across various functions is primarily required to be performed among the various competitors and then best practices to achieve the cost optimization has been identified and adopted in the practice. During this PS-1 study around 29 competitors and 23 number of suppliers of Aditya Birla Chemicals have been identified and compared their performance benchmarked KPIs with reference to their importance in various functional fields of Supply Chain in Chemical Industry and then best practices among all has been suggested to adopt at actual. It has been observed that the key Indian Chemical Companies lack behind the international companies in the various KPIs, and the prominent among them are Payment Term and Inventory Turnover along with few more KPIs known as Demand Forecasting and Logistics Spend as a Percentage of Revenue.

PS-I experience: The experience was overall good.

Learning Outcome : Got to learn about Supply Chain, Industry Bench marking, KPIs at various level of supply chain, Supplier performance bench-marking

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PS-I station: Aditya Birla Insulators - PoP mould and cutting tools, Halol

Student

Name: ADITYA PATEL . (2018ABPS0493P)

Student Write-up

Short Summary of work done : Drawing synchronization between PoP moulds and Cutting tools. At this station we learned about the processes involved in the manufacturing of 160kN Super Fog Insulators. The importance of shaping process was the highlight of our project wherein we were to focus on the sync between the Dubba Cutting process and the dimensions of the PoP mould.

PS-I experience: Owing to the extraordinary situation risen due to the pandemic and the cyclone AMPHAN the initial week was a bit slow. As soon as we were able to grasp the online learning procedure, the project became totally interesting. Via online resources, I was able to venture into a field I never knew held so much importance. The project unfolded to be an exciting and challenging task which would benefit the company at many levels. Overall, the project was wholesome and the mentors and teachers involved were the best one could ask for.

Learning Outcome : My project focused on the Shaping Process involved in the manufacturing of 160kN SuperFog insulators. We learned about each individual step involved in this process in detail. We had to highlight the importance of mould design, cutting process and its implications on the manufacturing of the insulators. The team learned about the parameters involved in the design of a mould, about the constraints one has to consider, about the Dubba Cutting process, and much more.

Name: YASH PANDEY . (2018B5AB0732P)

Student Write-up

Short Summary of work done : Working on the insulators used in sub-station transmission and railways and in particular on the synchronisation between the cutting tools and PoP mould and how can we bring in more efficiency in the same.

PS-I experience: Great experience, got to learn a lot and had an invaluable learning experience.

Learning Outcome : Got to learn about the working of the manufacturing industries and the problems being faced by them and how exactly is the manufacturing process carried out.

PS-I station: Aditya Cement Works, Shambupura

Student

Name: RITIK ROHAN . (2018A2PS0120P)

Student Write-up

Short Summary of work done : My project was to study different possible alternatives of cement to make it more sustainable.Another area of the project was to study ways to make the current cement manufacturing process more environmentally friendly such as by increasing electrical efficiency of kilns,use of alternate fuels,replacement by waste materials like fly ash,GGBS,silica fume etc.

PS-I experience: The overall PS-I was very well planned and included webinars hosted by company officials or people from other field on various topics to give a complete virtual experience of how an industry works.We used to get constant guidance from our mentors alloted by company as well as PS-I faculty.There were webinars hosted daily to

give us an insights of a cement industry and different process like production, quality control automation of machines etc.

Learning Outcome : Got to learn about different ongoing researches on this sector to make the cement production more eco-friendly.Learned about many process running parallely which are important to maintain the production of the cement.

PS-I station: AECOM Infrastructure, Mumbai

Student

Name: SUBHAM AGARWAL . (2018A2PS0139P)

Student Write-up

Short Summary of work done : I am working on a study based project where my mentor sends me the reports on the construction of Mumbai Trans Harbor Link. I study the reports and try to understand as much as possible by using internet.

PS-I experience: My experience till now has been good as the reports send are not available online and I have learnt many things using those reports. I also learnt how actual construction is done part wise.

Learning Outcome : Talking to professionals.
Preparing reports.
Processes involved in construction.
Self confidence while presenting.
Technical knowledge.

Name: SUBHAM AGARWAL . (2018A2PS0139P)

Student Write-up

Short Summary of work done : I was alloted a study project on construction of Mumbai Trans Harbour link. Basically reports were sent by my mentor and I used to study them and try to understand reports with the help of internet and my mentor.

PS-I experience: My experience was good though practical knowledge would have been great. I learnt many new technical things by reading reports.

Learning Outcome : I learnt how the industry works, how professionals conduct themselves. I also had a good experience on giving presentation. It helped me to gain confidence.overall PS was really a great opportunity for me to learn different things.

Name: ATHARVA SANTOSH CHIKTE . (2018A2PS0148H)

Student Write-up

Short Summary of work done : As this PS-1 was work from home due to COVID-19 conditions so we were given some study and analysis based projects. We lacked some field experience . So, the project was " To do a deck slab analysis of a bridge". Initially I was given the IRC codes to read and get familiar with the IRC codes for the bridges. I completed the reading part in few days and prepared a note of all the codes as they were important and would require for future reference. Then I was given few problems to solve from the company and they also told me a few books to refer from which I referred to for the project. The company mentor was in regular contact with me through mails and calls so he would solve all the doubts which I had during the course. He also told how to work on the problems with the basic knowledge I had of Structural engineering. Later I was given the same problems to solve in STAAD pro which I did and verified the results and matched with my written calculations.

PS-I experience: Overall the experience was good but at the same time we lacked the on-field knowledge but I am sure being on the field would surely increase our learning but this time we were working from home. But sitting at home and working was also a new experience I got to learn more about STAAD pro and how companies manage their business.

Learning Outcome : I learned how to deliver a presentation and also we were tested in our verbal skills. They conducted group discussions on interesting topics which helped us in developing our soft skills. I got know about STAAD pro and learned a quite new things in a different aspect.
Overall it was a satisfying experience.

Name: ANSHUMAN BAHADURMAL JANGIR . (2018A2PS0460P)

Student Write-up

Short Summary of work done : In brief my PS was under a Tunnel Engineering Expert, so It was a study based project on Tunnel Support Design, and due to lockdown everything happened online, all the presentations quizs etc. It was a civil core project and my mentor tried his best to provide online documents to help me understand the topics.
In parallel to PS , several webinars and talk were organised on various industrial topics.

PS-I experience: It was a fruitful experience. The platform canvas was good, mentor were good, and Project was really nice I learned a lot. Also webinars and Presentations improved my soft skills a lot.

Learning Outcome : I learned about Tunnel Engineering Basics and how to design tunnel supports using empirical methods.
There were also webinars on railways, cement manufacturing, BIM, construction management etc that taught us many new things regarding our core subjects.

PS-I station: Aliens Developers - Civil, Hyderabad

Student

Name: MAYANK DUBEY . (2018A2PS0127P)

Student Write-up

Short Summary of work done : My project was to design a rigid pavement road for the company according to the traffic volume and with accordance with the different IRC codes.

PS-I experience: I learned about designing a rigid pavement road and also i improved my communications or interacting skills and gained some technical skills in my core department.

Learning Outcome : We designed a road for the company which might get built by the company according to our plan.

Name: AKASH SWAIN . (2018B2A20661P)

Student Write-up

Short Summary of work done : My project was based on Quantity Surveyor. My team was doing quantity estimations for their ongoing project Aliens Space Station, Hyderabad. Our mentor helped us to learn how to properly do some estimations and how can we use the concepts in advanced development. We were introduced to BIM, Bar Bending Schedule and Pavement design. The whole 6-weeks were spent in learning how to work professionally and how to do the estimations. The process of learning and applying was very intriguing.
Our team was fortunate enough to be taught by teacher from different campuses and also by other professionals in our domain. The various webinars was highly informative and gave us so many paths that are yet to discover. The webinars also gave an idea of what career opportunities we can possibly think of that will be best for us.

PS-I experience: It was quite interesting. Working while learning process helped a lot. The learning process was faster than usual, and concepts were easier to grasp when you are actually working on the topic. There were issues of internet connectivity which disrupted the flow many a times. Nevertheless the experience of such opportunity is rare and I enjoyed a lot.

Learning Outcome : Learned about Quantity Surveyor, Designing, BIM, AutoDesk Revit, Project management, etc.

PS-I station: Atomic Energy Regulatory Board, Mumbai

Student

Name: ADITYA SUBBARAMAN . (2018A1PS0010G)

Student Write-up

Short Summary of work done : My project was mainly related in the development of a Containment Chamber. A containment chamber is any chamber which is used as a closed vessel which restricts the outflow of any kind of emissions in the case of a Nuclear leak. Moreover my project develops a CV and uses the Navier Stokes equation to solve and get the final conditions which helps us in predicting how the Nuclear reactor core would react when subjected to the particular conditions.

PS-I experience: It was good. My mentor was in touch with me and he shared reference materials which would help me in the completion of my Project.

Learning Outcome : Coding skills, Communication skills, Technical Skills to name a few.

Name: OINDRILA GHOSH . (2018A1PS0080G)

Student Write-up

Short Summary of work done : My work involved writing the thermo physical property module for the containment code. The containment code is a package which aims to simulate the containment chamber. The containment chamber is the tall domed building

inside the compound of a nuclear power plant, which houses the nuclear reactor core. The main job of the containment chamber is to hold the radiation in. This makes simulation of the containment chamber very important. The package has multiple modules. One of them is the thermo physical property module, which calculates values like the specific heat capacity, dynamic viscosity and heat conductivity for the different gases present inside the containment chamber as well as their mixtures. The code was written in Fortran 95 and documented using Doxygen.

PS-I experience: My mentor was very helpful and provided me with the documents that had all the details of the values to be evaluated. He also kept tabs on my work and asked for updates on a regular basis. This helped me keep myself motivated and be diligent and consistent with my work. There were certainly a couple of issues that arose because of the WFH nature of the PS but my mentor tried his best to make sure that I didn't face any problem. The professors also organised some gap lectures and expert talks which helped me gain clarity on the Indian power sector and the working of nuclear power plants.

Learning Outcome : Skills: Fortran 95, Doxygen, Interpersonal Skills, Soft Skills
I also learnt a lot about nuclear power plants, especially about the containment chamber.

Name: YASHVARDHAN RAJESHKUMAR JOSHI (2018A1PS0327P)

Student Write-up

Short Summary of work done : During severe nuclear accidents, hydrogen mitigation is an important aspect of containment. To do this, a device known as Passive Autocatalytic Recombiner is used. However, there is also presence of carbon monoxide (CO) in the hydrogen-steam mixture. Hence, it is important that the reaction mechanism of oxidation of CO on Platinum catalyst is developed. Reaction models are developed using the surface mechanisms available in the literature. This is followed by obtaining reactions rates of elementary reactions, which are then solved as a non-linear system of equations to find fractional surface coverage of all surface species.

PS-I experience: The PS experience was helpful in understanding the industry requirements of the nuclear industry specifically, how researchers breakdown complex problems into smaller, more approachable parts, and how these problems are solved

via interdisciplinary teams cutting across the spectrum of engineering fields, computer science, mechanical, chemical, etc.

Learning Outcome : Surface chemistry, especially reaction modelling and development was a new skill that I acquired during my PS.

Name: MADHAV RATHI . (2018A1PS0723P)

Student Write-up

Short Summary of work done : My work was based on development of fuel- clad mechanical interaction model. I was supposed to create a program in FORTRAN language for mechanical interaction model. Due to fission reactions a lot of phenomena occurs inside a fuel pin structure. Some of them are swelling, thermal cracking,creep, densification,gas release,thermal deformation. This results in deformation in fuel as well as clad. My project aimed to consider and calculate all the deformations from these phenomena and calculate net total pressure on clad. The pressure calculation on clad is important because it avoids mixing of fuel with coolant. If mixed, fuel being radioactive may be very dangerous.

PS-I experience: It was the first time I was working on project from online mode. It was difficult initially to understand some basic concepts, Seeing the models in real was not possible due to work from home. The faculty mentor tried there best to explain whatever they could and overall it was a good learning and fruitful experience for me.

Learning Outcome : I learned a new programming language FORTRAN. I got a very good knowledge of power sector in India and how do they operates on such a vast scale, got a bit flavor of how industries work.

Name: SMRITI PRAKASH . (2018A4PS0045P)

Student Write-up

Short Summary of work done : Since AERB primarily focuses on safety regulations across nuclear power plants, my work included postulated accident analysis where I was required to have a complete understanding of the processes within the nuclear power plants. I had to develop a code to estimate leakage under possible accident conditions and was asked to improve the existing code as well.

PS-I experience: It was my first stint at a research project under an experienced mentor working in the Government sector and turned out to be a lot more fulfilling than I expected it to be. My mentor kept me on my toes and made sure there was legitimate progress each week for me to gain the most I could from this project.

Learning Outcome : The learning outcome wasn't merely technical as there was a lot of focus on interdisciplinary learning throughout the period of this project. I was mostly expected to work using FORTRAN and MATLAB. The holistic understanding of regulatory board functioning was a definite bonus.

Name: KULKARNI SUMEDH SHIRISH . (2018A4PS0582P)

Student Write-up

Short Summary of work done : My project entailed the designing of a tall steel structure against extreme wind loads. It involved gathering an understanding of various softwares such as Ansys and Matlab and it also required ample knowledge of Indian Standard Code Section 875 Part 3, that details the procedure on proper wind loading of structures.

PS-I experience: PS-1 allowed me to engage directly in the industry and work with real life constraints. It was a very helpful experience that increased by understanding of the subjects taught to us by supplementing their theoretical knowledge with practical experience from working on a project. Despite the current circumstances of the world and the challenges faced by the PS Division, the Practice School - 1 programme was handled skilfully by the responsible authorities.

Learning Outcome : The Practice School -1 programme has helped me gain a better understanding of the theory subjects taught on campus and the practical experience

has proven very helpful too. The new knowledge gained about various softwares and standards is sure to help me in my future endeavours.

Name: HARSH HRISHIKESH KULKARNI . (2018A4PS0830P)

Student Write-up

Short Summary of work done : Made a program for implementation of the Groenevelds look-up table for the calculation of the critical heat flux at a local cross sectional area. Also made another program to calculate the critical mass flow rate in a pipe break. Both the programs were made in python.

PS-I experience: It was very nice, both the mentor as well as the faculty were very responsive and accommodative.

Learning Outcome : Learnt a lot about heat transfer as well as thermal hydraulics. Mainly about Critical Heat Flux and the boiling crissis as well as calculation of critical mass flux in choked flow conditions.

PS-I station: Awarpur Cement Works - Electrical Power Systems, Chandrapur

Student

Name: AMIT KUMAR . (2018A3PS0440P)

Student Write-up

Short Summary of work done : In the PS I learned about how the power is supplied to the whole plant, different process in making of cement, how to do quality check and

improve it. I got to know about the hazards that take place there also how to overcome it, I learned about how to deal with different type of panels.

PS-I experience: The PS experience was very good in terms of learning from the industry people also through different interactive session and group project we were able learn teamwork, was able to gain confidence.

Learning Outcome : The learning outcome was about the power supply into plant and also how electric arc is generated there, how much damage it can cause, how to deal with it, what protective measures we have to take.

Name: RAJAT PRASHANT KHADE . (2018A3PS0555H)

Student Write-up

Short Summary of work done : commissioning of VFD drives in cement industry. learned a lot about basics of VFD and its components. the most important part of PS1 was to study about benefits of VFD and what power and cost cutting efficiency it brings in cement industry

PS-I experience: its was a great learning experience. PS faculty and industry mentor were extremely helpful and the PS 1 was conducted very smoothly

Learning Outcome : learned about VFD's operation principle, components, manufacturers, benefits, commissioning steps.

Name: POTHEDAR AJAY . (2018A3PS0655H)

Student Write-up

Short Summary of work done : Theoretical knowledge about the types of motors, motor selection, rectifiers, types of drives, direct torque control. Motors convert electrical energy into mechanical energy by the interaction between the magnetic fields set up in the stator and rotor windings. Principle of operation, uses and applications of induction motor and synchronous motors are explained. Motor selection is a very important task for any industry or project since motor efficiency and type has a big impact on total cost. Basics of various types of drives is discussed and major focus is on VFD. This report covers system description and principle of VFD, maintenance, cleaning, and benefits of VFD. Important steps related to commissioning of VFD like pre-commissioning checklist and steps of commissioning. Testing process after commissioning is also elaborated in this report. At the end detailed case related to power efficiency and cost savings that can be achieved using VFDwere studied.

PS-I experience: PS-1 provided an opportunity to interact with industry mentor and work with students of various disciplines to learn and gain about the concepts that are currently used in the industries.

Learning Outcome : Not much but we gained a beginner knowledge on power systems like knowing about what is a motor drives and how does they work and commissioning of motor drives and much more basic theoretical knowledge which have been used in the cement industries.

Name: VAIBHAV SHUKLA (2018B4A10851P)

Student Write-up

Short Summary of work done : My PS1 project was based on the commissioning of 160kw danfoss variable frequency drives. We learned a lot about electrical motors their types, usage parameters and working , VFD and the ones used in the cement plant , we also saw the advantages and disadvantages of using the VFDs and did the case study on their impact on environment, energy and cost savings , we also learned in detailed manner the selection process of the motors and the VFD , pre commissioning checklist and the commissioning steps were learnt in great details , faults and normal problems seen in the plant were discussed with mentor sir.

PS-I experience: I had a great PS1 experience, the training we got under the guidance of faculty member and the PS station mentor and the learning we had in various fields through industry expert lectures which made us realise the importance of knowledge in

various domains as well as the importance of classroom teaching which includes optimisation , operation research , Fourier transform and Laplace and many more mathematical and engineering concepts , we also discussed in details the concepts of industry 4.0 and society 5.0 and some of them were based on financial knowledge while others discussed about the cement plant , it's working , the materials required , quality and maintenance check. So overall the experience of PS1 is a valuable one and gave me an in depth knowledge of inter department concepts as well as motivated me to learn well the concepts in my area of study.

Learning Outcome : The learning of PS1 ranged from civil , chemical , mathematics , finance to electrical and electronics , computer science to the newer concepts of industry 4.0 , augmented reality , IOT , importance of machine learning and the most important knowledge of the mathematical concepts we learn throughout our engineering and their importance in the industry. I learned a lot about the domain of project I was working in which mainly focused on the electrical section of the cement plant. Other than these skills we also enhanced our soft skills through presentations , group discussions and report writing ; that include taking initiatives , communication in an industry, listening other people's opinions, coordinating , management, content writing , we also gained confidence and developed public speaking skills.

Name: RAHUL JOJI JOSEPH . (2018B5A80675G)

Student Write-up

Short Summary of work done : The area in which I chose to do the project was Electrical Power Systems(EPS) because I wanted to have experience in Electrical Core Field since i am pursuing to be an Electronics and Instrumentation engineering. I was assigned to work in Awarpur Cement Works which is a cement processing factory of Ultratech Cements. The topic of project I was allotted was "Switch gear and Protection and Generator Protection". I was able to do a study oriented project regarding the importance of generators in a Cement processing factory and ways to protect the generator from internal and external faults that may occur in everyday life.

PS-I experience: The schedule was a busy one although not a hectic one. Around 3-4 classes conducted by Awarpur Cement Works was held on a weekly basis. The topics discussed in these classes varied across the fields (included basics of cement manufacturing and processing, how this corporate board works, challenges faced in the cement industry etc). During key weeks (like midsem and compre submission weeks), the schedule was left free, so more time could be put into the project report and

seminar. The project guides allotted was very responsive and patient. The PS1 faculty allotted helped along each step of the Practice School. Overall it was a good experience.
One of the major issue i came across was connectivity issues and interrupted classes and meetings due to this. Other than that everything went smoothly.

Learning Outcome : Technical
1) Basics of Matlab
2) Basics of Simulink
Soft Skills
1) Report writing skills
2) Presentation skills

PS-I station: Awarpur Cement Works - Energy Management, Chandrapur

Student

Name: MANAS AGARWAL . (2018A1PS0604P)

Student Write-up

Short Summary of work done : My work was studying about the various sources of alternative fuels and raw materials for cement industry and where can waste materials be used in manufacturing process.

PS-I experience: It was a good experience. It was our first experience in a corporate and professional life and working in PS station helped me in gaining insights about the workflow in a corporation.

Learning Outcome : Various sources of Alternative raw materials and fuel sources in cement manufacturing process.

Name: VORUGANTI VASANTH . (2018A3PS0557H)

Student Write-up

Short Summary of work done : The ability to monitor and control the flow of water in real-time can be invaluable as one can detect and seal off leaks with minimal effort. The practical realization of such models, however, is easier said than done, as the outward simplicity of the system belies the complexity and magnitude of the problem. The design of a smart network capable of monitoring a given Water Distribution System must take into account the maximization of
resource utilization while still providing near-comprehensive coverage over large areas, be able to stand the test of time, and still transmit essential data swiftly. The work done during PS-I is a humble attempt at finding a solution to a reduced version of the problem. Instead of seeking to monitor every aspect of the system, we attempt to find a generalized model specifically optimized for the detection of leaks within the Water Distribution System

PS-I experience: PS-I provided a unique opportunity to interact with industry mentors and work with students of various disciplines to learn and gain experience about the concepts and techniques that are currently being used in the industry. Since this year, the PS-I is conducted online rather than the regular offline PS-I, this was my first experience of working on a project online The interaction with an industry mentor and faculty instructor was mostly done through Google Meets which was a completely different experience as compared to meeting them in person the interaction usually took place with video off and only through the microphone.
The communication between the team members mostly took place through Whatsapp rather than direct face to face talk. This reduced the amount of interaction between us but everyone started asking the progress of each other's work which led me to the experience querying others confidently. The entire evaluation scheme put forth for the online PS helped me complete the project gradually at a regular pace step by step. The evaluation components like quiz, dairy, seminar, project report helped me to continuously learn new things regarding my project and gain experience in writing diary, report for planning and recording the concepts and progress in the project. The evaluation component like group discussion helped me to learn something unique about my project domain and helped me improve my soft skills. My entire PS-I was an excellent experience in putting forth an industry-standard project

Learning Outcome : My learning outcomes of the PS-I include learning of both the concepts in developing the project and components involved in recording the progress of the project The overall learning outcome was the concepts, tools, and techniques in developing project from the beginning to the end.

Name: KHUSH KHANDELWAL . (2018B3A10921P)

Student Write-up

Short Summary of work done : Analysed the factors that effects the performance of ESP(used for purifying exhaust gases from cement plant) like resistivity, current density, and many more. The analysis was done to increase the efficiency of collecting dust from gas stream.

PS-I experience: It was a good experience in gaining knowledge of a cement plant but at the same time it was some difficulties due to network problems.

Learning Outcome : Got a glance on how to work in a cement plant, keeping in mind the safety measures to avoid casualties, learn the technicalities of my project domain.

PS-I station: Awarpur Cement Works - Industrial Control and Automation, Chandrapur

Student

Name: ADIT ANDREW MOHANTY . (2018A3PS0186H)

Student Write-up

Short Summary of work done : Learnt the basics of PID controllers and industrial applications. The primary work was simulation of PID controllers using a software.

PS-I experience: Decent experience, given the circumstances.

Learning Outcome : Learnt the basics of PID controllers and industrial applications. Also learnt how to use a software to simulate PID controllers.

PS-I station: Awarpur Cement Works - Process & Unit Operations, Chandrapur

Student

Name: ABHISHEK KUMAR . (2018A1PS0060P)

Student Write-up

Short Summary of work done : Working on Maintenance in a cement plants including leakage reduction, improving efficiency of compressors, efficient piping systems, flow controls, cement extraction and packing.

PS-I experience: PS-1 actually exposed me to the industry and importance of economy balance which will help me in the future for sure.

Learning Outcome : Balancing economy in an industry, learning how to efficiently use machines and how to optimize the output are some of the areas which I gained experience in.

Name: ADITYA SATEESH MAHAJAN . (2018A1PS0951G)

Student Write-up

Short Summary of work done : The work was focused on theoretical aspect of Pyro Section of Cement plant and ways to reduce heat loss. I researched the process of the manufacturing of cement with an emphasis on my project domain. I then searched for existing practices to reduce the losses / increase energy consumption efficiency and then tried to research alternative solutions (either in prototype stage or working stage in different countries)

PS-I experience: Being part of the 1st batch of students who had 'work from home' PS, it was satisfactory. The material provided was easy to access but the lack of practical aspect.

Learning Outcome : I learned in depth the process of manufacturing cement, how the energy is consumed and why the losses occur along with possible solutions to decrease the energy loss. This aspect is something which can be applied to a lot of different sectors of industries. It was also a great platform to refresh my soft skills.

PS-I station: Baga Cement Works - Environment Management, Solan

Student

Name: ISHAN VIDHYADHAR SINAI KAKODKAR (2018A4PS0304P)

Student Write-up

Short Summary of work done : The project that i was working on was "Optimisation of Compressed Air" at the cement plant. Compressed air is widely used throughout manufacturing industries and air compressors use more electricity than any other type of equipment. Energy savings from system improvements can be substantial, resulting in thousands of dollars of potential annual savings, depending on use. A properly managed compressed air system can save energy, reduce maintenance, decrease downtime, increase production output, and improve product quality. Our project is based on improving these drawbacks of compressed air system.

PS-I experience: The online PS-1 was quite good. the webinars, presentations and expert lectures were well organised and pretty insightful. The institute mentor was very helpful and gave us good guidance. Overall, the PS-1 has been a wonderful and educating experience.

Learning Outcome : There has been a lot to take back from the PS. Knowledge about the working of the cement plant, manufacturing processes involved in production, and also basics like preparing reports and organising a seminar. Working with a team and interacting with higher authorities was also eyeopening.

PS-I station: Baga Cement Works - Industrial Control and Automation, Solan

Student

Name: MOHIT . (2018A3PS0474G)

Student Write-up

Short Summary of work done : Our project was industrial control and automation. We were 3 people under one industry mentor and one faculty mentor. Initially we had online meeting on google meet in which we were told about manufacturing of cement and various aspects of the industry. We were told in detail about the manufacturing process, chemical composition etc. We watched videos on canvas and read the material sent by industry mentor. We were asked to give a presentation on all that we learnt till that time(just after mid-sem). We had 2 quizzes in the PS1 duration. At the end we had to give a presentation on Ziegler Nichols method of PID tuning.

PS-I experience: It would have been better if we had visited the practice station ourselves for a better experience. It was more of a theoretical work.We learnt basic of PID tuning, specifically the Ziegler Nichols method.

Learning Outcome : We learnt basics of PID tuning and Ziegler Nichols method. We learnt about the basic steps of manufacturing cement. We also learnt to use the interactive learning module for simulations. Speaking skills were enhanced in giving presentations and group discussion.

PS-I station: Baga Cement Works - Process and unit operations, Solan (H.P.-

Student

Name: BHAVI JAROLI . (2018A1PS0863H)

Student Write-up

Short Summary of work done : Project On Functioning and Orientation of RawMills how they work,their advantages,cost effectiveness, future development equipments in cement industry the Process understanding where they fit in the process and understanding how Preheaters works their utility from thermodynamic aspect and their importance in manufacturing of cement process.

PS-I experience: The project alloted me was of my interest and I enjoyed it despite being a virtual project, leaving behind the short coming of not able to visit the plant, PS-1 was a very good experience.

Learning Outcome : Sound knowledge about working of equipments in cement industry and how cement is produced.

PS-I station: Bharat Petroleum Corporation Ltd., Greater Noida

Student

Name: ISHAAN SHARMA . (2018A1PS0379G)

Student Write-up

Short Summary of work done : I researched on Acrylic/Methacrylic based Rheology Modifiers. I was involved in understanding and researching the properties of various Acrylic/Methacrylic based adhesives and coatings and development of these coatings with desired properties by novel formulations which could be patented

PS-I experience: It was a great learning experience for me. My project lead was very cooperative and provided me with all the necessary equipment I needed for my research. I learnt about the research practices carried out at CRDC's like BPCL Greater Noida and this is indeed a big milestone in my career

Learning Outcome : I learnt and gained hands on experience about Polymers and the science of Polymer Chemistry. I also learnt about the workings of CRDC's like BPCL Greater Noida and got industry experience about the same. I also learnt how to carry out scientific and literature research which definitely helps me perform my research work better in college

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PS-I station: Bharat Petroleum Corporation Ltd., Mumbai

Student

Name: NAIVEDYA KRISHN . (2018A2PS0230H)

Student Write-up

Short Summary of work done : My project was "Contract Management & Administration", this project deals with the Administration and the Management of the Contract which is very important for the timely completion of any project without any dispute. In this project I did the work in three parts: 1. Analysis of clauses of General Conditions of contract (GCC), 2. Case studies of Arbitration and dispute resolution, 3. International Contracts and their Arbitration.
General Conditions of contract is of the most important part of any contract as it consists of all the basic information required for the filing of tender to the performance of the work. This GCC remains the same for any organisation and only certain changes are made to it and those are put under the Special Condition of Contracts (SCC). The GCC consists of many Clauses which are used to convey the information. In the

Analysis of Clauses of GCC, I mainly worked on three criteria: 1. Importance of the Clause, 2. Necessity of the Clause, 3. Management of the Clause.
I did two Case study namely: 1. Larsen and Toubro (L&T) versus Mohan Lal (MHB) and 2. Shreck (German Seller) versus Alberto Culver Co. (American company) which deals with the Arbitration and the dispute resolution.
I learnt about the various kind of International Contract mainly 'FIDIC' and the different kind of 'FIDIC' Contract like Red book, Yellow book, Orange book, etc.

PS-I experience: It was a great experience working with the BPCL, Mumbai as I learnt a lot about the Contracts and also got to interact with different people with varied experience and learnt a lot from them about the working of the Industry.

Learning Outcome : During the PS I learnt about the Contracts, their Administration & Management. I also learnt about the General Conditions of Contract (GCC), the International Contracts 'FIDIC' and the most important thing about any Contract, its Arbitration.

Name: J V N RUTHWICK . (2018A4PS0603H)

Student Write-up

Short Summary of work done : I had to learn about what a refinery does and its components. I had to learn about the machines or components in detail known as packages and also about reliability centred maintenance and i had to prepare an rcm plan for each of these packages

PS-I experience: I had a lot of fun learning about the refineries and the working on a whole. Relearning and revisiting thermodynamic principles was refreshing and learning about maintenance was really interesting

Learning Outcome : In the start of the ps I was unable to understand how thermodynamic principles taught in college were useful in the industry but now i have understood how the working of the industry depends on thermodynamic principles and also I realized how maintenance plays a huge role in the smooth functioning of the industry

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Name: DIVYAM MISHRA . (2018B1A80552H)

Student Write-up

Short Summary of work done : Basic process flow in a Bio-Refinery and operations used in it to produce Bioethanol. Instrumentation and Control Systems Review in an oil refinery and a minor applicability of Data Science. I studied about the basic field instrumentations that are used in an oil and gas industry. I also studied about the boilers as the dedicated package unit, its challenges and the solution associated.

PS-I experience: Got to know about the working environment in an oil and gas industry. It was really interesting to learn much about my branch,i.e., Electronics and Instrumentation , as my project belonged to the same domain.
However, interning from home away from the industry was quite a big challenge for me. Several issues such as connectivity, time constraints and much more things made this internship programme a little tough job in comparison with If we would be at the industry. Observing everything online and understanding was quite a challenging job. But it all ended well and I was able to grasp and learn much of the things related to the industry as well as my branch.

Learning Outcome : I learnt the basics of Instrumentations and Control Systems which will definitely help me in my future.
Also, i learnt about different network topologies, benefits of a wireless over a wired technology, basic OISD recommendations for oil and gas industries.
I developed sift skills such as writing a report in a better way, public speaking, coordination, and much more.
At last my softwares skills in MS office improved quite lot during writing the report.

Name: TAPASVI BHATT . (2018B2A40958P)

Student Write-up

Short Summary of work done : Forming machine learning model to predict the flash point of the Fluid Catalytic Cracking Unit and the Diesel HydroDesulfurization Model also, simulating some units on the ASPEN HYSYS software.

PS-I experience: It was very good, the project name exactly matches with the work being done here also, the mentor and PS Faculty has been very supportive.

Learning Outcome : In a nutshell, I learnt Machine Learning Linear Regression and Neural Networks Model.

Name: TAPASVI BHATT . (2018B2A40958P)

Student Write-up

Short Summary of work done : Created few Machine learning models to predict the flash point of crude oil in refinery using Linear Regression, Neural Networks.

PS-I experience: I am satisfied with my PS-1 experience. Both the PS faculty were very supportive and helpful at each step.

Learning Outcome : Learnt the fundamentals of NN Models and LR Models for Machine Learning.

PS-I station: BHEL - Engineering Materials, Analysis & Design, Visakhapatnam

Student

Name: SUMIT SUNIL KUMAR (2018A4PS0029G)

Student Write-up

Short Summary of work done : We made a python based ansys GUI with parameterization for local analysis of nozzle of pressure vessels

PS-I experience: It was very helpful. The authorities were very happy with the work done. We performed simulations on iron python, which is a type of python used in spaceclaim in ansys.

Learning Outcome : I personally did not know anything about ansys and how to perform simulations. This project helped me use ansys and learn it and its scope for further research. Also we linked excel, python and ansys, something that I had done for the first time

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Name: SHAH ANSH SANDEEP . (2018A4PS0525P)

Student Write-up

Short Summary of work done : I was working in the designing sector i.e. preliminary design of pressure vessels at the stage of enquiry which required the students to provide preliminary design results using customer data provided by the industry experts using several softwares and codes and standards.

PS-I experience: It was a good learning experience even though online and I got to learn a lot from the industry experts. Also learnt alot about different softwares and codes used by industries especially pertaining to the designing sector

Learning Outcome : Learnt about creo, ansys, ASME sec 8 div 1 and sec 2, pd5500, and making macros on the same

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Name: CHANDRAVEER SARAN . (2018A4PS0541P)

Student Write-up

Short Summary of work done : Our work was to create an interface that would allow users to conduct Ansys simulations for a nozzle (mounted on a pressure vessel) without having to use the software directly. The interface had to take inputs from the user like model dimensions, loading conditions and materials properties for the analysis. The interface had to then give the output results to the user in the interface itself.
It involved three steps:
1. To complete a full analysis in Ansys from model generation to results. Several measures had to be taken to ensure that the final stress values were accurate.
2. To parameterize (convert to variables) the analysis in Ansys. This had several sub parts such as parameterising the geometry (scripting in SpaceClaim) and the other possible variables.
3. Finally to build an excel based interface that could communicate with Ansys (using Python) and help us get results remotely.

PS-I experience: Pros:
The project was engrossing and we had plenty of fascinating new things to learn and apply.

Learning Outcome : 1. I improved my skills in Ansys, especially more accurate methods of meshing.
2. I learned how to parameterize all aspects of an analysis so that the large number of simulations can be handled more easily.
3. I got to integrate programming(Python) and mechanical during the development of the interface.

Name: HIMANSHU SHARMA (2018A4PS0591P)

Student Write-up

Short Summary of work done : Our work started with the CAD modelling of Nozzle-Vessel system with the provided dimensions by BHEL industrial mentor. Parallely we were understanding about ASME codes for nozzles. Then we needed to Analyse this

physical problem with the proper Boundary conditions (Loading and Supports) in Ansys solver. Before the solving started, we needed to generate a good quality hexahedral mesh.Then, we parametrized all the possible parameters of the physical problems i.e. Geometry Parameters, Loading Parameters and Material Properties Parameters. For Geometry Parametrization we had to learn to generate CAD Model using script in SpaceClaim. After all parameters are created, the simulation is done with the default values of all the parameters provided from BHEL.
Now we needed to built an user friendly Graphical User Interface which can be used by a person who does not know Ansys. We choose to create that interface using MS Excel as this is the most easy tool to operate for any user. We created an Excel interface with the same parameters and linked it to the Ansys using IronPython script. An output section was also created where all the post-processing results(Max stress, Safety factor) can be displayed. That excel file contained all the parameters which can be changed just by entering the values again and clicking on update analysis tab would display the results in the output section in the Excel file only.

PS-I experience: I got a chance to gain technical knowledge and apply that to the practical physical problem we solved. The experience was really knowledgeable. Learnt a lot about the industrial side of the Mechanical domain. Learnt some new skills and also enhanced some of the existing skills. Overall, PS1 proved to be a skill booster for me.

Learning Outcome : Learnt standard codes and definitions used in Pressure Vessel - Nozzle domain in industries given by ASME. I learnt how to refine mesh for better quality result and then how to slove a boundary valued problem. Then to parametrize the required set of parameters and to link ANSYS Workbench to MS Excel using IronPython. Most importantly, used an interdisciplinary approach to connect Mechanical domain with programming.Apart from technical skills, a number of soft skills (Team Work, Professional coordination, Decision making, Research, Team leading, Report and Presentation skills) also got enhanced.

Name: GYANAM PRAHARSHITHA . (2018A4PS0821H)

Student Write-up

Short Summary of work done : We had to do the calculations of the thickness of the pressure vessels shell, nozzles, formed heads and induced shell and nozzles, and also the hydrostatic test for the pressure vessels. All calculations were based on ASME

STANDARDS and also PD5500. User defined codes in excel using visual basics was also done.

PS-I experience: It was an amazing time. We learn a lot but if we were in the industry we would have learned and enjoyed even more. The industry experience we couldn't have.

Learning Outcome : Visual basic in excel
Calculations using ASME standards
Calculations according to PD5500 standards

Name: GUPTE VIVEK SAMIR. (2018B1A40948G)

Student Write-up

Short Summary of work done : The project was 'Parameterization of Local Load Analysis for Nozzles of Pressure Vessels.' Using ANSYS, we had to perform a load analysis of a given nozzle and then parametrize it, such that changing certain values gave out the result of the analysis which would have otherwise taken a long time. We performed the analysis during the first few weeks and the parameterization over the last two weeks.This project dealt with extensive use of ANSYS.

PS-I experience: PS-1 has been a great learning experience. We extensively used ANSYS and learnt in great detail about it. WE also learnt about ASME code and various materials. The instructors were very knowledgeable and helpful and gave valuable inputs.

Learning Outcome : ANSYS Static Structural Analysis, Parametrization in ANSYS, ASME Code, Nozzles.

PS-I station: BHEL - Secondary Research, Visakhapatnam

Student

Name: SHASWAT TIWARI (2018A4PS0051H)

Student Write-up

Short Summary of work done : MY project in PS-1 was based on exploring opportunities in defense products in the fields of energy storage, naval equipment and heat exchangers for ships and aircraft. The first part of my project was doing research on the kind of heat exchanger used in LCA Tejas which is an indigenous fighter jet. Apart form that, we had to do research on the company and its competitors , and also on the concepts of Heating, Ventilation and Brazing. We also researched on the future prospects of the company. We also designed a 3D CAD model of a Compact Plate - Fin type heat exchanger , the kind which is used in LCA Tejas and we did various calculations on the heat exchangers too , using the data provided to us by the industry mentor.

PS-I experience: The experience was good, I got know a lot of new things. The PS overall was quite fun too due to constant support from our PS instructor and industry mentor. I got to learn how a company functions from inside and also got the opportunity to learn a wide array of new concepts which would be of much use in my future career.

Learning Outcome : I got to learn a lot of new things like using Bloomberg terminal, ANSYS, MATLAB, CREO, Python and advanced EXCEL ,besides soft skills like time management, group discussion skills and presentation skills to name a few.

Name: SHIVAM GUPTA . (2018A4PS0127H)

Student Write-up

Short Summary of work done : Project Name - Market Research in defence sector for especially in Navy, HVAC, Submarines w.r.t capabilities of BHEL HPVP.

It was a virtual PS and we were divided into groups of 5. Attended various seminars from industry mentors. For the project we had a couple of meetings with the mentor (R&D head - HPVP) and he specified our project domain in two sections.
1. Designing & Calculations of Heat Exchanger used in LAC Tejas.
2. Market research for Heat Exchanger market and opportunities for BHEL as a whole.

PS-I experience: PS experience was good, actual Industry experience could've been better if there were physical visits.

Learning Outcome : Learned about Market Potential of BHEL and Heat Exchanger Market

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Name: RAHIL PARAG SHETH (2018A4PS0590P)

Student Write-up

Short Summary of work done : My PS 1 project at BHEL-HPVP was based on exploring opportunities in defense products in the field of energy storage, naval equipment and heat exchangers for ships and aircraft. The first part of my project was doing research on the kind of heat exchanger used in LCA Tejas, an indigenous fighter jet. Apart from that, we had to do research on the company as a whole, and also Heating, Ventilation and Air Conditioning, Brazing and future prospects of the company. Followed by that, we had a group discussion based on whether globalization is an opportunity or a threat, with respect to the present pandemic. The main goal of our project is to design a Compact Plate - Fin Type Heat Exchanger for LCA Tejas using cad models and calculations based on the data provided to us by our industry mentor.

PS-I experience: I gained a huge amount of knowledge from the industry experts and the faculty. I gained exceptional experience in the fields of engineering and finance through various meetings and webinars organised by the faculty. They also gave me the experience of effectively communicating during the work from home scenario.

Learning Outcome : The invaluable insight provided by our industry mentor enabled me to sharpen my skills, broaden my academic scope and improved my problem solving ability.

It exposed me to a professional atmosphere which instilled in me a sense of responsibility and gave me a taste of the corporate world. Through vast networking by connecting me to the industry experts, they helped me improve my career prospects.

Name: RITIK CHANANA (2018A4PS0847P)

Student Write-up

Short Summary of work done : We were alloted a project on study of possible collaborations of BHEL with companies migrating out of China in the post pandemic phase. We first expanded our scope and included companies willing to expand in the near future. We then listed out the products that BHEL manufacturers/deals in, for which companies were searched across the globe. Out of more than 1000 companies, around 230 companies were shortlisted at first on the basis of their presence in the Asia-Pacific region size and capital available. We then further reduced the number of companies and figured out 20 probable collaborations that were most feasible and beneficial for BHEL.

PS-I experience: PS-1 was a good experience, would have been much better had we got hands on experience, an exposure to the industry would have helped us get to know more about the corporate world.

Learning Outcome : Learnt data analysis
Market analysis
Market research
Data management
Search engine optimization
Equity based assets
Basics of investment industry
Team work
Presentations skills were improved
Talking to delegates and seniors
Improved work ethics

Name: TANMAY SRIVASTAVA . (2018A4PS1023H)

Student Write-up

Short Summary of work done : The project was about researching opportunities for BHEL to enter new foreign markets in the Oil and Gas sector.
We did secondary research on the potential refining projects, BHEL's competitors and the ups and downs of venturing into the specific markets.

PS-I experience: The PS 1 experience was unique. The PS instructor and Industry Mentor were very helping, and they ensured their best to clear our queries.
The best part about the experience was the various webinars organised by the university. We got insights from very experienced professionals and industry experts, which was very valuable to help us shape our career trajectory.

Learning Outcome : The major learning outcome was the soft skills we learned in the way. Presentation and Group Discussion helped us to get a tinge of corporate life. While we make mistakes, the experience helped us to rectify them and be a better professional in the future.

Name: SUHAS BADADAL . (2018B1A40600G)

Student Write-up

Short Summary of work done : The Project title was Exploring Opportunities In Defence Products via HPVP capabilities. The primary objective was to design a Compact Heat Exchanger, based off of the ones produced by HPVP for LCA Tejas. The design procedure was identified by us, and using the parameters provided by HPVP, required calculations were done. The Heat exchanger could then be modelled using CAD softwares and analysed with industry expert guidance.We were asked to do an economic analysis on the Heat exchanger market and explore opportunites for BHEL to expand into it, including the possibility of using heat exchangers in Commercial aircraft, Submarines etc, and an economic and financial analysis to determine their feasibility. This covers the secondary research aspect of our project. Towards the end of the project duration we compiled this in the form of a report.

PS-I experience: The work was interesting, and the project description even more so. Although the experience would probably have been much better with a hands-on approach, as intended, which was not possible due to the online nature of the PS. Also a few components and designs were not easy to obtain because of the confidential defence nature of the project, which wouldnt have been an issue if we were physically present at the station.Overall an okay experience with a good learning outcome.

Learning Outcome : We learnt quite a bit about how Heat exchangers work, and how an economic analysis is carried out.

Name: AYUSH MISHRA . (2018B1A40601G)

Student Write-up

Short Summary of work done : The oil sector is divided into various parts. There are a lot of
functional units of this sector like the EPCC, PMC, project licensors,
equipment suppliers etc. BHEL is one of the market leaders in the national scenario of oil industry. But now BHEL is looking to expand to further new international markets and explore new challenges. Our job was to find favourable markets for BHEL to invest in which could be profitable to them. As a part of our research we found out the major EPCCs, PMCs and the engineering consultants of the foreign markets that BHEL was working on.

PS-I experience: It was a great experience and I got to know about a lot of knowledge about the industry and the financial aspects of it in addition to the valuable technical knowledge that I gained while working on the project that was assigned to me.

Learning Outcome : I gained a number of skills and experience of working in a team in order to complete a corporate project. I learned about various new technologies and got hands on experience to use them in addition to the key financial aspects about the market that I learnt. It was a great journey for me which really helped me increase my industrial knowledge.

Name: ADITYA PRATAP SINGH . (2018B1A40987G)

Student Write-up

Short Summary of work done : I along with 4 more people was allotted work in field of secondary research. The project was based on doing exploring opportunities of Market in foreign countries for static products in Oil and Refinery sector.

PS-I experience: Overall, it was a great experience the Project instructor and Project Mentor both were very helpful and guided us throughout the project. It was a new experience, got chance to meet students from other campus too.

Learning Outcome : Learned about the whole working scenario in Oil sector, how bidding for any project is done and minimum requirements a company has to fulfill to become a bidder for any oil project, got aware with the whole market scenario of Oil sector and about different EPCC companies and their execution capability, along with this also got familiar with the field of management and finance.

PS-I station: BHEL - Sectoral Study, Hyderabad

Student

Name: AKSHAT GUPTA . (2018A2PS0754H)

Student Write-up

Short Summary of work done : A sectoral study was supposed to be done on the Aerospace sector with respect to their key players, their market share, product portfolio, competitive strengths, asset base, upcoming technologies, regulatory aspects, policy issues, financial performance etc.

PS-I experience: It was a wonderful experience as we got to use our skills used in academics and learnt to implement those skills in real life. Moreover. Despite being held

virtually, we were able to learn and grow and those webinars proved really helpful to understand the industry. The remote access of Bloomberg terminal was a great initiative which helped us gather the data and use that in our projects.

Learning Outcome : Sectoral study analysis.

Name: TEJASVI SINGH . (2018B3A30953P)

Student Write-up

Short Summary of work done : I, as a part of a 5 member team had to prepare a comprehensive report on the Indian Aerospace Sector wrt. Key players, their competitive strengths, market share, financial performance etc.

PS-I experience: Despite being a work-from-home Internship, I gained decent exposure to the industry and also picked up new skills through the webinars

Learning Outcome : I learnt how to carry out economic analysis of the various firms in a sector

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Name: AMOGH MITTAL . (2018B5A30965H)

Student Write-up

Short Summary of work done : Sectoral Study of Indian Renewable Energy based Power Sector.

PS-I experience:I had a great learning opportunity through various webinars which were conducted.

Learning Outcome : Sectoral Study gave me a good insight of the Indian Renewable Energy based Power Sector, especially the Wind Energy Power Sector. Various webinars also enlightened me about different fields in finance sector.

PS-I station: Birla Polyfibers, Harihar

Student

Name: ABHAY KUMAR PARASHAR . (2018A1PS0026P)

Student Write-up

Short Summary of work done : Main objective was to reduce the colour in pulp mill effluent

PS-I experience: Working with a industry professional helped me a lot to know more about the working of Chemical industry and what are the main processes involved and how they carry out them with max. Efficiency.

Learning Outcome : With the completion of the project, we were able to put forward some solutions which may be used to reduce the colour in pulp mill effluent and hence reduce the environmental pollution associated with it.

Name: ANKIT SANGWAN . (2018A1PS0767G)

Student Write-up

Short Summary of work done : Our main objective was to reduce steam consumption of the plant and thus increase the steam economy of the overall plant. We also have to find any method to reduce the scaling in the boilers.

PS-I experience: The overall experience was good. Lack of physical access to industry was a problem though, but overall it was a good experience.

Learning Outcome : I get to learn about evaporators, specially Multi effect evaporators, ways to increase their efficiency. Reading flow diagrams, working with data sheets and other soft skills were also gained during this period.

Name: ANIRUDH PAREKH . (2018A1PS0776H)

Student Write-up

Short Summary of work done : in the initial days of our PS, we had a series of online domain-based lectures which included industries of oil and gas, pulping industries, petroleum etc.along with this we also had a lecture on safety protocols in a workstation. we were then allotted with projects and that we were supposed to do in a group of 5 students with different students of different campuses. our mid-sem consisted of a seminar and a report submission that included the introduction, understanding, and the work plan of our project that we worked out with our industrial mentor. the same was for the final submission with concluding remarks and suggestions

PS-I experience: this experience was new for both, the industry and students as for the first time the PS was conducted through online mode. we got a bit of experience but it cannot be compared to what we would have got if visited the plant. however, we got to know the theoretical aspects and how the knowledge that we have is being put into the industry

Learning Outcome : we got to know the theoretical aspects and how the knowledge that we have is being put into the industry.

Name: AAYUSH JAIN . (2018A1PS0796G)

Student Write-up

Short Summary of work done : we were given a project in which we supposed to present ideas on how to reduce the steam consumption of the plant from 1.2T/TS to 1.01 T/TS and ways to reduce scaling.

PS-I experience: it was pretty nice, we got to learn some new things as well apply what we learned in our classes

Learning Outcome : we learnt a lot about the working of our industry. and how to apply the knowledge we gain from our courses

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PS-I station: Birla White Cements - Civil, Jodhpur

Student

Name: PRANAV (2018A2PS0100P)

Student Write-up

Short Summary of work done : The project is about Saving of water by minimizing water loss in Water Reservoirs. As we are aware with the fact that Evaporation is one of the most important environmental processes that can reduce the quality and quantity of water available for industrial, agricultural and household uses; therefore, evaporative losses become an essential challenge for the efficiency of water storage and supply and in Water Reservoirs, considering their huge capacity.

PS-I experience: The experience of PS - 1 was very smooth and sweet for me. The kind of exposure, opportunity, and skill-set one gets in these 2 months is a good lesson one can get and be benefited in the long term.

Learning Outcome : The several expert talks organized was very productive in terms of Industrial Knowledge.
After a robust and credible research work on the project, we are now aware of the complete scope of our project and have completely structured it as well.
We developed and enhanced skills (Technical as well as soft skills) such as
1. Theoretical knowledge of machinery, techniques and research done in Industry
2. Complete understanding of cement manufacturing and processing
3. Efficiency in communication and quality of research needed
4. MS Office (Documentation & Presentation)
5. Communication and GD Skills

Name: SHUBHANK JAIN . (2018A2PS0104P)

Student Write-up

Short Summary of work done : I was assigned the project "Water saving in reservoir". We were required to search for solutions that would curb evaporation and seepage losses of the reservoir. We had discussions with our PS mentor and faculty about the problem statement and the general structure of the project. In our initial research we learnt about the factors affecting evaporation and seepage. We learnt assessment methods which allowed quantification of water losses. We were able to group the solutions that we found into three categories and list their advantages and disadvantages. Finally, we estimated the costs of each method and found which method served us best. Throughout this work we read multiple journal articles, research papers, studies and statistical reports published both by various governmental and private organizations. Other evaluative components included quizzes, seminars, and group discussions. Seminars and group discussions, particularly, gave us the push to come up with tangible and genuine ideas and solutions.
Apart from the work done for the project and other evaluative components, we attended multiple sessions that centered around various aspects of civil engineering domain. These sessions were on cement industry, IoT, Industry 4.0, supply chain management etc.

PS-I experience: My experience with PS-1 was good. I enjoyed the online sessions that were held and found them very informative. I was also content with the work that I did for my project and the knowledge gained in the process. Working with my friends, preparing the report, and practicing for the seminar - all online - was a new experience for me. Since this PS was conducted online, I suppose it was not as immersive as it would have been in a normal scenario. I also hoped for much more sessions when I

learned certain PS stations had much more than we had. However, keeping in mind the situation, I feel content and happy with all that was arranged and with the work that was done by our group.

Learning Outcome : We gained substantial knowledge on water loss preventive measures in reservoirs. We learned assessment methods and did cost estimations. Group discussion required us to probe a slightly different topic, than our project title, which was "Groundwater loss prevention techniques". So, we also gained knowledge about the current groundwater predicament in the world and especially in India. We learnt about various techniques and policies that were in use and that could be used in the future. Through the online sessions we learnt about cement industry, IoT, Industry 4.0, software in use in civil engineering domain, GIS and supply chain management. While studying about the project I got an idea about how to research through multiple sources and filter certain ideas and link them together.

Name: DHANRAJ THAKUR . (2018A2PS0651P)

Student Write-up

Short Summary of work done : Researched about various methods(physical,chemical and biological) to reduce the water loss in Birla White's water reservoirs.

PS-I experience: It was an enriching experience which helped to increase my knowledge and awareness about water loss.

Learning Outcome : Learnt how to do credible and robust research on topics(Saving of water in water reservoirs), improved my presentation and soft skills, teamwork and learnt about the structure and working of the organization.

Name: HEMENDER SINGH CHAUHAN . (2018A2PS0792H)

Student Write-up

Short Summary of work done : Repair and Rehabilitation of RCC Structure is a complete process from Visual inspection of the deteriorated structure to repairing of that structure to gain strength what it had while constructed or more. In between these, Field Test (NDT), Data Collection, Analysis, and accordingly application will be done.

PS-I experience: My experience was good. At first it was a bit awkward do get used to the online regime of work, but soon after some time with instructors and students, I got accustomed to the way learning through online mode. Since my project was a site based topic, and due to the pandemic, we could not gain a lot of practical aspects of the project and its implication. However, the faculty and instructors did their best to provide us with the feel of the work. We had a lot of time to learn about the project through literature relevant to the field of the project.
All in all, it was a good experience for me and I hope that it was the same for everyone else too

Learning Outcome : I learned about various methods of repair and rehabilitation of RCC structures. I learned how the evaluation of the health of a building is done and the ways used to restore the structure to service level. I also conducted a theoretical case study to more fully understand and apply the theory I had learned.

Name: NARICCHETTY VENKAT JAIRAZZ . (2018B3A20858H)

Student Write-up

Short Summary of work done : The purpose of the project is to gain fundamental and practical understanding on concrete
repair and rehabilitation of the structures. Large numbers of reinforced concrete (RC) structures are deteriorating, often prematurely, and need remedial measures to reinstate
their safety and/or serviceability. Consequently, the need for repair and protection has grown considerably in recent years. While costs associated with repair of deteriorating concrete structures can be substantial, costs resulting from poorly designed or executed repairs may be even higher. Repair methods need to be designed with consideration for the anticipated or desired remaining service life of the structure. A distinction must be made between repairs intended to stop deterioration fully and those merely aimed at slowing down deterioration processes for a limited period of time.

PS-I experience: its good

Learning Outcome : 1. The basis of identification of damage and deterioration of concrete structures
2. Analysis of the damage and identification of the sources of the damage
3. To be able to present the information acquired in professional and scientific manner
4. Learnt how to conduct a case study based on a virtual scenario
5. Learnt the presentation of the results of a study conducted

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PS-I station: Birla White Cements - Energy Management, Jodhpur

Student

Name: DHRUV SURESH . (2018A8PS0884G)

Student Write-up

Short Summary of work done : Setup and feasibility of solar power model for renewable resource alternatives

PS-I experience: Very insightful into the industry'

Learning Outcome : Finding a cost benefit analysis, projected output and checking the feasibility of such a project

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Name: BETHI VENKATA SIVA JITHENDRA KUMAR REDDY (2018A8PS0901H)

Student Write-up

Short Summary of work done : Energy Conservative initiatives in plant utility. We have been given their data of consumptions we optimized the way they use energy

PS-I experience: It was good but would have been better if it were on field experience

Learning Outcome : Learnt about many energy conservation techniques in plant utility and found feasible ones

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Name: NAIDU CHANDRA SEKHARA PRASANNA KUMAR (2018AAPS0412H)

Student Write-up

Short Summary of work done : we build a project regarding the arranging solar panel on rooftop of birla theatre andYMA

PS-I experience: it was good but if it was offline we would have gain some more experience with more skills but

Learning Outcome : installation of on grid solar panel system

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PS-I station: CEAT Tyres - Operations Management, Halol

Student

Name: SYED AHZAM TARIQ . (2018A4PS0108P)

Student Write-up

Short Summary of work done : At our PS Station we were exposed to new fields like Supply Chain Management and Operations Research. We got the opportunity to work on two different industry projects which immensely enhanced our skills and gave us a glimpse of how a manufacturing industry works right from the procurement of products to delivery of them to the customer and all that lies between them. Moreover, the webinars which were conducted on a continuous basis helped us get a birds eye view of all the sectors and industries.

PS-I experience: It was a good learning experience which help me enhance my skillset and helped me build connections and explore opportunities

Learning Outcome : I greatly enhanced my skillset and now I have become confident in giving presentations and speeches. Not only that it also helped me figure out in which direction I should propel my career.

Name: KALIDINDI VINEETH VARMA . (2018A4PS0355H)

Student Write-up

Short Summary of work done : Learnt about Lean and Value Stream Mapping. The lectures by the Station mentor were of great help. We were taught about various topics for the first few weeks and then a problem statement was given. Had to apply all the topics learnt and build a Value Stream Map.

PS-I experience: Overall PS-1 was great. It was a great learning experience. That'll help me in deciding to whether have a career in Operations Management.

Learning Outcome : I understood many concepts in lean manufacturing. Understood the importance of waste reduction and optimization.

Name: NISHANT YADAV . (2018A4PS0895G)

Student Write-up

Short Summary of work done : Hypothesis testing and summary report of various data set using Minitab software and basic learnings of Bloomberg terminal

PS-I experience: Most of the learnings were provided by giving ppts and zoom meetings by industry mentor.

Learning Outcome : Learnt use of Minitab software.

Name: REDDY SHRINIVAS NAGRAJ . (2018B1A40761H)

Student Write-up

Short Summary of work done : Our work at online PS mostly comprised of understanding and study of lean manufacturing concepts and case studies based on same. We were given two case studies for analysis of value stream maps of the industries. We designed a value stream map based on a problem statement given by the station.

PS-I experience: PS-1 experience was very good. Though PS was online, our instructor and faculty mentor took a lot of efforts for our efficient learning and worked to create an great atmosphere to learn. Most importantly they tried to help us with experiencing the practical situation virtually.

Learning Outcome : We learned to use Minitab software , and smartdraw - a cloud based software to prepare VSM charts. We learned professional behavior and communication skills too.

Name: SANSKRITI JINDAL . (2018B4A40486P)

Student Write-up

Short Summary of work done : My industrial project was based on Lean and Six Sigma tools. We studied about lean, six sigma, QM techniques. We studied QC tools in detail. Based on these learnings, I performed Quality Control Analysis on various data collected from the PS-1 Station itself. I plotted and analyzed the data with the help of various QC tools using Minitab Software. I used both Basic as well as Advanced QC tools. I also wrote a write up on the application of Descriptive, Predictive and Prescriptive Analytics in manufacturing. Along with my group members, I also found out the critical success factors of digital manufacturing and digital supply chain and how important each of them is relative to each other, and how much these factors are influence each other.

PS-I experience: PS-1 was a great learning experience for me. I got a chance to perform analysis on actual industrial data. I got the opportunity to learn from actual Industry experts which helped upon a new perspective for me. I learnt about some great techniques, tools and perspectives. It helped me develop not only my academic but social skills as well. I got the opportunity to apply my academic knowledge in the actual industry. Overall, it was a great development opportunity.

Learning Outcome : My project was based on Lean and Six Sigma tools. I learnt about the application of lean and six sigma methods in industries to improve their performance. I learnt about Basic and Advanced Quality Control tools. I learned to perform statistical analysis using Minitab. I learned how to plot and analyze different QC tools like Histograms, Scatter Plots, Multi- Vari graphs etc. using Minitab Software. I got the opportunity to perform this analysis on actual data collected from my PS Station. I learnt about Quality Management Techniques like TQM, Kaizen etc. I learnt about Problem Solving Approaches and about the application of Descriptive, Predictive and Prescriptive Analysis in Manufacturing.
Through webinars, I also got the opportunity to learn about different industrial domains including some excellent softwares like Bloomberg Terminal.

PS-I station: Dalla Cement Works - Energy Management, Dalla

Student

Name: RISHEE RAMESH . (2018A8PS1026G)

Student Write-up

Short Summary of work done : Studied the use of various machines in cement plant sand the general process and overview of the making of cement.
Learnt in depth about control loops and PID controllers.
Was assigned a project on re-tuning of control loops for process optimization.

PS-I experience: New experience working with a new industry. Got to make new friends as well.

Learning Outcome : Learned a lot about the cement industry and PID controllers.
Also improved my presentation and communication skills.

PS-I station: Dalla Cement Works - IT, Dalla

Student

Name: JYOTIRADITYA . (2018A2PS0148P)

Student Write-up

Short Summary of work done : Made a software using Java nad sql.

PS-I experience: Got to know about the professional people and the way industry operates. Ps-1 was overall a great learning experience for me.

Learning Outcome : Now I know two programming languages.

Name: SAI NISHANTH KURRA . (2018B4A20805H)

Student Write-up

Short Summary of work done : Made a School management system software which digitalizes school records

PS-I experience: ---

Learning Outcome : Got to learn SQL, made GUI with JAVA, Development of interpersonal skills,team strategy and work environment

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PS-I station: Dalla Cement Works - Mechanical, Dalla

Student

Name: KARRI VENKATA SIVA KARTHIK REDDY (2018A4PS0666H)

Student Write-up

Short Summary of work done : We were assigned work to find cost effective cement grinding processes

PS-I experience: Yeah it's good the instructor is too good he motivated us through out the project

Learning Outcome : We learnt different grinding techniques (cost effective)

PS-I station: Dhio Research - 3D CFD Simulation, Bangalore

Student

Name: AARUSHI RUSTAGI . (2018A1PS0007P)

Student Write-up

Short Summary of work done : Theory classes about derivation of final CFD equations for convective and diffusive heat transfer for interior and boundary cells. Introduction to 3D CFD Software FlowVision and instructions to perform 15 tutorials on the software along with an assignment on theory, and a mini-assignment alotted. The assignments and tutorial problems were about fluid flows, transonic and hypersonic flows and heat transfer as well. The use of Creo Parametic, ANSYS and MATLAB for designing CAD files.

PS-I experience: Very engaging, with strict attendance policies and deadlines for all tutorials and assignments, had a great learning experience.

Learning Outcome : Performing CFD simulation of problems about fluid flow and heat transfer on FlowVision and obtaining variations and parameters for the same. Basics of how CFD equations are derived from PDE, with the example of diffusive and convective heat transfer. Use of Creo parametric and ANSYS for analysing and creating CAD models.

Name: PIYUSH PRADHAN (2018A4PS0025G)

Student Write-up

Short Summary of work done : Used Flowvision CFD software to simulate various situations. In particular I worked on Turbulent flow through a tube as well as Gas Dynamics of Cyclone Separator.

PS-I experience: It was lot of work but I learned a lot.

Learning Outcome : Learned the theory behind Turbulence. Also learned how to properly simulate a problem (Extracting fluid domain , choosing proper turbulence model and applying necessary boundary conditions)

Name: SACHIN THAKUR . (2018A4PS0114P)

Student Write-up

Short Summary of work done : Dhio deals with computer simulations for real life problems. My Domain was the Thermal-Fluid CFD and we used FlowVision as the software stack to simulate various fluid phenomenon. Basically we worked on 3D-CFD simulations. I was given a project to analyze heat sink design.

PS-I experience: Being a work from home internship, it was not so engaging. but still i got to learn a lot in the field of CFD. I can say that I now know the basics of CFD and can explore the domain in the future if i want to.

Learning Outcome : The basics of CFD simulations and how to apply them on real life problems.

Name: KAUSTUV LAHIRI . (2018A4PS0546P)

Student Write-up

Short Summary of work done : The work involved a research based assignment in the field of CFD, using Flowvision.

PS-I experience: Due to the unusual circumstances there were a few connectivity issues, but overall it was a great learning experience and a proper exposure to the industry was received.

Learning Outcome : I gained experience in using Computational Fluid Dynamics software, along with its different parameters and functionalities.

Name: AMAL M NAIR . (2018A4PS0802G)

Student Write-up

Short Summary of work done : My main project was to do aerodynamics study on compressor disk using Flowvision software which is a CFD software.Now since I did not know their basics and all ,sessions were held in which they would teach us the basics .Initially we had theory classes on CFD for 1 week .And after that sessions for the basics of the software were there for respective domains,since my domain was CFD ,basics of flowvision were taught to us, the duration for this session was about 3-4 weeks,where we could book slots and then use those slots for practicing what we have learnt in the sessions and after that we did our main project.

PS-I experience: It was fun ,was able to learn a lot of things, if anyone is interested in learning simulations like CFD ,FEM and others ,you can choose Dhio as PS station,the only problem was the slot booking ,since slots were limited.

Learning Outcome : I learnt a lot about CFD ,also was able to use CFD software Flowvision.

Name: PRANJAL ANAND (2018A4PS0874G)

Student Write-up

Short Summary of work done : The first few weeks consisted of training. We were taught the theory behind CFD. After which remote access to their labs was provided, and we did a number of basic tutorials to get acquainted with performing different types of CFD simulations. We were given different problem statements to work on. For me the

assignment was liquid cooling module manifold for electronic packaging. Thus it was a conjugate heat transfer problem. I was required to make a whole timeline of the project and lay out a plan, and proceed according to that. The assignment included modelling the computational domain such that the geometry is satisfied and the results are accurate. This included more than just changing settings in the software; the assumptions needed to be reasonable, and there was a lot of background research paper reading required to determine the necessary inputs. In between there were the mandatory seminars, discussions and report submissions.

PS-I experience: Teaching and learning a subject so vast and complex such as computational fluid dynamics is next to impossible to achieve given a time span of six weeks. They taught the subject and trained us appropriately, and I ended up learning a lot of things in addition to theory. The WILP sessions and expert talks were really great, they really introduced me to the importance of different software and basic concepts in the industry, and encouraged me to keep exploring on my own.

Learning Outcome : Technical learning included- basic theory behind CFD, the different software available, and how to perform a simulation starting from making the CAD geometry. Thus CAD modelling skills were also sharpened. Also learnt how to approach learning new concepts for an assignment effectively, as there were a lot of new concepts involved. Additionally I decided to explore the domain of supersonic flow as it was included in one of the basic CFD tutorials, and so learned something about aerodynamics in which I have great interest. Also learnt basic structural tests and meshing in ANSYS.
Soft skills- Group discussions which encouraged me to look at CAD/CAM/CAE software as a product and critically evaluate their development(instead of simply a useful tool), project planning, report writing, reading research papers patiently, presentation skills(for seminars).

PS-I station: Dhio Research - Casting project, Bangalore

Student

Name: MUKUL GUPTA . (2018A4PS0596P)

Student Write-up

Short Summary of work done : My domain was Manufacturing Simulation and to be more precise Casting Simulation. The work was to perform Casting Simulation for given problem statement on the company's private software Z-Cast Pro on a remote server. The work started with learning the basics of Casting Process and Simulation followed by a few assignments. Then Software learning was introduced through lab sessions and tutorials were given to practice on Z-Cast Pro. And finally the Software assignment with the problem statement.

PS-I experience: Mine experience was pretty good, the environment was perfect for learning. The higher authorities of the companies were in direct contact with us, infact the CEO of the company himself was taking our lectures. This was pretty good for networking as well. The mentors were very interactive and reply to our queries were instantaneous.

Learning Outcome : The major learning outcome was to perform Casting Simulation on Z-Cast Pro also about different types of Casting and Simulation.

Name: ALAP PATEL (2018B5A40689G)

Student Write-up

Short Summary of work done : My PS was based on casting designs and simulations. We were mostly engaged in learning the concepts as there was lots to learn before we could actually dwell into the aspects of a project. We, however, did get some time to complete mini projects during the time.

PS-I experience: It was highly engaging and I had a lot to learn about the topic I was covering.

Learning Outcome : I can independently design and simulate a casting and analyse the results to make an informed decision.

PS-I station: Dhio Research - Combustion, Coating Simulations, Bangalore

Student

Name: GEETESH R KESHWANI . (2018A4PS0327H)

Student Write-up

Short Summary of work done : As a research organization, our learning was both theoretical and practical. They conducted classes for theory as well as for practical learning. After finishing with the theory classes, they gave us an assignment to check our understanding and after completing the practical/software specific classes, they gave us a project for the same.

PS-I experience: Pretty good. Their plan for the students was great.

Learning Outcome : My project domain was "Process Flow and Heat Transfer". I understood the functioning of the software "FLOWNEX" and the CFD theory behind the software so as to understand all the parameters involved. The tutorials helped in using the software efficiently.

Name: SANJAY SINGH RATHORE . (2018B5A40345G)

Student Write-up

Short Summary of work done : We basically worked on simulation of combustion process of methane in a combustion phenomena.

PS-I experience: Overall experience was amazing, I get to learn alot about the simulation process and how important it is in the real world. I also get to learn about the industry work and to manage everything as a professional.

Learning Outcome : I got to learn how to do simuation on Flowvision software and to do the analysis of a real world process.

PS-I station: Dhio Research - FEM based, Bangalore

Student

Name: SARODE AKASH DATHU RAO . (2018A4PS0693H)

Student Write-up

Short Summary of work done : We were introduced to new softwares and methods which the company uses to solve the problems of their clients. We performed basic simulations on these softwares to get familiar with the software initially. Later we completed assignment with problems from various fields of mechanical analysis. My main project included structural analysis of a GE jet engine bracket and interpretation of the results thus obtained.

PS-I experience: It was a very productive period. We learnt various theory topics from lectures conducted by PS station. We also learnt the usage of new softwares and methods R & D companies use to solve the clients' problems. We also got an industry overview through webinars arranged by BITS on various topics. Overall, it was a good experience.

Learning Outcome : I am now familiar with FEM theory and also some of prominent FEM codes like ABAQUS and ANSYS. Also I learnt fracture mechanics theory and also got knowledge of FRANC3D software. I got an industry overview on various topics like additive manufacturing, quality control, designing, etc

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Name: JAINAM SHAH . (2018A4PS0871G)

Student Write-up

Short Summary of work done : Project Domain - Finite Element Method (FEM)
We were assigned different software and were supposed to carry out our projects and assignments on the same. I was allotted an analysis software "ABAQUS". We were given mini project assignments to carry out individually. My area of research included to perform and present a report on Sheet Metal Bending.

PS-I experience: it was a great learning experience. We got to learn many different aspects of industrial work. Apart from learning only about theories we were trained to apply that knowledge in real life situations using simulation and analysis software.

Learning Outcome : I learnt about Finite Element Method and its applications using software.During the PS course I learnt handling situations and performing non linear analysis using ABAQUS software.
Apart from this I learnt a lot about time management and got a lot of insights about industrial sector via all the orientations and project work.

PS-I station: Dhio Research - Material Modeling and Simulation-, Bangalore

Student

Name: UTKARSH UPADHYAY . (2018A1PS0822H)

Student Write-up

Short Summary of work done : The main focus was to learn J-OCTA which is a material analysis software. After covering broad topics on J-OCTA, the final goal was to study the interfacial structure of polymer blends using J_OCTA

PS-I experience: It was a nice and unique experience. The theory behind material modeling was covered through online lectures followed by virtual lab sessions on J-OCTA. The mentors at DHIO provided full support to resolve any issue faced by the students.

Learning Outcome : The main learning outcome was the expertise in J-OCTA. Performing simulations in J-OCTA can provide the user with vital information on the material properties which may not be obtained from lab experiments.

Name: APARNA K . (2018B2A40549G)

Student Write-up

Short Summary of work done : My working domain was Material modelling and simulation where we used J-OCTA, an advanced quantum simulation software for theoretical validation of problem statements. First, we were given some tutorial questions for better understanding of the software. We were asked to prepare a ppt with highlights of J-OCTA and with solutions for the problem statements given. Then we were given a work specialised on a particular solver in the software. I had to simulate the visco elastic properties of polymeric materials and analyze the processing and performance of the polymer in industry. A comparitive analysis was done using different solvers and best one and concluded.

PS-I experience: Dhio is the best PS1 centre for those who want to explore more on quantum simulations and how it can be used in material science. The authorities are really helpful and knowledgeable in their field of work. They are really supportive (solved all our doubts individually!). Gave an exposure to the importance of applying state of the art simulation technology in life estimations, optimisation etc.

Learning Outcome : Understood the importance of computer simulation in replacing actual experiments saving raw materials, time, energy in the cost of computational expenses. This ps1 helped me understand the need of getting best possible result using optimum time, cost and meet the expected quality of product deserved. The project alloted to me is considered to be the backbone of rubber industry, so had to keep the above point in mind.

PS-I station: Dhio Research - Mesh FREE CFD Simulations, Bangalore

Student

Name: MAREPALLI ANAND . (2018A4PS0023H)

Student Write-up

Short Summary of work done : Dhio research is a collaberative company that provides training and software support to other engineering companies and institutions. Their primary field of work is in Mechanical and electrical engineering. I was offered work in the field of CFD. Our work was to study the fluid flow in different situations.

PS-I experience: My PS experience was fairly good. Initially there were a lot of time lag in the operations and we weren't being filled in regularly by our industry mentor. But as the time passed by, everything settled and our PS mentor was really supportive and helped us when we required him to. Since this was the first time,(hopefully the only time) PS is being conducted online, there were a lot of flaws in the management system of the PS station. Otherwise, it was a good experience and I have learned a lot in these six weeks.

Learning Outcome : Technical aspects wise, I have learnt software applications like Creo, fusion 360 and particleworks. We were introduced to a new and potential method of mesh-free CFD, that has way more practical uses and is less complicated than the usual mesh generation methods.
In the soft skills aspect, I think I have learned more about project and time management and to communicate and grow with my companions.

Name: ABHAY KANT SHARMA . (2018A4PS0344G)

Student Write-up

Short Summary of work done : My work is related to simulations and analysis of various models provided in Particleworks software.

PS-I experience: It is good as they taught us basic computational fluid dynamics and made us familiar to the software we were expected to work on. They even provided

sufficient knowledge related to our project. But still I feel that the time of 6 weeks is very less to excel the software and cfd course.

Learning Outcome : On theory aspects i learnt cfd, fluid and even got a slight glimpse of heat transfer.while on software i have done a project on particleworks.

Name: SHWETANG GUPTA . (2018ABPS0502P)

Student Write-up

Short Summary of work done : I have learned about DEM theory in CFD and how to apply it in various software such as ThreeParticle. The project given to me consisted of analyzing the outlet vs inlet velocity, wear analysis by simulating the problems in ThreeParticle.

PS-I experience: It was a great experience in doing work from home internship by accessing the virtual labs. It has really broadened my outlook on various opportunities in the core sector.

Learning Outcome : 1. I was able to analyze the effects of high-speed particles on a pipe by considering Wear Rate and Total Wear in ThreeParticle software and learned about the DEM theory.
2. I realized through my experience that how difficult it can be to run a simulation that looks simple but rather cannot be done under certain constraints.
3. I learned a bit about working in a professional environment.

Name: SUBHRAT PRAHARAJ . (2018B4A40714H)

Student Write-up

Short Summary of work done : Studied Mesh-Free methods in CFD analysis. Worked upon integration of Discrete Element Method (DEM) with Smoothed Particle Hydrodynamics (SPH)/Moving Particle Semi-Implicit Methods (MPS), Wear modelling

and FEA to work on various applications and phenomena, mainly, Tyre Aquaplaning, Lubrication, Aeration and simulating flow in a complicated network of pipes to list a few. All the work was don using the software Threeparticle/CAE.

PS-I experience: It was a great learning experience. Though the duration was a challenge to complete simulation of new test cases and we had to do with simulating general tutorial test cases. The mini-project case was slightly tricky though.

Learning Outcome : Got to know about mesh free methods in Computational Fluid Dynamics, which hold a lot of promise for a specific class of fluid dynamics simulations.

PS-I station: Dhio Research - Piping Stress and Process Flow Simulations, Bangalore

Student

Name: HARSHAL ANAND BADGUJAR (2018B3A40771G)

Student Write-up

Short Summary of work done : I worked on Piping stress and Process Flow Simulation designing pressure vessels and doing its CAD modelling, analysis etc.

PS-I experience: PS gave me the true industrial exposure particularly about the work culture. It also helped me to gain soft skills.

Learning Outcome : I learned CAD modelling, FEM, CFD etc.

PS-I station: Dhio Research - Process Flow and Heat Transfer Modeling, Bangalore

Student

Name: PADHMAPRIYA N . (2018A1PS0037G)

Student Write-up

Short Summary of work done : Attending theoretical and practical sessions organised by the company in order to familiarize with the CFD, heat transfer and process flow concepts. Performing simulations to validate the theoritical calculation. Optimising the systems etc.

PS-I experience: Ps-1 in Dhio research Bangalore opened up a different horizon of thinking and helped in better familiarization with the topics in chemical and mechanical domains. The work pressure was extremely high and abiding by the deadlines seemed to be strenuous. But the learning experience was quite commendable.

Learning Outcome : Software simulation(Flownex), Dealing with multiple problems regarding CFD, Heat transfer and Process flow, Optimisation techniques etc.

Name: PIYUSH SINHA . (2018A1PS0074P)

Student Write-up

Short Summary of work done : My team comprised of 15 people with the role of process flow and heat transfer modeling. The work started with theory lectures on CFD as well as simultaneously solving industial problems. We learned the basics of modeling in Flownex SE and moved onto our main project. My project was to model "Manifold Pipe" in Flownex and study the flow behavior in it for various cases. The model was used to verify results from a published paper.

PS-I experience: My PS-1experience was one full of learning, interactive and professional. As the time period was reduced to 6 weeks, we had to work late hours at night as well as on hoildays to finish the work. Industry experts conducted the entire program in a formal manner clearing all doubts of students. They had setup an platform for us to engage with them. Theory as well as practical leactures were conducted remotely without any issues.

Learning Outcome : I learnef the basics of process flow and heat transfer modeling. Also through web semiars I learned the basics of MATLAB, ANSYS, Creo Parametric. Through modeling on Flownex I got aquainted with it as well as the theory associated with manifolds. I also learned project and time management by completing the design project in a short period of time.

Name: SAUBHAGYA SHUKLA . (2018A1PS0351P)

Student Write-up

Short Summary of work done : The subgroup in which I was working was Process Flow and Heat Transfer among many other subgroups at the PS station. Our work was to simulate real-world flow processes on simulation software. During the first week we were taught about about the basics of CFD. In the next two weeks, we were assigned the simulation software and we had to go through several tutorials to gain experience in software. The software assigned to me was Flownex SE. For the final three weeks we worked on projects allotted to us. My project was to simulate water hammer flow in Flownex. The related theory was researched upon and the simulation results were submitted as a presentation to the PS station.

PS-I experience: The PS station instructors and mentors were helpful and professional. The deadlines provided to us were strictly followed.

Learning Outcome : We learned how certain systems and processes are simulated in software to get a sense about how he system will behave in practical world. Experience in simulation software was gained through the project. Soft skills were also put to use as we had to present our results and engage in group discussions and seminars.

Name: ARSH KHAN . (2018B1A40927G)

Student Write-up

Short Summary of work done : During the PS at DHIO Research and Engineering, Bangalore the fundamentals of computational fluid dynamics (CFD) and thermodynamics related to fluids was covered. Initially, we were given an assignment with ten problems which were related to the above mentioned topics. Those problems made us get a firm grasp on the concepts that were to be used later on and we developed to problem solving skill that was needed to apply the concepts. FlowNex Simulation Environment was the introduced to us. To understand the fundamentals of the software we were given a couple of FlowNex tutorials that were to be implemented in the software. This allowed us to get familiar with the basics and lay down a foundation. The tutorials included a problem that had to be solved using FlowNex simulation. A network had to be made in the simulation environment, given values had to be plugged-in, necessary conditions had to be set, and then the network had to be solved. This solved a CFD problem with ease. Then we were given an assignment, mine was on Micro Gas Turbine. This included first solving the problem analytically using mathematical models then doing a simulation for it in FlowNex. This project required literature survey and developing a good conceptual and mathematical understanding of Gas Turbines, especially the BMT 120 KS Gas Turbine Engine.

PS-I experience: Initially, we were given an assignment with ten problems. We were given a couple of FlowNex tutorials that were to be implemented in the software. Then we were given an assignment, mine was on Micro Gas Turbine. This included first solving the problem analytically using mathematical models then doing a simulation for it in FlowNex.

Learning Outcome : The fundamentals of computational fluid dynamics (CFD) and thermodynamics related to fluids was covered. We developed problem solving skills that were needed to apply the concepts. FlowNex Simulation Environment was also the introduced to us. This project required literature survey and developing a good conceptual and mathematical understanding of Gas Turbines, especially the BMT 120 KS Gas Turbine Engine.

PS-I station: Divgi TorqTransfer Systems Pvt. Ltd. - Bhosari, Pune

Student

Name: PUKHRAJ SHARMA . (2018A4PS0534P)

Student Write-up

Short Summary of work done : Helped in preparing SOP for shopfloor activities. Learnt about the working of an industrial setup and how different people fill every gap for industry to function efficiently. Gained office exposure and learnt how to work from home in these challenging times.

PS-I experience: It was an enriching experience about the industrial setup and how it operates. It helped me gain an insight into the work in an office environment and how deadlines and work hours are balanced.My mentor guided me very well and made the transition very easy. All in all it was a fruitful experience.

Learning Outcome : I was able to learn a lot about the industry and machining cells and production of products via these machining cells. I was able to fully grasp the quality checks which company puts into place to ensure maximum quality products. I also understood the importance of finance and marketing in a company like Divgi which has analysts analyzing the best possible orders from the customers. It also needs them for bringing in new and renowned customers like Tata which help in boasting the company image.

Name: SUNIL KUMAR . (2018A4PS0643P)

Student Write-up

Short Summary of work done : We worked on the topic of Value Stream Mapping and did a case study on Quantum-12 rope manufacturing. How VSM can be applied in this industry, to reduce waste, improve process stability, better inventory control, lower associated costs and boost manufacturing efficiency.

VSM is a tool that will aid to integrate teams, to better understand the flow of information and products, to set common goals to multi-disciplinary teams, making the value stream outputs common to all the stakeholders.
I also attended many webinars about Productivity Improvements, Benchmarking & Failure Mode Effects Analysis (FMEA), Operations Strategy: Analysis on Productivity, Control Charts, Six Sigma and Design of Experiments (DOE) and Value Stream Mapping by various industry experts.

PS-I experience: It was a wonderful experience to work with divgi warner pvt limited. I got to learn a lot.The project mentor was really nice to me so as HR mam. The communication was smooth and partial though due to the fact that this time the PS was work from home, the learning was affected a bit for sure. There were some times when our mentor wanted to share some data with us but could not do that as it was not possible to share such amount of data over internet.
My PS 1 faculty was really communicative and resolved any problem we had as soon as possible.

Learning Outcome : I learnt how to work in a team effectively, also how to work on a project on the work from home basis.
I learnt about the business processes of the company and the various company policies concerning different matters.
Learnt about Advanced Product Quality Planning (APQP) and Control Plan also
How synchronizers work and Dimensional Engineering.
Learnt about the Value stream mapping and how it is applied in industries
Learnt about Flexsim Simulation Tool to solve operations management industry relevant problems

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Name: ARYAN AGRAWAL . (2018A4PS0765P)

Student Write-up

Short Summary of work done : We worked on the topic of Value Stream Mapping and did a case study on Quantum-12 rope manufacturing. How VSM can be applied in this industry, to reduce waste, improve process stability, better inventory control, lower associated costs and boost manufacturing efficiency.
VSM is a tool that will aid to integrate teams, to better understand the flow of information and products, to set common goals to multi-disciplinary teams, making the value stream outputs common to all the stakeholders.

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PS-I experience: It was a wonderful experience to work with divgi warner pvt limited. I got to learn a lot.The project mentor was really nice to me so as HR mam. The communication was smooth.There were some times when our mentor wanted to share some data with us but could not do that as it was not possible to share such amount of data over internet.
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How synchronizers work and Dimensional Engineering.
Learnt about the Value stream mapping and how it is applied in industries
Learnt about Flexsim Simulation Tool to solve operations management industry relevant problems

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PS-I station: Gates India Pvt Ltd-Operations Management, Chandigarh

Student

Name: MEHUL RUNGTA . (2018B2A40821G)

Student Write-up

Short Summary of work done : Our project was based on SMED(Single Minute Exchange of Die) and Lean Manufacturing, in which we had to optimize the workflow of changeover process of Covering Die Pin. We had to perform a time analysis of a video and document time taken for each element to perform. Thereafter we had to figure out the ways by which each element can be performed better. This can be done in three ways. Firstly, the lean wastes from each element can be elemnated. Secondly, if

possible some internal activities (while machine is stopped) can be converted to external activity(Machine is running). Thirdly, parallel activities can be introduced so that more workers can be assigned to complete a task. Furthermore a cost/benefit analysis was done for each change proposed by us. After analyzing each change a new action plan was proposed to the company.

PS-I experience: The PS-1 experience was a good change from day to day classroom habits. However not being present in the industry physically proposes a challenge for the core projects like mine. It was difficult to analyze the machines from home. However our PS instructor was good and understood our limitations well. Overall it was a good experience

Learning Outcome : I experienced working in an industry the first time. Also since it was in remote mode it improved my soft skills a lot.

PS-I station: Gates India Pvt. Ltd.-Operations Management, Faridabad

Student

Name: RISHAB INNANI . (2018ABPS0474P)

Student Write-up

Short Summary of work done : I created norms for setting inventory replenishment and classified the inventory into ABC classes. First couple of weeks we weren't assigned any project so we learnt what was taught in canvas (the material and videos uploaded). It was very helpful. Then we were allotted the projects midway through the third week and then started working on it. I got to know that the methods for selective inventor control were never used in the organization, thus it was a great opportunity to help improve the inventory management. Finished the project with the help of instructor and mentor. Also attended and completed the various evaluations.

PS-I experience: It was an experience that gave an idea of what the future would be, that is, work from home. Did not give any exposure to the industry for to their lack of time and efforts (because of the pandemic).

Learning Outcome : Inventory management, selective inventory control and various soft skills

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PS-I station: Grasim Chemicals, Renukoot

Student

Name: ASHWIN REVANKAR . (2018A1PS0032G)

Student Write-up

Short Summary of work done : My project was related to steam and hydrogen optimization in Caustic Soda Plant

PS-I experience: It's was a good experience with overall industry exposure

Learning Outcome : I learnt about , various manufacturing processes and optimization techniques

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Name: RUDRA NAGALIA . (2018A1PS0042P)

Student Write-up

Short Summary of work done : Besides learning about the domain and how the industry functions in general, I worked on a solo project entitled "Complete Waste Management for Poly Aluminium Chloride Sludge". Further to discussion with my industry mentor, the work required me to do an in-depth study on the PAC production process and the laboratory report on the sludge obtained at the last stage of the process, viz. Filtration. Ultimately, the goal was to develop practical, cost efficient and environment friendly solutions for the waste management of PAC sludge, which is

otherwise classified as 'Hazardous Waste'. After detailed research and study of all existing literature on the subject, I made two suggestions for complete waste management of PAC sludge:
1. According to a study by D.W. Cho et al, a Granular Composite (GASA) can be synthesized from hydrothermal treatment of PAC sludge followed by granulation. This composite can act as an effective adsorbent for Fluoride and can be used to treat groundwater to remove excess Fluoride from it.
2. According to a study by Toor et al, the sludge obtained further to wastewater treatment by PAC is very rich in Phosphorus. The phosphorus present in this sludge can be extracted owing to variable dissolution of Phosphorus from the sludge at different pH conditions. The sludge obtained has the potential to produce nearly 2.31 million tons of Phosphorus annually. Also, extraction of Phosphorus from the sludge is very essential because if left in effluent, it can lead to eutrophication in water bodies.

PS-I experience: I got to work solo on my allotted project helped me learn and grow beyond what our regular college curriculum allows. I got a better look at the industry and its functioning and got to improve my research and presentation skills. Also, I got to become abreast with all the current research methodology and presentation formats. Overall, despite the problem with the PS station, it was a good learning and growing experience.

Learning Outcome : The outcome was to gain a fair understanding of the industry and its functioning with specific focus on the processes taking place at the Grasim Industries plant at Renukoot. I was also interested in analyzing the Chemical Engineering industry and its functioning in the special circumstances of the Covid-19 lockdown so as to be able to make ourselves relevant to the post Covid world.

Name: V ABHISHEK . (2018A1PS0057H)

Student Write-up

Short Summary of work done : Establishing water balance for the manufacturing processes of the plant. Ihad to calculate the amount of water used for the processes and the amount of waater being re.used

PS-I experience: It was a good experience having everything online but I would prefer having offline ps as it is a core company. I think I should have aa hands on experience on the project.

Learning Outcome : Learnt about the procedure of manufacturing the products.

PS-I station: Grasim Industries - Energy Conservation, Nagda

Student

Name: LAHAREE GHOSH . (2018A1PS0065H)

Student Write-up

Short Summary of work done : My project was energy conservation in the auxiliary section of the industry. We accomplished our aim through comparing the practical values with theoretical values calculated through material balance. We worked on the gap area by reducing the water intake of the industry which led to reductio in the steam consumption of the evaporators.

PS-I experience: Overall it was a good learning experience. At first it was difficult to collaborate and communicate over online platform but we got used to it with time.

Learning Outcome : Applying energy balance equations to solve practical problems like energy conservation in the industry

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Name: SULAKSH SWAMI . (2018A1PS0083G)

Student Write-up

Short Summary of work done : Our project was titled ‘Energy Conservation for Spinning I/II’. In terms of theory, we studied the process flow of the spinning department

of a viscose staple fiber plant, covering the following sections: spinning, stretching, cutting, carbon disulphide recovery, after-treatment, drying and packing.
In terms of practice, we solved quantitative assignments on the angular speed of the cutter blade required to obtain a desired length of fiber. We made a program to predict the fiber production rate directly from the flow rate of the input solution (viscose). We solved a material balance on the spinning department and an energy balance on the dryer section.

PS-I experience: Our mentor and affiliated faculty were both cooperative and readily available for consultation or doubt clarification. The virtual mode of PS1 did not diminish the learning takeaways from our project at all. My group members were helpful and committed, and group assignments were hence fruitful activities. PS1 bolstered my knowledge of my discipline by giving us a comfortable learning environment, a knowledgeable mentor and a manageable workload.

Learning Outcome : I gained insights into my discipline, both through additional knowledge and novel methodologies of going about problems. The fact that we successfully created industry-grade models helped reinforce our confidence in our technical skills. The series of presentations we delivered enhanced our public speaking skills as well.

Name: DEV MALOT . (2018B2A11040P)

Student Write-up

Short Summary of work done : In the beginning, we had a chat with the mentors. They introduced us with the industry and their chief product which is Viscose Staple Fibre. I was allotted the project 'Energy conservation in spinning' with 4 other students.
The fibre manufacturing process consisted of 4 major processes but our project was maily focussed on the Spinning process. We had regular lectures by the mentor on the manufacturing process which covered all the steps but Spinning section which was our project was talked in detail. Along with these lectures, on a weekly basis, we were given small assignments in which we were given inputs from the machines and we had to calculate various things like machine rpm or fibre flow rates etc, and based on these calculations we had to write a code or make a program on Excel which solved the same calculations. Some of the assignments asked us to find out the accurate input of materials and design the exhaust system for the dryer machine.
In the end, we submitted a report on our learnings and recommendations and presented it to the company.

PS-I experience: As this year, it was conducted on the online mode. Although, it lacked hands on experience but still it gave us a lot of learning and exposure to the industry. The mentors were very helpful and friendly. We regularly talked to them about any doubts regarding the project and they helped us very well to understand the concepts.

Learning Outcome : Firstly we got to learn various concepts about the chemical engineering domain and how it is done practically in the industry level.
It also have us a chance to meet with the industry professionals and speak with them. It gave us a huge boost to our soft skills and communication skills.

PS-I station: Grasim Industries - Process Calculations, Nagda

Student

Name: KUMAR SOURABH . (2018A1PS0018H)

Student Write-up

Short Summary of work done : We got to know about chemical and oil and gas processes,particularly Viscose Fibre Production, it's material flow structure, process control, simulation tools and automation tools such as SCADA, PLC, DCS system, power distribution network. It also imparted insight about inventory management, supply chain management, and quality control & assurance techniques. It enriched our knowledge in HAZOP, Material Balance, and Energy Balance.

PS-I experience: Overall,it was a good learning experience and helped improve technical,communication and writing skills.We got to know about the various industry processes through industry professionals.

Learning Outcome : Understood the technological processes and identify various problems at the industry/ organization.
Worked on possible solution(s) to an identified problem/ project, with professional standards.

Seeked, visualized, analysed and recorded data/ information through appropriate documentation.
Improved problem solving and critical thinking skills.
Developed appropriate organizational attitudes and values.
Acquired soft skills and social skills, particularly to communicate with industry professionals

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Name: HARSHITA AGRAWAL . (2018A1PS0271P)

Student Write-up

Short Summary of work done : The project was - "Process calculations in spinning" of Viscose rayon fiber. In this, we got in-depth understanding of the manufacturing process of the Viscose Staple Fiber (VSF) and its properties. There were weekly online lectures based on the domain by the industry experts and we learnt how to perform material and energy balance and other complex equations at the industry level. Online seminars, quiz and group discussions were held on a regular basis in order to test our understanding along with business skills.
We also studied about the effluent and water treatment process at the station. Alongside, we also examined the CS2 recovery process and the effects of COVID-19 on the production.

PS-I experience: Although there were limitations due to the lock-down situations and we could not get the physical industry experience, the journey was wholesome. The industry mentor and our PS faculty made sure that we get the best possible knowledge about the industry work and development. It also helped us improve and gain confidence on our technical as well as soft skills such as team work, co-operation and risk management.

Learning Outcome : The interaction and guidance of the industry mentor and PS faculty not only helped me improve my practical knowledge about the subject matter but also helped me improve my personality as a professional.
I gained a lot of insights on the working of a textile industry and mastered MS-Excel, MS-PowerPoint and MS-Word. The evaluation components helped me remain sincere and consistent in my work and quizzes helped me keep a check on my learning. The group discussions involved sharing of knowledge and taught me how to spotlight my ideas in a group. It improved my thinking, learning, problem solving and understanding. The presentation and seminar helped me develop effective presentation skills and taught me how to work in a group.

Lastly, it made me realize the challenges of work-from-home faced by the white collar individuals right now and motivated me to learn more innovative ideas in the learning process.

Name: HARSHITA AGRAWAL . (2018A1PS0271P)

Student Write-up

Short Summary of work done : Our project was - Process Calculations In Viscose manufacturing.
The project involved study and detailed analysis of the manufacturing process of Viscose rayon at the plant and practical applications of material and energy balance along with other theoretical equations in the various steps involved. Alongside, we also studied the various properties and impacts of various raw materials such as CS2 on the environment and the steps taken by the industry to control the pollution. All this was done with the help of online lectures and tasks by the mentors and PS faculty.

PS-I experience: This was a very unique experience where we got to learn the applications of core chemical engineering knowledge at industry level. This helped me understand the working of an organisation in a better way.

Learning Outcome : The PS included various presentations, reports and group discussions along with our peers as well as the mentors. This not only helped me in improving my industry knowledge and concepts, but also helped me develop my interpersonal as well as professional skills. The online experience taught me that there cannot be a halt in learning even if you have a lot of barriers.

Name: SAIMOON BEJ . (2018A1PS0499G)

Student Write-up

Short Summary of work done : In the starting week students were allotted their respective PS stations and were then assigned Projects in the said stations. I was assigned the project involving the process calculations for viscose production in Grasim Industries. In the subsequent weeks I came to know about the different processes involved in the viscose production such as steeping, Conditioning, ageing, ripening and many others. Also we as a group did process calculations across different components of the process such as TRP (Twin Roll Press), Pulper etc. Energy balance was also done by us across the xanthation process, a important part of the viscose production. In the final weeks we learned about the cooling towers, their components, their efficiency and how external factors affect their efficiency and how they are significant to the plant. Also, in recurring group discussions we discussed about the production of the Viscose Staple Fiber affects the environment, and how their impact can be impacted. We also learned about the policies and step taken by the Grasim Industries to reduce the impact.

PS-I experience: PS 1 has been a new experience for me, as I have never worked so closely with the industries about whom and whose processes we study in our CDCs. Also the interaction with the people outside from the campus and also from the industries was eye opening and liberating. The knowledge about the processes that goes on in the plants, and how tiny things affect the bigger picture and how everything is connected was a new and astounding. Also the PS instructor and mentor provided to us were very helpful and made the experience better.

Learning Outcome : 1- How the industry works and getting a new angle of perspective
2- Greater understanding of the chemical engineering processes that goes on behind the scenes in the industry
3- Time Management
4- Team management
5- Better oral skills

Name: VRUDHULA EASH SRINIVAS . (2018A1PS0527G)

Student Write-up

Short Summary of work done : We were required to perform calculations on the processes (simplified) that happened in the plant - material balance, energy conservation, etc, and present our what we learned every 3 weeks to the company, in form of presentations. We were given assignments after Industry lectures, which included learning more about devices and technologies used in the industry, apart from what was already being taught to us.

PS-I experience: This meant that we had to know about the process - the production of viscose, and it's spinning into fibre, in thorough detail. I was able to use what I learned from Thermodynamics (BITS F111), Chemical Process Calculations (CHE F211), Chemical Engineering Thermodynamics (CHE F213) while solving the problems. As the mode of instruction was online, PS-1 felt a lot more like a course - we had lectures from the industry, assignments and a quiz we had to submit to them, along with the PS-1 evaluations taken by the institute themselves. This is understandable owing to the situation of the pandemic. If this same project had been given to us while we were in the plant, we would have learned a lot faster and a lot more, with hands on experience.

Learning Outcome : I learned about the process of production of Viscose Staple Fibre, especially on the spinning part. On a broader side, I learned about why the materials used in the industry are used instead of other alternatives, how processes are controlled and monitored in the industry, how industries deal with the practicalities of errors (which we ignore in college by taking ideal cases in questions), the intricacies in the processes I would otherwise assume as taken for granted and how the company is operating under the COVID-19 situation.

Name: SAKSHI SAINI (2018B2TS1171P)

Student Write-up

Short Summary of work done : Able to complete our allotted project successfully with our team members in the given time schedule. Having as much interaction is possible with our mentors to gain the specific and sufficient information required to complete the project.
Writing the introduction and background about the project like the topic is viscose process for calculations, we should write the information in brief like: Grasim is India's pioneer in VSF — a man-made, bio-degradable fibre that is fast emerging as a sustainable alternative to cotton. A versatile fibre, VSF is used in apparel, home textiles, dress materials, knit wears and non-woven applications. Our Birla Cellulose range of fibres can be used in their original form, or can be blended with all natural and synthetic fibres for enhanced comfort and feel. Starting production in 1954 at Nagda, Madhya Pradesh.
Determining goal and objective of the project: what all things to include in the topic and the format of making the projects, what all things to include etc.
we have studied about the material balance of two processes of the viscose production:1. Material balance across pulper and 2. Material balance across TRP.

PS-I experience: It was a great experience and learned lot many things.As it was an online PS1 so we have worked on virtual mode i.e through a platform canvas where we interacted with the mentors and students.Though we faced many problems of connectivity and communication bond to mentors and group members as from virtual mode its not that much sufficient to understand each other properly.though we have put all our efforts and made it successful and learned many things and to deal with the situation.

Learning Outcome : 1. Always to work with patience and never miss the opportunity to learn something new.
2.Collaboration skills: * Interpersonal: This includes team communications, document reviews, code reviews, and related interactions about project deliverables.
*Technology/online collaboration: This includes user skills with cloud-based and desktop collaboration, project management, and other standard productivity applications including document sharing.
3. Writing technical documentation is a valuable skill for project teams that I have learnt. I define documentation skills to include Process documentation and Operations documentation
4. Analytical thinking: Data and information analysis is one of the most essential parts of analytical thinking which can be developed through online trainings. Every day, organisations have to deal with large amounts of data.
5.Problem-solving: Enrolling in any of the programming trainings allows you to deeply identify, analyse, plan, practice, and resolve multiple problems not only during coding but also in our day to day tasks.

PS-I station: Gujarat Cement, - Electrical Power Systems, Kovaya

Student

Name: P SREE VISHNUSAI KARTHIK . (2018A3PS0526H)

Student Write-up

Short Summary of work done : My project was 'improvement of unloading jetty'. We had to study about different types of jetties, their functions and various unloading methods. We obtained information about jetties present at our station and how they are operated as well as how they are improved and maintained overtime.
We learnt about the decision making process involved in planning of a jetty and various factors that affect the construction of a jetty. Finally, we studied how safety is maintained at the jetty and suggested a few ways to improve it.

PS-I experience: It was good to interact with industry experts and also to learn from them. I learnt a lot about how the industry works.

Learning Outcome : I learnt about the cement industry and how they manufacture and transport cement. I also learnt about jetties and their purposes. I learnt about various unloading methods and other technical aspects of a jetty.
Along with technical knowledge, I improved my soft skills through seminar and group discussion which helped me present my ideas in abetter and more understandable way.

Name: THAMBABATHULA OMANA . (2018A3PS0553H)

Student Write-up

Short Summary of work done : The given project was Improvement of unloading jetty. We were a group of 3 members. The work done was finding the related information regarding jetties and the role of jetties in cement manufacturing company. Contacting our mentor for more information about the jetty structure, different types of methods used during unloading and loading and the improvements needed to be done to the existing jetties which helps in the loading and unloading cement. To know the precautions to be taken in the process of loading and unloading.

PS-I experience: It was really nice knowing about the Gujarat cement works which is a plant of Ultra tech Cement, One of the biggest cement manufacturing industry. All the lectures offered by the ultra tech management gave me a clear understanding about the cement production. And knowing students from different campuses was also a good experience.

Learning Outcome : Learnt about Ultra tech cement and Gujarat cement works which is a plant of Ultra tech. Leant about cement manufacturing process. Gained knowledge

about the jetties present in Gujarat cement works and the different types of loading and unloading methods of jetties. Learnt about the precautions necessary for loading and unloading vessels. I also learnt how to give a proper presentation by out coming stage fear. Learnt how to be patient with others. How to manage a group and guide others if they need any help.

Name: AKASH V . (2018A3PS1106P)

Student Write-up

Short Summary of work done : Had to design a model in which there was a reduction in Power Consumption in the Grinding Area of the cement plant based on Mathematical Analysis.

PS-I experience: It was a good experience but something we did not expect because of the current situation. We did learn a lot about the cement industry and a lot about the cement plant and how they function and produce cement in detail.

Learning Outcome : We learned how to use software like Simulink and Ricardo Wave to design models to increase efficiency and decrease power consumption in the associated sector of the cement plant.

PS-I station: Gujarat Cement, - IT, Kovaya

Student

Name: Sarthak Agrawal (2018A7PS0170P)

Student Write-up

Short Summary of work done : My project was "Contract Labour Optimisation Study". Within the purview of this cement factory, I had to work on recommendations on how to optimise the usage of contract labour in the plant.
I studied the state of contract labour practices in India, read the fine details of the various rules and regulations, and researched labour optimization techniques from academic journals focusing on manufacturing and labour. Accordingly, I made a few recommendations pertaining to the plant in Gujarat.

PS-I experience: This time around, PS-1 operated as a work-from-home programme. We had to submit weekly diaries summarising the work done in the previous week, and two ppt and project reports for midsem and endsem evaluations. I briefly contacted my mentor for project details and carried out the rest of the work on my own, since I was the only one in this project. My PS-1 faculty in-charge was very helpful and directed me throughout the 6-week duration.

Learning Outcome : Although there was nothing pertaining to IT/CS domain, I learned to make presentations and learned effective communication skills relevant to the industry.

Name: DESHMUKH ATHARVA AVINASH . (2018A7PS0285H)

Student Write-up

Short Summary of work done : I was taught about data analytics and human resource department of a company.Then I was assigned a work in which I had to collect feedback from various participants from a virtual training course.Then I had to analyse data collected from them in many ways.After that,I created a code which gives rating to the level of learning experience in these training courses.

PS-I experience: It was very good

Learning Outcome : I learned many things about data analytics and HR functioning

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PS-I station: Gujarat Cement, - Mechanical, Kovaya

Student

Name: SAPTARSHI DAS . (2018A4PS0535P)

Student Write-up

Short Summary of work done : My topic was online condition monitoring of conveyor belts. Had to learn about different types of conveyor belts and how they work. Then, had to learn and read papers on online condition monitoring. Ultimately had to make a report suggesting better methods to predict and monitor fire control in the belt systems.

PS-I experience: It was overall good, got to learn many things starting from conveyor belts, it's working and types, and the current impact of online condition monitoring. Also got to learn about different sensors. My online interaction developed. Faculty in charge was very nice, enjoyed working and learning.

Learning Outcome : Learned about belt systems and online condition monitoring. Also learnt about the working of big farms.

PS-I station: Gujarat Cement, - Process and Unit Operations, Kovaya

Student

Name: ABINASH MISHRA . (2018A1PS0711P)

Student Write-up

Short Summary of work done : We worked on the improvement of reliability of kiln. A kiln is a cylindrical reactor in the cement factory where clinker is formed ,supported by a cyclone preheater and a cooler on two sides. A kiln is highly likely to take damages while operating ,so our job was to figure out those problems and find economical

solution to the problems . This ultimately leads to the increase in MTBF (Mean Time Between Failures).

PS-I experience: We were appointed a mentor from the GCW plant who guided us throughout the project. Quizzes , online dairy , seminars and reports were conducted on a regular basis by the professor. The actual layouts of the GCW were shrared with us for a better visualization of the process.

Learning Outcome : We got to learn about various processes involved in cement production. We learnt about the thermodynamics of the reactions taking place in it . And also the supply chain management of the whole cement industry.
Soft skills like presentation and group discussions were developed during this process.

PS-I station: Guwahati Refinery, IOCL, Guwahati

Student

Name: GOURI KARTHIK GEMBALI . (2018A1PS0038H)

Student Write-up

Short Summary of work done : Being allotted to Oil and Gas Sector (IOCL Guwahati Refinery), I have first made myself clear with the flow of complete refining operations and the products obtained from its various refinery units. Then, I am allotted a project on "Hydrotreating Process in a Refinery" to work with. I have researched on the Hydrotreating unit and came to know its various kinds. Hydrotreating Unit is responsible for Desulphurization, Denitrification, Removal of Metals, Oxides and Halides along with Increase in Saturation of Olefinic and Aromatic compounds which are present in the fuel feed stock. With the help of material given by my mentor, I got an overall knowledge on its brief process description, operating variables, catalyst system and its process flow followed in the IOCL refinery. Then, I have extended my study to
i.) The Hydrogenation Unit which provides Hydrogen gas for various Hydrotreatment processes.
ii.) MS Quality Upgradation Unit which reduces Sulphur content in Naphtha and Gasoline and improving its octane number.
iii.) INDAdeptG Unit which reduces Sulphur content from the heavy cut of INDMAX Gasoline to produce BS-IV quality Gasoline.

I have made a detailed report on the Hydrotreating processes and units which are enabled in IOCL Guwahati refinery. Along with these, I have also had some domain learning on other chemical industries.

PS-I experience: This time, the course conduct of PS-1 has been very different from the past years as this is a Remote Internship from Home due to the widespread of COVID-19. The Learning Canvas platform and other social meeting applications have made my work easy for this intern. It has been very helpful for me to understand the refinery operations, various products obtained, kinds of units, etc which are followed in an almost similar fashion. In my opinion, I feel that the evaluation component followed is high in terms of time-gap between individual components and low learning perspective. The major events followed in this PS-1 are presentations and discussions. The project work has been done by simple literature surveys instead of having work-based ideology.

Learning Outcome : I have gained good knowledge about refining and its operations. I have gained few soft skills like speech development, effective communication, etc. with the presentations and discussions I had with my fellow students, faculty and mentor. I have developed few skills of self-learning, self-motivation to do something productive, individuality and responsibility to finish my works within deadlines.

Name: MOHAMMAD SHARIQUE . (2018A1PS0871H)

Student Write-up

Short Summary of work done : I worked on a new technical unit called INDAdeptG(Indian oil Adsorption and desulfurization technology (G- Gasoline)) which is the only unique unit present in world currently.We had to understand the process of Regeneration and Adsorption using PFD's(Process Flow Diagrams) which uses Ni-Zn as a catalyst for desulfurization. Our project was to find potential solutions for the shut off valves connecting the regeneration and adsorption unit because of which the unit has turned into a batch process and required shut down of the entire unit frequently.We found out potential solutions and presented our idea through variable study of unit using theoretical calculations.We also had an overview of other units like NHDT,NSU,ISOM connected with Hydrotreating operation in IOCL,Gauhati. Apart from this we worked on Characteristic pump curves,understood about compressors,Electric heaters and other equipment,worked on Catalyst bed dilution techniques,Design of Laboratory Hydrotreating Reactors and scaling down process and Pilot Plant Testing of Hydrotreating Catalysts while solving the issue of valve through theoretical study.We also had regular sessions on different domains of Chemical Engineering.

PS-I experience: The PS experience was good overall because we had regular sessions with our mentor and the updates on Canvas platform made us more self reliable.I learned a lot of things apart from the curriculum like improving my communication skills,building connections.But I also feel that the experience would have been much better if we had an offline exposure to the process ,units and equipment which was not possible due to COVID19.

Learning Outcome : I learned about the processing units like NSU,NHDT,ISOM,CDU,INDAdeptG and the working of a Refinery.Apart from this brainstorming on the possible solutions for the valve issue of INDAdeptG helped us in learning about other process equipment using characteristic curves,Process Flow Diagrams and theoretical study although we couldn't find a proper conclusion to the issue and hence wish to also pursue it in future as a part of Research aspect for Development. I also feel that during the PS my communication skills,self reliability,building connections and assessment improved a lot as a part of my soft skills.

Name: SHREY AGARWAL . (2018B2A40707P)

Student Write-up

Short Summary of work done : My PS-1 project was based on Nanotechnology and Nano-science. It included research on Au(Gold) Nano particles and it's various possible applications along with a focus on Analytical Nano science. My project also highlighted different aspects of Nano-particles from preparation to stabilisation using various kinds of heterogeneous and homogeneous catalysts.

PS-I experience: The primary reason why I really enjoyed PS-1 was that my mentor had done his PhD on Nanotechnology and hence had really vast knowledge about this domain. His expertise and knack to complete all tasks with perfection really taught me a lot. Although PS-1 2020 was a virtual Work from Home internship, I think BITS Pilani PS Division and IOCL did a fantastic job in making the onboarding process as smooth as possible.

Learning Outcome : PS-1 definitely helped me learn a lot of things and helped me gain first-hand exposure to the corporate world. I delved into a new domain altogether -

Nanotechnology & got really inspired by all the different advancements that have been made in this domain, in recent times. I hope to keep exploring Nanotech and Nanobots in the future as well.

PS-I station: Hertztech Solutions Pvt Ltd., - AI/ML, Chennai

Student

Name: KUSHAL PANDEY . (2018A4PS0521P)

Student Write-up

Short Summary of work done : We worked on building a machine learning model for noise and vibration bechmarking of a vehicle. We had to do make an autoencoder for this classification problem.

PS-I experience: The company is sort of a small consultancy firm. We had the top executives interacting with us from day one. Also, since my industry mentor was based out of California, regular interactions were not possible. The working environment was sort of less professional.

Learning Outcome : Learnt Python, TensorFlow for the project. The project required us to have an understanding of deep learning as well. It also helped me in improving my communication and presentation skills.

Name: GEORGE SAVIO KIDANGAN . (2018A4PS0576P)

Student Write-up

Short Summary of work done : Our project was to virtually benchmark a vehicle for noise and vibration. We used machine learning techniques. Specifically, we used an

autoencoder to reduce the dimensions of the data. We used MATLAB to process the vibration data and TensorFlow to train the network.

PS-I experience: It was a good learning experience. The mentors were helpful in providing us
the project of our interest and also gave us much needed guidance. Time was a bit short especially towards the end but we did some good work

Learning Outcome : We learnt unsupervised learning algorithms and familiarized ourselves with the TensorFlow framework

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PS-I station: Hertztech Solutions Pvt Ltd., - Noise, vibration, and harshness (NVH), Chennai

Student

Name: ADITYA SINGH . (2018A4PS0113H)

Student Write-up

Short Summary of work done : Engine Mount Optimization Using 6 degrees of freedom in MATLAB®

PS-I experience: It was kind a self study where faculty gave us a research paper and asked us to code it in Matlab while he cleared any theoretical doubts we had

Learning Outcome : Learnt the basics of MATLAB® and Vibration theory along with basic Engine Mount Optimization

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Name: SHUBHANG BHARGAVA . (2018A4PS0491G)

Student Write-up

Short Summary of work done : Our project domain was related to the mounting of an engine in a four wheeler. It was considered to be modeled as a rigid engine body connected to three elastomeric mounts. We had to optimize the positions and the stiffness constants of the elastomeric engine mounts using MATLAB. Considering it a multi springs-mass system, we made a 6 degree of freedom model on MATLAB whose basic formulation was given. The solution of this model gave the force function and the design variables. These outputs were used as inputs in an objective function which was given. Minimizing this objective function yielded the final optimized design variables.

PS-I experience: Our project was mostly study based. We had been provided some papers and we more or less had to follow them and the input values were provided as well. Project work mostly went well with no major problems.

Learning Outcome : Apart from the basics of NVH (noise, vibration and harshness) and its implementation in the industry, there wasn't much technical knowledge to be acquired. I got more familiar with working on MATLAB. Some of the webinars which had been conducted in between were really good, especially the one by Mr. Nitin Pai who is a BITS alumnus.

Name: TANUSHRI SHRIVASTAVA . (2018B1AB1021P)

Student Write-up

Short Summary of work done : We have done Finite element analysis of brake disc in ANSYS to find the free- free frequencies of brake disc.

PS-I experience: It is a good experience as we are having regular labs to learn some important tools and software used in industries.

Learning Outcome : Since my PS station was based on an automobile industry I have gained knowledge about how the industries work and a lot of history and technologies about automobiles.

PS-I station: Hertztech Solutions Pvt Ltd., - Strength and durability, Chennai

Student

Name: GANDHI OM GIRISH . (2018A4PS0340H)

Student Write-up

Short Summary of work done : My PS 1 project was based on FEA of automotive components. In this project, I got a brief understanding about FEA and simulations in general. It involved pre-processing, analysis and post-processing and results finding. We learnt about meshing, its types, its quality checks and how to make a perfect mesh for the model. then we understood load application and constraint making on the FE model. Then, the run was fired for the processing and results were found. It was a really good experience for me and I got exposed to new techniques and Domains.

PS-I experience: The online PS experience was good. Every communication was smooth and I didn't face any issues due to online mode of interaction. The time period of the project could have been more is my suggestion.

Learning Outcome : I learnt about CAE process. I can successfully make FE models for further simulations. I also learnt about loading conditions on different components.

Name: IRFAN AHMED HITA WALA . (2018B5A41026H)

Student Write-up

Short Summary of work done : Obtaining a CAD model of the knuckle(automobile component near the wheel). Using Hypermesh (part of hyperworks) to edit its geometry followed by meshing the component. After that quality checks were performed to ensure good mesh quality. Last 2 weeks were devoted to the analysis and post-processing of the meshed component where we took values of stress and displacement occuring due to the loads applied. The final portion was to match the acquired results with the pre-existing data and checking the accuracy of our analysis.

PS-I experience: The mentors and the instructor were a great help during the entirety of the project. The project was really informative and helped us a great deal in understanding the entire domain of FEA. The duration of the project and the amount of work done was unsatisfactory as only basics were covered where we should have been able to perform an in-depth analysis of any CAD model. In terms of the practicality, the project was highly lacking as most of the work was done virtually.

Learning Outcome : Basics of Finite Element Analysis (FEA). Design and editing of CAD models. Meshing and virtual analysis of automobile components. The working of the automobile industry as a whole and the qualifications required to be successful in the given project domain.

PS-I station: Hindalco Industries Limited, Renukoot

Student

Name: RAGHAV MANTRI . (2018A1PS0503P)

Student Write-up

Short Summary of work done *: My project was to understand how the carbon anodes are being manufactured in Hindalco and what are various aspects that determines the anode quality. The study includes the complete information of how different properties of raw materials effect the quality of anode that is desired for aluminium production and I also get to know about the rejection criteria of anodes during these anode production also did a comparative study between the properties of the raw materials that is being used by Hindalco and raw materials that came from a Chinese company.*

PS-I experience*: It was more of a study project so there was nothing sort of implementing the knowledge.*

Learning Outcome *: Learned about how these large scale industries operate and what are the challenges that they face. Learned about the complete anode processing and the P.S evaluative did improve my soft skills.*

Name: AKSHIT SHARMA . (2018B2A30610G)

Student Write-up

Short Summary of work done : My project was to detect copper cracks in anode assembly in under 5 seconds. I got to know about various techniques which are used to detect cracks in materials in the industry along with some techniques which are currently being researched upon. The techniques were analysed considering the various parameters which can influence their outcome. Ultimately the techniques which can be best used in the particular scenario were shortlisted and compared. Since none of the available machines which perform crack detection suit the needs of the company, a new mechanism has to be developed.

PS-I experience: The experience was informative and interesting as I got to learn about a number of methods of crack detection and the principles behind them and a bit about the working of a smelter plant. As a whole it was quite enriching and enhanced my knowledge base.

Learning Outcome : Learned various aspects of wave propagation and magnetism in different materials, as most of the techniques focused on these methods. Talking to my industry mentor helped in developing my communication skills as well.

Name: PINTO RICKSTON LANCON . (2018A8PS0986H)

Student Write-up

Short Summary of work done : The Thermal power plant that provides electricity for the Aluminum operations of the Industry has 11 boilers (10 + 1 spare) in it which were installed over the decades with some new and some old technologies and protocols for the Control Systems for them. This resulted in plant operators requiring to learn different protocols to interact with the system and it was very difficult if the boilers have systems of different makes of control systems. We tried to study the make and working of the control system protocols of these boilers and a way to integrate them into one.

PS-I experience: Since it was a work from home PS, the work mostly revolved around coordinating with the instructor via email/calls and studying the protocols and working at home and collaborating with the team for research for integration.

Learning Outcome : I learned how the different Distributed Control Systems are used in Industry and how they can be used to regulate the working of a power plant.

Name: SHUBHANG VAGVALA . (2018AAPS0458H)

Student Write-up

Short Summary of work done : Project Title: "Optimization of Combustion Process in a Thermal Power Plant."
Our PS-1 program started off with a few expert lectures in the first two weeks where we learned about the various aspects of the power sector like types, economy, a brief about each type, and finally about the Hindalco Captive Thermal Power Plant. After that, we received contact details of the teammates and the mentor who would be working with us on the project. A couple of days later, I and my teammate received a call from our industry mentor who gave us details about the project and sent us a few research papers to go through to get prior knowledge before starting the project. For the next three weeks, we did our work on the project accompanied by various evaluation components such as quizzes, group discussions, weekly diaries, seminars, and reports. We had our midsemester seminars and report where we presented and submitted a detailed description of our work and the various observations which we came across while working on the project in the first 4 weeks. In the last week, we submitted our end semester and report where we submitted our final findings and various techniques we used while working on our project.

PS-I experience: I had a great time learning about the various aspects of the industrial work I had never encountered before. I learned a lot about the practical aspect related to my branch which couldn't have been possible without this exposure.

Learning Outcome : Firstly, I got an overview of the power sector from the expert lectures and the gap lectures provided on the Canvas platform which were required before starting the project. I also learned about the automatic combustion control system which is used in controlling the air and fuel flow in a power plant which was the most important aspect of our project. We also learned some gas emission reduction techniques required to control pollution.

PS-I station: Hirmi Cement Works, Simga

Student

Name: SRIDEVI PAMARTHI . (2018A8PS1028G)

Student Write-up

Short Summary of work done : Finding a suitable cost effective method to reduce transmission and transformer losses. Reduced the financial and energy losses of the company by use of harmonic active filters.

PS-I experience: It was a learning experience. I learnt various soft skills such as intrapersonal skills while communicating with the higher authorities of an industry.
I also learnt how to research and do a cost benefit analysis to find the best method to reduce losses for the company.
You learn how to communicate and present yourself as well as your work in front of a company professionally.

Learning Outcome : I learnt how to communicate with the professionals with a company and effectively work with them, while also gaining more in depth knowledge about the topic I was given.

Name: VIDHAN SINGH MAHAR . (2018B4A10610P)

Student Write-up

Short Summary of work done : Aim of this project was to increase homogeneity of Raw mix. This increases consistency of raw mix hence giving a consistent and uniform product. Homogeneity is essential for making process of making high quality cement smooth. I learned about impact of process parameters on quality control throughout different stage of limestone extraction. Assessment of raw mix and clinker quality was done. And impact of process variation on kiln feed SD was explored.

PS-I experience: Overall experience was great. Mentor was extremely helpful and knowledgeable. Learning how a cement factory really works was quite interesting.

Learning Outcome : Learned about SD reduction of Kiln feed

PS-I station: Hyundai Mobis - Operations Management, Thiruvallur

Student

Name: SHASHANK KUMAR . (2018A4PS0069G)

Student Write-up

Short Summary of work done : The topic was potential of IoT and blockchain in logistics and supply chain management. We had to assess the applications of the mentioned technologies in the operations in automotive sectors and establish the challenges in implementation. Using dematel method, the most important factors of adapting the technologies were identified and accordingly suggestions were presented.

PS-I experience: As the project was related to operations and supply chain management, an on-site exposure would have provided a tremendous experience. Due

to the online nature, there were problems in connecting to the company mentors and gaps were left in the understanding of the various processes. The project, though, was interesting and gave an insight into the ongoing trends in the sector.

Learning Outcome : I learnt about the various operations in supply chain management and their inefficiencies. I also got to analyse how IoT and blockchain could enhance the process.

Name: VISHWAJEET RAJEGHATGE . (2018A4PS0554P)

Student Write-up

Short Summary of work done : The project involved optimization of warehouse activities in Hyundai Mobis facilities which would enhance the outcome of the the comlete supply chain domain. Various factors influencing the Warehouse activities were researeched upon and they were eventually analyzed in a comprehensive by using the inputs from the profs and processing them through models like ISM and DeMatel. The results would assist in developing a optimum solutions towards warehouse management.

PS-I experience: There were various learning outcomes. As there wasnt a clear industry exposure but it eventually boiled down to developing certain soft skills and progressing towards a bulkier source of knowledge.

Learning Outcome : Well, a lot of soft skills were developed and they enhance me as a person. The PS where as was more of a research oriented project. Hence we engaged in various research papers, analysed them, reviewed them, and concluded them. Team collaboration was something that all would agree upon.

Name: NALLAPU SRINIVAS (2018A4PS0658H)

Student Write-up

Short Summary of work done : Our project is related Supply Chain Management. We are given a task to study various modern supply chain practices through research papers and come up with a framework for Hyundai Mobis to adopt Sustainable Supply Chain Mgmt. (SSCM) practices.

We as a team of five have thoroughly studied 8 research articles relating to Green and Sustainable SCM which helped us in understanding about the subject as well. From the articles and after discussing with our mentor, we finalized nine critical elements that effect the sustainability of a supply chain. Based on those nine elements we made a questionnaire for getting the inputs of the company using a modelling technique (ISM) that our mentor has recommended. After taking the inputs from the company, we are going to formulate the model along with the set of practices that may be employed.

PS-I experience: The mentor helped us a lot and had been generous when I sought additional help. SCM is a new topic that I wanted to explore.

Initially, it was difficult to read and understand research articles but eventually by taking more time and making notes along the way I've got accustomed to the difficulty. Making notes and revising greatly helps when attempting to understand a difficult topic. The webinars which I've attended did give some introductory exposure to different fields.

Learning Outcome : Learnt in detail about SCM through project
Gained ability to deal with difficult topics
Decent exposure through webinars

Name: YASH KUMAWAT (2018A4PS0672H)

Student Write-up

Short Summary of work done : Suggest a framework of sustainable supply chain management for company by identifying key elements and factors of green scm and their influence.

PS-I experience: We were asked to read articles on sustainable supply chain management and identify different methods to prepare a framework of sustainable SCM.

Learning Outcome : We have come up with a framework for green supply chain management for company

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Name: KSHIPRAJ U . (2018B2A40692P)

Student Write-up

Short Summary of work done : To conduct a study to prioritize the most influencing set of Critical Success Factors (CSFs) with respect to implementing Internet of Things (IoT) and Blockchain based solutions to the supply chain of the Company.

PS-I experience: It was a great experience with exposure to the work from home mode of operation due to the ongoing pandemic. Had a good experience working with a team of 5 students from all campuses.

Learning Outcome : Learnt a fair deal about various Mathematical modelling techniques and specifically about DEMATEL technique which was used in the Study.

PS-I station: Indian Institute of Petroleum - Candidate Engine Oil, Dehradun

Student

Name: DESAI KAUSTUBH SUDHIR (2018A1PS0804H)

Student Write-up

Short Summary of work done : The project topic was Catalytic Steam Naphtha Cracking which is currently an idea based, no prior research was done, so it was difficult

for me to gain information on the topic. The PS - instructor helped me to understand it. Used the thermodynamic and kinetics concept of Chemical Engineering. Used MATLAB to make the kinetic model. Finally gave brief report about it.

PS-I experience: Good, difficult to understand as it is in the idea form, so was able to start from the very bottom. Gained a lot of new knowledge regarding the petroleum and oil refineries.

Learning Outcome : Implementation of basic Chemical Engineering topics practically.

PS-I station: Indian Institute of Petroleum - Effects of Fuel Composition, Dehradun

Student

Name: DEEPSHIKA DUTTA . (2018A1PS0312G)

Student Write-up

Short Summary of work done : My work was based on finding relation between octane number and Heat of vaporization of fuel with methanol,ethanol and butanol volume percentage. Also, I did PIANO analysis of fuel.

PS-I experience: The learning curve was steep. A lot of knowledge about the domain was assimilated. The soft skills inculcated has shaped up my personality and I am now experiencing a new self!

Learning Outcome : I learned a lot . From data analysis skills to public speaking, PS-1 helped me inculcate a lot of soft skills and technical knowledge and that too in a short period of time.

PS-I station: Indian Institute of Petroleum - Gas phase and gas-liquid reactions, Dehradun

Student

Name: VARAIYA RISHABH JAVADSHA . (2018A1PS0006G)

Student Write-up

Short Summary of work done : My project was kinetic model equation development for CO2 to methanol conversion reaction. I had to do literature surveys and go through a lot of materials for deriving the rate equation of the reaction. It was a study project.

PS-I experience: It was a nice experience as I got exposure to some of the workings of an industry and learned practical application of what was studied till now.

Learning Outcome : I learned a lot about conducting literature surveys and the evaluation components also helped in improving communication skills

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PS-I station: Indian Institute of Petroleum - Study of On-Board Exhaust Emission Measurement, Dehradun

Student

Name: SOUMYA SHOBHANA . (2018B1A40950H)

Student Write-up

Short Summary of work done : My PS 1 allotted at IIP dehradun, which is under CSIR is an amazing institution and I personally had a great experience . I got to work under my industry mentor who was a senior scientist on the topic 'on-board exhaust emission measurements'. Under this project ,got to learn about the vehicular air pollution and the steps taken by the government to control it. Had to do a lot of litrature study on the topic

and compare the vehicular pollution levels over the years in India according to the BS norms.Overall was a great experience as got a chance to acquire different skills as well as knowledge of the particular field.

PS-I experience: The PS 1 experience at IIP dehradun was great as I gained knowledge and skills of the field. Also got a chance to work under a scientist so it was amazing.

Learning Outcome : Got to learn about the major cause of vehicular pollution and ways or measures both technogical and scheme based taken to control and bring it down.

Name: HARSHIT SAMDHANI (2018B2A40703P)

Student Write-up

Short Summary of work done : We researched on Real Drive Emission Norms which are to drafted and Implemented by 1 April 2023. India follows euro norms as a baseline for drafting Euro norms. But Real drive emissions will have to very different from euro counterparts due to significant differences between India and Europe in terms of weather, geography, demography, road infrastructure, driving behaviour and fuel quality. Extensive literature survey was done about challenges faced in implementation of RDE norms. Then we categorised differences according to emission testing steps into 4 categories and concluded with recommendation for upcoming norms in form of term paper.

PS-I experience: CSIR Indian Institute of petroleum is leading government lab for hydrocarbon research .We learnt a lot from the organisation both in terms of work culture and research. Although PS was virtual we were still able to learn about different experimental designs and concepts . Resources provided by BITS LIBRARY were extremely helpful in our research.

Learning Outcome : We learnt designing of experiments and different instruments and methods used in emission measurements and got updated with recent advancements in this field

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PS-I station: Indian Institute of Petroleum -Regulated and ultrafine particle (UFP) emission measurement, Dehradun

Student

Name: SWASTIK GOUDA . (2018B1A40976G)

Student Write-up

Short Summary of work done : The PS guided by my mentor Dr MK Shukla in Indian Institute of Petroleum was about measuring the emission by Vehicle exhaust its properties and especially the UFP particles. We first understood the UFP particles in detail thorough lliterature survey. Then we understood the working andmechanism of veicle exhaust dynamics in detail. Points like catalytic converter, engine dynamics noise cancelation techniques were taught. We then compared different fuels like petrol and diesel and their effects in vehicle exhaust. The exhaust composition that came from diesel and petrol vehicles are recorded and studied with graphs.

PS-I experience: It was a fun learning experience especially working from home.Made a lot of friends. Overall it was a good experience

Learning Outcome : To learn how to present your work in company and follow your mentor's guidance to learn more. Also to work in a team to present seminars and GDs.

PS-I station: Indira Gandhi Centre For Atomic Research (igcar) - Core Engg, Kalpakkam

Student

Name: HEMANT BHARTIYA . (2018A1PS0006P)

Student Write-up

Short Summary of work done : Our project was to simulate the nozzle for mixer settler system. Using MATLAB , we obtained various design parameters for a nozzle so that a required isentropic flow can be achieved under given conditions.

PS-I experience: Though the PS was remotely held ,but no such significant issues were there in communication with mentors. No doubt, we were unable to have a hands on experience with tools but still it was an insightful experience.

Learning Outcome : We learned some deeper and practical concepts of 'fluid dynamics' and were able to use them to obtain the required results.

Name: PRANAV ROY . (2018A1PS0010H)

Student Write-up

Short Summary of work done : The project title was "Develop a C program to reorient the coordinates of an organic molecule". The project mainly involved the concepts of Arrays, Structures, File Operations, Functions and Matrices. First few weeks involved working on a program called ChemCraft and modifying the program to reading only the necessary data from an input file & converting it to suitable datatypes. Then, the program was designed to perform the rotation of Molecular Coordinates in 3-D space; the no' of rotations, the atom to be rotated & the placement of rotation all would be entered as desired by the user. This would aid in a more accessible Fragment Molecular Orbital Analysis later on.

PS-I experience: IGCAR is a top-notch station. You get to work with distinguished Indian Scientists and learn a lot from them. They are purely research-oriented, so they help you a lot in this regard. Some projects also give you the opportunity to publish a research paper, along with the mentors.

Learning Outcome : I got to work in a project related to Density Functional Theory, which also involved programming and mathematical concepts, so it was a great learning experience.

Name: ANURAJ SOM . (2018A1PS0037P)

Student Write-up

Short Summary of work done : The project involves Univariate and Multivariate analysis of gas sensing responses of Semiconducting Metal Oxide gas sensors. Initially, we had to understand the mechanism of how gas sensors worked. This was with respect to various gases. Our work is based on Hydrogen and Ammonia. We understood the behavior of these sensors on these gases and their mixtures in terms of variation in resistance values of sensors used a way of detection of concentrations. Then we worked on Excel and we calculated certain features for the datasets provided along with creation of plots for the signals. Then we started algorithm development in R. This was to automate this process of understanding sensors and their behavior in several gases. We also developed certain algorithms like feature extraction and signal detection in order to understand the data, then to the various datasets obtained from experiments done, we applied the algorithms and calculated features while also visualizing the data. Then we also applied learning methods like Principal Component Analysis and through the outputs generated we could make sense of the data and analyse it even further. This could be used in terms of identifying composition of mixtures with known values of features and also understanding how the sensors and the gases are also correlated. While analyzing the signals, it helped in understanding certain sensor characteristics too.

PS-I experience: PS-1 was a nice experience. It was extremely nice to work with people from IGCAR and the topic of the project was very interesting. Its nice to learn something new but the project is about sensors and it would have also helped in the understanding of it to actually see the sensors work. The faculty were really helpful.

Learning Outcome : The project taught me about gas sensors, their working and how they're used. It taught me the need to generalize codes especially those used for these purposes, about Machine Learning algorithms, Data Analysis and the processing of data. It also taught me about working in a group.

Name: AMBADKAR ADITYA PRASHANT . (2018A1PS0725H)

Student Write-up

Short Summary of work done : Our task was to Design a customized Air-Ejector Nozzle for the mixer part of a mixer-settler. To design so, we were given some material including the theory and formulae required for the work. We used MATLAB to simulate the results in designing the nozzle.

PS-I experience: I enjoyed the work as it was properly laid out to me in the form of separate assignments each taking me a step closer to the final project.

Learning Outcome : Great experience with Practical application of MATLAB

Name: SHAGUN MISHRA . (2018A1PS0767H)

Student Write-up

Short Summary of work done : Studying the sensing behaviour of semiconducting metal oxide gas sensors and then developing an algorithm for differentiating between response signals and blank signal. Further development of algorithm for feature extraction from the sensor signals and applying ML algorithms (PCA ,PCR and cluster analysis) for sensor array analysis to get an idea of the sensing characteristics of the array.

PS-I experience: It was a great honour to work under the eminent scientists of the nation. Our mentors were really supportive and guided us throughout the PS school. And even though the PS was work from home, it never felt like we were missing out at anything(except for the labs). Our mentors were constantly in touch with us, we had regular meets to discuss the progress and the challenges of the project. They kept us motivated and also gave us lessons on basic ethics and lessons that one must know while conducting research, they would tell us how every result is a valid result, even the wrong results, as they help us in overcoming our short comes. The PS faculty was also supportive and quick to respond whenever we had a doubt regarding evaluation components. My project was not related to my branch and it was something completely new, but at the end of the PS , we were able to accomplish the task.

Learning Outcome : My project was a hands on data science project. I learnt how to clean the data, extract useful information from it, develop a generalized algorithm, application of PCA and cluster analysis and how to analyse data after the applications of ML algorithm.

Name: SAURAV HARISHANKAR YADAV . (2018A2PS0113P)

Student Write-up

Short Summary of work done : Our project was about maintaining quality control of integrated circuits by the use of efficient image processing and machine learning algorithms.

PS-I experience: PS-1 is a great opportunity to explore niche domains. IGCAR is a great place for PS. The Director of IGCAR takes special interest in PS-1. The BITS faculty were quite helpful and reachable. My IGCAR mentor guided me very well regarding the domain and project objectives. Despite issues faced in WFH environment, overall experience was quite satisfactory. It feels really good to interact with the esteemed yet humble scientists and aid in a live project for the benefit of the nation.

Learning Outcome : Learnt MATLAB and few of its toolboxes relevant to the project. Also learnt soft skills in terms of reports, presentations and coordinating with persons from different backgrounds.

Name: NISHANT KUMAR . (2018A2PS0226H)

Student Write-up

Short Summary of work done : The project was to model and simulate a transimpedance pulsating sensor to measure the level of liquid cadmium in the process vessel. This modeling and simulation were done on COMSOL Multiphysics. The sensor is required to work for temperatures rising to 500°C. So, the simulation was done to

study the behavior of sensor properties due to a change in temperature and optimize the error due to the effect of temperature and magnetic properties of sensor materials. Suitable sensor materials and operating frequency were suggested through the results of the simulation.

PS-I experience: It was a very informative experience to work with this organization. The mentors were very helpful in guiding us throughout the project.

Learning Outcome : Learnt simulation on COMSOL Multiphysics.

Name: AAKASH SOLANKI . (2018A4PS0372G)

Student Write-up

Short Summary of work done : The title of my Project was 'Simulation of flow in ducts connected to Glove Box in Transient condition'. It was a group project. First of all, I learnt about Glove boxes, their application, why they are used in nuclear facility etc. I also downloaded COMSOL multiphysics software, for doing CFD analysis. Since I was new to CFD, I had to learn this software from scratch. Our IGCAR mentor gave us 4 research papers to read during PS. The first one was an intro to GB. Second dealt with use of VXA chamber, which is attached to GB to take care of small pressure changes and to prevent leakage if there is a breach in the GB. Third dealt with the use of GB for taking samples of Covid-19 patients. Fourth one was about design and dev. Of VXA chamber (similar to the one used at IGCAR).
We started by simulating simple flow cases like laminar/turb flow in a pipe and verifying with hand calculations. Then we simulated flow in GB with & w/o ducts, GB kept in a room with different inlets, different VXA designs, etc.
Last objective was to simulate GB and GB with VXA attached in actual op. conditions, as provided by our IGCAR mentors, and to find out the geometry and pressure conditions, for which velocity at the breach becomes > 1 m/s (no leakage condition).

PS-I experience: It was a fairly nice experience. Some positive points: working in the comfort of home; no fixed work time; faculty were quite approachable; learnt many new things during the project as well as through webinars.

Learning Outcome : Learnt how to do CFD analysis in COMSOL software. Learnt about how radioactive materials are handled in a nuclear facility and how an operator is

protected from radiations, even if any breach occurs. Understood how design and development can be used to enhance this protection.

Sharpened communication and presentation skills. Developed an understanding of how to read research papers. Learnt how to work in a team as well as individually.

Name: JAGTAP NISHANT NANASAHEB . (2018A4PS0510G)

Student Write-up

Short Summary of work done : My project was about Thermal stress analysis of Horizontal cylindrical vessel using different boundary condition. We modelled tha tank and saddle supports, applied the two boundary conditions, perfomed node Coupling, applied the load conditions, then solved the problem for different load cases, then we extracted different deflection and stresses like membrane, bending and thermal and then decided the best boundary condition so the stresses are minimum with a good factor of safety.

PS-I experience: I got to learn many new things in PS-1. I was able to work in engineering domain at industrial level and work in my field of interest. We able to actual deal with the problem, analyse the issue and look for better solution. Besides these through quiz , we read different research papers and acquired new knowledge. Through seminar , group discussion, presentation we were able to present our ideas, interact with students through all 3 campuses, mentors, IGCAR scientists, ps instructors, learn soft skills, to improve our skills and correct where we went wrong. All the faculty was very helpful and guided us from time to time. I would really like to thank ps division for providing this unique opportunity.

Learning Outcome : Learnt the soft skills and interaction skills, got to learn Ansys APDL software, while making reports and presentation i was able to explore the words, excel, ppt to a more extent as could express my ideas more effectively.

Name: PINGALE MIHIR NITIN . (2018A4PS0514G)

Student Write-up

Short Summary of work done : The title of the project was "Thermal stress analysis of Horizontal Cylindrical Vessel with different Boundary Conditions." So, for that we performed FE Modelling and Analysis on APDL Software to find the maximum values of different types of stresses induced & deflections for 2 load cases and 2 boundary conditions, we also found angular and longitudinal stress patterns.

PS-I experience: Simply put, I am extremely satisfied by the work that was done. I learnt so many new things. I felt that Online PS would be really difficult, but it didnt happen so. Our mentor kept contact with us through regular calls on how to do the work and other technical guidance. PS Instructors were very helpful throughout the course, and they conducted all the online evaluative components very smoothly.

Learning Outcome : I learnt about Storage tanks (their various parts, some qualification criteria), got some knowledge of use of FE Software and various processes involved (like Modelling, Meshing, Extracting results, etc.).

Name: MODI ATHARVA SOMSHEKHAR . (2018A4PS0555P)

Student Write-up

Short Summary of work done : I was tasked with analyzing the fluid flow in the glove box and its ventilation system used at IGCAR using CFD analysis. Further I was to confirm that the containment standards are met by modelling the breach/accident conditions as well. It also involved the study of the Vortex amplifier which is used with the glove box.

PS-I experience: I had a fairly positive project experience at IGCAR. It exceeded my preliminary expectations of the level of work that would be possible in a work-from-home setting. Our faculties in charge had an organized schedule of the whole project duration. The industry mentors were also quite helpful and the projects were allotted to our mentioned interests. But I do still feel that, particularly the students from core disciplines, suffered significant disadvantages from being unable to work at the facility.

Learning Outcome : I am now able to skillfully use COMSOL software for conducting fluid simulations. It was first experience with turbulence modelling and the glovebox domain. I also picked up significant improvements in my soft skills.

Name: ADARSH SHREE SHRESTH . (2018A4PS0577G)

Student Write-up

Short Summary of work done : My project involved designing a prototype of a vertical Jacketed annular vessel which are located in Plutonium cells (at elevations +1.275 m and 4.775 m) in Block-4 of Fuel Reprocessing Plant (FRP)/ Fast Reactor Fuel Cycle Facility (FRFCF). These vessels are used for storage of process solution of specific gravity 1.5 which is categorized as high-level waste or per-say sort of nuclear waste. Thus, the jacketed annular pressure vessel becomes one of the most critical equipment in reprocessing plants whose failure can lead to the release of radioactivity in the primary containment of hot cells. So we Designed a Class 2 pressure vessel with different components which were ought to abide the ASME Codes. We made a vessel by calculating different parameters based on ASME guidelines then cad modeled it and then analyzed it on ansys for checking stress outputs and iterated the model to get the stress values under community and government acceptable limits (These are way different than theoretical limits). The Second part of my project was post processing and result Validation of the work that we did in the first half. It involved post analysis in ansys , converging outputs , and learning and applying methods for resolving different types of singularities. This was the most interesting part of the project because a lot of innovative ideas were studied, discussed, and debated. Then a few good ones were chosen and worked upon.

PS-I experience: We definitely got to know how the work is done in an actual workplace and how disciplined the inner workings of an organisation really is. The industry mentors were hugely supportive and involved with us and tried really hard to direct our thought processes in the right direction.They definitely showed us how the engineering community works and how any thing is developed from scratch.

Learning Outcome : under this project I learned how to design a class 2 pressure vessel for safe working in a nuclear facility. I learned detailed workings of software like solidworks and ANSYS. This project also taught me the importance of post processing and result validation for proofing a model for practical world scenarios.A huge part of

this project was presenting, reporting and learning to behave in a professional setup which i had never gotten a chance to do before .

Name: GUPTA SRIJEN JAGDISH . (2018ABPS0755P)

Student Write-up

Short Summary of work done : The project on which I worked was Design and analysis of jacketed annular vessels subjected to internal and external pressure. Jacketed annular pressure vessels are one of the most critical equipment in reprocessing plants whose failure can lead to the release of radioactivity in the primary containment of hot cells. Thus, structural integrity needs to be maintained during the operation of the plant as per the safety requirement. At first, I studied about pressure vessels by the resources provided such as sample reports and ASME codes which were essential in designing Next, I started designing the parameters for different parts of the pressure vessel, particularly the thickness of the shells, jackets, and head of the vessel. After fixing the parameters through an iterative process, the design was then modeled on a CAD software such as Fusion360 or SolidWorks. After completing the CAD model the drawing was then verified with the IGCAR instructor and then it was imported on ANSYS workbench for further analysis. My project dealt with Finite Element Analysis (FEA) and I had to check for the static structural integrity of my model under provided load cases. To make the model economically more viable, I was asked to study the stiffening ring and design the same for the given model with reduced thickness. Again, the CAD model was made by incorporating two stiffening rings and structural integrity was checked. Finally, results were verified with the ASME conditions and thus design was accepted.

PS-I experience: My experience at IGCAR, Kalpakkam was great. Even though it was a work from home internship this time yet our PS station put the best of their efforts to make us feel connected to the center and make us involved in our projects. The projects allotted to the individuals dealt with the application of engineering knowledge in the real world. Each project was supervised by an IGCAR instructor who was an expert in the project domain. The instructor was very co-operative and communicated with the students often. The communication gap was never felt to a great extend and ample resources were provided to understand every fundamental aspect of the project. Regular meetings with the IGCAR scientists on different topics enriched our knowledge about nuclear plants. Our PS faculty were very helpful and responded to our queries within a short period. We never felt lost about the project and were motivated to further understand the concepts behind the project.

Learning Outcome : I learned a lot in my PS duration in IGCAR, Kalpakkam. The project allotted to me provided me insights about the designing process and steps involved in generating a good model. I gained knowledge about pressure vessels used in the nuclear power plant and the stiffening ring used in vessels to make it an economically strong model. Resources such as ASME codes and sample reports made me understand the conditions on which parameters are to be designed and how static structural integrity would be verified for the given model. I learned about Finite Element Analysis which is an important part of designing and analyzing the models which are to be practically used. Since my project involved the usage of different types of software, I now have an understanding of a few major commercial software used in the mechanical industry. Periodic sessions about the nuclear plant by the IGCAR team provided great knowledge about understanding of the power generation in the nuclear plant. Finally, seminars and report presentations also enhanced my skills in communication and presentation which is very essential for working in any industry.

Name: MANSI AGARWAL . (2018B3A70762P)

Student Write-up

Short Summary of work done : The project was about development of an image processing tool for profile measurement of a tensile sample. The raw images from instruments like video microscope and CMOS camera were provided, and then those images were processed with MATLAB to convert them into edges. From these edge-detected images, shape detection algorithms were used to measure the dimensions such as gauge length, gauge width and shoulder radius. A GUI application was also made for the purpose of loading one or more files and then saving images in a folder specified by the user along with an excel file containing the image name and their respective dimensions. Additional feature of selecting a processed image and then manually selecting the points for recalculation of dimensions was also provided in the GUI and the results were printed on the screen. Moreover, the results could be displayed on the screen in the form of a table with the help of a button which reads the excel file saved in the folder along with images.

PS-I experience: PS-1 was a great learning experience both in terms of technical and professional learning. There was lot to learn about things which were out of normal curriculum. Although this time it was work from home pattern, we still got to interact regularly with our mentors.

Learning Outcome : I got to learn various new things such as Image Processing and Shape detection. Through regular communication with the professionals, I also got to know how an organisation actually works.

Name: ABHISHEK JAIN . (2018B3A70807P)

Student Write-up

Short Summary of work done : My project was to develop a "Web-enabled Wireless Sensor Network Information
System for outdoor deployments". Wireless Sensor Network deployed by the IGCAR is used to detect avalanches using 14 different connected sensors in Dhundi, HP. The first couple of weeks were dedicated to the literature review of the IoT domain and to gain knowledge on WSNs, ZigBee standard, XBee devices, different types of routing protocols, topologies, etc. Then the work was divided into two parts: First part was to develop a backend to communicate with the local base station and the remote XBee devices for sending and receiving desired network parameters, to carry out node discovery, routing and neighbor table operations, to parse the incoming explicit frames to retrieve the important data such as sensor values, datarate, etc. The data then collected must be stored in a database and a user frontend should be developed in order to get basic node details like Node ID, location of the nodes, etc. The second part of the project was to develop a frontend to display all the nodes in a graphical way, to display the data gathered for each specific node, to provide user login functionalities and to display the packet transfers from node to node. I had to develop the first part of the project and it was implemented using the Python language.

PS-I experience: Although I expected the PS1 to be challenging due to the work from home format of the internship (due to the ongoing pandemic), it turned out to be a great learning experience for me as I was able to learn new things and was able to contribute to the IoT department of IGCAR. Both the faculty in charge were very helpful and the mentor would guide us and ask for project updates almost everyday. It was definitely a wonderful experience as it helped me made me learn and implement new things and expand my horizon.

Learning Outcome : Learned how to code in Python language and use various modules and packages for creating both frontend and backend; frontend to gather basic node data and backend to retrieve important network parameters and connected sensors' values. Also learned how to create a database in MongoDB and how to access it using Python, and finally PS1 helped improve my soft skills.

Name: KAVYESH TALWAR . (2018B5A30911P)

Student Write-up

Short Summary of work done : I was alloted a study oriented project by the PSD. A Transimpedance Sensor had been built by the IGCAR , which works ideally at 25 Deg Celcius(Room Temperature). Our goal was to optimize the sensor to work at around 500 Deg Celcius. For this purpose, we were required to perform simulations with various materials for different sensor parts, and to choose those materials which can give lowest errors with temperature increase. These simulations were performed using the COMSOL Multiphysics Software. As I had never worked with COMSOL before, it took a considerable time to learn its workings. The basic physics behind the sensor was quite easy to understand. Once we understood the basics of COMSOL and the theory, the project was a smooth sailing.

PS-I experience: The overall PS 1 experience was good, but it could have been great if we were present physically at the centre. Our IGCAR instructor was really helpful and patient with us . As COMSOL was a relatively newer software, there were quite a few times we were just stuck and the problems couldn't be solved remotely. Still ,our instructor allowed us to work at our own pace and chipped in with helpful inputs whenever necessary.

Learning Outcome : At the end of the Practice School, I now have an idea of the kind of study that goes behind building even the basic components of a device. There was a lot to be learned about the subject matter too. The PS was also somewhat helpful for developing the soft skills. Overall, I feel like I could have gained a lot more exposure if I was physically working at a renowned center of IGCAR.

Name: EVA TIWARI . (2018B5A70816H)

Student Write-up

Short Summary of work done : Content summary generation of scientific papers using natural language processing in Python, using libraries like Natural Language Toolkit (nltk). To make this project more user friendly, it was integrated with a web application which enables searching for the papers on the basis of the generated summaries. A feature which enables uploading of the files to the server, from where the summarizer generates the summary and stores it in the database, which can be accessed through the search engine later on.

PS-I experience: Interesting experience, could have been better if we got to visit the center. Made me realise the importance of communication and coordination.

Learning Outcome : Learned how to develop and launch a full stack web application
Learned how to coordinate work with other team members

Name: CHOWHAN TANMAY TUSHAR . (2018B5A71056H)

Student Write-up

Short Summary of work done : Our project was titled "Thermal analysis of Heat treatment using Nd-YAG pulsed laser for PWHT on thin-walled T91 tubes". We were supposed to use finite element analysis (FEA) to simulate and carry out the thermal and structural analysis during laser welding and PWHT of the clad tubes and end plugs made up of P91 steel. These tubes are vital for transporting metallic fuels. Hence it is important to ensure the material properties remain ideal after the welding process. The project require a lot of literature study on the properties of laser for heat source modelling, as well as material properties. After studying these properties, we carried out the simulation in SIMUFACT welding software

PS-I experience: IGCAR is one of the best stations offered in PS-1. Our mentors helped us with our doubts and constantly gave us material to read. I do feel we would have benefited much more if we visited the facility but nevertheless, it was a great experience

Learning Outcome : Overall, the experience was good, we learned new things and got used to software used in industry

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Name: VISHAL DIXIT . (2018B5PS1037P)

Student Write-up

Short Summary of work done : Thermal and structural analysis of welding and subsequent post weld heat treatment using pulsed laser, using commercial software Simutechz Welding Pro.

PS-I experience: The work from home ruined the research experience.
However, the work was really interesting, pertaining to courses learnt in Mechanical Engineering that had been taught , and actually was important to the organisation.

Learning Outcome : Learnt ANSYS, Simutech Welding Pro and many other commercial software.
Learnt researching on a topic through reading lots of papers and journals.

PS-I station: Indira Gandhi Centre for Atomic Research (IGCAR) - Electrical, Kalpakkam

Student

Name: ANSH SHAH . (2018A3PS0294P)

Student Write-up

Short Summary of work done : The title of our project was 'Electromagnetic Analysis of Induction heating coil for vacuum melting system using COMSOL software'. In the course of the project, we first learnt about the theoretical aspects of electromagnetism and heat transfer in induction heating. We then learnt how to simulate a simple geometry and analyse the results on the COMSOL Multiphysics software, which is a

finite element solver that can simulate systems involving multiple physics, like magnetic fields and heat transfer in solids for our case. In our final simulation, we simulated an induction heating system consisting of a copper coil and graphite workpiece, carried out a frequency domain study and analysed the results.

PS-I experience: Due to the COVID-19 pandemic, our PS-I was being held on a work-from-home basis. Though I initially felt that this would hamper my PS-I experience, it was not so. It would certainly have been better if we were able to work on campus at IGCAR, interact with various scientists there and view the processes and equipments in person. Apart from that, it was a great experience. The PS-I faculties were very helpful in making us comfortable with the WFH format, and were readily available to solve doubts and provide softwares. I got to learn a lot from our mentors at IGCAR, and was able to interact with them on a regular basis. All in all, PS-I provided a decent exposure to research for me.

Learning Outcome : My major learning outcomes from PS-I are:
1) Adapting to the WFH format.
2) Understanding electromagnetic field distribution in induction coil and workpiece for vacuum melting applications.
3) Analysing temperature profile in workpiece.
4) Developing soft skills, especially communication skills.

Name: FAJALIA ALARK SUNILBHAI . (2018A3PS0296P)

Student Write-up

Short Summary of work done : The work done involved developing the Driver Firmware software for the Ethernet communication, the hardware has already been setup at the IGCAR facility. The mentor himself was quarantined so, the testing of the driver was not possible, so just the emulation of the firmware was performed.

PS-I experience: the station was operating in the remote mode due to the Covid-19 situation, so the work performed or the project allotted were mostly of the kind which involves coding or the simulation using the software. overall, compared with other PS stations, including CEERI, our station was active till the end and the mentor was interacting with us. so comparatively, our station was the best, for remote projects in this special situation.

Learning Outcome : I learned basics of embedded systems and how to do embedded C coding. otherwise the we were not able maintain the track and we had to change the project topic.

Name: ABHISHEK BARANWAL . (2018A3PS0299P)

Student Write-up

Short Summary of work done : After learning python developed a software which can calculate uncertainty value in instruments, measuring temperature, electrical and pressure parameters. Also learnt about various calibration procedures performed in IGCAR for these instruments.

PS-I experience: My experience was very good. People were very friendly and supportive. The work was also very good, though there were hectic work hours sometimes, but overall it was nice.

Learning Outcome : 1.Python
2.Calibration procedure for several instruments
3.Uncertainty estimation procedure for these instruments

Name: ABHISHEK BARANWAL . (2018A3PS0299P)

Student Write-up

Short Summary of work done : Created an app. using python to estimate uncertainty n measurement for instruments measuring electrical, temperature and pressure parameters.

PS-I experience: It was a very good experience. One to one mentorship was there which was very helpful as they have adequate time for every one of us. Though sometimes there were hectic working hours but I really enjoyed.

Learning Outcome : About calibration procedures for several measuring devices and how uncertainty is estimated in each of them. Also learnt how to create GUI using python and several other things about it required to complete the project.

Name: AVADH RAJESH HARKISHANKA . (2018A3PS0322P)

Student Write-up

Short Summary of work done : The project deals with Design of the current source and measuring devices of order of fempto ampere and then designing it's PCB. The technology for measuring currents being used in IGCAR has been till pico-ampere range. There is a requirement to correctly measure fempto ampere currents emitted by the ionisation chamber. Also a current source is required for it's calibration. The project deals with design of these circuits on a software, providing proper current to signal conversion of 0-10V and 4-20mA and also using a digital display further.

PS-I experience: It was a challenging project and required effort but after doing the work it felt exciting to complete it. The Work from home project requires a very good interaction between mentor and student. I was very lucky to have a very helpful mentor and could interact with him frequently. But there are cases where interaction is limited and depends on the mentor. Learning the basics needed for the project or different techniques needed has to be done on our own and therefore it is sometimes difficult to learn.

Learning Outcome : Learning how to pursue a project requirement by doing proper literature survey and also how to pursue a design problem. The industrial requirement of PCB and techniques to deign PCB for low level current. Also the low order current, digital display, conventional output signals and component selection was studied and learnt in detail.

Name: NAMAN KOTHARI . (2018A3PS0370P)

Student Write-up

Short Summary of work done : My work was based on design and development of an embedded system(level monitoring system for low level waste collection tank). We have to first measure the frequency of the pulses from three pulsating sensors and convert it into the parameter of measurement with temperature compensation by writing a firmware for the micro-controller. For this we did a literature survey for various families of micro-controllers and then selected a suitable micro-controller for our purpose. Then the parameter needs to be displayed on LCD module with real time stamp. Next objective was to convert the measured parameter into appropriate current output for feeding into the control panel of the plant for the ON/OFF control action. Last objective was to interface the entire embedded system with the PC using RS232 and RS485 communication protocols for real time monitoring.

PS-I experience: My experience with IGCAR was pretty good. We had video calls with our mentors every week to discuss the problems and progress of the work. The mentors allotted to us were very friendly and helping.

Learning Outcome : It was my first project on embedded systems. I got to learn about many micro-controller families like PIC, AVR, ARM and 8051. Apart from this we got to know how to interface several other components with the MuC, designing the circuit and programming the MuC for desired objectives.

Name: KUMAR PRANJAL (2018A7PS0163H)

Student Write-up

Short Summary of work done : Our project was to develop application software for the management of FBTR (Fast Breeder Test Reactor) core sub-assemblies. The application should be able to display the complete history of the sub-assemblies and should also be able to view the core configuration for a specific irradiation campaign. We spent week 1 reading about the project and the technologies used. We had to work on several softwares, that week was spent in installing the correct versions of the softwares. We started developing the application during week 2. We also had to prepare

for the quiz in that week. We completed our frontend by the end of week 2, and we started creating a sample database for the demonstration, which was scheduled in week 3. We created the application database in week 3 and 4, and the frontend was modified according to it. We spent week 5 in altering the application according to the mentor's needs. Finally, we handed over the application and source code to the mentor in week 6 after getting positive feedback from the domain experts at IGCAR.

PS-I experience: I was thrilled when I was allotted IGCAR as my PS station. I got the project of developing application software using Java and MySQL. I was highly interested in that project since I like to use Java. My mentor also helped me throughout the project, and I learnt many things from him. My PS instructor helped me whenever I had doubts. Overall, I felt delighted to work in such a prestigious industry.

Learning Outcome : I learnt to develop industry-based application using Java and MySQL. I also learnt some soft-skills like communication, time management and presentation skills. I learnt how data is managed on such a large scale in the industries.

Name: AARJAV JAIN (2018A7PS0222P)

Student Write-up

Short Summary of work done : Our project was to develop application software to analyze the history
of fuel sub assemblies positioned in reactor core from initial loading
up to 29th campaign of reactor operations. From the core mimic,
when a sub assembly from the core is chosen, full information about
the history of the sub assembly should be available on a
screen. Also some filtering options have to be provided for detailed analysis of sub assembly transfers

PS-I experience: I had a very nice experience. The mentor and the project partner were very supportive. It was unfortunate that I could not visit the facility because I really wanted to know the actual industrial implementation of my project and would like to know more about the organization.

Learning Outcome : I learnt several soft skills like time management, communication even with the work from barrier, presentation skills and report writing. The technical

skills I gained were using JavaFX along with Scene Builder to develop applications and writing Python scripts to populate database with sample data.

Name: CHAHAT JAIN . (2018A8PS0092P)

Student Write-up

Short Summary of work done : As the success of Fast Breeder Reactor programmes heavily relies on the closed fuel cycle, reprocessing the spent fuel for further usage is necessary. Temperature is a very important parameter in the reprocessing plant. Hard sensors, called thermocouples are used to measure the temperature of different phases in the dissolver. Two thermocouples, one for measuring the liquid phase temperature and other for vapour phase temperature, are present in the dissolver. The liquid phase thermocouple is prone to failure, and is very difficult to replace it remotely. To address this problem, a real time determination of temperature was needed and soft sensor can serve the purpose. Artificial Neural networks, one of the tools used in machine learning, was used to develop the soft sensor using MATLAB tools to determine the liquid temperature of the dissolver of the Plant based on the live data from other sensor for dissolver vapour temperature. A detailed study was done on neural networks and networks have been chosen for our model based on the properties, constraints and the amount of data available. This study and analysis of various networks with their results have been presented based on the data provided from the plant.This soft sensor was developed using Neural Network and the results were exported.

PS-I experience: It was amazing and I learnt a lot of new things. The support provided by the mentors and the faculty was commendable.

Learning Outcome : I learned about neural networks and deep learning. Moreover, my presentation skills were improved.

Name: RAHUL S . (2018A8PS0429P)

Student Write-up

Short Summary of work done : My project was titled 'Automatic Integrated Circuit Part Number Recognition using Image Processing and Machine Learning'. I basically had to perform OCR on IC images that were shared with me by implementing YOLO v5 CNN for object detection, EAST R-CNN for text detection, OpenCV for image processing and Tesseract OCR for text recognition. In all, it was a pretty challenging albeit very exciting project. A lot of the data pre-processing and data wrangling including annotation, normalization, etc. was also done to ensure highly accurate output. Basic knowledge of Machine Learning and image processing would help along with a surface level understanding of pytorch and/or tensorflow.

PS-I experience: My IGCAR mentor was brilliant in every way possible right from explaining the nitty-gritties of the project to where exactly can it be used and how to go about it. Apart from office hours, he was pretty much approachable always and constantly took updates to ensure that the project was well on schedule. Of course, the fact that it was virtual deprived me the opportunity of meeting scientists and getting a first-hand experience of the work done at one of the most coveted research labs of India, but the work ensured that complaining is not an option. We had regular webinars that gave us a fair intuition on the fundamentals of nuclear science and safety along with a brief overview of the work done at IGCAR.

Learning Outcome : Before I started this project, I did not have the faintest idea of what machine learning or image processing was and this project coerced me to explore these highly interesting domains and went a little deep into computer vision which is a popular subset of it. I also gained a fundamental understanding of how digital image processing is done at a commercial scale and understood the mathematics behind it to a basic extent. Practically implementing the above jargon also made me explore a plethora of different software and operating systems to suit the needs of this particular use-case.

Name: SOMYA SAWLANI . (2018AAPS0252G)

Student Write-up

Short Summary of work done : We develop a algorithm to detect the snow level change using image processing techniques and also optimized to make it most suitable for embedded systems.

PS-I experience: It was nice experience working with the IGCAR. IGCAR mentors helped us a lot in completing our project.

Learning Outcome : I learned about different image processing techniques, edge detection methods, python and open cv libraries. I also learned how to optimize the code to decrease the processing time and also learned about cyclomatic complexity.

Name: SALIAN SURAJ SANJEEV . (2018AAPS0253G)

Student Write-up

Short Summary of work done : The project aimed to design and develop an Electronic Nose to detect analytes. The project was divided into two parts Hardware Design and Software Design. Hardware Design involved the selection and fabrication of sensors for making sensor array. Hardware Design was simulated using Multisim. In software design, artificial olfaction functionality was fed to the hardware. This was done using Pattern Recognition techniques and Machine Learning algorithms

PS-I experience: It was a good learning experience. PS-I allowed me to gain a first hand experience of how research is done. Scientists at IGCAR are very supportive and helpful in explaining doubts raised by us while research.

Learning Outcome : 1. Learnt how to approach problem statement of embedded system design.
2. Fabrication of Industrial Standard Sensors
3. Machine Learning.

Name: G V N NAREN . (2018AAPS0352H)

Student Write-up

Short Summary of work done : I have been allotted with project of designing a circuit for hardware and software to detect analytes. The project is to detect the gas analyte from a mixture of gases. It is both qualitative as well as quantitative. so for this we design a circuit and software for analysis. It is otherwise known as E-nose. so the first part of our project is choosing a suitable sensor(MOS, Optical sensors etc). Since each sensor has a sensitivity limited to only few gases, we use a sensor array(group of sensors) to enhance the sensitivity of an e nose. So we generally use MOS sensors, which sense based on the change of resistance of the sensors surface. we use various resistance measurement techniques such as multivibrator, wheat stone bridge etc. After this comes data acquisition. We convert the analog signals from the sensors to digital equivalents using an ADC and send the information to the PC through various serial communication techniques. various data acquisition software can be used such as labVIEW which samples the signals. We now use various pattern recognition techniques such as Principal Component Analysis(PCA), Artificial Neural Networks(ANN) etc. PCA can be used to form a cluster and store it in a data base . Now after performing the experiment we get a few points in the real time. now in order to determine to which cluster the data point belongs to, we make use of an algorithm called Support Vector Machine(SVM). PCA along with SVM can be used to determine a gas qualitatively. In order to determine the gas quantitatively we make use of few algorithms like PCR, ANN etc. thus like this a gas or a mixture of gases is determines

PS-I experience: The journey of PS has been amazing right from the start to the end. Although initially there were few questions regarding the remote ps program, but it was a great experience in itself. I have been allotted IGCAR station in kalpakkam and was allotted with the project of designing a circuit to detect analytes. Our mentors, who were the scientists of the esteemed organisation, were very helpful to us. They were available to us throughout the whole ps. No matter how many times we call our mentors, they were always ready to clear our doubts without any hesitation. We regularly had meets to discuss the accomplishment of our project. We also had a couple of seminars under the supervision of our mentors from IGACR. Apart from seminars we also had group discussions, quizzes, diary submissions, project reports etc. Moreover our PS instructors were also very helpful in clearing all the doubts regarding the handling of canvas.The experience of online PS was great although we had faced few issues as this was our first time. So all in all it was a wonderful experience for all of us as this was our first practice school at BITS.

Learning Outcome : PS-1 has given me an immense opportunity to learn various new skill sets which can be useful in a long run.I had learnt a lot through our PS-1 program. Few of the major learning outcomes in terms of technical skills include learning of labVIEW programming for data acquisition, about various pattern recognition techniques such as ;principal component analysis, principal component regression, artificial neural networks, support vector machine etc; various types of sensors that can be used , various fabrication techniques and various resistance measurement techniques and

various real life applications of e-nose. Moreover the learning outcomes in terms of soft skills include presentation skills, communication skills, etc.

Name: ARJA SUDHEER . (2018B3AA0878H)

Student Write-up

Short Summary of work done : I was given a project to detect Snow level cover at a region using Image Processing and Machine Learning. For the Project I was suggested to use either MATLAB or Python with OpenCV to write a code which will give the snow level using the Images field images provided to us by our mentor. As a first step I have done a Literature survey on Image Processing for level/change detection. I have come across many research papers in which various image processing techniques are used. Using that I have prepared a basic outline for the project and cleared basic concepts regarding images. I divided the Project into three steps Algorithm Development, Phase-I of Code development, Phase-II of Code development. I have developed the Algorithm for level detection using Canny and Hough transformation. For Algorithm development I have analyzed many edge detections and line detection operators. Then I implemented Phase-I using Python and OpenCV which is on simple images. After receiving accurate results, I started working on Phase-II which is for actual field images. I have completed the Phase-II successfully as well and in the end I have performed Optimization tests using alternate methods and performed the Cyclomatic Complexity analysis using Lizard. I have done the coding using Jupyter Notebook and Anaconda Prompt.

PS-I experience: The Nuclear research center is one of the biggest in the world. But still we were frequently contacted using VCs and my mentor was also very much supportive.It was very productive for me in terms of soft skills and also technical skills. The IGCAR scientists are well accomplished and also very fun to work with. My mentor was flexible with deadlines as well.

Learning Outcome : I have gained knowledge regarding Image Processing and it was practice for me in Python Programming and I got to know many functions in OpenCV library. I have also given two seminars and Group discussion which helped me with my soft skills. I have gained many technical skills from my Project.

Name: AVIRAL BIRLA . (2018B5A80731P)

Student Write-up

Short Summary of work done : My project was on exploration of data modeling algorithms for estimation of Remaining useful life. We first went through different models and approaches to develop a flow chart on which method to go for in future. Next we focused on Prognostics of MOSFET as it was part of a ongoing project, due to the crisis conditions we weren't able to perform tests in labs to gather data, so we referred NASA papers for data generation. After extracting data, we used MATLAB for developing a degradation model and RUL estimation algorithm.

PS-I experience: Despite being contained in homes in this crisis, the remote alternative platform was very successful upto a great extent. The Canvas tool was easy to use, BITS faculties were very supportive. There were some problems like network and internet issues, also lack of tools and resources particularly reffering to my project. But overall it was an amazing experience and of vast learning.

Learning Outcome : I learned many things such as how to work in a organization, soft skills and presentation skills and most of all got to know about a very interesting field of prognostic and health management.

PS-I station: IOCL (Sectoral Study), New Delhi

Student

Name: DEVANSHI SINGH . (2018A1PS0952H)

Student Write-up

Short Summary of work done : Our project was based on the City Gas Distribution (CGD) projects undertaken by IOCL. We had to research on how CGD can be implemented in 23 districts of Bihar, what were the implementation problems, how can

they be solved, what were the government policies that regulated this sector and how did they affect the overall development of infrastructure of the Piped Natural Gas.
We were also asked to conduct a study on its market landscape and then analyse its impact on the Indian economy. We were asked to find the opportunities this project provided in terms of a clean fuel and a lower priced alternative as compared to LPG. This also included a study of all its supply chain partnering entities and the effects of COVID-19 crisis on the City Gas Distribution System.
Finally we were asked to make a demand estimation model and a financial model that would predict the growth of this project in the upcoming 20 years. Along with this we were also asked to work on a project that gave separate technological solutions for the oil and gas sector in general and also make an Analytic Hierarchy Process to analyse the effects of several factors on the growth of CGD in India.

PS-I experience: I was able to learn many new things like how to make financial and demand estimation models along with Analytic Hierarchy Process though the duration of PS-1 remaining quite short. Both my industry mentor and faculty mentor were very helpful and guided me through new models that we had to make.

Learning Outcome : Though this PS was conducted in remote mode I was able to learn new stuff relating to financial modelling and got to know students of other campuses working with whom I got experience of team work. One more thing that I learned from this Practice School is how efficiently work can be done from your home as well.

PS-I station: Irrigation and Waste Water Department - Comparative Study and Analysis of Irrigation System, Kolkata

Student

Name: ARYAN KHURANA . (2018A2PS0116P)

Student Write-up

Short Summary of work done : The project in which we were working was about the irrigation systems in India. We learnt about the different irrigation components present in our country. The country was divided into 5 different regions and we learnt about one of

them. Then we also prepared an interactive map which showed different irrigation projects in India and information about them.

PS-I experience: It was good but due to not visiting the PS station, we had limited interaction with our industry mentor.

Learning Outcome : Learn GIS software and Google Earth. Improved soft skills.

Name: ABHINAV ADHWARYU TIWARI (2018A2PS0144P)

Student Write-up

Short Summary of work done : We were allotted a study based project - "Comparative study of irrigation systems in India". Under this project we studied about types of irrigation systems that are used throughout the country and major projects that are going on in this domain. Further, each person in the group was allotted a zone (East, West, North, South - India) to conducted an in-depth study of the irrigation systems, collect data related to irrigation projects and prepare an interactive map on ArcGIS.

PS-I experience: It was a great learning experience. We learned a lot about different types of projects going on throughout the country.

Learning Outcome : Learned Google Earth & ArcGIS, Improved soft skills.

Name: M HARIKESHA . (2018A2PS0726H)

Student Write-up

Short Summary of work done : The main objective was to understand and analyse the different irrigation systems across India. 5 zones of India (North, South, East, West and

Central) were allotted to each student in the PS station and we did a deep research into various irrigation projects and methods in those zones. We then made an interactive map of India using ArcGIS. We made presentations and project reports giving a detailed description of our research and findings.

PS-I experience: Right from day one I got to learn about irrigation systems in India and the various innovative methods of water transportation across long distances. My fellow colleagues were friendly and cooperative, team spirit was well maintained throughout PS-1.

Learning Outcome : ArcGIS was the main learning outcome of PS-1. In order to make the map, I did extensive research on various innovative and challenging irrigation systems/projects across India.

PS-I station: ISRO Space Applications Centre, Ahmedabad

Student

Name: Kanishk Chaudhary (2018A4PS0481P)

Student Write-up

Short Summary of work done : "Development of a proof-of-concept for Mechanically Reconfigurable Antenna"
An MRR is an innovation within smart antennas, which can change its shape to account for thermal distortions, surface errors, or change the coverage area of the antenna.
First, I had to review the research done in this field by various scientists/space agencies of other countries. This involved extensive literature studies. At the end of 3 weeks, I had to bring out the pros and cons of various actuators and reflector materials which could be incorporated in flexible, small-aperture satellite antennas.
For the next 3 weeks, I had to learn and design a mathematical model and a robotic simulation of one panel within a large-aperture ground antenna, which is rotatable about its centre and thus has the potential to change the overall shape of the antenna. This includes:
1) Developing a program which can calculate rotation matrices, quaternions and actuator lengths at each corner, once initial and final coordinates of the panel are entered.

2) Developing a CAD of the panel + actuator design (done on Fusion 360 and assembled in Onshape), converting the assembly into a Simulink model, assigning joint properties.
3) Using the results found in 1) to show the simulation and working of the actuators in 2).
Since 6 weeks was not enough to complete the simulation, I was allowed to extend the project for 2 more weeks. If the simulation and model is accepted, it will be further taken up by SAC ISRO in developing a prototype and testing in actual conditions.

PS-I experience: It was a rollercoaster experience. Work from home has its own limitations, but constant guidance from my mentor helped me to overcome difficulties in learning and applying concepts. There were many pre-requisite knowledge which I had not studied till my 2-2, but I was able to quickly learn and apply within this short duration. At the end, it has given me some clarity on what type of projects/career I can take up in the future.

Learning Outcome : Conducting literature studies, basics of robotics, CADing on Fusion 360 and Onshape, mathematical models and their implementation on MATLAB, simulation designing on Simulink and Simscape.

Name: S.K. ANUSRI . (2018B5A70876G)

Student Write-up

Short Summary of work done : The project dealt with creating a standalone python program to implement the Cayula and Cornillon algorithm. This algorithm is used to automate the process of identifying fronts in Sea Surface Temperature satellite images.

PS-I experience: It was a good learning experience. My mentors were really friendly and encouraged doubts and questions.

Learning Outcome : I learnt a lot about oceanic fronts and their applications in identifying Potential Fishing Zones. I also got to improve my Python skills.

Name: NIKITA SAXENA . (2018B5A70940P)

Student Write-up

Short Summary of work done : This report seeks to assess the efficiency and applicability of deep learning architectures, particularly Convolutional Neural Networks (CNN), to downscale ocean remote sensing data. This study, for which the focus is on satellite-derived Sea Surface Temperature aims to increase the spatial resolution via CNN architectures, namely Super Resolution CNN and Very Deep Super Resolution CNN. These classic architectures are slightly tweaked to give optimum results. High-resolution satellite sensors effectively measure Sea Surface Temperature under clear sky conditions. However, under cloudy conditions, high-resolution SST Measurements are not available.
With the help of deep learning architecture, the available images with low spatial resolution can be enhanced to produce images of high spatial resolution. It is hence shown that predictions from these deep learning architectures are comparable to the expected images of high spatial resolution. These results point out the relevance of deep learning models specifically trained for the reconstruction of high-resolution sea surface geophysical fields from multi-sensor satellite observations.

PS-I experience: The mentors were really helpful. Meetings were organised whenever I had doubts. They helped me procure the dataset. The minor issue was that they were not experienced in Machine Learning, so it was really hard to proceed if and when I got stuck on something related to the architecture.

Learning Outcome : Super Resolution with the help of CNNs, Remote Sensing Data and Popular Evaluation Metrics

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PS-I station: JSW Energy, Vijaynagar

Student

Name: SAI TEJA KOLLU . (2018A4PS0661H)

Student Write-up

Short Summary of work done : We had a project based on the mill reject and had to find a feasible solution regarding the separation of coal and stone from mill reject and obviously we had to find the best economically safe solution and in the very end after a lot of research about the project we came to a conclusion and provided our mentor and the plant head 4 best possible solutions.

PS-I experience: It was good though the only disappointing thing is that we couldn't possibly be stationed at the plant due to the pandemic but we got to learn a lot about the challenges and working of the plant.

Learning Outcome : It was such a great learning experience as we got to connect with many officials of our station which led to the improvement of the communication skills and even learned how we could achieve much more when we are in a team. I personally would love to thank PSD for the opportunity.

Name: ARPIT GUPTA (2018A4PS1011G)

Student Write-up

Short Summary of work done : Learnt about the separation of coal and stone from mill rejects at the plant. A lot of coal and hence cost is being used inefficiently because of this. Our objective was to find a solution to this problem in 6 weeks duration.

PS-I experience: It was very decent considering there's a pandemic. My PS mentor was very understanding and tried to help us as much as possible.

Learning Outcome : I learnt how to work in a professional setting. One of the most valuable skills we gained from our internship at JSW Energy is the ability to speak with people in a professional setting. Discussions with bosses or coworkers are different from discussions we usually have with lecturers or fellow students.
Another thing we learnt is learn how to work independently. Often, we think being spoon-fed is the way to learn, but working independently has proved to be very important. This internship taught us how to make decisions on our own, or with little guidance, which is very important in the working world.

Name: ISHITA SINGHAL . (2018A8PS0349P)

Student Write-up

Short Summary of work done : The main application of my project was to remotely automate the power plant from the township itself as it might be risky for employees to work on field sites in the difficult times like COVID-19 pandemic. To accomplish it, I had to thoroughly study about the network and information flow from the field to the panels, programmable and non-programmable ethernet and fibre optic cables required depending upon the distance. Apart from this, I learned interesting and practical topics like visualizing HMI interface in a control room , reading analog output of the various components from the face plate and understanding importance of redundancy of control valves, pumps or ethernet cables as a backup and alarm system in DCS system to prevent any information loss.

PS-I experience: PS-1 is a short term experience about what the professional life is going to be. It has group discussions, seminars, presentations etc. which can improve your speaking skills, helps to know how to interact with new people and develop your overall personality.

Learning Outcome : I got to learn a lot of new things about my field and also that how a corporate office works. I also learned how to balance work and life after interacting with the employees there. Learned a lot of new topics of my branch also. It improved my presentation skills.

Name: MEDICHARLA V K RAJEEV SRIKAR . (2018A1PS0005H)

Student Write-up

Short Summary of work done : Coke fines has been traditionally used in Steel Making process as a deoxidiser and alloying element. With advent of technology and new extracting processes, Industrialists have found Calcium Petroleum Coke having greater

number of advantages than Coke Fines. Due to which, Calcium Petroleum Coke has been used extensively. Of late, Supreme Court's decision on limited use of Calcium Petroleum Coke has forced the industries to search for cost effective alternatives. Our study involved various alternate carbon sources available and presenting a comprehensive report on the same.

PS-I experience: I got experience of doing literature survey by reading many research papers related to the topic.

Learning Outcome : The internship opportunity I had with JSW Steel was a great chance for learning and getting a touch of professional development in my academic background. I have improved my communication skills and presentation skills.

Name: GEDDAVALASA JITENDRA . (2018A1PS0055H)

Student Write-up

Short Summary of work done : Alternate addition of calcined petroleum coke by coke as deoxidiser and carbon adjustment in chemistry

PS-I experience: had online sessions everyday, interactions with mentors, meetings with instructors, quizzes, report submission

Learning Outcome : team work,Problem Solving Skills,WorkEthics,AdaptabilitySkills,CommunicationSkills,Responsibility,Time Management.

Name: ALLAM VENKATA SAI SURYA . (2018A1PS0075H)

Student Write-up

Short Summary of work done : we were allotted a project in steel making industry which is based on effect of lime quality on dephoshporization in Electric arc furnace method our group did a literature survey on the project and with guidance of our mentors we prepared reports and read articles and publications based on our project .we even researched on primary steel making blast furnace and we learnt how a steel making industry works and its overall perfomance inwards and outwards

PS-I experience: It is my first and foremost experience working under such a company and it is also my first work from home experience I learned a lot from my mentors and my instructor was cooperative and gave suggestions I came forward to present and express my knowledge in a organized manner

Learning Outcome : Team work was one of the aspect and presenting in a seminar and even we have learnt how a steel industry like JSW works and what are various uses of this steel industry in cement industries when coming to our project we learnt how phosphorous affects steel and why lime is used in dephosphorization and what are the factors affecting them and how slag ,flux gangue used in steel industry

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Name: SIDDHANT SOMANI . (2018A1PS0434G)

Student Write-up

Short Summary of work done : Learnt a lot about steel making. Got to know about processes involved deeply and also studied about machines involved in the steel making process. Also got to know importance of lime in dephosphorization.
At the end we studied about electric arc furnace and got to know it's importance in steel making.

PS-I experience: It was a decent experience. Although we could have better experience if we were doing all things physically but because of the circumstances we have to do our best at online platform and it was a pretty good learning experience.

Learning Outcome : Got to know about the steel making scenario in India as well as the world. Come across various factors we have to keep in mind while working in steel industry. Got to know about various machines and its complexity and importance of smallest part in steel making.

Name: RITWIK TIWARI . (2018A3PS0364P)

Student Write-up

Short Summary of work done : I had the work of preparing automated system for the RAW MATERIAL HANDLING SYSTEM to prevent loss of raw materials due to spilling during transportation. I had to learn PLC programming. We were given at least 250 slides of materials to go through. The Seminar session and the Group Discussion session was balanced and rather quick based to reinforce the students to make their points as short and as crisp as possible.

PS-I experience: It was a fun experience , the teachers were welcoming and extended their help even though we were at home during the CORONA lock down. I don't think we would get such an experience anywhere else. Even the workload was balanced , considering we had 6 weeks instead of 8 weeks that our seniors had

Learning Outcome : It was an overall good experience, exposed me to industrial standards of procedures and the work ethics one need to have before representing any company or an organization. It has definitely made me more confident and optimistic about my future.

Name: SHARAD MITTAL . (2018A4PS0488G)

Student Write-up

Short Summary of work done : My project was - Reduction in tandem cold mill interstand HD (hold-down)/ TM (tension measuring) roll failure.
My ultimate goal of the project was to reduce the roll failures and find optimal solutions to increase the life of rolls. I made a report on all the problems faced with their reasons for the roll failures and discussed to find solutions.

PS-I experience: It was a great learning opportunity. My mentor being patient, guided me during my whole internship period and encouraged my to study hard to reach the goal of our project. And my PS1 faculty was everytime in contact with me and always ready to guide me on my learnings.

Learning Outcome : Developed research skills, professional communication skills by participating in group discussions and seminars. Improved my practical knowledge experience and crictical thinking skills. With the help of this PS1 I have gained a wide industry exposure of steel industries.

Name: VEDANT SANJAY CHAUDHARI . (2018A8PS0353P)

Student Write-up

Short Summary of work done :Our project was to design and implement a website for the company. The website would have features like Internship applications, Intern Dashboard, Department Dashboards, Progress tracker for interns and department projects, checkpoint system, etc.

PS-I experience: Work hours were not fixed, work was assigned and had to be completed by a given deadline. The project was interesting, the team had mixed well and the mentors were very helpful.

Learning Outcome : Learnt basic project management tools, techniques.
Was introduced to Gantt charts and 4i sheets.
Basic knowledge in web development.
Proficiency in excel and powerpoint.

Name: NEERAJ KARUMANCHI . (2018A8PS0442P)

Student Write-up

Short Summary of work done : We had to build a website for JSW Steel to ease out the sorting of the internship applications that they received. I was mainly part of the frontend team but eventually worked for the back-end part as well.

PS-I experience: It was a wonderful experience atleast for me personally,though being an E & I student,I received an IT project which was what I wanted and it was great working on it

Learning Outcome : Full stack website development skills

PS-I station: Jsw Steel, Vijaynagar

Student

Name: RISHABH NAYAN . (2018B1A10994G)

Student Write-up

Short Summary of work done : My project was on the topic of "Factors Affecting Refractory Erosion in EAF", basically in this I did a thorough research on EAF steel making process and studied the steel making process. After that I studied the EAF as an independent machine and its working principle. Majority of my time was on the refractories and factors that affect it in EAF, for this I with my other team members read a number of research papers so that we can get a better understanding of the refractories. Also at towards the end of the PS, I also got to learn about EAF Erosion factors at JSW steel by the data provided by mentors. We did a data analysis on JSW EAF refractories erosion.

PS-I experience: As this year the PS-1 was work from home the experience was more like a project. We did a fair number of webinars to get descent knowledge of our project.

Learning Outcome : I learned about EAF, steel making, refractories and also factors affecting refractory erosion in EAF. Working in team was another thing we get to learn.

Name: ASHUTOSH PUROHIT . (2018B4A10866P)

Student Write-up

Short Summary of work done : We tried to examine the effect of Fe metallic in Direct Reduced Iron (DRI) on the overall yield of Electric Arc Furnace (EAF). For this, we studied in depth about the process of EAF steelmaking, the use of DRI in EAF steelmaking, and how it is being used in the modern day industries. We collected the data from JSW and other steel plants, and examined the yield of EAF, comparing it on the basis of Fe metallic content of DRI used in those plants

PS-I experience: It was a great experience. The professors and the industry people were all very helpful. I learnt a lot about steelmaking in this six week period.

Learning Outcome : I learnt a lot about the various routes of steelmaking, and how economically viable they are. I also learnt about the various challenges, opportunities and innovations in the modern day steel industry.

Name: SWASTIK SOVAN GIRI . (2018B5A20072H)

Student Write-up

Short Summary of work done : We did a project of designing, detailing and analysis of one of the newly constructed building in JSW Steel, Vijaynagar which was specifically to be used for marketing and storing records of its activities in hard copies. We had to model and design the building in Autodesk Revit.

PS-I experience: It was a very good experience and I got to learn a lot from the webinar sessions and from my instructors and industry mentor about designing and detailing in Revit and various applications and techniques of the software.

Learning Outcome : I learnt about mechanics of solids and its analysis and 3D modelling and designing in Revit.

Name: ISHITA JAISWAL . (2018B5A80613G)

Student Write-up

Short Summary of work done : We developed a webpage using Django to evaluate the experiences gained and the skills learnt in the various training programs that JSW Steel offers.

PS-I experience: It was an incredible learning experience and our mentor and PS instructor were both quite prompt in responding to queries and very understanding of our difficulties.

Learning Outcome : Prior to this project I did not have any web development knowledge however I now know basic backend development using Django.

Name: SHEKHAR SHARMA . (2018ABPS0250P)

Student Write-up

Short Summary of work done : My project was about WebDevlopment. We were given a task of developing a website for JSW Steel from scratch for their feedback system.Our team consist of 5 BITSians. JSW Steel conducts a lot of training programs for their employees and then they take feedback from their employees regarding the effectiveness of the program and also evaluated their employees after training programs. So the website basically is for their employees to give and take feedback to increase productivity.

PS-I experience: My experience was very good as I got to learn a lot in such a small time. I got learn a lot about website development. My work was about developing frontend of website which I was a total unaware of as to how to get started because I didn't have a prior knowledge of Web Development. But I learned the things required for frontend devlopment in the initial time and contributed my part in the project.

Learning Outcome : I got to learn a lot of technology used in frontend devlopment like HTML,CSS and JavaScript.And a little bit of Django (Python).

PS-I station: KEC International Ltd., Jaipur

Student

Name: RONIT SINGH . (2018A2PS0567P)

Student Write-up

Short Summary of work done : My project was tower testing and safety. I was given data to analyse and form a relation. The relation was to calculate deflection from the given load. I used a lot of different methods for the relation but finally arrived at a general relation which was beyond my mathematics knowledge.

PS-I experience: The experience of the PS-1 was good. I, personally, wanted it to be more practical as it was my first industrial experience but due to the covid situation, it wasn't possible. I learned a little about the industry working and got some experience of working and reporting to the seniors.

Learning Outcome : Major learning was my presentation skills- speaking and expressing my views clearly to the instructors. Some technical skills like analyzing data.

PS-I station: L & T Chiyoda Ltd - Industrial Control & Automation, Vadodara

Student

Name: SAHASRABUDHE PRATHAMESH GAJANAN (2018A3PS0264G)

Student Write-up

Short Summary of work done : We were given an introduction to the project domain in the first week. It was followed by general introduction to Hydrocarbon plants by L&T in terms of design & detailed engineering. Then we were asked to go through reading material on what is level measurement and what are the various types of level instrument in week two. We then carried out analysis on the type of level instrument to be used based on application and range selection in week three. It was followed by the concept of level sketches. In week four a detailed example on how to prepare to Level sketch and the importance of the same was given to us. It was followed by in depth study of using Differential Pressure Transmitter as Level Transmitter. We also studied PID Tuning and the controller principles. Some research on using renewable energy as an alternative to conventional fossil fuels was carried out. Concept study of how to define location of nozzle for different types of vessel was carried out in week five. We then put together the concepts of level sketches and nozzle calculations for tilted horizontal pressure vessels in week six.

PS-I experience: I had a satisfactory experience. My project domain was in line with my branch so it became much easier. My industry mentor was very particular and sincere about work. He helped me a lot. The company people were always very responsive and provided feedback timely. My PS-1 faculty was also very helpful and she guided us throughout the project.

Learning Outcome : I learnt how to apply the theoretical concepts studied in Control Systems in practical applications. I learnt a couple of soft wares like Simulink, etc. during the course.

Name: S SAI SIDDHARTH . (2018A8PS0404G)

Student Write-up

Short Summary of work done : Our project title was "Role and application of instruments in control and safety" and it was studied upon from an instrumentation point of view. We studied in detail about how process are controlled at an industrial level and how they are enforced based on the principles of control theory and using instruments such as temperature devices and controllers such as the PID controller. Further we studied about the industrial communication networks and topologies of the Fieldbus design and to conclude we performed a brief study on Safety systems used in industries.

PS-I experience: Considering these difficult times with the pandemic this entire experience of PS-1 was well planned by the practice school division and the BITS Pilani administration. Though the exact feel of the industry couldn't be provided I certainly got a decent understanding of how the industry works and the essential components of day to day industry work. So overall a decent and knowledgeable experience.

Learning Outcome : We learnt how Control and safety is ensured in an industry using instruments and efficient communication networks. Also as an added advantage, we learnt about the EPC business a bit too.

Name: YUVRAJ SINGH MALHI . (2018A8PS0813P)

Student Write-up

Short Summary of work done : Me and my partner had to study the limitations of complex flow measurement techniques in today's hydrocarbon industry. We studied what kind of inline instruments are available in the market which directly measure the oil, water, and gas compositions from a well line. This includes detailed study of, first, singe phase flow measurement techniques, and then all the concepts of physics, mathematics, and chemistry used in multiphase flow measurement. Finally, we listed a few companies which produce these multiphase measurement instruments, and for each of them we compared and studied their principles and performances.

PS-I experience: It was good. Would have been better had it been offline because then I could've seen how the industry life is and how the workers manage it. My mentors and faculty in-charge were particularly great and very accommodating.

Learning Outcome : I learnt about how the industry operates and functions in the field of hydrocarbons, oil, and gas. Along with this, strong instrumentation knowledge on flow measurement was also learnt.

Name: NIKHIL L BHAMWANI . (2018B1A80686P)

Student Write-up

Short Summary of work done : Project Title: "Liquid level measurement with pressure instruments for tilted horizontal pressure vessels"

1. Covered the basic domain knowledge of Industrial Control and Automation from the Canvas LMS.
2. Conduct daily project meetings with the mentor in the last week and discuss the details of the topic and addressed our specific doubts.
3. Read in detail the important sub topics (3.1, 3.5, 3.6, 3.9, 3.10, etc.) and briefly the other topics in the Chapter 3 of BG Liptak Volume 1.
4. Presentation on Different types of LT commonly used in the industry and their applications.
5. Going through Level Instrument Catalogs of various materials and reading about Level Gauges in detail.
6. Replicate the standard Level Sketch calculation expected from given Process datasheets and P&IDs.
7. Prepare the Level Sketch Diagram according to these calculations.
8. Make appropriate Level sketch calculations for given tilted pressure vessel on an excel sheet.
9. Using this excel sheet, prepared a Level Sketch for same vessel using AutoCAD.

PS-I experience: The PS-I project was a great learning experience in a domain that I was never exposed to. Getting acquainted to the core of Instrumentation field even before starting with the courses (I'm a dualite) was a good eye-opener. The learning resources were limited, obviously due to the lockdown amidst the pandemic. But, the company mentors and BITS faculty gave their best efforts to provide industry exposure virtually. In addition to the Technical skills learned; Regular Meetings, Presentations, Group discussions, Report preparation, etc. contributed a lot towards learning corporate soft-skills.

Learning Outcome : Not going into very minute details, I surely have a holistic view of the Instrumentation branch beforehand. This industry exposure will help me boost my academics in the courses next year.
I learnt about intricacies of the EPC in the core industry and the general company structure that an organization should follow.

Name: SHIVPRATAP NAKOOM . (2018A3PS0262G)

Student Write-up

Short Summary of work done : It was a study orientated project which lead to me learning how different equipments are used in the industry. My project was regarding a Variable Frequency drive. It is one of the most used equipment for inductive motor. It used to control the input to the motor. It has a lot advantages like power saving and less starting stress on the motor. But it has a few disadvantages too, like the creation of harmonics. Harmonics can be damaging to a system so the need to be mitigated or removed. So there are different ways to do so, like adding external filters, or using a multi pulse VFD and so on. We also learnt about the IEEE standards for the harmonics created, which have to be maintained by device used in the industry. I also learnt how do a simulation on matlab (simulink) .

PS-I experience: It was very good and interesting. I feel we were not able to get lot of exposure to the industry due to covid 19 situation. But it was very well handled by the ps faculty as well the industry mentors

Learning Outcome : It was great I learnt a lot from my industry mentor as well as my ps faculty. They helped me by giving different material to study and have been very helpful throughout the courses. I learnt how problems are solved in the real world unlike in the college where we only tend to focus on the theory part.

PS-I station: L & T Chiyoda Ltd- Electrical Power Systems, Vadodara

Student

Name: KAITAV SHAH . (2018A3PS0358H)

Student Write-up

Short Summary of work done : I had got my project in the electrical department in the company. My project was to work on speed control using VFDs of different rated pulses for manufacturing operations in the hydrocarbon industry. Due to the lockdown, we were not able to know about the practical operation of VFD in the industry and most of our project was based on simulation based studies. Due to unavailability of license for using the software, we had to use links on the internet for running simulations. However, despite these limited means we got a lot of insight in the project. We were provided material to study by our mentor for getting a grip on the concepts required to understand the project. Our mentor also used to guide us and gave us techniques to understand the concepts. We were then told about the sizing and specifications of machines associated with the project used in the company, its manufacturers, operating process, theory behind the process and precautions taken in the industry.
For getting an active grip on the topics we learnt from our project, our mentor and faculty emphasized on making a detailed project report. They used to constantly ask us for our progress on the report, suggest amendments and test our knowledge by asking questions.

PS-I experience: Working on the project in PS1 was very insightful, interactive and informative. We got a chance to expand our knowledge by applying concepts we learnt in the college curriculum as basics for the processes we had to study in the project. Thus, we learnt about new concepts in the field of power electronics. We also got to understand the functioning and operation of machines in the industry about which we had earlier known about in our college curriculum. We were also able to know about the designing of machinery systems, problems faced and solutions implemented in the industry.

Learning Outcome : I learnt about the application and requirement of my discipline in the company and the entire industry as a whole. I also learnt about the structure the organization and its way of operation. I was able to apply my knowledge about performing simulations by feeding data, that i had learnt in the college, in the industry. I was provided with publications and literature of reputed companies and colleges which I tried to comprehend at my best and I was able to learn new concepts related to my discipline and work on its industry application at the same time. I learnt the skill of compiling my project work, my project conclusions and the knowledge I gained into a project report. I gained practical literary skills of report writing through this on a large scale. By preparing and delivering presentations, I was also able to enhance my

explanatory skills especially the skills of explaining through schematics and diagrams to people of non-technical background.

Name: DAKSH DAVE . (2018A3PS0391P)

Student Write-up

Short Summary of work done : We did a study of generators in parallel operation and load Sharing of generators so that outage of one doesn't affect the another

PS-I experience: The PS experience was okay.I would recommend it for people who want to get into core. It was mostly related to the course work of Electrical machine power electronics and control systems.

Learning Outcome : Learnt about industry use of generators and interconnections along with the employment of smart grid and power transmission and generation technologies

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Name: DESAI VIDHI DEVANG . (2018A3PS0457G)

Student Write-up

Short Summary of work done : We studied parallel operation of generators in industrial power systems and analysed load sharing in various situations such as when one or more generators shut down in the system

PS-I experience: The faculty was really helpful and accomodating. They held meetings whenever we had doubts and needed their guidance on certain topics. The PS instructor was also involved and shared the required material for our study regularly. It was a good learning experience overall.

Learning Outcome : I learnt how the basic principles of devices that are taught in college courses are applied in the industrial setting and the various technologies coming up in the industry to make the processes smoother and automated.

PS-I station: L&T-Chiyoda Limited - Mechanical Design, Vadodara

Student

Name: PRIYANSHU MISRA . (2018A4PS0025H)

Student Write-up

Short Summary of work done : The title of our project was "Design of Vertical Pressure Vessels and its Leg Supports". Here we basically studied about various parts of a vertical pressure vessels and worked out on criterion that determine the design of parts like those of Shell, Head and Leg Supports. We divided our projects into milestones,

1. Thickness of Shell and Dishes
2. Maximum Allowable Pressure and Maximum Allowable Working Pressure in Shell and Dishes, where in we judged the effect of corrosion and hydrostatic pressure heads as well.
3. Weight Analysis, where we calculated the weight of each part and also calculated the values of other essential weights like those of Fabricated Weight, Shop Test Weight and Operating Weight.
4. Design of Leg Supports, where we studied the parameters that affect its design especially the wind and seismic loads. We also had studied on various loads and stresses caused due to bending and tensile load. We also understood and worked upon what could the possible load distributions be for each leg if the effect of horizontal and vertical loads support each other or oppose.
5. 3D Model: Here we made a 3D Model based on our analysis using CREO software.

PS-I experience: Overall it was a good experience as we were in touch which both faculty and our industry mentor regularly. Although, it was a bit difficult for having things online but the entire internship went smoothly and both me and my partner were regular

and achieved our milestones every weekend. We also could visualize how our concepts worked out in a real life situation.

Learning Outcome : We learnt quite many things and it was also enlightening about how an industry works and also in the webinars which were being conducted for us during the entire PS we were being emphasized on Industry 4.0 and its applications which especially can come handy when there is a lock down like this. Regarding the project, we learnt about how do we go through the ASME Codes for judging parameters which we considered for designing the importance of following a particular standard while designing an equipment.

Name: ROHAN MALIK (2018A4PS0780P)

Student Write-up

Short Summary of work done : The main goal for my project was to design a Storage Tank with a self-supported Conical Roof, to be used in refineries. We started with learning about the basics of Storage Tanks, their components and the various factors to be kept in mind while designing the tank. We then read and understood API Standard 650 in detail, which lays down the guidelines for the design and manufacturing of such tanks. We performed all the necessary calculations for the design and finally created a CAD model using AMETank software.

PS-I experience: My PS-1 experience was very memorable as I got to work on a very exciting project. Our mentor was extremely helpful and guided us with patience throughout the project. We got to learn many new things and apply the mechanical concepts learnt in class to real life examples. The hands-on part of the project was also very fun.

Learning Outcome : I learnt about the broad division of work amongst different departments in an organisation and the communication process followed by them while working on a project. I got exposure to the working methodology followed in the industry and developed soft skills required while working in an organisation. We also got to learn a lot of technical concepts and work with new softwares.

Name: MALOO TUSHAR GOPAL . (2018A4PS0848G)

Student Write-up

Short Summary of work done : Introduction to the key principles behind different modes of Heat Transfer which include conduction, convection and radiation. Understanding what are Heat Exchangers and the working required behind them. Learning about their various Industrial Applications and modern day uses. Utilizing TEMA Code for the classification and nomenclature needed to identify several heat exchangers. In depth description of several components present in a Shell and Tube Heat Exchanger. The design process followed for construction of S&T Heat Exchangers as instructed by the industry standards and code. Calculations of internal thickness for shell and head as per required input parameters. Further designing Flanges and Bolts as per guided from detailed drawings as input for Heat Exchangers. Finally compiling all the results obtained from numerous calculations to provide necessary conclusions.

PS-I experience: The overall experience was decent of the PS-1.

Learning Outcome : Gained knowledge about TEMA codes and various ASME codes used for the design procedure. Gained in depth experience regarding the design processes for the bolts, various component thickness and flanges. Learned theoretical understanding regarding various Heat Exchanger components.

Name: NAYAK ANIRUDDHA PAVANRAMA . (2018A4PS0850G)

Student Write-up

Short Summary of work done : The title of my project was "Designing of saddle supports for horizontal pressure vessels using FEA" For this project I first familiarized with the nomenclatures used in pressure vessels, the stresses and their origins, then I studied ASME codes related to our domain to understand the designing procedure, then I learned ANSYS after this I was given a technical drawing which i had to model and simulate in ANSYS. After the simulation I had to interpret the stresses that occured in the model and then see if the design complied with the ASME codes.

PS-I experience: My PS-1 experience was great, all the things were well planned. Because of COVID we could not physically go to the station but all things went well in virtual mode also. The lectures which were conducted were very nice and informative.

Learning Outcome : The learning outcomes were huge, other than technicalities of the project I also learned soft skills like making a formal ppt and making short formal presentations, other than that I also faced the corporate engineering world for the first time so it was great fun to learn how an EPC company like L&T Chiyoda works and lastly as my project was a group project i also expirenced the team working spirit.

Name: EESHAN GHAISAS . (2018B5A40197G)

Student Write-up

Short Summary of work done : We were assigned a project where we had to analyse the stresses acting upon a saddle support system that cradled a horizontal pressure vessel using Finite Element Analysis, and to then verify if the results obtained were compliant with the ASME Design by Analysis Codes. We follow these codes to ensure operational safety in the industry.
We were familiarised with the ASME codes, performed a FEA in ANSYS, and checked the compliance of the results against the codes.

PS-I experience: It was a good learning experience as I was exposed to practical applications of subjects that are part of the Mechanical Engineering course, from the perspective of the industry, and had an opportunity to interact with industry mentors with decades of experience in the field.

Learning Outcome : I leaned about Finite Element Analysis, ANSYS, ASME codes and stress theory.
I also gained soft skills.

Name: ESHA JAIN (2018B5A41118H)

Student Write-up

Short Summary of work done : We studied about industrial storage tanks in detail. We learnt about international design codes for storage tank design. We performed some preliminary design calculations and built an excel sheet for the same.

PS-I experience: It gave us exposure to MNC culture and how big projects are handled at MNCs in the EPC domain. It was good to collaborate with other students and work as a team under our mentor and learn a lot from each other.

Learning Outcome : I learnt about the detailed design and engineering process. I understood how different departments collaborate on a project and the role of a mechanical engineer in the design, fabrication and testing of static equipment. I also gained various soft skills.

PS-I station: MALHAR INDUSTRIES, Nagpur

Student

Name: SHUBHAM AGGARWAL (2018A2PS0093P)

Student Write-up

Short Summary of work done : Main work included email marketing by running campaign for their product and optimization of official website and IndiaMart Page.

PS-I experience: PS 1 experience was good with continuous evaluations including presentations and group discussions.

Learning Outcome : Improved soft skills and technical skills in digital marketing

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Name: SANYAM JAIN . (2018A3PS0372P)

Student Write-up

Short Summary of work done : Development of Customer Relationship Management (CRM) Web Application

PS-I experience: It was a good experience in software development

Learning Outcome : Learned about full stack web development. Learned soft skills like collaborative working and leadership. Learned about importance of planning and strategy in a project.

Name: SIDHARTH SAJEEV . (2018B2A30663G)

Student Write-up

Short Summary of work done : The work was to design a web based CRM application for our organisation. The application which we had made was based python Django framework and also finally deployed the application on the internet

PS-I experience: It was a really great oppurtunity to deal with and experience real life applications in the field of IT. To find out what are the various need that the organisation requires from our application and to make changes again and again to finally get to the product as per their needs is something which we learned to do.

Learning Outcome : Learning the required technologies quickly whenever required and able to implement it in our application was a good learning experience. We also got in depth knowledge of what it takes to deploy a useful application as per organisations need in relatively short period of time

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Name: VALLABHANENI SRI HARSHA . (2018AAPS0492H)

Student Write-up

Short Summary of work done : We developed a Customer Relationship Management software using SQL and Django. This software monitors all the work done by each salesperson from how many clients he talked to each day to how many sales he made in a month or year. It also creates a database of all the previous transactions that the company made with the client and who was incharge of the deal. It also keeps a record of the contact people from each company and what product they purchased each time. It generates 10 different reports that the client requires and presents an option to download them as .csv files. It also adds an extra layer of security and divides the level of permissions between employees. It divides the clients between the salespeople so that one cannot see the other's client and their deals. It also helps the salesman to keep a track of all the deals that he has made by making the entries more systematic.

PS-I experience: It was an amazing experience to work online and without seeing each other. This was the first time I had to work without guidance and in a field that I have no experience. The softwares that we used were both new to me. Moreover we did not even get to see any of our team members. The collaboration and learning was all a really good experience. It helped me learn a lot and gave me an opportunity to understand how a company works and how to contribute to the project. We had to work for about 6-7 hours per day especially since none of us had any idea about the software and framework.

Learning Outcome : I was able to learn two new softwares, namely SQL and Django. I even got to learn about GitHub which is a common platform for collaboration. I understood how an organisation works and different levels of their administration. I also learnt how to work in a team even when we can't see each other and are miles apart. I even got to learn how to manage a team by seeing our instructor.

PS-I station: Nandi Group of companies - Aftershave formulation and production, Nandyal

Student

Name: AMAN AGARWAL . (2018A1PS0036P)

Student Write-up

Short Summary of work done : So to begin with, my project domain was specifically chemical. The topic I was given was Aftershave Formulations and Productions. It was although a pretty much simpler topic. Yet it had a good amount of learning to offer. We had a team of 4 students. The first was our orientation with the MD of Nandi Group of Companies. And in the following week we had a meet with our industry mentor. He was the one who explained to us our objectives and needed outcomes. We were asked to first study the several procedures used till now in the industry to create aftershaves. We went in detail about all the ingredients and know everything about that ingredient. We try to look out for their alternatives. Those alternatives could either make a much cost effecient product or a product of higher quality. Then having found out the alternatives we needed to create a Formulation method taking suitable examples from the Industry. Our products also could have various physical forms. We as a team did an in-depth research on it through various patented articles and journals. And also we were guided nicely by our faculty and industry mentors in whatever problems we confronted.

PS-I experience: It was overall a good experience. But we really missed the hands on experience which we could have got had it happened under normal circumstances. But nevertheless we really learned how to work in a team , all of us being so far apart and yet coming up with the outcomes that we could satisfy our company and faculty mentor. We learned the fact that whatever the circumstances maybe you can learn if you seriously want to.

Learning Outcome : We found so many alternatives to the currently used products in the industry of Aftershave lotions. We also learned the process to do cost analysis for the company. This really strengthened our research capacity and kept us always involved in finding a better solution. The major milestone was the finding of Behenyl Alcohol. It was of great utility in our Aftershave product since we wanted a product free of stickiness and this became the very reason for it. The other major finding was Sea weed gel. It wasn't considered as yet as a moisturizer. But as our report it's potential is yet to be known as a moisturizer.

Name: VINCKAL JINDAL . (2018A1PS0146P)

Student Write-up

Short Summary of work done : I worked for research and development department of nandi group. We worked for finding new formulations of aftershave lotion using alternative ingredients.

PS-I experience: It was good. Learnt a lot about how companies work. Specially about R&D of a company.

Learning Outcome : I learnt a lot about aftershave formulation and ingredients used in it. Our mentor was really good and helped us to find alternatives . Found the new formulations for aftershaves.

PS-I station: Nandi Group of companies - Bio fertiliser from distillery spent wash, Nandyal

Student

Name: DHRUV BANSAL . (2018A1PS0059P)

Student Write-up

Short Summary of work done : Since this year, PS-1 was work from home, we could not visit the industry but a significant amount of work was done in terms of gaining knowledge about the industry through various journals, articles and research papers. My project was 'Production of Bio-fertilizers from Distillery spent wash'. We were a group of four students assigned this project. First, we had a seminar with Managing Director of the company who briefed us about the company. Then we were assigned our industry mentor, who helped us in understanding the various processes involved in the industry and the economics of running the industry. We had made two reports, two presentations and a group discussion was conducted which helped us in gaining in-depth knowledge about the project as well as developing various soft skills.

PS-I experience: It was a great experience working on a project in such a big industry. Seminar with the Managing Director of the company was a great learning experience about how the works and how the company came into existence. Industry Mentor provided us with every kind of help and information required to gain in-depth knowledge about the project. He clearly told us what was requires of us and how we should approach this project which made us easier to work on this project. Our PS-1 instructor also helped us on every front.He told us how we should go about this project and how we should collect information from the internet. Our group had a good understanding among ourselves which made it easier to connect and discuss about the project even though network problem was a big issue. Overall PS-1 was good learning experience in terms of industry knowledge and honing soft skills.

Learning Outcome : Learning about how bio-fertilizers are manufactured through different processes and how distillery spent is made and its impact on environment as well agriculture sector was the major learning experience.

Name: SRIRAM GUPTA VORUGANTI . (2018A1PS1100P)

Student Write-up

Short Summary of work done : We have worked with dealing Distillery spent wash and it's conversion into bio-fertilizers

PS-I experience: Since it was online, we studied various research papers coordinating with the mentor and finding out new methods for the generation of the distillery spent wash.

Learning Outcome : I have learnt various things like dealing with the nutrient composition, of the wash which its repleted background on how it can be used in various methods.

PS-I station: Nandi Group of companies - Design of mould for bottle dispenser, Nandyal

Student

Name: NEIL KULKARNI . (2018ABPS0499P)

Student Write-up

Short Summary of work done : We were given a project on Bottle Dispenser. We got our guidance from the experts of the firm. We learnt in deep about the bottle dispensers, and its design parameter. We also discussed related topic to dispenser which was a atomizer as well as the atomizer nozzle, which was very interesting and was quite fun to learn.

PS-I experience: The experience was quite good. The PS faculty was very helpful and was ready to listen to our doubts anytime. Even in this pandemic situation the company responded quite well. We were very comfortable communicating with the mentor allotted to us. They were very helpful to make us understand our project very well. Thanks PSD for this fabulous experience to be a part of my learning.

Learning Outcome : There are no limitation to the learning outcomes I as a student gained from the PS at the firm. Some of which are listed below:
1) Soft skills like how to present ourselves during Seminar, Group Discussion, etc.
2) Vast knowledge of the subject of study, for me was Dispenser as well as Atomizers
3) Communication with other peer group to making the project a success.
4) We had to use the strength of each individual to make this project a big thumbs up.
And the list goes on.

PS-I station: Nandi Group of companies - Ideas for Alcohol based products., Nandyal

Student

Name: DHANANJAY SINGH . (2018A1PS0003P)

Student Write-up

Short Summary of work done : I was allotted "Vinegar Production" in alcohol based products at Nandi group of companies,Nandyal. My aim was to help the company kickstart the production of vinegar with the best knowledge of the market in India and it's growth, methodology and economics involved in the process. I interacted with the mentor of the company to find out the specific requirements and then consulted several research papers, and manufacturing companies sites to find out all the information needed and advice all the information regarding best procedure,machinery,floor plan,waste management, improvements that can be implemented and how to enter and grow in the vinegar market in India.

PS-I experience: This time the practice school was completely online. All the seminars, evaluative components, quizzes, group discussion were moved to the electronic platform, although no problems were faced in the above mentioned except the hands on experience during this period.

Learning Outcome : I was able to gain knowledge regarding how production takes place in the bigger picture and was able to improve my presentation skills. The domain based lectures also helped in improving the knowledge in the chemical and management field.

Name: RITIK JAIN LODHA . (2018A1PS0083H)

Student Write-up

Short Summary of work done : I was assigned a project on "Production of yeast". I was expected to research and design a cost effective process to prepare yeast in large scale industries so that the company's agricultural industry could be self sufficient on Yeast and does not have to purchase it from the market at a higher price.

PS-I experience: The experience was unique, especially because of the pandemic, everything was performed online. Although we didn't get an hands-on experience, there was a lot to learn and understand. The instructors were really helpful and guided us at every step during the program.

Learning Outcome : We were taught about how an industry works and all the machinery and process required in production. We were also assigned a project in relation to our core courses and learnt about project management. We gave seminars and reports during the PS which helped a lot in improving the speaking and presenting skills.

PS-I station: Nandi Group of companies - Vehicle loading and scheduling of PVC pipes., Nandyal

Student

Name: PERALA AJAY RAJA . (2018A2PS1020P)

Student Write-up

Short Summary of work done : Vehicle loading and scheduling of PVC pipes.

PS-I experience: It's very interesting work about how to manufacture the PVC pipes and way to schedule the works and I'm learning a lot in this factor.

Learning Outcome : I learned various aspects in terms of soft skills and project work this helps me to understand my capabilities when it comes to company projects.

Name: DESHMUKH SUDHANSHU RAJESH . (2018B1A20738P)

Student Write-up

Short Summary of work done : Allotted project was vehicle loading and scheduling of PVC pipes were a project report was submitted on the project report was the primary objective of PS1 where tasks related to the domain were discussed and suggestions were given to make them more efficient.
Tasks of the company and subsidiaries were also discussed followed by a GD. Dairy had to be submitted on a weekly basis.

PS-I experience: PS1 experience was good overall. Got to know about the company domain and how to make a process industrially efficient for profit maximization.

Learning Outcome : Got to know about the company domain of PVC pipes and how to make a process industrially efficient for profit maximization on a large scale.Also learned about team work as a soft skill along with various industrially viable skills.

PS-I station: National Chemical Lab - Mathematical Modelling, Pune

Student

Name: MANLEEN KAUR GUJRAL . (2018A1PS0657G)

Student Write-up

Short Summary of work done : Knowing the melting points of the compounds is an important part of research field, but an experimental analysis of the same is quite difficult and expensive. Thus, in this project, we use the techniques of Machine Learning and Deep Learning to build Artificial Neural Networks and Multiple Linear Regression models and predict the Melting points of the compounds based on the features entered by any user. We use the data set of 4450 compounds and 202 features for this project and using data optimization, the value of error obtained in the models is minimized to predict the melting points on the test and train data.

PS-I experience: Being a remote PS-I program this year, we couldn't gain that much industrial exposure that could have if we were at NCL, Pune, but our mentor used to call regularly for the updates and assign a weekly task to us. This made us connect with the station and have a motivation to keep us focused in completing our project. I believe the techniques I have used in this project, the things I have learnt, will certainly help me in

future, even if I continue my career in chemical core field as it is the growing demand to have a knowledge in computational methods for any field.

Learning Outcome : My project was computational based which helped me gain knowledge in Data Analysis using the Python language, and gave me a flavor of Machine Learning and Deep Learning which led me explore a completely different field.

PS-I station: National Chemical Lab - Optimization Techniques, Pune

Student

Name: HIMANSHU SINGH . (2018A1PS0025P)

Student Write-up

Short Summary of work done : My project topic was simulation of batch distillation for the ternary system.
So the project included studying of vapour-liquid equilibrium and most importantly the various models for calculating activity coefficient like NRTL, UNIQUAC etc.
Code was prepared to calculate the VLE data and also for the simulation of batch distillation. It was done to see the effects of various parameters like reflux ratio, batch time and others on the distillate purity. Three products were obtained. The software used was MATLAB.

PS-I experience: Due to the pandemic situation, PS-1 was like work from home. So, it was not so great as one could not learn about the organizational structure and working of the lab. But from the knowledge point of view, it was great.

Learning Outcome : I learnt about batch distillation and also gained proficiency in MATLAB.

PS-I station: NCCBM, Ballabgarh

Student

Name: VAIBHAV SHRINGI . (2018A2PS0075P)

Student Write-up

Short Summary of work done : My project was to make a literature study on the topic of Thermodynamics and Kinetics of corrosion in Carbon-Steel reinforcements. The mentor said if it had been a normal PS, he would have given a hands-on experience on the corrosion measurement techniques which were the conclusions of this study, so I missed that part. Most of the time was spent on the internet surfing through the various journal articles.

PS-I experience: The experience I got while working with industrial experts and officials is really fruitful and it enhanced my soft skills. Although, there were times that I took the work "lite", as there was no one to keep a check on me. I would have gained the above stated skills much more, had the PS been in normal circumstances, especially as a core PS station.

Learning Outcome : Due to remote mode, labs and libraries were inaccessible. So, the only way was to study through the journal articles available.
While going through a lot of journal articles, I learnt how to go through these articles, how to write my own paper, what are the things that need to be included in my content etc.

Name: SARTHAK RATH . (2018A2PS0109H)

Student Write-up

Short Summary of work done : Since it was a remote mode, I had to look up several topics relating to my work. the project assigned to me was on fresh, hardened and durability property assessment of Portland Limestone Cement. so I had to search for research papers, articles and various websites and saw their analysis. based on them I

drew my conclusions and combined my findings and conclusions across all the papers. the outcomes expected and the actual outcomes found were also compared. all the three aspects i.e. fresh, hardened and durability were analysed and compared to that exhibited by other types of cement like OPC and PLC-S and various SCM incorporated cement. hence I also concluded on what were the advantages and disadvantages of using PLC over other types of cement-based on the performance in aspects like economical, environmental, industrial and so on.

PS-I experience: the experience was wonderful as I got to learn a lot from all the research papers, articles and websites that I had to read about on the topic extensively. the cooperation of the industry was great. the support provided by faculty and the mentor was really helpful as they were supportive all the way and were there to resolve any issues I will have at almost any time whenever they were free. the other students in my station working on various different projects were also very friendly and i got to know about their projects as well and expand my knowledge base and experience a lot. it was an overall quite a good learning experience and although being remote, gives you a lot to know and learn about the industry.

Learning Outcome : learnt about many advantages of using SCM and Limestone incorporation in cement, its environmental impacts and how it is a suitable alternative than purely using OPC. despite the medium was remote it was very effective and I still go to learn a lot about the cement industry and the significance and role of NCCBM research institute in the industry as well. i also learnt a lot from the faculty and mentor's guidance. the faculty had vast knowledge on the subject and i could benefit a lot from that and also from the reading material and papers that he provided. The practical knowledge and application of all that was covered majorly by the mentor as he was also very knowledgeable in his field and hence both of them guided me to learn a lot from the topics related to the project.

Name: SAYANTAN RAY . (2018A2PS0435H)

Student Write-up

Short Summary of work done : My project was 'implimentation of precast/prefab technology for low cost housing' .

PS-I experience: It has been a enriching experience for me. I get to connect with many industry people who were willing to share their experiences.

Learning Outcome : I get to develop my presentation skills and got to improve it a lot. Also i was required to read a lot of research papers, this exercise helped me develop skills to understand a research paper and how to make a report.

Name: DIVYANK SHARMA . (2018A2PS0883H)

Student Write-up

Short Summary of work done : My project was "Mechanical Properties of Structural Light Weight Concrete".My project areas were of concrete technology.In this project I had to study in brief the mechanical properties like compressive strength,modulus of elasticity,Fire resistance,water absorption,thermal conductivity , Flexural strength. These properties were to be compared with those of normal weight concrete.It was very much related to my core study and I learnt a lot about the behaviour of these properties in different mix ratio compared to normal weight concrete.My study also emphasised the various conditions where light weight concrete can be used as viable substitution to normal weight concrete. I also learnt about how cement industry works and various processes including manufacturing of cement.

PS-I experience: My experience in PS-1 was enriched with knowledge of both technical and soft skills.My communication skills greatly improved by regular interaction with mentor and PS-1 faculty.To study under the industry professionals of the premiere cement research institute of India was a great and fruitful experience.I became to know various aspects of concrete technology which I was previously unknown.

Learning Outcome : 1. To learn how cement industry works as an whole.
2. Behavorial study of Structural light weight concrete and normal weight concrete
3. Comparision between different mechanical properties of SLWC and NWC
4. Communication skills greatly improved.
5.Technical skills using the software like visio,PowerPoint,word were greatly improved.

Name: VOGGU MANOHAR REDDY . (2018B1A10564H)

Student Write-up

Short Summary of work done : Kiln heat loss simulation using python:
Aim of the project is to simulate heat losses from a cement kiln so as to gain insights on how to increase efficiency of the kiln.Radiation & Convection losses of heat from cement kiln are calculated based on ambient air velocity of kiln and temperature readings measured from the surface of the cement kiln.The obtained Radiation and Convection losses are summed up to get the total heat loss from the kiln.Based on total heat loss values, regions of the cement kiln with unusually high/low heat loss are identified, which hint us about refractory brick lining damage/coating formation respectively along inner surface of kiln. An estimate on energy & money savings that can be made by repairing the above identified damaged regions is made.A python script was used to do the calculation & plotting task. For easy of use, a web app using the python script in it's backend, was made and deployed to heroku.

PS-I experience: PS-1 has been a pleasant experience for me. My industry mentor has been very supportive and assigned a project I was enthusiastic to take up. I received loads of help in understanding the cement manufacture process in detail. I received valuable inputs and constructive criticism from people at NCCBM on both the web app user interface and the underlying logic. Though I was the only student working on this particular project, it never felt lonely. I would say PS-1 at NCCBM has been worth it and would recommend it to others.

Learning Outcome : Learnt using NumPy, Pandas, Matplotlib and Seaborn libraries of python which are used for Exploratory Data Analysis(EDA) and also streamlit library for making web apps to help with data analysis.
Learnt using Microsoft Visio for drawing, jupyter notebooks to share interactive code & visualisations and Heroku to host web apps.
Learnt cement manufacture process and inner workings of cement kiln.Thoroughly understood various modes of heat transfer.

Name: SAURABH SOMANI . (2018B1A40639P)

Student Write-up

Short Summary of work done : Project Title: Study and analysis of the optimum ratio of coal and renewable based electrical power generation in India with respect to the carbon footprint and economical and financial perspective of CO2 capturing.

PS-I experience: Mentors were really good...but there was no physical experience around.

Learning Outcome : Got to know about the cement productions and the future requirements of energy production in India.

Name: RITHWIK GILLA . (2018B2A10721H)

Student Write-up

Short Summary of work done : The project which I had to do was based on the thermal dehydration kinetics of Phosphogypsum. This project deals with the thermal and kinetic studies of Phosphogypsum, when it is mixed with cement it increases the setting time of the cement. So, during milling process, for the Phosphogypsum to be effective it should not get dehydrated in the process and for that the mill outlet should not be more than the dehydration temperature of gypsum

PS-I experience: It was a good learning experience

Learning Outcome : For completing a project you need to be completely aware of the surrounding topics and also be efficient in managing the time between the components and the project. It takes a lot of determination to take up a project and complete it with no errors.

Name: SAHIL DEEPAK VASISHTHA . (2018B2A10782H)

Student Write-up

Short Summary of work done : Thermodynamic calculations on heat losses,transfers and balances on kilns. Basically a theoretical analytics project that has real time applications which are extremely necessary for functioning of cement plants.

PS-I experience: Very nice PS mentor and very friendly Faculty in charge. It was a very knowledgeable and insightful experience. Gave a real life approach to the problems faced in our lives. How to come up with useful and innovative solutions. Overall a great experience.

Learning Outcome : How to tackle problems thrown at me Improvement of self research and how to work with the industry and professionals as well as my peers.

Name: SAHIL DEEPAK VASISHTHA . (2018B2A10782H)

Student Write-up

Short Summary of work done : Thermodynamic and efficiency calculations along with energy balance and comparisons of the Cement kiln.

PS-I experience: Got to learn a lot of new concepts. Familiarized myself with the cement industry. Got to know about the vast cross disciplinary studies that take place here. Combination of chemistry, civil, chemical, and electronics branches. The projects were very challenging and fun.

Learning Outcome : I learnt a lot about thermodynamics, energy calculations etc. But important skills like research, report writing, seminar presentation, project report writing, communication with industry mentor an FIC, and many other soft skills that I gained were invaluable.

Name: ASHUTOSH SHARMA . (2018B2A20697P)

Student Write-up

Short Summary of work done : The title of my project was 'Fly ash utilization in cement manufacturing'. As it was an online PS (due to COVID-19), the project was a study oriented project. I was supposed to do literature review of the research in the field and suggest a method to activate fly ash which has fineness less than 250 m2/kg. This range was targeted because fly ash is produced in this range but can't be utilized (in cement manufacturing) due to lower reactivity.

PS-I experience: The PS was online but I learnt a lot of things especially of from the cement industry. There were expert talks (webinars) which gave insights about applications of civil engineering. Also, the project oriented learning part was also there. I learnt how to do a literature review. PS station mentor and BITS faculty mentor guided well throughout the project.

Learning Outcome : PS improved my technical as well as soft skills. Technical skills such as, fly ash industry knowledge, waste utilization, applications of civil engineering and literature review etc were inculcated. Soft skills such as presentation skills, report writing, and professional communication were improved.

Name: ARSH GOEL . (2018B2A80674H)

Student Write-up

Short Summary of work done : My project was Quality assurance of ELV works at India Trade Promotion Organisation (ITPO) pragati maidan and due to this project I was able to learn how to make audit checklists which is used by third party assurance companies to cross check the specifications of equipment are upto mark or not.

PS-I experience: I had a great experience. The instructors guided me throughout my PS 1. Because of their constant efforts I was able to learn such a vast topic in such a short span of time.

Learning Outcome : 1. Communication skills
2. Learned how to make audit checklists

3. Learned a lot about cement industry
4. Learned about calibration and other electrical based works

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Name: DHANANJAY OJHA . (2018B5A20132P)

Student Write-up

Short Summary of work done : Leanred abouth thermodynamics and kinetic aspect of corrosion in reinforced concrete.Studied about countermeasure that needs to be taken to reduce the impact on reinforced concrete.

PS-I experience: Its actually a study base project . Learned about the organisation and how they perform task in diffrent sectors.Learned about measures that need to be taken to reduce its imapct on day to day life

Learning Outcome : Got indepth overview of how industrial measures need to be taken for reinforced concrete. Also got indepth study of thermodynamics core priciple that take place in corrosion measurements like pourbax diagram and Evans diagrams

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PS-I station: Nerolac Paints - Operations management, Mumbai

Student

Name: SAAHIL PUDIPEDDI . (2018A1PS0034P)

Student Write-up

Short Summary of work done : I worked on Electric Vehicle technology. It consisted research about battery technology, market study of battery manufacturers, comparison of EVs and ICE, market study of EVs, study on material used for EV manufaturing, and study on EV paint technology.

PS-I experience: It was a nice experience.

Learning Outcome : I have improved soft skills and presentation skills. I have learnt a great deal about EV technology and automotive paints.

Name: AARUSHI ARUN . (2018A1PS0055P)

Student Write-up

Short Summary of work done : My project was to present a critical review of clear coating on solar wafers. I worked in a team of two under the mentorship of the chief manager in technical department. My work included reviewing the market (including the imports, exports, supply, demand and government policies) related to solar energy usage in India. We then had to review what all material, methods and techniques can be used for production of coating for the solar wafers at an optimized cost and efficiency. That included reviewing multiple research papers and articles.

PS-I experience: It was an exhilarating experience when it comes to learning about new topics and tools, increasing our industry exposure and working on real life problems. Despite being a remote internship the quizzes, group discussions and assessment assignments were very well organized. Our PS mentor assisted us in coping with our work with his regular feedback and advices. Our industry mentor was very cooperative and pushed us to strive harder to get the best out of the assigned six weeks.

Learning Outcome : I was able to conclude about the marketing structure and industrial preparation for coating of solar wafers. Understanding the technicalities and usage was a hurdle. The project was mainly focused on my discipline based courses related to polymers, material science, etc in Chemical Engineering. From reviewing research papers, analyzing the methods and bringing out recommendations, the PS helped me come out of my shell.

Name: SHREYA KAPILA . (2018A1PS0538G)

Student Write-up

Short Summary of work done : My project was "POWDER COATING ON HEAT SENSITIVE SUBSTRATE- WOOD AND PLASTICS". The main objective was to find out the advantages, disadvantages, feasibility, technology , market for powder coating on woods and plastics. Till now powder coating process was carried out only on metals but with advancement in technology it has been made possible to carry them out on wood and plastics too by lowering the temperature at which process is carried out as at high temperatures wood , plastics start melting.

PS-I experience: It was a nice experience where i got to interact with industry people and learnt how to give presentations, GDs seminars etc. Although i didnt get any industrial experience which is expected in any chemical ps , hence this was something if had got would have made this ps the best.

Learning Outcome : Learnt about the powder coating technology, markets of wood , plastics, powder coating in asia, india; chemistry behing coating process, operations management , supply chain management, technical analysis of the powder coating on wood , plastics.

Name: ABHIMANYU TYAGI . (2018A3PS0363P)

Student Write-up

Short Summary of work done : I had to a secondary research on green practices, safety practices and ergonomic practices that can be implemented in the nerolac bawal plant supply chain.

PS-I experience: It was in overall a good experience. I got to know and connect so many new people from student to idustry experts which i olso came to understand is a really good thing as you start to begin your corporate life . The webinars conducted by ps devision was another experience getting professional knowledge from experts in different fields.

Learning Outcome : By the end of ps 1 i have learned and gained many skills. One being communication which is one of the most important skill not olny for your career but also any aspect of your life. Then another was researching skills for industrial purposes. Third was how to present your work be it as a presentation or a report. Finally got a good learning about how any projects are done in Industry.

Name: PHUTANE KEDAR ABHIJEET (2018A4PS0495G)

Student Write-up

Short Summary of work done : This PS-I course provides students with a unique opportunity to gain valuable experience beyond classrooms by academically engaging in projects identified from industries of varying scale, scope, and complexity. Following were the broad objectives of the project:
1) Do secondary research on the various steps in the paint manufacturing process
2) Calculate OEE of each process and find the efficiency bottleneck
3) Analyze findings and suggest technological improvements based on them

PS-I experience: It was good, but because it was virtual, couldn't get that practical hands on feel.

Learning Outcome : Understand the technological processes and identify various problems at the industry/ organization.
Work on possible solution(s) to an identified problem/ project, with professional standards.
Seek, visualize, analyse and record data/ information through appropriate documentation.
Improve problem solving and critical thinking skills.
Develop appropriate organizational attitudes and values.
Acquire soft skills and social skills, particularly to communicate with industry professionals

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Name: VISHAL KUMAR . (2018B1A80974G)

Student Write-up

Short Summary of work done : Our project focused on developing a dynamic capacity model for the paint plant, which would give out steps to increase productivity. Our project included studying about the various factors which affect productivity, the working of the machines and learning about the floor planning in an industry.

PS-I experience: The mentor was very supportive and helped us in all ways possible to complete our project. Overall, it was a good learning experience.

Learning Outcome : Punctuality, Professionally conducting meetings and meeting deadlines were some soft skills learnt. Technical skills including excel, and dynamic capacity model working were also learnt.

Name: SAACHI JAIN (2018B2A80197P)

Student Write-up

Short Summary of work done : We were tasked to develop a capacity model for 4 major plants in India. We were to understand the paint manufacturing process, divide them into phases/stages, calculate the capacity for each phase by mapping the machinery used in each, and then calculate the final capacity of the plant and identify the bottlenecks.

PS-I experience: PS-1 was a great opportunity to understand corporate hierarchy, data analysis and hands-on industry experience. Due to it being a work-from-home internship, we faced some communication constraints, but our project was successful in accordance with the data that we could compile.

Learning Outcome : It was a window for me to explore the manufacturing sector. It opened my eyes to factory dynamics, factors that affect productivity of a plant, and overall working of the plants and its different managerial positions.

Name: RATHI NIHAR DILIP . (2018B3A10264H)

Student Write-up

Short Summary of work done : We studied the GST Returns filing procedure for GSTR 1 and GSTR 3B returns. We also developed a good understanding of Standard Operating Procedures. Using the knowledge gained about the entire GSTR filing process at Nerolac from obtaining the raw data to uploading it on the GST Network servers, we created SOPs for the entire process of filing. This would be used by the GST department at Nerolac after edits to assist professionals and train beginners.

PS-I experience: It was good. Missed not being there in person. The virtual format led to technical and academic learnings, but did not allow much of interpersonal learnings.

Learning Outcome : Great understanding of the project domain, which is GST Returns and the filing procedure. Also a decent understanding of how the entire GST department at Nerolac functions.

Name: KOTA SATYA SURYA VINAY . (2018B3A80988H)

Student Write-up

Short Summary of work done : Understand various HR operations in a employee life cycle. From intake of employees and onboarding process, probation period,confirmation of employees,transfer,promotion, resignation, termination , and retirement.
Preparing a report on it and studying and suggesting about various processes for automation or digitalisation of HR operations. Using visual basic applications to automate the Excel sheets used in the Human resourse operations.

PS-I experience: PS1 gave me a very good experience of understanding the HR opertaions and even different operational procedures at a paint plant. With a very good industry mentor I got a very good opportunity to gather knowledge about the operational management in a industry.Getting an opportunity to apply the concepts learned in my 2 years practically is the best part of my Practice School 2.

Learning Outcome : Applying the SWOT analysis to overcome the problems. Learning about various HR operations involving in an employee life cycle from beginning to exit in an industry. Using visual basic applications to automate the Excel sheets used very often in HR operations.

PS-I station: Nerolac Paints - Operations Management -2, Mumbai

Student

Name: MEGHNA GUPTA . (2018A1PS0476P)

Student Write-up

Short Summary of work done : During the first week we were given study material related to production management, inventory management, supply chain management, benchmarking, six sigma and optimization along with some case studies papers. From the 2nd week onwards we started off with our respective projects. My project was 'Critical review of clean coats used for solar wafers'. Wherein we had to look into the technical as well as financial aspects of diffrerent types of clear coat. The project was completely theoretical and there was no industry experience whatsoever. Even though it was a theoretical/ research/review oriented project, I learned about how a product study is done. It takes alot of information to be read, processed, compiled, analyze.

PS-I experience: It takes a while before you actually start making sense of the project and come on the right track.

Learning Outcome : Even though it was a theoretical/ research/review oriented project, I learned about how a product study is done. It takes alot of information to be read, processed, compiled, analyze.

Name: ZAIN ZAFAR . (2018A1PS0619G)

Student Write-up

Short Summary of work done : The project revolved around the domain of operations management. We were allotted a topic under the powder coating sector. The work mostly involved data scraping, research, collection and analysis with the target to find a substitute for the traditional liquid solvent coatings.

PS-I experience: It was good, got to learn a lot. Though the productivity could have been maximized by actual industry exposure which wasn't made possible due to the ongoing pandemic.

Learning Outcome : Working with professionals, exposure to corporate functioning, product management operations

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Name: AGRAWAL MADHUR RATNESH (2018A1PS0702P)

Student Write-up

Short Summary of work done : Project Title - Expectations of Product Features by Indian consumers in the time ahead, the market sizing, competitor landscape, the changing consumer behavior and regulatory environment.
Data collection of products developed by various firms. Studied about the recent developments by different research institutions and companies.
Aim of the project is to develop a paint, a concept or a technology which would have a good Market size post covid 19 situation.

PS-I experience: Flexible hours. Good experience.

Learning Outcome : Learned about global trends of development in paint industry. Found out some interesting tools/concepts which could have a good market size.

Name: ANKIT ASAWA . (2018A1PS0803H)

Student Write-up

Short Summary of work done : Project allotted was digitalisation in coatings R&D and digital tools which can be used by R&D for product development. We collected a lot of information on various tools and software which can bring about great changes in various processes at nerolac. We concluded many positive and negative points of many software and digital tools. We found out the major roadblocks in the process of digitalisation and suggested solutions to the industry for faster and better digital transformation.

PS-I experience: Contacting the mentor on a regular basis was a major issue. But whenever we had a conference call he used to explain all the work and was quite energetic. Sometimes there were hurdles in communicating due to poor connectivity but most of the times it was quite smooth. Mentor used to give us some work and we had to research on all the things and provide him with useful literature at the end of every week. He used to review the work and suggest better strategies each time. Overall, the work was very engaging.

Learning Outcome : Learnt quite a lot about manifold digital tools which are used in chemical companies for faster, better and efficient processes. Team work and presentation skills were greatly enhanced. Productivity had actually increased due to work from home nature of PS1.

Name: ISHAN SHARMA . (2018A4PS0539H)

Student Write-up

Short Summary of work done : Secondary Research on the latest technologies in the paint manufacturing process and suggest measures that could either increase the efficiency of the assembly line worker or suggest new measures

PS-I experience: A great experience except the fact that it was difficult to communicate with the mentors as they were usually busy and it was really difficult to contact them.

Learning Outcome : Paint manufacturing process, Chemical composition of paints, communication skills etc

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Name: MARGI VITHALANI . (2018ABPS0477P)

Student Write-up

Short Summary of work done : Secondary research on ergonomic practices. The project was basically about studying the various paint making processes and identifying activities posing long term fatigue to workers' posture. We had to shortlist such activities and reasearch on fully automatic or semi automatic machines that could replace the traditional practices so as to ensure a safer work environment.

PS-I experience: It was an opportunity to apply classroom knowledge pratically. Got to learn a lot from mentors on raw material procurement and working of several processes and cost benefit analysis of new machines etc which were necessary for the project.

Learning Outcome : In terms of technical knowledge, learnt a lot about various kinds of tech innovations in chemical industries and also learnt about variours extremely helpful features of excel. Apart from this, the PS has helped me hone my interpersonal skills. An experiance in business communication, report writing, critical analysis, etc have all added to my soft skills.

Name: SHIBASIS DUTTA (2018B1A40768H)

Student Write-up

Short Summary of work done : I was given project on "repair cost analysis". I and my partner was given repair data on excel and our aim was to reduce the cost for repair by cost cutting method and accounting various parameter like equipment,vendor no.etc. in MS Excel where we used text formula,pivot tables various tools to analysis the company's erp data.

PS-I experience: I interacted with my mentors and instructors about the project and this interaction improved my soft skills and made me move out of the comfort zone.Our communication skills were developed and we gained experience how the company works and how to deal with the deadline in a professional way.

Learning Outcome : I and my partner was given repair data on excel and our aim was to reduce the cost for repair by cost cutting method and accounting various parameter like equipment,vendor no.etc. in MS Excel where we used text formula,pivot tables various tools to analysis the company's erp data.I learned the categories within repair cost and how services and maintaince is initiated through purchase order.

PS-I station: Nerolac Paints - Operations Management -3, Mumbai

Student

Name: NISHAD DINESH MAHAJAN . (2018A1PS0733H)

Student Write-up

Short Summary of work done : In order to meet the final outcome of the project we have collected and studied the new products launched during the recent times and the new technologies the products are incorporated with. We have also studied the new researches which are being conducted by different institutions and universities. The study of new technologies launched and the researches globally will help the R&D to understand the global trends and may help them develop new technology.

During the current scenario, people may change their attitude towards the traditional methods of painting and may take up the painting job their selves. Therefore, we found the new innovations in the painting tools which may help people to reduce the hectic and time-consuming painting job and also make it easy.

PS-I experience: The overall experience was good and provided us a lot of opportunities to learn new things and know more about the operations and management of the PS station. On station work and interaction with mentor would have provided more exposure and also would have given us the opportunity to explore the different department of the PS station than the online interaction.

Learning Outcome : Innovation in terms of coming out with new product features and concepts will always be the key to success in such situation. So the project objective will be to understand from the R&D's perspective the Indian consumer expectation in the coming time. The project executor should conduct survey, generate data and analyze the data to understand change in Paints, Coatings, Adhesives and Construction Chemicals consumer requirements and expected change in market practices. It is also important to understand the hit rate of such expected product to market in terms of timeline. Emphasis should be on the products and market size which can impact the business of the company. Another objective of the project will be also to learn the directions in which competition would be focusing under such scenario. Additionally, global trends in such products will also be helpful to understand the global practices in Paints, Coatings, Adhesives and Construction Chemicals market. Overall, the outcome of the project should help R&D to work on new ideas which have more commercial applications, the expected development cycle time to introduce such products fast in the market and what features would make Kansai Nerolac Products as the preferred brand by the various influencers.

Name: ROSHAN REDDY BANAPURAM RAJA (2018A7PS1219H)

Student Write-up

Short Summary of work done : Me and my teammate were assigned a project in the PS stations which was based on the manufacturing aspects of the operations in Nerolac, it was about how we can make the unloading and loading process of raw materials way more effective by doing secondary research on various methodologies and technologies in different industries such as paints,adhesives,powdered coatings,cements and chemicals , we have also had a great webinar sessions with

industry leaders and also the management leaders of the company letting us get an insight about different aspects of finance and manufacturing , we learnt about the different aspects of the company's history and culture as well.The quizzes and Group discussions on external topics turned out to be very helpful.

PS-I experience: I had a wonderful experience in PS-1 enriched with professional attire and workholic nature everywhere , the Group Discussion about external topics made me integrate the current affairs with that of the corporate affairs in the company , I also managed to inculcate discipline within myself inorder to become a lot more organized in structures workplaces like that of my PS station , it has been an emotional one too with a lot of ups and downs with an enoromous learning curve , overall I am extremely happy about the kind off an experience I have obtained in my first Practice School

Learning Outcome : The Central objective for me in this PS was to act in a lot more professional manner at different spheres, I have also understood certain key elements of the manufacturing and operation processes of the Konsai Nerolac Paints which made me much better at handlings tasks using a specific methodology , The group discussions have enhanced my knowledge about the current affairs , the quizzes and all have been crucial in making me more disciplined . My mentors and faculty incharges have been very supportive for most part of the PS improving my emotional quotient as well.

Name: KARTIK JAIN . (2018B2A30563G)

Student Write-up

Short Summary of work done : Translation of learning manuals on 6S and operations management from English to Hindi.

PS-I experience: Got to learn about 6S and Autonomous Maintenance. The GD, Seminars and Report Writing helped in development of soft skills. The project allotted seemed a bit underwhelming as it was just translation work but still got to learn about the techniques

Learning Outcome : Development of soft skills, understanding of operation management.

Name: OSHEEN ARORA . (2018B2A40599H)

Student Write-up

Short Summary of work done : The project that we were assigned was a study on repair cost data. Nerolac has 6 plants in India, we were given the maintenance data of all the six plants and we had to sort it according to the type of equipments, category, fiscal years and vendor numbers. After these categorizations we made pivot tables, compared and analyzed the data across all the six plants, also compared similar equipments in a plant and how some vendor charge high for one facility while others provide it as a slightly lower rates. We also learned how do companies place purchase orders, what difficulties they face while doing so, what are the different types of contracts that are taken care of while placing an order and how are they modified every year.
We also gave our suggestions based on our understanding of the project as to how can these contracts and deals be reviewed and changed so that the cost of production might decrease and how it could be of help in increasing the profit of the company. Apart from this we also faced a few problems as this was all online and it was hard to understand a few things during online meetings.

PS-I experience: Overall, my PS-1 experience was quite interesting and educational. I got to interact with the Assistant Manager and also his team in the purchase department. He also told us about the lessons he learned throughout, which proved to be very valuable.

Learning Outcome : A majority of things that I learned over the course of PS-1 were about how these big firms purchase equipment within a given budget and how do they analyze it. Also the webinars and online meets proved to be a good opportunity of getting a closer look on how industries and firms work.

Name: JALAN NIKHAR MAHESH . (2018B2A80361G)

Student Write-up

Short Summary of work done : I created training manuals for the workers in different plants on topics of 6S Automation, Autonomous Maintenance and Safety

PS-I experience: It was a great experience working in the industry,the online communications went really smooth and the faculty as well as industry mentor were really helpful

Learning Outcome : Learnt a few features of PowerPoint,word,excel and onenote
Also learnt how to communicate with the industry professionals

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Name: SHREY MEHTA . (2018B3A10944H)

Student Write-up

Short Summary of work done : The aim of our project is to create Standard Operating Procedures (SOPs) and Business Process for the GST functions at Kansai Nerolac Paints Ltd. These GST functions include the filing of GSTR 1 and GSTR 3B.
This being our first exposure to accounting and taxation of any sort, it was paramount that we first gain an understanding deep enough to facilitate functionality in taxation; the goal being to be able to file these tax returns ourselves from scratch first, before attempting to create SOPs.
The application of SOP in complex processes like filing tax returns is of extreme importance. Handling such great numbers is not an easy task for the Tax/GST department.
The rotation policy followed in the GST department of Nerolac requires the use of SOP.
To minimize errors and maximize efficiency, a Standard Operating Procedure (SOP) should be in place and followed. SOP in this case gives a clear view to the employee on the steps and tasks required for GSTR.

PS-I experience: This being our first exposure to accounting and taxation of any sort, it was paramount that we first gain an understanding deep enough to facilitate functionality in taxation; the goal being to be able to file these tax returns ourselves from scratch first, before attempting to create SOP's. As I'm from science background, learning about sections of CGST act which I am not familiar

with was a challenge. Work from home is challenging as well as the internet connection is not always stable and
learning about various through video conference is not easy. All in all, it was a wonderful opportunity for me to interact with industry experts and gain some insights of the corporate world.

Learning Outcome :
The project is roughly divided into two parts- research & understanding the GST compliance and its filing procedure, and then moving on to prepare the Standard Operating Procedures (SOPs) for filing GST returns individually.

1. Gaining a deep understanding of the GST returns and their filing procedures.
2. Determining a format for creating the SOPs.
3. Segregating the bulk of knowledge gained into an algorithmic framework.
4. Using those guidelines to create SOPs for filing GST returns.

Got the opportunity to learn about how the industry works. Attending webinars gave me the chance to learn about important tools like Bloomberg terminal. Got to know about working of ClearTax. Learned about other GST returns. Learned about anydesk software. Learned the various sections of the CGST act required for the project.

Name: TULLURI KOUSHAL . (2018B3A20977H)

Student Write-up

Short Summary of work done : Studying initiatives taken by various companies in the paint industry and analysing them whether they are useful for the company and assess the risk of COVID-19

PS-I experience: PS-1 gave us a very good opportunity to learn things that cannot be taught in a classroom.
It helped us in knowing all types of work that happens in day to day life of an employee in companies which i am sure that is helpful for us in future.

Learning Outcome : Marketing and promotion strategies of various companies.
Supply chain management.
HR policies of companies.
New technologies that are developed in paint industries.
COVID-19 impact on demand, employees, sales, supply chain.

Technical Skills development

Name: SUNIDHI GARG . (2018B4A10864P)

Student Write-up

Short Summary of work done : Automating HR operations in an employee life cycle by programming Excel using Visual Basic Applications. Using BOTS to link Excel for directly sending mails from spreadsheets and enhancing their portal for on-boarding process of employees

PS-I experience: Some issues due to work from home situation but overall good

Learning Outcome : Using Microsoft Excel efficiently and programming the spreadsheets to customize accordingly.

Name: GANGULA VENKATA THARUN KUMAR REDDY (2018B4A20824H)

Student Write-up

Short Summary of work done : We have created a dashboard for construction project. We discussed about different components in the dashboard. We have created milestones, tasks, Budget estimations and made a Gaant chart for tracking

PS-I experience: It was fine working under our mentor he was very helpful and he helped us through out the project.

Learning Outcome : Learnt more about Excell sheets and project planning tracking and management. estimating and planning budget. Controlling projects using different methods.

Name: SAMARTH JOSHI . (2018B4A20873P)

Student Write-up

Short Summary of work done : During the course of Practice School, we have done rigorous research and study on the two projects; Market Research on Raw Material and Robotic Process Automation; to provide Nerolac with relevant data and help them improve their foothold in the corresponding areas and boost their production. To get the relevant data, we have done secondary research and gone through various case studies to get appropriate information regarding the aforementioned projects.

PS-I experience: Mostly secondary research and searching about the details of material or some information.

Learning Outcome : 1. Understanding chemical industries production and financial report.
2. Logistics
3. Supply chain management
4. Robotic Process Automation
5. Leading Manufacturer in Paint Industries

Name: ABHILASH SABAPATY . (2018B4A40990P)

Student Write-up

Short Summary of work done : We were a team of 2 who under the domain of 'Corporate Planning' were offered two projects. One was a market research of raw materials with objectives to find the main players in the raw material manufacturing industry along with their respective plant capacities and market distribution. We had to present our research in front of our industry mentors. This information was crucial to them since Nerolac is in the position of acquiring/tying up with companies all over the

world to help reduce their cost as well as to build a name for themselves and stamp their authority on the global map. The second project which we got was on Robotic Process Automation. Nerolac has been wanting to automate many of their process/tasks within the company to reduce time, build accuracy and be more productive than the rest of their competitors and thus have a slight edge over them in the future. Our work was to research about RPA for a start and then find companies that have implemented RPA in their respective companies along with processes that they have automated. We also had to find the key points on how it helped the respective companies and share all our findings through an excel sheet.

PS-I experience: The internship was a decent experience, while I was introduced to some new projects, it felt as though everything was mechanical and there was nothing for me to contribute on the creative/problem-solving side rather everything was all about research and data. I learnt a lot about research but came to know that its not my calling and i would rather use my brains than just copy paste stuff.

Learning Outcome : I learnt how to make attractive presentations and also learnt to make reports. I must say I have studied about RPA a lot and it has surely helped me and enhanced my knowledge.

Name: SHIVALIK GUPTA . (2018B1A20443H)

Student Write-up

Short Summary of work done : Our project was based on operations management. The topic of our project was-"Secondary research on the latest technologies in process manufacturing and material handling that are helping either increase the efficiency of the process line workers or the product performance (benchmarking with the paint industry and other process industry)". This was mostly a research based project in which we had to research about the latest technologies that can be applied in the various plants of Nerolac so as to increase the work efficiency and reduce the loading and unloading time of raw materials. Some of the objectives on which we had to work on were-Technologies to unload raw materials from trucks to godowns,etc..
Barrel handling and the movement of these barrels of different sizes and weights.
Technologies to transfer materials from mixers into buckets of various sizes,etc..
Movement of finished goods from godown to trucks and the latest technologies involved. Decreasing the turnaround time. We found out about various technologies and techniques that could fulfill these objectives. Some of the techniques and technologies were- using lean tools, using telescopic conveyors, using AGVs,etc..

PS-I experience: The working experience in Nerolac was quite good. Our mentor provided us with his valuable inputs whenever we needed it. We had regular video conferences with him and regularly discussed or progress. Also our faculty was very responsive to all the problems we faced and regularly guided us for the successful completion of our project. We had daily conferences with him where he solved our doubts and also gave us his valuable advice. Also this was a very good learning experience and provided us with an insight on how the industry works. I learnt about various problems faced by the Nerolac and how to solve them. Nerolac being an MNC and a leader in paint industry will surely be a good option for PS.

Learning Outcome : The project was mostly research based. So we had to go through various research papers, blogs ,etc., to find out about various technologies and techniques that could be applied in Nerolac to fulfill the objectives given in our project. So we learnt about various upcoming technologies and techniques in the manufacturing industry. Also we learnt how the industry works and the problems faced by it. Apart from this the various assignments like GDs, quiz, reports, presentations,etc. helped me to increase my confidence and public speaking skills.

PS-I station: NIVEA India Pvt.Ltd.-Operations Management, Bangalore

Student

Name: HARSH KUMAR . (2018A4PS0035H)

Student Write-up

Short Summary of work done : The major work alloted was regarding batch tracebility and batch management. The work was to develop methods for the improvement of batch tacebility and batch management using modern techniques like introduction of AI/IOT etc.

PS-I experience: It was a great experience full of learning and fun.

Learning Outcome : I learned various skills like enhancement of barcode in batch tracibility , Introduction of AI/ML in the project learnt about problems in forecasting revenue loss due to manual mode of operations ,research on latest technology other than RFID and I thought about many new ides related to the project.

PS-I station: NIVEA India Pvt.Ltd.-Operations Management, Kolkata

Student

Name: SHREYA GUPTA . (2018ABPS0601P)

Student Write-up

Short Summary of work done : I was in the operations management role. We had to find out cost-effective models to improve the quality of the products at the Distribution Partners.

PS-I experience: The Nivea officials were one of the most helpful professionals I have come across. They have a good work ethic and working with them will be comfortable within a week. It was a pleasure to learn from them and understand the difficulties that they had faced while solving the issues of the supply chain.

Learning Outcome : A good deal of knowledge about the supply chain and logistic issues that a skin care giant company like Nivea faces in their daily operations and the initiative that they have already taken to improve its efficiency.
Knowledge about the FMCG sector and the competitor analysis (how competitor companies like Loreal have included their market strategy to find a competitive edge in the market).

PS-I station: NIVEA India Pvt.Ltd.-Operations Management, Mumbai

Student

Name: NAVYA BHANDARU . (2018A5PS0964P)

Student Write-up

Short Summary of work done : My project was to suggest and draft an execution charter suggesting cost effective ways to automate batch management and batch traceability in logistics operations. We worked on Barcode/QR code/ RFID/ ML and AI to make a system that could not only automate the entire process of warehouse and inventory management but also cut costs invested in warehouse management.

PS-I experience: The domain of supply chain management was new to me, this internship made understanding supply chain and WMS very easy. The mentors were approachable and made sure that we familiarize ourselves with domain knowledge before trying to solve the problem statement. It has created a great foundation of knowledge, for me to build on.

Learning Outcome : Communication and the entire process of pitching ideas, was initially a challenge, but by the end of the internship I improved in these aspects. Learning about supply chain management through actual case studies, increased my interest significantly ,in this domain.

PS-I station: Noida Metro Rail Corporation (NMRC), Noida

Student

Name: AMAN CHAUHAN . (2018A2PS0713P)

Student Write-up

Short Summary of work done : During the whole PS duration we have worked o the following projects-
1. Comparison of Technical Parameters between Light Metro and Mass Rapid Transit System (MRTS)

2. Comparison of Financial Parameters between Light Metro and MRTS
3. Cost Cutting Options in Light Metro
4. Strategies for Enhancing of Metro Ridership in Indian Scenario
5. Stability of Metro/Light/Monorail Systems to Indian Tier 2 Cities with logical and technical/financial explanation.

PS-I experience: PS-1 is being held online this time and the work is done from home this time. A project is done on the weekly basis and the report is submitted afterwards. There are presentations that are being held with the PS faculty. Also, stress is laid on the current scenario to find the solutions to the problems faced by the metro systems like feeder system inefficiency and cost cutting options by analyzing various technical and financial parameters as well.

Learning Outcome : PS-1 experience has made us aware regarding the current scenario problems in civil engineering and various methods to tackle them as well. Also, it is helpful in development of various soft skills as well.

Name: DEVANSHU MAHESHWARI . (2018A8PS1016H)

Student Write-up

Short Summary of work done : I worked on two projects in the electronics domain. My projects were automation of lights for metro stations and another one was the study on human body temperature screening device.
For the automation of lights project my main motive was to conserve energy, reduce electricity bills, promote automation and smart features and make a system run efficiently for a long period of time generating profits for the organisation.
In the second project which was the study of thermal screening devices, I worked on how a device can identify someone with high temperature even in the crowd. Basically making a cost effective camera which is fixed somewhere and identifies someone with high body temperature which can help in identifying a person with infection like COVID-19 and can help in stopping the spread of COVID-19. Concepts like image processing, thermal imaging and networking were used.
I have to work on how the projects I am working on can be useful on a large scale like a Metro corporation or at industrial level, considering the facts like maintenance, failure of devices, false alarms and investment or cost analysis. I got to learn more about electronics concepts. I also learned how to think from an industrial point of view before working on any project.

PS-I experience: The PS was work from home and was totally a new experience. My PS faculty was very supportive and always encouraged me to do better and gave constructive feedback. I enjoyed the seminars, group discussions and working with other interns. Interacting with faculty and officials of the PS station was very useful and I got to learn a lot. I was given a chance to work on two projects which helped me gain a better understanding of how industries think before working on any project and how we can work to stop the spread of COVID-19. Overall, it was a great experience and helped me upgrade my technical skills and soft skills.

Learning Outcome : Better understanding of embedded systems, electronics, networking, and cost analysis.
Studied the working behind thermal cameras and how concepts like image processing and thermal imaging are used.
Understanding the organisation structure and how they function and work.
PS helped me improving my soft skills also.

Name: ADARSH NARAYAN PANDEY . (2018B4AA0806G)

Student Write-up

Short Summary of work done : I worked in a group of 3 members, including me, and we did study oriented research on use of thermal screening to identify possible case of Coronavirus at metro station so that we can avoid any infected person to enter the metro stations. For this we had to learn the electronic components, the software involved ,and the set up and positioning of the cameras. We also learnt about the technologies with which we can make our own cameras which can be cheaper than traditionally used FLIR cameras.

PS-I experience: The experience was good learning curve for me and my team mates. We collaborated well and did good research and everything was on time.

Learning Outcome : I learnt working in group and ability to present myself. I also learnt the basics of image processing and the electronic components involved in a fully functional thermal imaging camera.

PS-I station: NTPC, Dadri

Student

Name: NAKUL VASHISHTHA (2018A3PS0044H)

Student Write-up

Short Summary of work done : Initially we had an orientation session by the chief coordinator of NTPC power plant which was focused on the production capacity of NTPC , its business overview and the responsibility shouldered by it of producing power for the nation. The session was followed by 2 sessions on the working of power plant as in how the electricity is produced using coal and gas as fuel and how different sections of the power plant play their roles in the process. Afterwards we were asked to contact our mentors and discuss our project title. After finalizing the project title we began our research on the topics of the project told to us by our mentor as it was a study project our main work was to go through a lot of research papers, articles and publications to get to know the concepts in a crystal clear manner. My project title was "Motor Actuators and its Functioning", an actuator is the mechanism by which a control system acts upon the environment. The 2 primary requirements for the functioning of an actuator are a control signal and a source of energy. NTPC uses over 2000 actuators in its power plant, because actuators are quite efficient in providing the desired mechanical output for our input. I studied the functioning of Electric Motor Actuator in detail because that is what my project was mainly focused on. Afterwards I studied various concepts which play a decisive role in choosing the desired actuator for the machinery. Then I went through the mechanical and electrical construction of actuators. Then I went through the DCS, MCC and internal feedback mechanism which are widely used mechanisms in the power plant. Finally I went through the design of the actuators produced by Rotork,Auma and Limitorque which are the manufacturers supplying actuators to NTPC, this concluded my study project in NTPC,Dadri.

PS-I experience: The experience at NTPC has been very valuable to me, because back in college whenever I used to study the various concepts, I always used to ponder that what applications would this technique or this particular device would be having,

and how do engineers use them in a power plant, and so in order to quench my thirst I used to study a bit from different sources, but it happened very few times that I was able to get a satisfactory answer to my queries because books can't provide you those answers which a person actually working in that industry can, by his experience, and practice school gave me this opportunity to listen to and interact with people who are actually working in those power plants. Like the initial orientation session made me realize what responsibility of producing power is shouldered by NTPC and how efficiently they need to produce in order to meet those demands.
Also, the mentor assigned to me is very encouraging and supportive. He gave us insights into how work is carried out in NTPC and his description made me realize the kind of work ethic that the company possess and the optimistic aura that the employees share amongst themselves. Also when we asked him for project ideas he gave us an outstretched list of ideas to choose from, which was an overwhelming response for me. He has been very encouraging during our project work, and is always ready to help and guide us.

Learning Outcome : I would like to tell that though a power plant's best experience can be gained through hands-on experience, but pertaining to the situations it has been managed in the best possible manner. I would appreciate the practice school division for including evaluation components like seminar and group discussion because they on one hand enhanced my soft skills and on the other hand they provided me an opportunity to learn about different domains of the power plant(because every student got projects from different departments) which I was missing in an online practice school(as we were not physically present at the plant to tour it and get to know its different areas). Also I would like to credit my faculty in-charge for helping us establish contact with our mentors and being there to solve any sorts of queries that we faced during the project.

Name: HARSH KUMAR SRIVASTAVA . (2018A4PS0053H)

Student Write-up

Short Summary of work done : 1. Attended various talks and interactive sessions from the professors having expertise in the power generation field and gained a ton of knowledge about how to convert different energy sources to usable electricity on a large scale and the challenges faced in this domain.
2. Exhaustive learning of the technical terms related to Power plants, like subcritical, super, ultra-super technology megawatts and got to know different

equipment stations such as the largest switchyard of India and HVDC converter, which is owned by PGCIL.
3. The knowledge of different initiatives of NTPC in the purview of environment degradation and its protection, the waste to energy projects of NTPC etc.
4. Major challenge for me this time is the new platform through which we have to learn remotely, which is also the way of learning.
5. However, the focus of any power generation technique/project should shift in the direction of maximum utilization of renewable energy sources (RES).

PS-I experience: 1. To know the industry experts well by interacting with them.
2. To Learn some detail objectives of NTPC Limited in the power generation
3. To Learn the detailed discussion about power generation techniques....more importantly how to apply thoertical knowledge

Learning Outcome : 1. Learned about the various ventures and plans of NTPC, the operating capacities of the power generation stations at NTPC.
2. Basics of different electricity generation techniques, solar PV cells, thermal generation and the thermodynamic cycles involved, renewable energy sources etc.
3. The inter-regional power transfer capacities and the sustainability incentives of NTPC for example, technology progression enhancing efficiency, EV charging stations etc.

Name: SOURAV A S . (2018A4PS0587P)

Student Write-up

Short Summary of work done : My work was mostly on creating a study project which was based on an analysis of the efficiencies of the various parts of a Combined Cycle Power-plant. Some materials for conducting my study (general data regarding various parts of the power-plant setup) was provided from the PS station and the rest of the study was made using materials that were found off the internet. A comparison of efficiencies between various power-plant setups were also conducted albeit to a theoretical extent, and some ways of improving efficiencies of both the turbines (gas and steam turbine) were also explored.

PS-I experience: It was a learning experience in the sense that I had to submit a project of my own work in a working environment for the first time. The lack of hands-on experience due to the ongoing pandemic was a truly sad aspect for students of my batch. The creation of the project and presenting seminars on the same and participating in group discussions were good experiences.

Learning Outcome : The process of creating a project was a good experience. Presenting the project in a seminar was the most important learning outcome, it helped to improve some soft skills required during presentations and this was the first experience of that sort. Some theoretical knowledge too was attained, as in the working of turbines and the combination of them in the Combined Cycle Power-plant and also some other aspects of the same.

Name: APURV KUMAR SHUKLA . (2018A8PS0405P)

Student Write-up

Short Summary of work done : The study project was based on Motorized Actuation involved in a Power Plant. It involved the exhaustive study of different type of electric actuators, their application and the control system mechanism behind their functioning. We also studied the internal architecture of actuators manufactured and supplied by AUMA and Rotork and specifications of the same.

PS-I experience: It was a great experience to actually get to know the industry level implementation of the concepts I studied in the disciplinary courses. Got to interact with the industry experts at NTPC gaining insights to the different projects and areas currently under NTPC, also the business portfolios of NTPC Limited.

Learning Outcome : Learned about the implementation of electric actuation in power industries, and the mechanism behind it in detail.

Name: C SRI DHARMENDRA . (2018B3A40869H)

Student Write-up

Short Summary of work done : The project will be focusing on the power generation techniques, and the
technicalities involved in the working of a Power Station. (Power Plant
Familiarization). The 1st week orientation was basically introduction of the project / industry expert, which helped
me to start synchronizing with Industry on a formal note. Learned about the various ventures and plans of NTPC, the operating capacities of the power
generation stations at NTPC. Introduction into the processes of power generation and concepts of various thermodynamic
cycles involved in a Coal Based Thermal Power Plant. Basics of different electricity generation techniques, solar PV cells, thermal generation and the
thermodynamic cycles involved, renewable energy sources etc. The 2
nd week was basically introduction of the project and its briefing, which helped me to start
synchronizing with Industry on a formal note. Gained knowledge about the different types of power plants in India and their efficiencies.Gained knowledge about the different types of power plants in India and their efficiencies. Learned briefly about the various types of power plants set up by NTPC, the operating capacities
of the power generation stations at NTPC. And also Introduction into the processes of power generation of gas based Thermal power plant. Learned how efficiency matters for power pants and how it varies for different types of plants.

PS-I experience: It was a wonderful experience and will always remember the learnings from this course. A special thanks to Practice School Division Department of BITS as well as NTPC-Dadri, for
everything they have done in ensuring that we receive invaluable exposure to the real corporate operating world through PS-I, even in these tough times.

Learning Outcome : Knowledge of the processes of power generation of a combined cycle power plant and how they
differ from a conventional simple cycle plant. Learn to give a seminars, participate in group discussions on a stressful platform and learn to communicate and present ourselves well.

Name: MANISH PRAJAPATI . (2018B4A40452H)

Student Write-up

Short Summary of work done : After some talks from various experts in the initial weeks, we were made aware of the basics of the concepts related to the operations of the Power Plants and the Power Sector in general. Thereafter, we were alloted our mentors whom we had to contact to get the details of our respective project. After that we worked on our specific projects for the remaining time. I was given a study project which was based on improving the efficiency of the gas turbines in a combined cycle gas power plant.

PS-I experience: It was overall a nice learning experience for me. I gained a lot of insights on the detailed operations of the Power Plants in NTPC and the various diversification in power generation techniques being looked upon for meeting the huge energy demand of our country in the future.

Learning Outcome : Learnt the technicalities involved in the Gas Turbines and the Power Plants.

PS-I station: Plastic Water Labs - Actuators and Sensors in IoT, Bangalore

Student

Name: ABHIJAY KEMKAR . (2018A4PS0519P)

Student Write-up

Short Summary of work done : Made a supervised Machine Learning Model which could predict defects in an object of interest whilst incorporating object detection to find the object in a cluttered environment. Used Jupyter notebook, Tensorflow and Keras

PS-I experience: Gained mostly all industry skills that were preplanned while taking this course.

Learning Outcome : Professional skills such as presentation, being in a work oriented environment gave the exposure as to how companies function. Applied the skills learned in Machine Learning.

Name: ANGAD SINGH CHAHAL . (2018A4PS0595H)

Student Write-up

Short Summary of work done : Our group has to make a Skill Force Training application which will be used to train the blue collared workforce in VR. The app has a master mode in which the instructor teaches the students and a student mode in which the students can practice the skills learnt in VR under supervision of AI.

PS-I experience: We got to work closely with our college mentors, industry experts and fellow students from different campuses. It was a great learning experience and we got to improve our technical as well as soft skills.

Learning Outcome : I learnt about working with Unity and TensorFlow, implementing VR for Google Cardboard and Oculus headsets, and working in an actual industry environment. PS was a wonderful opportunity to work in a company and gain valuable work experience.

Name: ANSH SANJAYKUMAR SHAH . (2018B5A40917P)

Student Write-up

Short Summary of work done : PWL works is a four year old startup which specializes in making immersive technology. They have developed AR and VR products for many companies.

PS-I experience: The experience a very good. Te mentors were helpful but most of the learning part was done by our own using online tutorials

Learning Outcome : I learned unity, c#, ml using tensorflow

PS-I station: Plastic Water Labs - App development for VR/AR, Bangalore

Student

Name: PRASHANTH SREENIVASAN . (2018A7PS0160G)

Student Write-up

Short Summary of work done : Made an Ar catalogue using unity and vuforia similar to the IKEA app

PS-I experience: Enjoyed the work and learnt a lot to n the process

Learning Outcome : Learnt unity basics, can make 3d models using 2d photographs, can make samll games using unity, can make a simple ar App using unity and vuforia.

Name: PURVIKA (2018A7PS0232H)

Student Write-up

Short Summary of work done : Our project aim was to create a Augmented Reality Catalog, in which we provided the user with a preloaded set of models to chose from. The 3D models were created from 2D images, and the app allowed the user to examine the models and the individual components of the models. The app provided user to move the models using a joystick, rotate them using sliders, and also enabled color change of the models. In order to examine the individual components and the model in depth, explode option was made available to the the user from analysis and a cross section to provide the internal view of the models along three planes XY, YZ, ZX (achieved with the help sliders along the 3 planes). All these functions were achieved by using Unity 3D, Blender 3D, and Vuforia plugin. For creating the models off from 2D images and fractionating them into their constituents we used Smoothie 3D and Blender 3D.

PS-I experience: Through the course of 6 weeks, PS-I provided me an opportunity to learn about the immersive technology of Augmented Reality and how we can use it and implement it to satisfy customer's needs.We went from learning Unity 3D basics in the first week to creating a fully functional AR app which provided numerous functions like color change, rotation, movement, cross section and explode at the end of 6 weeks. All this was made possible because of the guidance and help of the PS Instructor and the company mentors. PS-I provided me with a great learning opportunity and also to familiarize with the working of a company and how to work professionally.

Learning Outcome : By working in the domain of Augmented Reality I got a flavor of the immersive cutting edge technology and how they can be utilized to serve the needs and demands in our daily life. Also throughout the course of the project I came across how to use Unity 3D, Blender 3D, and Smoothie 3D efficiently. Not only for AR apps, Unity 3D and Blender can also be used for game development and for VR purposes as well.

Name: MUNAGA SAI VENKATESH PRASAD . (2018A7PS0717G)

Student Write-up

Short Summary of work done : We have developed an AR application using Unity, with 6 inbuilt 3D models. The app contains a menu to select which model to be placed in the scene. Each model has an analyse scene and has the option to change colour, move, rotate, explode into components, join them back and view cross section. The

models were made from 2d images using smoothie 3D and were modified and broken into components using blender

PS-I experience: It was a very good experience. The company was always helpful and reviewed our work regularly.

Learning Outcome : Learnt team management, how works happen in a company.

Name: RITIKA REDDY MUDUGANTI . (2018A7PS1224H)

Student Write-up

Short Summary of work done : Creating an AR application that would allow users to do insert 3D models made from 2D images into real environment and analyse them using three main functions. Explode,cross-section and rotate.

PS-I experience: Great learning experience. Got to know how corporate world works and got to learn alot from the mentors and professors incharge. Learnt how to use new softwares and got to experiment in the field.

Learning Outcome : App development and use of UNity and Vuforia to create AR solutions.

Name: ASHWANI RAMESH KOTTAPALLI . (2018B4A70646G)

Student Write-up

Short Summary of work done : It was an Augmented Reality Application development based PS. It was a small startup and we'll connected. We got to interact with the founder every week. We made a final AR Catalogue app similar to IKEA

PS-I experience: It was good and fun with good amount of work but interesting work

Learning Outcome : Learned
Unity,c#,smoothie3d,blender

PS-I station: Plastic Water Labs - Industrial Augmented reality, Bangalore

Student

Name: PURAV . (2018B4A30751H)

Student Write-up

Short Summary of work done : We built up a augmented reality application to help with remote assistance between a senior and junior developer in industry

PS-I experience: It was good, the learning I got from implementing the project have been huge so far.

Learning Outcome : We learn a lot about unity, and C# and how they all work together to achieve a good video conferencing and ar touch data exchange.

PS-I station: Plastic Water Labs - Skill force training using Virtual Reality, Bangalore

Student

Name: ABHINAV SINGHAL . (2018B2A40704P)

Student Write-up

Short Summary of work done : Our project title was Skill Force Training using Virtual Reality. We had to make a VR Simulation in which we could we could train Blue collared labour in tasks which otherwise would be hazardous or too expensive to do. We had to work on Unity game engine, learn C# scripting and create simulations.

PS-I experience: It was a pretty decent learning experience. I got to explore a new field which holds a lot of promise in the times to come.

Learning Outcome : I developed an interest in Unity and VR/AR development and will continue exploring it in the future.

Name: PARUL . (2018B4A40918P)

Student Write-up

Short Summary of work done : My job was to learn unity and then make a student and master mode in unity where master mode helps to learn and student mode is a platform to perform and get evaluation. I displayed the piling of boxes in master mode and student was required to pile them up in student mode. Also I displayed an error message if student fails to do so.

PS-I experience: My PS-1 experience gave me a good exposure to industry experts. I learnt game development application Unity. Although I was very new in this field still with the help of mentors and PS faculty I was able to complete the assigned project. It helped me gain many non technical skills as well the major one is how to collaborate and work in distance mode.

Learning Outcome : On technical note, a learnt Unity, Unity Hub, C # scripting, Unity Collaboration, Augmented Reality, Virtual Reality and many more.

On non technical note, I gained confidence, I learnt to effectively present my work, I learnt to lead and work in a team, I learnt how to professionally talk to industry experts and many more skills were gained in this experience.

PS-I station: Plastic Water Labs -Machine Learning for defect analysis, Bangalore

Student

Name: SATYAM SINGH . (2018A7PS0178P)

Student Write-up

Short Summary of work done : We developed a realtime defect, size and colour detector on Tupperware using computer vision (openCV) and Deep Learning concepts. Coding was done majorly in python

PS-I experience: It was a good and very extensive learning experience for me.

Learning Outcome : Computer Vision, Deep Learning, Neural Network, Python, Tensorflow

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Name: AKSHAT GOYAL . (2018B3A70864H)

Student Write-up

Short Summary of work done : The purpose of this project was to create a machine learning model which could
successfully detect the defects/features, volume and colour of a bottle belonging to a particular brand (e.g., Tupperware), using a camera, and notify the company in

case of any sub-standard quality. A quality check like this will help in minimizing the loss due to damaged goods and also save capital spent on costly alternative technologies like infrared. Various computer vision techniques accomplished the objectives of the project. An image classification ML model identified the colour of the bottle whereas an object detection model detected the features (or components) of the bottle. Contour detection (image processing) and a reference object (with known dimensions) helped determine the size/volume. The contour detection feature also helped detect the scratches and dents present on the bottle, but due to its random nature and a lack of data, the outcomes weren't satisfactory. The project has been thoroughly tested with various images and has produced accurate results

PS-I experience: It was a good experience overall. We got the exposure we were aiming at. The remote PS was difficult, due to lack of communication. But at the end they were able to provide us with our requirements. The evaluation components also happened on time.

Learning Outcome : Various technical skills and getting to work on a real company problem. We were working in a group of 5 people, hence some soft skills include teamwork, management.

Name: CHARKHA KEDAR SAGAR . (2018B3A70912H)

Student Write-up

Short Summary of work done : We created a ML based project for defect analysis of the Tupperware Bottles. The defects included scratches, missing parts on the bottle, size of bottle and dents. The model also was able to tell the size and colour of the bottle and check whether the bottle is of Tupperware or not. The dataset was created on our own.

PS-I experience: The PS station was good. We had meeting scheduled every week. The mentors were supporting and gave the flexibility to work on our own and according to our timings. Overall experience was good.

Learning Outcome : It was my first industry experience and it was good and overwhelming learning experience. I came to know about many technical aspects related to our project. Not only technical aspects but also I learnt about teamwork.

Name: SHRISH SHANKAR . (2018B5A70707H)

Student Write-up

Short Summary of work done : Plastic Water Labs is a startup that aims to solve problems using VR, AR and MR. The problem statement of the Machine Learning team (that I was part of) was to use cameras to detect defects in products on the assembly line. The product of choice for this internship was Tupperware bottles. Our objective was to detect the bottle, its color, size/volume, components (cap, logo, etc.), and defects. We used image classification to detect the colour, object detection to detect the bottle and its components and image processing to calculate the size and find scratches and dents (but due to the random nature of the latter and lack of data provided, it could not be completed with a good enough accuracy).

PS-I experience: The PS-I experience was good. The start was slow partially due to the extraordinary conditions posed by the pandemic. In the first half of the internship the PS station advised us to learn about VR, AR, MR and Unity, even though this was a new learning experience, it didn't help us in our project. In the second half we finally got to working on our actual project. We worked tirelessly to complete our project with the time constraint.

Learning Outcome : Most of the team members had come with basic knowledge in the area of ML and got a chance to learn and explore AR,VR,MR and Unity. Since our project was related to computer vision, we got a basic understanding of image processing, image classification(CNN) and object detection (YOLOv3).

PS-I station: Proxima Corporate Services Private Limited - Manufacturing Management, Bangalore

Student

Name: BAANI AJMANI . (2017ABPS1189P)

Student Write-up

Short Summary of work done : I worked on new product development with 2 other people. We were tasked to create a new product for the market, creating a new need. We had to do market research, design the product and come up with the manufacturing techniques to be used.

PS-I experience: It was rewarding and we got to learn a lot. Our company mentor was very helpful and gave us good advice on how to move forward with the product development.

Learning Outcome : I got to learn how to design a new product and also recognize the immediate flaws that it had or improvements that could be done and included as higher-end versions of the same product. We learned the different facets of developing a product and even the challenges faced.

PS-I station: Rajshree Cement Works - Civil, Malkhed

Student

Name: SHIVASHRI GUPTA . (2018A2PS0798H)

Student Write-up

Short Summary of work done : Rajshree cement works is a Cement factory and I worked under its civil department .My project topic was Analysis of structures along with two other students.The mentors were very helpful are guided us through various steps of analysis ,diagnosis and stability of structures. We had virtual meetings with the mentors once in a week in which they shared their knowledge and experience about structures through presentations and followed discussion . They also guided and helped us to make the final project report. We were also asked to to make project report for midsem and actively participate in seminars ,group discussions where we had to to present our presentations and keep our views in front of the PS faculty about what we

have learnt under the mentors. We also gave quizzes. We were able to relate and understand the practical applications of what we studied.

PS-I experience: it was an overall knowledge enhancing experience. The expert talks set by our department were really motivating ,exciting and knowledgeable.They were the best part of the virtual internship.

Learning Outcome : We learnt a lot about how a cement industry works ,what are the various procedures involved in making of cement and the practical challenges faced by industries. We can now comment on the stability of a structure and suggest methods to make it safer and strengthen it.

PS-I station: Rajshree Cement Works - Electrical Power Systems, Malkhed

Student

Name: JAYAKIRAN REDDY J . (2018AAPS0348H)

Student Write-up

Short Summary of work done : I was alloted to the project- "Efficiency study of standard motors at various loads in a thermal power plant and energy savings using energy efficient motors". The project is in the domain of Electrical Power Systems. And it is majorly inclined to the efficiency of motors and how improve their efficiency and save energy. As motors are considered to be the heart of Motor Driven Systems and we use motors for almost everything thing like from simplest thing like a fan to blowers, compressors and conveyer belts in industries. Over the 50% of the electricity generated is consumed by industries, and out of that energy two-thirds is used by motors itself. So there is a greater need in improving the efficiency of motors by reducing their losses.

PS-I experience: It was really a nice experience working with Rajshree Cement Works, Malkhed. The industry mentor was very helpful. He provided me data and study material whenever required. He cleared all my doubts and helped me throughout the couse. The project that I was alloted to was really interesting. And everything was really nice. Even

though the course was online instead of offline because of covid19 pandemic, I had learnt a lot of things during the course. It was really a great experience.

Learning Outcome : I had learnt a lot of things throughout the course, not just academics, but I also learnt how to socialize with people, and to share and learn things in group discussions etc,. I have gained good writing skills by writing reports and presentation skills by giving seminars. Out of all this I have got a lot of work exposure.

PS-I station: Rawan Cement Works - Control systems, Raipur

Student

Name: KRISHNA JAIN . (2018A8PS0438P)

Student Write-up

Short Summary of work done : My project was related to the automation of the plant with the help of different types of controllers like PID, SCADA and PLCs. The first half was mostly spent on learning these controllers in depth. I learned a lot about them in this period. As this time, it was from virtual mode it was not possible to automate the plant in particular. Instead I worked upon a software which controls the working of PID and we can set different value of the controllers to get varying output.

PS-I experience: My experience with PS-1 wasn't great. First, it was from the virtual mode so I didn't really get the industrial exposure I was hoping for. It was quite difficult to work on my project as it was related to automation of the plant and it was not possible to do it from here. Also my mentor was quite busy so he could not give us much detail about the plant and our project, although he tried his best. Still I tried to learn and work on it as much as I can and in the end I would say that yes at least i learned something new.

Learning Outcome : My learning outcome was basically about the PID controllers. It was a completely new topic for me. But I read and learned about it. I also watched videos related to its functioning in real projects. I learned about its working and how to tune it. I learned to set different values of the constants in the controller to get the desired result as per the requirement of the PID. I wished I could have been to the plant

physically, then I am sure I would have learned a lot more and would have a far better experience of PS-1 than what I had now.

Name: VEMULA REVANTH . (2018AAPS0404H)

Student Write-up

Short Summary of work done : We in a team helped industry to improve the performance of boiler using pid controller which is a part of our project we designed a pid controller and check it performance in the software.We learned about different types of control systems also.

PS-I experience: I personally had a wonderful experience in PS-1. Interacting with team members and mentors helped me to learn many new things I also came to know about working as a team.I also got a chance to implement class room knowledge in real life situations .With the expect lectures and webinars we learned a lot about different domains of the industry it will help us in future.

Learning Outcome : I had both techanical and personal learning outcomes. I came across new software and new terminology which were new to me.and most importantly I learned how work as a team. As in organization working as a team is more important which helped me to see the picture of outside world.As the PS-1 was virtually conducted we face many challenges like to connect to mentor and connect to industry we learned how to overcome these challenges.

PS-I station: Rawan Cement Works - Data analytics, Raipur

Student

Name: DEEPAL CHOUDHARY . (2018A2PS0078P)

Student Write-up

Short Summary of work done : Built a regression model for the company, which predicts the output in a certain month, given the budget for the month, under a data analytics project.

PS-I experience: I got to learn a lot of new things, and the mentors were supportive

Learning Outcome : Data analytics plan, Python, Machine Learning through python, building regression models

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PS-I station: Rawan Cement Works - Electrical Power Systems, RAIPUR

Student

Name: ANSHUL CHANDRA . (2017A8PS1185P)

Student Write-up

Short Summary of work done : Cement production in India has improved from where it has started by adapting to new technologies and working towards the carbon footprint. By using new technologies, harmful gases can be reduced in
the cement industry. Out of many cement plants in India only a few has invested into new technologies to increase their production more efficient way at low cost.Cement production in India has improved from where it has started by adapting to new technologies yet several avenues are left open to make things more efficient . We have chosen to further study the compressor and vacuum cleaning machineand make the electric motor involved more efficent . Analyzed the power rating and provided severalsolution to increase efficiency . This solution ranges from better maintainance to adding new
components for better monitoring and protection

PS-I experience: Technical mentor and professor very helpful.
Video lectures helped in devlopment of knowledge.
Got deep understanding of working.

Learning Outcome : 1.We Learned about Motor Protection Techniques
2. PANEL RUST STUDY PROCEDURE - Study Procedure for Electrical Panel Corrosion
3. Study the GA chart and circuit diagram to identify major power consumers in cement makingprocess

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Name: Gutha Pothuraju Mohith Chowdary (2018A3PS0465G)

Student Write-up

Short Summary of work done : The idea behind our project is to understand the working of industry level Extra High Voltage and High Voltage systems and their transmission by getting raw data from the industry and analysing the data using Power System Analysis. This data will then be used at the end of the to help the industry identify its possible problems if any and suggest corrections if feasible.

PS-I experience: It was good experience to know how a cement organization works and it was great to learn simulink software.

Learning Outcome : Improved communications skills, attention to detail, soft skills

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Name: NISHIT DHAR DIWAN . (2018AAPS0397G)

Student Write-up

Short Summary of work done : Project work on power system analysis of Extra High Voltage and High Voltage systems. It included every domain of power system analysis like short circuit analysis, steady state analysis and load system analysis.

PS-I experience: The experience was overall very satisfying and nice. I learnt a lot of things from both my project and the additional lectures organised by the Practice School Division.

Learning Outcome : Complete understanding of power system analysis and its industrial applications. Partial understanding of how things work in the industry and what are its expectations from us as future employees.

PS-I station: Rawan Cement Works - Maintenance/QoS practices, Raipur

Student

Name: B JAI KRISHNA . (2018B5A20744H)

Student Write-up

Short Summary of work done : This project was aimed at making the cement production more efficient in terms of the raw materials being consumed and also keep the environmental impact of the emissions from the plant minimal. The use of alternative fuels meets both these criterias and hence the majority of the focus was on selecting the most ideal alternative fuel that can be used along with existing fuel like coal and petroleum coke.

PS-I experience: It was really informative.

Learning Outcome : Learnt about the industrial structure in a corporate world.

PS-I station: Sirius Motor Sports - Engine Efficiency & Emission Control, Chennai

Student

Name: M. Rahul Krishnan (2018A4PS0044G)

Student Write-up

Short Summary of work done : We learnt the fundamentals of an IC engine, the emissions from an ICE, and various methods used to reduce emissions and increase torque output of the engine. We got access to Ricardo wave software to model and simulate engine working. We also learnt a lot about control systems.

PS-I experience: It was extremely productive and not tedious at all. The industry experts and the ps instructors gave us a lot of time to do everything so we had ample time to slowly understand and do things. The exposure we got to industry projects was also very valuable.

Learning Outcome : We learnt how to implement a turbo charger in engines, model it in wave and then simulate the working to get torque characteristics, emission levels and other parameters. Also learnt about matlab and simulink.

Name: SAI SRINIVASAN K V . (2018A4PS0342H)

Student Write-up

Short Summary of work done : The work at the PS station involved understanding the fundamentals of IC engines and performance enhancing devices such as turbochargers and superchargers.
The project was to study the impact of forced induction on emissions and to design an optimal turbocharging system through simulations on Ricardo Wave and developing a control strategy on MATLAB-Simulink. The final results were analyzed to reach an optimal design parameter and to understand the effect of input parameters such engine

RPM, spark advance and AFR(Air Fuel Ratio) on engine performance and emission levels of NOx, CO and hydrocarbons.
We were also given a brief introduction to ReynICE, a virtual engine tuning setup wherein we learnt the basics of tuning and calibration as well.

PS-I experience: The learning obtained from PS was very helpful and allowed a correlation between the theoretical knowledge learnt in class and its application in solving real world problems.The exposure to simulation software like Ricardo Wave and MATLAB-Simulink enhanced our practical knowledge and gave a deep insight into the functioning of the industry as well.
The industry mentors gave constant inputs to improve the model and help develop a better understanding.

Learning Outcome : The learning outcome from the project was the understanding of forced induction systems and how to optimally design a turbocharging system to reduce emissions and enhance the performance of the engine.
Another learning obtained was the basics of control systems and strategies and how they are applied in MATLAB-Simulink to improve automotive systems

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Name: GAIKWAD SHANTANU KETAN . (2018A4PS0345H)

Student Write-up

Short Summary of work done : I worked on a project titled, 'Downsizing a SI engine and optimising the Forced-induction system & Calibration parameters to achieve the best emission and performance results'. The performance and emissions data from a Turbocharged (Forced Induction system) Downsized 3 cylinders SI engine was compared with that from a 4 cylinder SI Naturally aspirated engine to determine whether downsizing of engines is the path to the future, considering the strict emission norms in place.

PS-I experience: PS 1 for me was an excellent learning experience. I had the opportunity to interact with a lot of individuals from various parts of the Automobile industry. I was introduced to new concepts, new ideas and soft wares. As a student who wishes to pursue his carrier in the Automotive field, the PS lasting 6 weeks, gave me good exposure to the industry and its way of working. It also helped me further hone my interpersonal and leadership skills. As this time around, we had WFH-PS(Work from home- PS), we engaged in a lot of online seminars, lectures and lab sessions with our

PS mentors. I and my team interacted with both, our faculty adviser as well as our Industry mentor on a regular basis to seek their advice to better the work and improve. PS definitely opened several doors for me, for which I am grateful to BITS- Pilani.

Learning Outcome : I was introduced to 1-D gas simulation software called Ricardo Wave, which is used to simulate the processes happening inside the engine. We had several lectures and seminars on engine characteristics, engine tuning, model-based development on MATLAB Simulink to name a few. I used MATLAB to plot various graphs of the result of simulations obtained from Ricardo Wave, which was used to validate the aim of the project. We also had a few lectures by guests from the industry who provided us further insight into the direction in which the automobile sector is headed, the new emerging technologies & the future of the electric vehicle. We also had many other interactive activities like group seminars and group discussions which helped me and my colleagues to share ideas and get better at public speaking. Besides Ricardo wave & MATLAB, we were also introduced to a virtual dynamometer for testing and tuning engines.

Name: PRITHVI RAMESH . (2018A4PS0502G)

Student Write-up

Short Summary of work done : Project - engine downsizing and optimising forced induction for best emission performance
I performed engine simulation on Ricardo Wave.
Imported data into simulink to build models for engine control parameters .
Compared engine and emission performance for naturally aspirated and turbocharged engines .

PS-I experience: I got to learn and use softwares for simulation which were used in the industry and was taught by leading industry experts . The tasks I performed really improved my fundamental understanding of IC engines and automobiles .

Learning Outcome : Immense in terms of soft skills and understanding of automobiles . The learning was not confined to ic engines and emphasis was laid on understanding the various car systems and their functions

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Name: NIRMAL J . (2018A4PS0511P)

Student Write-up

Short Summary of work done : What we done there was simulating the data given by the teaching staff in Ricardo Wave software to understand the impact of forced induction on emissions. It also helped us to understand the internal parts and working of an IC engine more deeply. Various talks were conducted helping us to understand the current scenario in automotive sector. Also seminars and group discussions were conducted.

PS-I experience: PS I was really helpful in increasing my communication skills. It helped me a lot in reducing my fear while participating in discussion and all. Moreover it increased my knowledge about the IC engine topic and its working. Got to know about many new interesting software. And working with the faculty was areal good experience. Any time they were available for helping us.

Learning Outcome : Got to learn more about IC engine and its calibration. Got to learn about the basics of Ricardo Wave, MATLAB/Simulink software. It was really helpful. Moreover understood the current scenario in automotive sector. And what should I do in my future to improve my knowledge. Close working with the teachers and industry experts increased passion to become a mechanical engineer and to work in this field.

Name: NAMAN RATHI . (2018A4PS0933H)

Student Write-up

Short Summary of work done : We had worked with softwares like Matlab Simulink and Ricardo Wave.These softwares were used to carry out engine simulations and after the simulations were done , we collected the data and analyzed it to complete main aim of the project.

PS-I experience: It was a great experience. Especially getting in touch with the people directly involved in the industry. Industry Mentors were very helpful and took us through the basics of everything. Also we had few webinars by the industry experts those webinars were also very informative and gave us an idea about the current industry and the the future of industry.

Learning Outcome : Overall it was a good learning experience. We learned new softwares like MATLAB Simulink and Ricardo Wave.Learned a lot about the automobile industry as well.

PS-I station: Sirius Motor Sports - Engine Efficiency & Emission Control - 2, Chennai

Student

Name: VEDANT BORDIA . (2018A4PS0088G)

Student Write-up

Short Summary of work done : The PS-1 started with training of students through online lectures. We worked on checking the effects of calibration of engine parameters on emissions of IC engines. The calibration is done to get the lowered emissions of the harmful gases by using the simulation and modelling tools such as Ricardo Wave and MATLAB Simulink.

PS-I experience: It was great. I learned a lot and also gained a lot of experience. There were some difficulties during the journey because of shifting the platform to online but finally the experience was worth it.

Learning Outcome : I learned the concepts of IC engines in-depth. Also we learned some new softwares such as Matlab Simulink and Ricardo Wave and calibrated engine parameters on these softwares. Also we got to see some machines and devices to check the emissions through online platform.

Name: VISHNU SURESH . (2018A4PS0550P)

Student Write-up

Short Summary of work done : I did a project on the effect of engine design parameters on emissions.

PS-I experience: The ps1 experience was great. Got to learn new softwares and develop a different approach to problem solving. Most importantly, understood the current requirements of the industry.

Learning Outcome : Learned to work with softwares such as Riccardo wave, MATLAB/ simulink etc. Learned how engine tuning and calibration is done.

Name: R HARIKRISHNA . (2018A4PS0560P)

Student Write-up

Short Summary of work done : The project alloted to me was based on calibration of engines and how it affects emissions. So I was taught in detail about the working of the engine and how different parameters affect its performance. And with the help of various softwares and mentors i was able to complete my project and deduce a relationship between the working parameters of the engine and emissions.

PS-I experience: PS 1 was a wonderful experience. The industrial mentors were very helpful and well versed in their area of expertise. The faculty were also very supportive and were always open to doubts and discussions. My teammates were also very cooperative and friendly and overall we had a good time working on the project.

Learning Outcome : The learning outcome of my project was that I was able to understand how various tunable parameters affect the working and performance of the engine and how these affect the emissions from the engine.

Name: MANTRI AADESH NANDKISHOR (2018ABPS0473P)

Student Write-up

Short Summary of work done : Project was based on studying the effect of forced induction on air flow in a SI engine. Basically study the turbocharged engine. We modeled 4 cylinder turbocharged engine in Ricardo WAVE, and run close to 421 test cases with varying rpm, throttle%, AFR etc. Accordingly, obtained results like BSFC, BHP, Emissions, torque etc. USed Simulink, to understand and formulate inference of the data values obtained.

PS-I experience: We all were looking forward to the PS-I program, as this year, it was conducted fully online. Our industry mentor, who also happened to be the CEO of the company, Mr. Sajeeth Kumar, is a highly intelligent and well informed man. All his lectures were amazing, engaging, and open ended. Doubts used to be cleared timely. The PS faculty helped us get accustomed to the online softwares, group discussions, guest lectures, quizzes all were conducted to help maintain regularity, and learning.

Learning Outcome : Learned the use of softwares like MATLAB, Ricardo WAVE, ReynICE. Had great, informative discussions with industry mentor. THe guest lectures gave a clear picture of the automotive industry, its future and scope.

Name: DHANANJAY JOSHI . (2018B5A40895P)

Student Write-up

Short Summary of work done : My project was to study the effects of design parameters on engine emissions.

PS-I experience: Initially, we were taught the basics of an IC engine and calibration. We were also introduced to various software, like MATLAB, SIMULINK, Ricardo WAVE, etc. We learned to make an engine model in Ricardo WAVE. We also learned about the dynamo-meter and emission testing performed in the industry.
We were asked to make models of 4 engines, which included single cylinder SI and CI engines, multi cylinder SI engine and turbocharged CI engine. Certain test cases were provided to us that we had to run on a 4 cylinder SI engine model, using Ricardo WAVE. The output data was recorded and submitted. A SIMULINK file with blocks corresponding to this data was created and we used it to plot CO, HC, NOx emissions, Brake Power, Brake Torque and Break Specific Fuel Consumption against various design and operating parameters. These plots were used to study the relationship between the design parameters and emissions and engine performance.

Learning Outcome : I got an in depth knowledge about the working of an IC engine and understood how calibrations are done. I learned to build an engine model in Ricardo WAVE and using it to run simulations on various test cases. I also got a better understanding of the effects of design parameters on emissions and performance.

Name: RAJ S PANDEY . (2018B5A41098H)

Student Write-up

Short Summary of work done : Sirius motorsports is a training center focusing in engine calibration. I was assigned a project to design a control strategy for an efficient hybrid engine. It included knowledge of emissions and its characteristics, knowledge of softwares such as Matlab and Ricardo wave and basic understanding of working of an electric vehicle.

PS-I experience: Sirius motorsports is a great training center. My feedback is really positive. The faculty incharge were very helping and understanding. I got to learn using important softwares such as matlab and Ricardo wave. I also got to learn soft skills such as active communication and teamwork. It was a great learning experience.

Learning Outcome : Usage of important softwares. Knowledge about engine calibration. Trends in recent automotive industry. Soft skills such as professional way of presentation and team work. The industrial exposure could have been a lot better in

case of offline PS but all in all a great learning experience. I would definitely recommend Sirius motorsports to my juniors.

PS-I station: Sirius Motor Sports - Engine Efficiency & Emission Control - 3, Chennai

Student

Name: DEVEN PAUL (2018A4PS0047G)

Student Write-up

Short Summary of work done : My main task was to study the emissions of HC , CO and NOX of a diesel engine and plot Island plots for the emissions varying with the varying input parameters like Throttle , Engine speed , AFR, Wastegate, CRPM , Injected mass etc. Finally to get plots of emissions and find optimal points.

PS-I experience: Good, short , simple and informative.

Learning Outcome : Software like Ricardo Wave , MATLAB SIMULINK, ReynIce and Engine Calibration.

Name: ABHINAV KUMAR PAWAN . (2018A4PS0501G)

Student Write-up

Short Summary of work done : Basically worked on simulating the provided test cases on 2 softwares(Ricardo Wave and Matlab) in the span of 6 weeks for my project.

PS-I experience: Some seminars of professionals from big industries like FORD was interesting , apart from that the online mode of PS ruined every other experience , you could gain from the automotive industry, even the lab session in the online mode turned out to be pretty dull.

Learning Outcome : A better knowledge about the automotive industry , how it functions and various other aspects like how it was continuously evolving toward better performance but now it is evolving towards better emissions , gained a better knowledge of IC engines than the course provided by the BITS and working on 3 softwares , which is reynICE, Ricardo Wave Build and Simulink(MATLAB)

Name: Mullapudi Abhirama Karthikeya (2018A4PS0520G)

Student Write-up

Short Summary of work done : Project Outcomes-The primary outcome of this project was to learn how cam parameters affect the Volumetric Efficiency of an Engine. How these parameters finally affect other engine parameters like efficiency, torque generation, power generation, and emissions is established in this project.•This wasaccomplishedbymodelling the engine on Ricardo Wave and running the simulation tests on MATLAB Simulink. The results of these tests are obtained as graphs correlating different parameters to the Engine Performance.

PS-I experience: We were given few lectures on the use of software and later few engine models were assigned for practice purpose.
Our objective for the first simulation part of our project was to generate baseline values for our engine in Ricardo Wave. We were provided with a full-fledged 1-D model of an SI engine with variable valve timing.
To perform the simulation we were assigned 1000 test cases for different operating conditions of an engine, upon which we had to compute engine performance, emissions and Air & Mass flow etc.

Learning Outcome :
● We got to have hands-on experience in using industry simulation tools to perform testing on different Engine parameters and infer results from the data.
● Using these simulation softwares we generated a comprehensive sets of data to work on and use this data to deduce the optimal parameters of cam to achieve better volumetric efficiency and also restrict the emissions from the engine.

● We got to perform Transient Analysis of an Engine, in addition to the usual Steady State Analysis and also develop Control Systems for the working of an engine.

Name: ABHINAV KRISHNA . (2018A4PS0560G)

Student Write-up

Short Summary of work done : Duration of this PS-1 was 6 weeks.
During the first 2 weeks we were taught the physics behind I.C. engines focusing on performance and emissions but not limited to that. 2 hours every day for 4-5 days of the week. .
Then we moved onto having lab sessions for Ricardo Wave and Matlab(Simulink).
Learning these depends on the person more than the tutor as there is not much to understand , it just needs getting used to.
Certain sessions were done towards the end of the 5th week to show actual procedure in the industry which required applications of the topics taught.

PS-I experience: The lecturers were very knowledgeable and were good at explaining the concepts .They taught at perfect pace. Regular sessions were conducted with industry professionals to help us understand the work environment and fill up the lack of actual industry exposure.

Learning Outcome : Learnt new concepts regarding to emissions and perfomance of IC engines. Got hands on learning opportunity on software such as ricardo and matlab.
Got to understand the working environment of the Automobile calibration and tuning industry.

Name: HARSH . (2018A4PS0901G)

Student Write-up

Short Summary of work done : I, along with a few of my batch mates were alloted a project to work upon, that basically dealt with the maximization of the volumetric efficiency of an internal combustion engine. Throughout the PS I got to work with industry professionals in the automotive sector and got to know about the workings and the scope in the industry. We got to work on various softwares that allowed us to run simulations on a virtual engine and help us getting the test results as we desired.

PS-I experience: The PS-I took place remotely, but that did not hamper the learning experience, there was little to none communication gap between the students and the mentor and remote access to softwares made it easier for us to work. It was a great experience overall.

Learning Outcome : I got to learn a lot about the current and upcoming trends in the automotive industry through webinars. I got handy with various softwares and learnt their use in the industry. Under the guidance of industry mentors, I developed a lot of skills that would surely help me in the future.

Name: KARTHIK SUDHIR KAIMAL . (2018A4PS1008H)

Student Write-up

Short Summary of work done : Our project was " Optimization of engine design to achieve best emission result", this station gives you training material on ricardo wave , simulink MATLAB.

PS-I experience: it was good

Learning Outcome : learning engine designing process.

Name: PRANAV KRISHNAN IYER . (2018A4PS1113P)

Student Write-up

Short Summary of work done : The aim of my project was to build an SI engine and achieve a 90% volumetric efficiency. The fact that no physical work could be done due to the pandemic required of us to learn to utilize simulation software like Matlab and Ricardo Wave, a 1D engine simulation mechanism. During the first few weeks of the PS, we were given an insight into IC Engines, their components, and the main factors affecting it's performance. Webinars were held by industry experts detailing the trends in the automobile industry. Post this, we were provided with the required resources, and many test cases,in order to perform the simulations.

PS-I experience: As I've had no prior experience with the software detailed above, the PS provided useful learning experience. Given that I am pursuing a degree in Mechanical Engineering, it was easier for me to follow the directives.

Learning Outcome : Gained some proficiency with Matlab and Ricardo Wave. Learnt about the various factors affecting volumetric efficiency. Improved my communication and team-work skills through working on the project. Improved my problem-solving skills through getting past any hiccups.

Name: ANNAVARAPU VIJAY MOHAN . (2018B2A40493G)

Student Write-up

Short Summary of work done : Learnt about engines, from the very basics of fuel ignition to emissions.Obtained the basic domain specific knowledge needed. Learnt the basics of engine Calibration.Used given data inputs to simulate accurate results on RicardoWave Software. Used the obtained data to work on statistical Models on Matlab-Simulink and plotted/recorded the results required to gather inferences from them.

PS-I experience: It was a good opportunity to learn from. Learnt a lot about engines which I had no knowledge about. Learnt 2 new softwares (Matlab and RicardoWave). Instructors were very knowledgeable and friendly. They were always helping the students by providing the resources required.

Learning Outcome : Learnt a lot of new things , obtained domain knowledge, got an idea about engine calibration and how to optimize performance. Learnt useful calibration softwares.

Name: RAHUL BAMAL . (2018B2A40621G)

Student Write-up

Short Summary of work done : I was to study the emissions for a CI engine and develop efficiency plots for HC, CO and NOx emissions. I worked on softwares like Ricardo Wave, MATLAB and Simulink for which we were provided with sufficient information through lab sessions held by the industry mentors. Using these softwares we ran simulations for different test cases, to determine the output parameters like brake power, torque, BMEP, emissions, etc. for different test cases with varying engine RPM, throttle, injected mass, CRPM, etc. First these simulations were run on Ricardo Wave from which data was extracted, then using this data another set of simulations were run on Simulink to generate plots for the emissions which were submitted in our final project report.

PS-I experience: It was a nice experience working with Sirius Motors, even with sometimes network problems they did their best to give us an idea about the automotive industry and how they operate. The industry mentors were highly knowledgeable and gave invaluable insights on the industry and automobiles operation. Overall, it was a great learning experience.

Learning Outcome : Was introduced to different software like Ricardo Wave, MATLAB, Simulink. Learnt the basics of an IC engine, its components and how it operates, as well as the emission norms in the country and their importance. Also learnt of the Automotive trends through the sessions held by industry experts.

Name: GANDHAM MIHIR JESHURUN . (2018B4A40972H)

Student Write-up

Short Summary of work done : Our project involved the study of the performance of a diesel engine initially to obtain data of various emissions like NOX, CO and HC corresponding to different values of RPM and Torque. We initially used Ricardo WAVE software to first get Base-Line values and then tabulated and re-used these values in Simulink to do a second and final simulation because simulating using Ricardo WAVE is very time consuming. The final step was be to prepare efficiency island plots using the tabulated data thereby finding the optimum points of the parameters considered. By doing so, we were able to understand how emissions vary with various calibration parameters and thereby calibrate the given engine to get the best performance while simultaneously following the emission norms.

PS-I experience: The project we have been working on has helped us gain significant knowledge in the field of automobiles and has provided a valuable experience beyond the classroom setting by academically being engaged in a project identified from the industry. Under the expert supervision of our BITS faculty and the valuable guidance of our industry mentor Mr. Sajeeth we have done tremendous progress in terms of learning project specific concepts and have been exposed to software like MATLAB, Simulink and Ricardo WAVE which have a wide range of scientific and engineering applications and would be quite essential for us in the near future.
The project allowed us to look at the practical application of our theoretical knowledge and the learning outcomes are unparalleled. Our overall experience of working on this project has been really great throughout.

Learning Outcome : The project allowed us to get a deeper understanding of how various design and operating parameters affect the performance and emission characteristics of a CI engine. These results have been summarized in our report. The following were the outcomes for the project we have been working on:
Prepared island efficiency plots by choosing the optimum engine operating points by varying calibration parameters.
Studied the effect of changing engine parameters on engine performance and engine emissions.
Worked on optimising engine operation from an emissions perspective and suggested control strategies.

Name: BHANU SHARMA . (2018B5A40589G)

Student Write-up

Short Summary of work done : Firstly we've divided into groups and each group were assigned projects. Our project was effect of cam parameters on Volumetric efficiency. So initially we study about our project, readed article about it and understood it. Then we have various software to perform test, so after understanding we did testing on softwares. At last we concluded from the result obtained and made graph from it.

PS-I experience: The experience was better than I expected. Firstly all the mentors and instructors were introduced themselves and we're very approachable. Then the group members were also very friendly. So the experience was good.

Learning Outcome : I got to learn how to do modelling on RICARDO WAVE. Now I am comfortable with using MATLAB and SIMULINK. After various group discussion and presentation I got to know more about my soft skills and I improved it also.

Name: GOVIND RAJ . (2018B2A40975G)

Student Write-up

Short Summary of work done : Optimising engine design and calibration parameters to obtain best emission results

PS-I experience: PS1 was kind of an eye opener for me,I got to understand the functioning of a firm, in short the exposure I got helped me understand the culture of the current automotive industry.

Learning Outcome : Learned a lot about automative sector , current trend, came across a few software's like Ricardo wave and matlab. Also learnt a lot about IC Engine

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PS-I station: Solar Energy Corporation of India, Delhi

Student

Name: BANDARU BINDU . (2018AAPS0400H)

Student Write-up

Short Summary of work done : Prepared a SCADA system for better monitoring and control operations of the huge scale solar power plants.The system was developed in 3 steps-first, a flowchart of how the system would work was worked out. Second, the hardware architecture was developed. Third, the input and output list was prepared.

PS-I experience: It was a one time opportunity to learn about the working of solar plants in the country. It was a smooth journey, and with the help of my industry mentor and PS faculty, I gained few technical and soft skills.

Learning Outcome : PS1 gave me an opportunity to learn about how the solar power plants are monitored and automated. Under the guidance of my industry mentor, I learned about various communication protocols, Indian laws and guidelines regarding the transmission of power across the country.

Name: MARYALA VINAY KUMAR . (2018B4A30964H)

Student Write-up

Short Summary of work done : i have been assigned to a project named : "hydrogen and renewable energy for a green economy: cross sectoral synergy". there i have researched towards all available electricity production techniques in various countries, how many countries are adopting changing policies that way towards renewable energy and sustainable too, the special emphasis given to hydrogen only among available options for resources (solar,wind,biomass, biogas,other sources), then the most importantly synergising the hydrogen energy with other energy sources while generating electricity and other aplications(industrial)

PS-I experience: I have gained knowledge of how electricity operates in india, like with understanding of electricity act 2003, recent amendments from central government in electricity sector, especially my mentor explained each and every concept specifically

and in detail. though i may not got real industry experience, but i got rich experience in knowledge of electricity from scratch.

Learning Outcome : somehow from my mentor, i understood how organisation works, i learnt some researching skills i hope that may help in my future, i improved my vocabulary through seminars, increased confidence through those seminars, group discussion, i really enjoyed those.

PS-I station: Sundaram Auto Components Ltd (SACL) - Secondary research, Hosur

Student

Name: NILADRI NILAMADHAB . (2018A4PS0229H)

Student Write-up

Short Summary of work done : Making suggestions on reduction of blue collared and white collared manpower cost as the percentage of overall turnover under guidance of HR team

PS-I experience: Overall, my PS-I experience was quite interesting and educational. We learnt management presentation,providing me with much needed idea of how manufacturing companies function.

Learning Outcome : I learned a great deal about communication skills and work culture and management methodologies in company.

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Name: G AALWAR SUNDARAM . (2018A4PS0650H)

Student Write-up

Short Summary of work done : I got project 1 b) segment analysis of non-auto. Basically my task was to identify the prospective non-auto sectors like railways,aerospace,defence and suggest suitable products for diversification in these sectors

PS-I experience: It was good

Learning Outcome : Gained technical knowledge on a few financial methodologies and improved my soft skills in group discussions and presentations.

Name: DHRUV SETIA . (2018B3A40772G)

Student Write-up

Short Summary of work done : It was about making marketing content for business development teams regarding after sales potential products for 2w and 4w

PS-I experience: It was good to work with the industry experts

Learning Outcome : Communication skills , project handling,

PS-I station: Texmaco Ltd., -steel casting, moulding and mould design, Kolkata

Student

Name: GUPTA AMAN NITIN . (2018A4PS0561P)

Student Write-up

Short Summary of work done : Virtual Tour of the industry and details and technicalities of various process in wagon making and parts used in it.

PS-I experience: Work from home did not give me much experience as my station was totally related to mechanical processes related to production of equipment. This requires an on site exposure to understand it completely.

Learning Outcome : Got to know about few technicalities of industrial process.

Name: A SHIVA SAI . (2018A4PS0811H)

Student Write-up

Short Summary of work done : I learnt in detail about the steel making process and steps involved in it.

PS-I experience: At first I thought it would be hard to manage the ps as it's completely online as the motive of actual ps is industrial experience.But later with the help of the faculty and the mentor I successfully completed the ps mostly I used internet to learn .There was nothing much to do in the project it was simple

Learning Outcome : Skills like speaking, presentation, report making and also learnt the difference between the class work and industrial work

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PS-I station: TVS Motors Ltd -R or Python, Chennai

Student

Name: RAJ DEEPAK PATEL . (2018A1PS0949G)

Student Write-up

Short Summary of work done : On our first day, we were given multiple fields from which we had to choose a project. The projects included building Reusable Deep Learning Components, ML components.
I chose to do the project which involved creating a Social Distancing Violation Alarm system. By the end of PS, we successfully built a system using Computer Vision and Deep Learning using TensorFlow and Keras. The system we made was able to detect people in CCTV footage and identify the distance between people. This system sent out an alert whenever there was a violation in Social Distancing norms, i.e. whenever distance b/w two people was less than 6 feet.
Along with the Social Distancing Violation Alarm System, we also built a Mask Detection tool to keep track of people wearing a mask.

PS-I experience: My PS-1 experience was very enriching. I worked on a real project

where we had to focus on the functionality, and not just a proof of concept. This made me aware of the work and problems faced when building something real and tangible.
Furthermore, our project was highly relevant to the situation present at the time.
Thus, we were able to relate to the project much better.

Learning Outcome : We learnt and understood the concepts of Convolutional Neural Networks like weights, biases, forward/backward propagation, cost function, etc. and how to build one from scratch. We learnt how to train a model, validate the results against a validation dataset.
We started from the very basics and learnt how to plan a project properly, how to break it down into smaller steps, not to get overwhelmed.
We also got a fair idea of functionings and structure of a large organization like TVS.
We learnt to work in a team, help and seek help from team members and work in collaboration.This improved my communication skills.
To sum it up, I would say that I learnt a lot from PS1 which would've been difficult to learn otherwise.

Name: SARVESH NAND KUMAR KHETAN . (2018A4PS0947H)

Student Write-up

Short Summary of work done : We developed an end to end data science project which can be used to predict the price of any plot in Chennai. We first scraped the data and then using several machine learning algorithms trained our model which was therefore capable of predicting required results.

PS-I experience: It was pretty good experience wherein we learned how projects are actually developed in industry and what are different data science project pipelines in the company.

Learning Outcome : I learned programming language like python. I also learnt different machine leaning algorithms used to solve regression problem.We also learned about time series forecasting.

Name: C PADMA SAI MEGHANA . (2018A4PS1047H)

Student Write-up

Short Summary of work done : Built a data management and governance strategy for the TVS conglomerate. This involved conducting information gathering sessions with the key stakeholders, functional, and technical personnel. Reviewing existing and applicable process documentations. Leveraging the Deloitte data Management methodology and framework to assess the current practices in TVSM. Developed current state data management summary, including observations and areas where processes and technologies need to be enhanced. Identified areas where recommended practices, tools, or technologies may be leveraged by TVSM, finally developing a business case and a governance model with the recommended practices.

PS-I experience: It began on a good note with each of the mentors for each project and the HR department on the first call. We didn't really see the other mentors and HR aftet the first day but were in close touch with our project mentors. They were very supportive and helpful. We were a group of 3 people who were alloted two mentors from TVS group, one from the Data Analytics team of TVS Credit and the other, the head of the Data Analytics department of TVSM. We had calls every other day initially and then everyday henceforth. They were very helpful in providing us with the right audit details (Deloitte), reviewing our work timely and making sure that we speak to the right stakeholders at the right time. We went from the fact where we didn't even know the organisation of any company to the point where we built it's data management and governance strategy and this was all because, they guided us in the right direction. Today if you'll ask me about setting up a data management strategy for any company or the DCAM framework to follow, i know exactly what to do, and i owe all this to both these people.

Learning Outcome : So, today if you ask me to build a data management strategy for your own company, i know the right framework to follow, the checkpoint, the key aspects across data architect, data quality, metadata management, data warehouses and lakes, data stewards, data completeness, its access and collection, the errors in transforming, so as to build a governing model for any conglomerate on a central basis with a hybrid federated model.

Name: PRATEEK GOYAL . (2018A7PS0181G)

Student Write-up

Short Summary of work done : we were given a ML/DL model and we have to build a component around it.and host it on website using API's.

PS-I experience: Good PS station and there was a great learning.

Learning Outcome : We learnt about python, ML algorithms and how to use API's to host our model on webpage.

Name: SHAH KUSHAL SNEHAL . (2018A7PS0254G)

Student Write-up

Short Summary of work done : Performed data cleaning and processing on data sets provided and ran used time series forecasting on data set to predict future demand of real estate

PS-I experience: It was a great experience and gave me a opportunity to understand how the one has to work a job

Learning Outcome : Basic ML and time series forecasting

Name: RATNARAJ . (2018A8PS0297P)

Student Write-up

Short Summary of work done : Using data analysis to increase collection efficiency to mitigate bad debts

PS-I experience: Was introduced to the world of data science and how one goes about applying data science ideas to real world applications

Learning Outcome : Learned python libraries for data science and ml models for classification. Also learned about the real estate industry

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Name: AMAN KUMAR . (2018A8PS0764P)

Student Write-up

Short Summary of work done : Work was based on deep learning and computer vision. We have to implement classification model for mask detection and we learned about social distancing detector system

PS-I experience: It was a good experience overall. My faculty mentor and project mentor were great and helped me in every possible way.

Learning Outcome : I explored a new field of deep learning and computer vision which is not taught in our curriculum. Learned to implement neural networks and use of different optimization techniques.

Name: MANAAL SANDEEP PARIKH . (2018B1A31038P)

Student Write-up

Short Summary of work done : The project expected us to create a model for environment sound classification using Convolutional Neural Network for the ESC-50

Dataset(50 classes of 5s audio clips and total of 2000 clips). TVS expected us to reach a validation or testing accuracy of over 90%. To achieve this first we categorized the sound clips and converted them into image form using Mel-Spectrogram. These images were used for training the Sequential model we built using Keras (From tensorflow library).

PS-I experience: It started on a positive note where we were introduced to our mentors and company officials. They made it sure to make us feel valued in the introductory session. We were then given tasks for each week and updates were taken on each Saturday. Meanwhile our mentor and BITS instructor were always there to guide us whenever we faced issues. It was a pleasant experience and took my mind of the Pandemic situation which was becoming a mental burden. I learnt a lot while working in a team. Fortunately we all shared high levels of enthusiasm to learn something new. We worked together, and helped each other whenever required. Overall with evaluation components like Group Discussion, Presentation, Report writing, I got a flavor of corporate culture.

Learning Outcome : The major learning was in the field of neural networks, how to build a model using convolution (CNN). Apart from that a lot of my soft skills like communication, adaptability, presentation skills improved. Overall BITS could help us get a certain level of industrial exposure despite pandemic times.

Name: SONALI AGRAWAL (2018B2A30934P)

Student Write-up

Short Summary of work done : The objective of the project was to understand the need of data management and governance within the TVS Group and complete the first component of the DCAM framework that is to build a data management strategy and business case for TVS Group companies, TVS Motors, TVS Credit and TVS Emerald. We had lot of meetings with the stakeholders of the three companies regarding the usage of the data and governance in these companies. And after talking to them we came up with a document having a data management strategy and business case for each of the three companies.

PS-I experience: It was overall a great experience for me. The mentors were really good and they scheduled meets on a daily basis to discuss the progress of the work. I got a lot of idea about how a company works, its various departments and units. We

also had meets with the business unit stakeholders who shared what data they use, how they store them and how the data analysis is done.

Learning Outcome : Learnt about the DCAM framework and its components. Also, learnt about the data management strategy and business case. Also, got to know what data they need, how it is stored, and how data analysis are done in these companies.

Name: NIKHIL JAIN . (2018B2A40710P)

Student Write-up

Short Summary of work done : We started with learning python (basic python, OOPs, data visualization libraries like matplotlib, seaborn etc.) and Machine Learning (Linear Regression, Logistic Regression, SVM, K-Means, Decision Tree, etc.) from scratch. We built our demo ML model which predicts the price of the house (Based on Linear Regression) given some features as input. Then, we learned about logging in python, configuration file in ML model and APIs. The demo model was replaced with the original model (the DL model recognize faces in a given image) around which we built the component. Component basically means creating a wrapper (implementing logging, building config file, creating util.py file) around the model to make the model standard and easy for use. The model is generally built in python but what if any developer using java want to implement the model in his/her software. That's where APIs come into play. APIs are used to host the model on a website/application. We built the component around the model and used APIs to host the model on a website.

PS-I experience: I had a good experience working at my PS station. I got the opportunity to learn a lot about how organisation works, gained a lot of knowledge through the guidance of such highly qualified mentors and the project provided me to explore a completely new domain based on Machine Learning and Deep Learning which I
could not have done otherwise.

Learning Outcome : The learning experience was great.
1) Conversing with our PS Instructor, industry mentors and team members lead to development of communication skills in a formal setting.
2) Coordinating between team members to discuss the tasks and assignments has led to the inculcation of team spirit and has taught us the power of teamwork and discussion.

3) Learnt how to build a component around a ML/DL model.
4) How APIs are used to host the model on a website.

Name: KANWARAJ SINGH (2018B3A80944P)

Student Write-up

Short Summary of work done : We were given a project to make a Convolutional Neural Network (CNN) Model to classify common Environmental Sounds. For this, we were supposed to use ESC-50 Dataset and our target accuracy level was 90% which we were able to achieve.

PS-I experience: Initially, we were asked to learn about Neural Networks and how to program them. In order to make our final model we started with making simple CNN models which could classify between two classes, then we made a CNN model which worked with the ESC-10 dataset, a subset of the ESC-50 dataset. Also meanwhile we learned about various techniques to fine-tune a model and increase the accuracy. With all these experiences and knowledge which we gained in this period, we finally made our CNN for sound classification and also achieved the 90% accuracy mark.

Learning Outcome : This PS was a great learning experience for me, apart from learning how work is actually done in a corporate enviroment and gaining soft skills I was also able to upskill myself. In this PS I made my first Data-Science Project and learned a lot about Neural Network and their implementation in a very breif period of time. Also working in a team while being at home was totally different experience and it helped me build skills to effectively correspond with team members and mentors over internet.

Name: DEVANSHH AGARWAL (2018B4A30889P)

Student Write-up

Short Summary of work done : We had to create an API around a deep learning or machine learning model. We used concepts like OOP with Python, Configuration and logging, and Flask module of python.

PS-I experience: It was good. I got to learn several concepts that I didn't even knew were there. I got to interact with mentors who had a lot of experience in the field and got to learn a lot from them.

Learning Outcome : Gained technical skills like programming with python, OOP with python, etc and got to create a basic API.

PS-I station: Ultratech Cement Ltd., Kotputli

Student

Name: APURVA CHAUHAN . (2018A1PS0061P)

Student Write-up

Short Summary of work done : Firstly, understood the process of cement manufacturing, the different types of equipment and their roles, the different materials used etc. My project was 'Alternative fuels and their impact on cement industry', so I learnt about the traditional fuels used in the industry, then researched about alternatives. I also asked my mentors about the procurement and management of these fuels, how each equipment is adapted to these new fuels.

PS-I experience: The experience was good, virtual mode learning was decent and the project was interesting. The faculty and mentors were very helpful and supportive, enough time was given to complete the research.

Learning Outcome : I calculated the savings for the plant if they would adopt to alternative fuels and learnt that fuel sources can be unconventional. I also learnt that using such fuels is not a simple task - lots of calculations and management goes behind it.

Name: AISHWARYA PRATAP SINGH . (2018A1PS0085G)

Student Write-up

Short Summary of work done : Research the CFBC Boiler LOI% ouput and what output is the most efficient. Also learning about the different industries ,their working and strategies they follow.

PS-I experience: Full of Knowledge and experience

Learning Outcome : I know about cemnet manufacturing,Kotpulti plant industry planning working maintenance etc.

Name: RISHABH SINGH . (2018A8PS0085P)

Student Write-up

Short Summary of work done : My project is to make out the best possible output from existing bag filters through it's maximum optimization and use it as effectively as we can do. The consumption of electricity can also be modified with the help of a motor. These are mainly used to achieve economic efficiency and eco-friendliness. Here I have to recommend some good, adoptable, economical and sustainable suggestions for my PS station. These suggestions are loaded into our device so that maximum power output can be achieved at any instance according to the surrounding environmental conditions and the bag filter's specifications.

PS-I experience: Through my PS-I I learned a lot from my station. My learning involves corporate hierarchy, industrial experience and the project given was a nice technical gesture to my resume. My mentor was so supportive and helped me at every single steps I look.

Learning Outcome : Learning outcomes are :
1) Supply chain is learned by me.
2) Soft skills improved a lot through various seminars and GD.
3) Technical termed of project are cleared.

Name: PRANAV MISHRA . (2018A8PS0469G)

Student Write-up

Short Summary of work done : I studied about PID controllers and the various methods they can be tuned and be used in industries

PS-I experience: It was a great experience, even though it was work from home, a lot of effort was made by the faculty and the PS mentor to adapt to the situation and make the learning as seamless as possible.

Learning Outcome : I got to learn a lot of new things which I didn't even think I would get to learn in a classroom environment and I got some experience of how things work on a large scale in big industries. It was a great learning opportunity.

PS-I station: Vikram Cement Works - Environment Management, Neemuch

Student

Name: SHUBHAM DAGA . (2018B4A10691G)

Student Write-up

Short Summary of work done : The title of my project is "study and optimization of water supply in mines plant and colonies".
First week I studied the whole cement manufacturing process by uploaded pdfs and the reference book. Second week i devoted to study the different types of bridges and what kind of material is used in these bridges and why.
Remaining weeks were used to study about concrete cement. Apart from first two weeks, project was mostly research oriented. In each week 2 webinars were organised. Concepts of civil engineering were used in my project.

PS-I experience: It was a pleasant experience.The PS faculty was helpful and always available to solve problems.He was always available to provide feedback to my work despite his busy schedule and ongoing pandemic.
Everyone was disciplined and passionate towards their work which inspired me to do the same.

Learning Outcome : My project was mostly research oriented. Learnt about cement manufacturing process i.e. from crushing to packaging. Understanding of concrete cement and it's different types and how concrete cement is used in construction. Technical skills, soft skills like presentations ,Groups discussions and report writing were enhanced through regular evaluations.

PS-I station: Vikram Cement Works - IT, Neemuch

Student

Name: ARIMANDA DHEERAJ REDDY . (2018A7PS0269H)

Student Write-up

Short Summary of work done : Developing a website for money transactions for various facilities available in the station.

PS-I experience: PS-1 helped me to learn and explore new things and do some productive work.

Learning Outcome : Exploring and learning web development

Name: RUTVI . (2018A7PS0350P)

Student Write-up

Short Summary of work done : Development of a Web App which tracks the expenditure of the employees of the company. It deducts the amount from the salary of the employee on a monthly basis and reflects to the user i.e. employee in this case.

PS-I experience: It was full of new experience and learning of new set skills like Database management and development of the framework for a website.

Learning Outcome : The PS gave me new skill set in terms of soft and technical. The presentation and communication got better and got to learn few new ways to develop a Web App.

Name: KETAN BANSAL . (2018B2A80512P)

Student Write-up

Short Summary of work done : We had to develop a web portal to account for the various on campus facilities used by the employees of the company and deduct the total amount for using these facilities from employee's salary on a monthly basis.

PS-I experience: That was a nice learning experience but we faced some communication issues with our mentor due to his prior engagements.

Learning Outcome : I got to learn to develop the Back-End side of website.

PS-I station: Vikram Cement Works -Industrial Control and Automation, Neemuch

Student

Name: BULLE ABHISHEK MANOJ (2018A3PS0663H)

Student Write-up

Short Summary of work done : Project Title:- Parameterization of PID control loops-student having fair understanding on subjects like process control.
Basically working on a PID controller(especially High Level Controllers) which is located on the top of the klin to control the temperature of a klin.
And also the how is Automation useful these days in Industries.

PS-I experience: Good and fair understanding of industrial process.

Learning Outcome : Gained Some knowledge on PID controllers to regulate Temperature,pressure,torque,heat etc variables in industrial point of view.

PS-I station: Viram Technologies - Civil design, Pune

Student

Name: RISHABH DEV . (2018A2PS0086P)

Student Write-up

Short Summary of work done : The given project involves designing a steel structure to support an Air Handling Unit, keeping in mind all the standards provided by the Bureau of Indian Standards.
The project involves vertical load testing, wind load testing, earthquake load testing and choosing appropriate member sections to build a stable structure in the most economical way possible.
Designing the structure on softwares like Staad Pro or ANSYS is also a key component of the project.
The project also involves preparing a professional report highlighting the progress made throughout the course of PS 1.

PS-I experience: The project serves as a medium to gain first hand industry experience and get to know the working of a professional work arena and get used to the regular workload given and finish it within the specified deadlines.

Learning Outcome : This was a good opportunity to gain soft skills in terms of giving presentations and attending group discussions. The PS 1 could have been better if online, since practical work experience is more beneficial than virtual sessions; regardless it was a good experience to work with a professional company and get used to the environment working with the same.

Name: MUKUND MADHUSUDAN JHA . (2018A2PS0739P)

Student Write-up

Short Summary of work done : A steel structure was to be designed which could support an auxiliary AHU based on the latest industrial standards and standard codes. The steel design was specified to be frame-like. IS 800 was to be followed for the framework. The whole structure was to incorporated into a STAAD Pro model and respective members were to analyzed on ANSYS. Connection Design and Horizontal Load Analysis were also needed.

PS-I experience: It was great, better than expected. Many new things were to be learnt with deadlines looming. The professor alloted was wonderful, flexible and supportive. The company representative was outreaching and comfortable to talk with.

Learning Outcome : Well I learned a lot of things. Only time knows them.

Name: BODUGU VAMSI KRISHNA . (2018A2PS0842H)

Student Write-up

Short Summary of work done : Designing a Conical roof for a Storage tank with provided dimensions. This includes providing all the calculations with a 3d rendered physical model of the roof in STAAD PRO software.

PS-I experience: It was an amazing experience since we had an opportunity to design a real life object. We don't usually spend time understanding physics related to stationary common objects like Tanks. It surprisingly feels good when you apply the knowledge you know to see how complicated the things are around us. Learning the software was a wonderful experience. We managed to lean to read the report generated by the software to the full extent by the end of the ps-1. However I still miss the offline mode since we didn't had any industry exposure here. Most of the project has been done with the help of our faculty support only.

Learning Outcome : Apart from designing the conical roof we kept searching for solutions to reduce the material and dead loads. The main part of designing structures is how efficient we are at using the materials. Reduced cost will always be a considerable factor how-ever it comes with acceptable negotiations.

PS-I station: Viram Technologies - Cognate Mechanism, Pune

Student

Name: EDWIN THOMAS . (2018A4PS0696H)

Student Write-up

Short Summary of work done : My work was to design a four bar mechanism that generates a coupler curve that passes through four desirable points, the work to be done was choosing the four points and then developing the different links and coupler of the linkage using four point reduction. To generate its cognates, i.e, mechanisms that generate the very same coupler curve, we use Roberts-Chebychev theorem which states that there exists two cognates of any four bar coupler linkage. We also use the Cayley diagram to generate the cognates. Finally we verify the input/ output conditions through Grashof law. Further I looked into the various possibilities of the grashof conditions and the different types of coupler curves we see when we vary the various assumptions made during the four point reduction.

PS-I experience: PS-I experience was overall really good. My Supervisor and Instructor in charge were really kind and helpful towards any concern of mine. We couldn't get the hands on experience we would've gotten if PS-I were to be conducted on site, but overall a nice experience.

Learning Outcome : I learned about the various theorems and methods linked mechanism and linkage design. I learned designing softwares like creo and solidworks, testing softwares like matlab and ANSIS, and graphing softwares like GeoGebra through the gap sessions and the various project needs.

PS-I station: Viram Technologies - Design of Pressure vessels / Heat Exchangers, Pune

Student

Name: GOLLA UDAYA SAI KIRAN . (2018A4PS0586P)

Student Write-up

Short Summary of work done : my project is based on designing of pressure vessel. we have to Designing the saddle support on which the Pressure vessel will be mounted . we have to calculate the thickness and length of the pressure vessel.

PS-I experience: it was a new experience in online. our industry expert is good in explaining concepts.

Learning Outcome : we have learned a new softwares and improved our skills

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PS-I station: Viram Technologies - Robot design & automation, Pune

Student

Name: SAJAY ALEX VARGHESE . (2018A4PS0379P)

Student Write-up

Short Summary of work done : The project was to design a robot gripper with a hydraulic system to lift a 25kg copper cube at a velocity of 3.25 m/s. The project was allotted to a fellow Hyd Bitsian and me. We worked on an angular gripper design and a parallel gripper design which would be actuated by a hydraulic system. We designed the hydraulic system on Automation Studio, the gripper design was stress analyzed on ANSYS and the animated on Fusion360.

PS-I experience: My overall experience thorughout the internship was good as my industry mentor and PS faculty were very engaging and helpful. However the exposure we could have got in a PS-1 was not met due to the pandemic.

Learning Outcome : 1) Linkage analysis
2) Hydraulic systems
3) Sensor study

Name: KARTIKEY SINGH BHANDARI . (2018A4PS0545P)

Student Write-up

Short Summary of work done : Expert lectures were organized.
Learned software like Automation 360, Remote Labs, Creo, MATLAB, Ansys.
Weekly progress meetings were scheduled in which the mentor and instructor interact with the students regarding the work done so far.
Overall it is a great learning experience.

PS-I experience: 1. An excellent environment to learn to manage a project.
2. The faculty and the industry experts are friendly and always ready to take on our doubts. 3. A perfect opportunity to work among the industry experts.
4. Learned new software and skills.
My experience in PS I was good.

Learning Outcome : 1. ANSYS and Automation 3600 at a beginner level.
2. Remote labs and Lab view basics.
3. Learned how to select a proper sensor for various equipment.
4. Learned about hydraulic and pneumatic actuators.
5. Learned how to develop pneumatic circuits using predefined notations for different elements used in actuators.
6. Understood concepts on image processing in MATLAB.
7. Learned about the importance of Industry 4.0 and the Internet of Things.

Name: KANDIAN VIHARI . (2018A4PS0689H)

Student Write-up

Short Summary of work done : Our project name was AUTONOMOUS VEHICLE FOR TARGET DETECTION AND SHOOTING, related to automation domain, we were supposed to come up with a rough design for the vehicle and select the components and command order and a trigger mechanism and possible ways to differentiate between civilians and enemy targets. We were able to do all this with the help of our mentor and PS instructor

PS-I experience: PS1 was interesting for us.

Learning Outcome : I was able to develop some soft skills, and learn a few about the automation domain

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