



AP SIT

(ALL BRANCHES NBA ACCREDITED)

DEPARTMENT OF INFORMATION TECHNOLOGY

INDUSTRIAL
COLLABORATIONS

ACHIEVEMENTS

INTERNSHIPS

STUDENT
PROFESSIONAL
ASSOCIATIONS

BITS & BYTES

2020-21

MOMENT
OF PRIDE

ACADEMIC
INITIATIVES

EVENTS,
WORKSHOPS
& TRAININGS

STUDENT
ARTICLES

Editorial



Prof. Neha Deshmukh
Magazine Editor



Prof. Anagha Aher
Editor-In-Chief



Prof. Apeksha Mohite
Director



Ms. Shweta Mahajan
Magazine Co-Editor



Prof. Sonal Jain
Co-Editor-In-Chief



Chinmay D.
Magazine Head



Parvi A.
Magazine Co-Head



Ekta G.
Content Editor



Bhimraj P.
Associate Editor



Tanmay D.
Graphic Designer



Jahnvi K.
Art Director

Principal's Desk



"It brings me great pleasure to announce that A. P. Shah Institute of Technology's Department of Information Technology is releasing their Magazine "Bits & Bytes" for the fourth consecutive year. The magazine highlights the IT Department's vision: "To be a prime center of excellence by transforming students into globally competent IT professionals."

Inspired by the preceding edition, it is a celebration of all the new heights the students and faculties of our beloved department have reached in the A.Y. 2020-21. It is our sincere hope that the cumulative success of the department's achievements and perseverance will serve as an encouragement to all the young aspiring engineers of our institute.

I commend the Editorial Board behind this magazine for their diligent efforts in putting this collection of triumphs together. I would also like to congratulate the students and faculties on their accomplishments and wish them luck on their future endeavors.

- Dr. Uttam D. Kolekar
Principal

HOD's Desk



It gives me immense pleasure and satisfaction to present to our readers the magazine "Bits & Bytes" from Department of Information Technology for the fourth consecutive year.

This magazine reflects upon a wide spectrum of creative skills from writing to editing and even designing this magazine. It outlines the outstanding contribution made by faculties and students during Academic Year 2020-21.

As we impart education to match the advancement in technology and globalization, we also march our students ahead with APSIT's moral values and principles. Teamwork is the hallmark of Information Technology Department. I am very sure that collaborative efforts could let us achieve more to benefit our students and help them grow and develop into sensitive and responsible citizens of the next generation..

I congratulate the entire Editorial Team for their hard work and dedication behind this magazine for making vision to reality. I would also like to wish them luck for their future venture.

- Prof. Kiran Deshpande
HOD,
Department of Information Technology.

INSTITUTE'S

VISION

APSIT aspires to be a premier institute producing globally competent engineering professionals to contribute towards socio-economic growth of India.

MISSION

To provide conducive and collaborative environment to meet contemporary & future Engineering challenges by project based and value-added education with the support of trained faculty.

DEPARTMENT'S

VISION

To be a prime center of excellence by transforming students into globally competent IT Professionals.

MISSION

M1: To develop, support and maintain state-of-art infrastructure to serve as a potent resource hub for the IT industries.

M2: To inculcate the problem solving, analytical, logical skills and to promote the culture of creativity and innovation among the students.

M3: To adapt with the transformation of the technology emphasizing on interdisciplinary studies, exposure to emerging technologies and imbibing high standards of professional ethics and social responsibilities in all endeavors.

Department Program Educational Objectives

PEO 1 PREPARATION: To make students competent for higher studies and employable, to meet industrial requirements.

PEO 2 CORE COMPETENCE: To develop students having core competence in science, mathematics and fundamentals of Information Technology to address everchanging industrial requirements globally.

PEO 3 BREADTH: To create academically conducive environment to learn engineering skills in the domains such as Database, Data Analytics, Application Development and Allied Technologies.

PEO 4 PROFESSIONALISM: To enrich students with professional ethics, leadership qualities, and entrepreneurial skills.

PEO 5 LIFE LONG LEARNING: An ability to engage in lifelong learning for effective adaptation to technological developments.

Department Program Specific Outcomes

Program Specific Outcomes

PSO1 To use modern computer languages, environments and platforms in creating innovative Carrier paths in the areas of database, data analysis and application development.

PSO2 To apply theoretical foundations of Information technology in developing solutions for engineering problems that meet automation needs of industry and society.

PSO3 To design and implement efficient real-time solutions using evolving knowledge of information technology by demonstrating the practices of professional ethics and the concern for societal and environment well being.



Department Infrastructure

Academic Infrastructure

- Air-Conditioned Classrooms and Tutorial Rooms equipped with touch interactive projection system
- Well-equipped Air-Conditioned Laboratories connected to Centralized Server Room.
- Media-Equipped Air -Conditioned Seminar hall.
- Online Departmental Library Management System.

Computational Facility

- Number of Computational Nodes available in Department: 350
- Number of Blade Server Systems: 05
- PC to Student ratio: 1:1.
- Dedicated leased line of Internet
- Wi-Fi Access & CCTV Surveillance.
- NVIDIA DGX workstation for AI & Data Science research.
- iOS Lab for cross platform application development

Highlights

- Use & accessibility of remote servers during laboratory sessions.
- E-Learning Facility with Moodle.
- Online Tests for Self Assessment.
- Virtual Classroom & Web Conferencing facility for Query Sessions.
- Authentication based Internet access and printing facility for students.
- Cloud Storage for Students.
- Online Lab assignments submission & assessment with feedback. (E-assessment).
- Online Academic Feedback Facility for Students.
- Lab availability for students after academic hours.
- Expert Talks, Value addition Programs & Project Based Learning.
- Student Technical Clubs like Cybersecurity, AI & ML, DevOps for collaborative learning.
- Online Mentoring Portal.
- Free GATE, GRE and Pre-Placement Training.
- E-books through Pearson, Tata Mcgraw Hill, Online Library.



Academics

Results for A.Y. 2020-2021

ODD Semester

SE IT

Name	CGPA
Gujar Ekta	9.87
Kulkarni Janhavi	9.74
Shinde Saksht	9.74
Dasi Sindura	9.61
Patil Mayuri	9.61
Shanbhag Snehal	9.61

TE IT

Name	CGPA
Mhaske Prajakta	9.92
Seth Jash	9.85
Agrawal Parvi	9.85
Khairnar Shubhajit	9.85
Sapre Swapnil	9.85

BE IT

Name	CGPA
Khanted Tejas	10
Rai Abhishek	9.88
Kumbhar Mandar	9.69
Pote Abhishek	9.54
Singh Akshata	9.54
Lathiya Rutvik	9.54
Nalawade Sanjana	9.54

Results for A.Y.2020-2021

EVEN Semester

SE IT

Name	CGPA
Pawar Samiksha	10
Shimpi Pranjali	10
Bhoir Parth	10
Itnare Loveritu	10
Dasi Sindura	10
Doshi Tanmay	10
Gujar Ekta	10
Raut Ruchita	10
Bura Akshay	10

TE IT

Name	CGPA
Agrawal Parvi	10
Doshi Samyak	10
Saiya Hitarth	10
Saraiya Harsh	10
Khade Rajan	9.85
Khairnar Shubham	9.85

BE IT

Name	CGPA
Khanted Tejas	10
Jadhav Prasad	9.69
Kumbhar Mandar	9.69
Rai Abhishek	9.68
Pote Abhishek	9.54

Perfect 10

The institute has such an amazing faculty that I did not feel the need to join any other classes. Every lecture was very well explained with the intention of making everyone well versed with the topics.

Also it was about putting your best effort and also having excellent time management skill. Effective notes provided by professors also added as an aid in scoring good marks in exam.



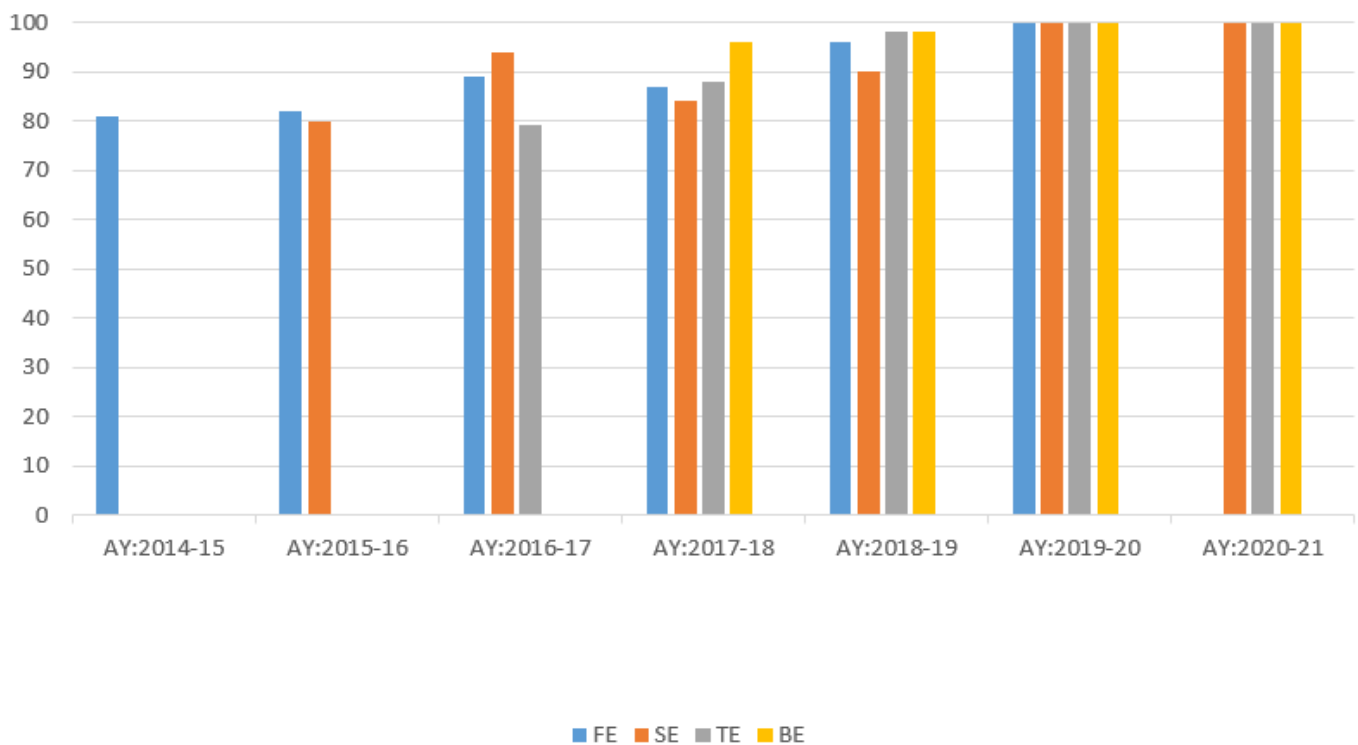
Tejas Khanted, BEIT

Getting a 10 pointer was definitely unexpected and I would like to thank everyone including my parents and teachers for enhancing my academic growth. Lastly I would say, there are no secrets to success. It is the result of preparation, hard work and learning from failure.

Result Analysis

As a premium institute we are providing our students with complete ecosystem for their overall development. Along with this we keep on enhancing the teaching learning process continuously by bringing in latest technology and trends. This all is realized through excellent performance by our students in university examination.

Result Analysis



Any department is said to thrive when the faculty and the students produce results that are visible. We honor the academic achievements of students, who have excelled in their endeavors and we are immensely proud of their success. This has been possible because of smart, innovative teaching methodologies augmented with time intensive planning & efforts put in by Faculties & students.

- Prof. Yaminee Patil, Exam Coordinator.



Parsivanath Charitable Trust's
A. P. SHAH INSTITUTE OF TECHNOLOGY
Approved by AICTE, New Delhi & Govt. of Maharashtra, Affiliated to University of Mumbai
(Religious Jain Minority)



Department of Information Communication



Information Communication
Department



Student Achievements

Technical

Ali Mustafa Shaikh



Our Student Ali Mustafa Shaikh (Alumini IT) awarded with "IEEE MGA Larry K. Wilson Regional Student Volunteer award -2020" for IEEE region 10. He also ranked at 7 position in IEEE Leader Board Challenge. Leader Board Challenge is about recognizing sustained Participation & contribution with IEEE's Global Technical Community.



Chinmay Dharap

Mr. Chinmay Dharap from TE IT secured 10th rank in EC Council's Global Ethical Hacking Leader board challenge. EC-Council, is the world's largest cyber security technical certification body. Which operate in 145 countries globally.



Parvi Agarwal

Our Student Parvi Agrawal (TE IT) has recently received Global Ambassador award at WomenTech Network Global Award 2021. She was also keynote speaker at WomenTech Global conference 2021.

Technical

(Course Completion Statistics through Industrial Collaborations)



Cisco Networking Academy

Course name

Course Completion

- | | |
|---|-----|
| • CCNA Module 1: Introduction to Networks | 200 |
| • CCNA Module 2: Routing and Switching Essentials | 45 |
| • Cybersecurity Essentials | 173 |
| • Programming Essentials in Python | 90 |
| • Introduction to Cybersecurity | 125 |
| • Programming in C | 350 |
| • Linux Unhatched | 350 |
| • Linux Essentials | 63 |
| • IOT Fundamentals | 102 |
| • IT Essentials | 350 |



AWS Academy

Course Name

Course Completion

- | | |
|--|----|
| • AWS Cloud Foundations (AWS Cloud Practitioner) | 63 |
|--|----|

Oracle Academy



Course name

Course Completion

- | | |
|------------------------|----|
| • Database Foundations | 60 |
| • Database Design | 30 |
| • Java Foundations | 35 |

Technical

(Course Completion Statistics through Industrial Collaborations)

Red Hat Academy



Course name

Course Completion

- | | |
|--|----|
| • Red hat System Administration | 30 |
| • Red Hat Open shift Container Platform | 75 |
| • Introduction to containers, Kubernetes and Red Hat OpenShift | 77 |



Blue Prism Academic Alliance

Course Name

Course Completion

- | | |
|-------------------------|----|
| • Blueprism Foundations | 60 |
|-------------------------|----|

Course Completions through Coursera Academic Subscription



Department students and faculties have completed more than 3000+ Technical and professional courses including Capstone Projects and Specializations through Coursera academic subscription during A. Y. 2020-21.

Technical

Research Publications



For Implementing research based learning which can develop critical thinking among est students, we are motivating our students to present and publish paper in well reputed Scopus indexed International Journals and Conferences.

Paper Title	Team Member	Conference
• Ru-Urb IoT - AI powered healthcare kit	Akshata Singh Purvika Gaikar Shreya Bhutada	IEEE-ICICCS 2021
• Orderista - AI-based Food Ordering Application	Tejas Raibagi Ashwin Vishwakarma Jahnvi Naik	IEEE- ICAIS2021
• Online Certificate Generation & Verification using Blockchain Framework	Prasad Jadhav Rutwik Gaikwad Aseem Godambe	Springer- ICSCS 2021
• Artificial Intelligence based Security Orchestration, Automation and Response System	Rahul Vast Shruti Sawant Aishwarya Thorbole	IEEE-I2CT 2021
• Smart UAV for Multi Assistance	Vaishnavi Patil Vaishnavi Potphode Utkarsha Potdukhe	Springer-ICTIS 2021
• Monitoring Health of IIOT Devices using Blockchain	Rushika Ramane Rutuja Patole Soundarya Nevrekar	IEEE- ICIEM 2021
• A I Based Document Digitization	Sujoy Dev Priya Naik Rashmi Shetty	UGC CARE ICETET-2021

Sports

Due to pandemic we had sport event in online mode which had various online gaming events like Valorant, CSGO etc.



VALORANT ... An Online Gaming Event

Players

- Sudama jaiswal (APSIT Alumni)
- Sameer Dev (APSIT Alumni)
- Chaitanya bysani (APSIT Alumni)
- Nimit Dagli (APSIT Alumni)
- Harsh Bhanushali (APSIT Alumni)

Result

Runner-up

CSGO ... An Online Gaming Event

Players

Pavan Chopra
Shridhar Joshi

Event

CSGO
CSGO

Result

Runner-up
Runner-up

FITNESS EVENTS

Players

Shubhangi Lanke
Shridhar Joshi
Rahul Yadav

Event

CHALLENGER MODE CSGO
CHALLENGER MODE CSGO
WHERE TIME STOPS

Result

Winner
Winner
Winner



Faculty Achievements



DR. UTTAM D. KOLEKAR

- Published patent on “An intelligent mode switch unit inbuilt within the 5G base station for mobility Management”.
- Published patent on Multichannel Acquisition of EFG Signals and filtering.
- Published patent on Hardware architecture and communication protocol for mobile theft protection in Manet.
- Presented and Published 11 research papers in reputed international journal and conferences.



Dr. Sameer S. Nanivadekar

- Invited as session Chair, 3rd International Congress on Human-Computer Interaction, Optimization and Robotic Applications.
- Invited as session Chair in International Conference on emerging trends in Engineering and Technology.
- Presented paper in 3rd International Congress on Human-Computer Interaction, Optimization and Robotic Applications, Turkey
- Completed 20 Coursera specialization in various domains.



Prof. Kiran B. Deshpande

- Presented paper in International Conference on emerging trends in engineering and technology.
- Completed Coursera Specialization in Blockchain
- Completed Coursera specialization in Bigdata
- Completed Coursera specialization in Palo Alto Networks Cybersecurity.
- Completed Coursera specialization in AWS Fundamentals.



Prof. Neha Deshmukh

- Certified as Cisco Certified Network Associate.



- Appreciated by Director, Spoken Tutorial IIT Bombay for spreading awareness and holding Software Training workshops.





Prof. Vishal Badgujar

- Appreciated by Director, Spoken Tutorial IIT Bombay for spreading awareness and holding Software Training workshops.



- Involved in NPTEL Translation Project, IIT Madras Funded and Approved by MHRD, for Quality check (QC) Review for Translated Multidisciplinary courses in Marathi and Hindi Language as well as received honorarium of Ten Lakh for the same.





Prof. Rujata Chaudhari

- Appreciated by Director, Spoken Tutorial IIT Bombay for spreading awareness and holding Software Training workshops.



Prof. Ganesh Gourshete

- Appreciated by Director, Spoken Tutorial IIT Bombay for spreading awareness and holding Software Training workshops.



Faculty Enablement Effort during Pandemic

Taking into consideration online mode teaching, many faculties of Department have completed Educator Certificate through Google.

Google Certified Educator Level 1

- **Prof. Neha Deshmukh**
- **Prof. Rujata Chaudhari**
- **Prof. Vishal S.Badgujar**
- **Prof. Anagha N. Aher**
- **Prof. Nahid Shaikh**
- **Prof.Kaushiki S. Upadhyaya**
- **Prof. Yaminee Patil**
- **Prof. Sonal Jain**
- **Ms. Shweta Mahajan**



Google Certified Educator Level 2

- **Prof. Vishal S.Badgujar**
- **Prof. Yaminee Patil**

LEVEL 2

CERTIFIED
Educator

Google for Education



Google Certified Educator Level 2

This qualification is hereby granted to

Yaminee Patil

for demonstrating the advanced knowledge, skills, and
competencies needed to implement and integrate Google for
Education tools.

Certificate issued on

February 8, 2021

Certification valid through

February 8, 2024

Google for Education

Completion of Coursera Specializations through Department Academic Subscriptions



Faculty Name

Course Name

- Prof. Vishal Badgujar
 - Prof. Yaminee Patil
 - Prof. Neha Deshmukh
 - Prof. Rujata Chaudhari
 - Ms. Shweta Mahajan
- Blockchain
 - Google IT Support
 - Object Oriented Programming in Java
 - Open Source Software Development, Linux and Git
 - Python for Everybody
 - Architecting with Google Kubernetes Engine
 - Palo Alto Networks Cybersecurity
 - Google IT Support
 - Blockchain
 - Java Programming and Software Engineering Fundamentals
 - Google IT Support
 - AWS Fundamentals
 - Enterprise System Management



Course Completions through IBM Cognitive Class

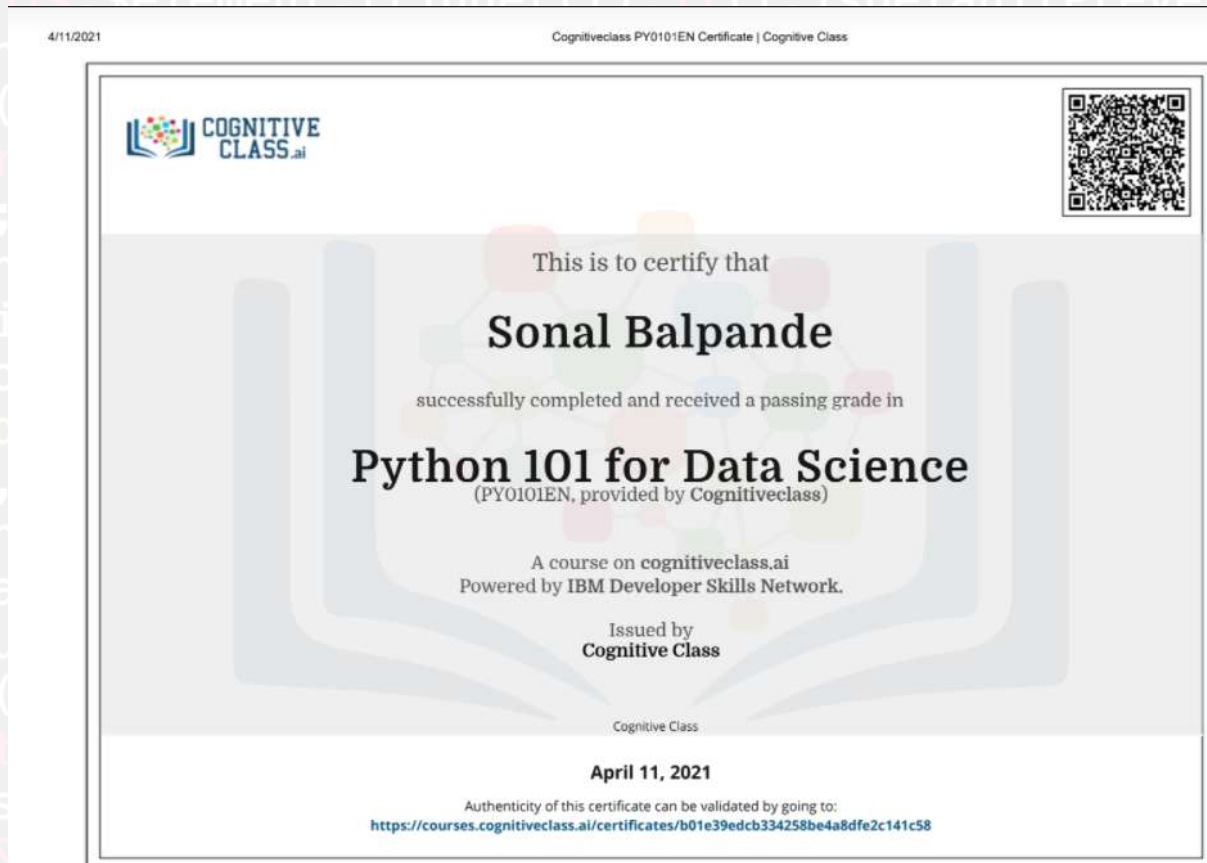


Faculty Name

- Prof. Anagha Aher
- Prof. Nahid Shaikh
- Prof. Rujata Chaudhari
- Prof. Sonal Balpande

Course Name

- Python 101 for Data Science
- Introduction to Cloud
- Docker Essentials: A Developer Introduction
- R 101
- Python 101 for Data Science
- Machine Learning with R



Course Completions through Industrial Collaborations

Faculty Name

Value Added courses/Courses

Industrial Collaboration

<ul style="list-style-type: none"> Prof. Vishal Badgujar 	<ul style="list-style-type: none"> Blue Prism Foundation Training IT Essentials CCNA Routing and Switching 	<ul style="list-style-type: none"> Blue Prism University CISCO Networking Academy CISCO Networking Academy
<ul style="list-style-type: none"> Prof. Nahid Shaikh 	<ul style="list-style-type: none"> AWS Public Sector Summit 	<ul style="list-style-type: none"> AWS Academy
<ul style="list-style-type: none"> Prof. Rujata Chaudhari 	<ul style="list-style-type: none"> Java Programming 	<ul style="list-style-type: none"> Oracle Academy
<ul style="list-style-type: none"> Prof. Anagha Aher 	<ul style="list-style-type: none"> Programming Essentials in Python 	<ul style="list-style-type: none"> CISCO Networking Academy
<ul style="list-style-type: none"> Prof. Geetanjali Kalme 	<ul style="list-style-type: none"> Programming Essentials in Python 	<ul style="list-style-type: none"> CISCO Networking Academy
<ul style="list-style-type: none"> Prof. Ganesh Gourshete 	<ul style="list-style-type: none"> Blue Prism Foundation Training 	<ul style="list-style-type: none"> Blue Prism Academic Alliance
<ul style="list-style-type: none"> Prof. Neha Deshmukh 	<ul style="list-style-type: none"> Cisco Certified Network Associate Programming Essentials in Python Database Design Database Programming with SQL Introduction to Containers, Kubernetes, and Red Hat OpenShift (DO180) 	<ul style="list-style-type: none"> CISCO Networking Academy CISCO Networking Academy Oracle Academy Oracle Academy Red Hat Academy
<ul style="list-style-type: none"> Prof. Sonal Balpande 	<ul style="list-style-type: none"> LINUX ESSENTIALS PROFESSIONAL Programming Esssential in Python Android Development with Kotlin 	<ul style="list-style-type: none"> CISCO Networking Academy CISCO Networking Academy Google Developers
<ul style="list-style-type: none"> Prof. Vidya Shete 	<ul style="list-style-type: none"> LINUX ESSENTIALS PROFESSIONAL Programming Essentials in Python Android Development with Kotlin 	<ul style="list-style-type: none"> CISCO Networking Academy CISCO Networking Academy Google Developers
<ul style="list-style-type: none"> Prof. Yaminee Patil 	<ul style="list-style-type: none"> LINUX ESSENTIALS PROFESSIONAL Programming sssential in Python Android Development with Kotlin 	<ul style="list-style-type: none"> CISCO Networking Academy CISCO Networking Academy Google Developers
<ul style="list-style-type: none"> Ms. Shweta Mahajan 	<ul style="list-style-type: none"> Programming Essentials in Python 	<ul style="list-style-type: none"> CISCO Networking Academy

Research Publications

For implementing research-based Learning which can develop critical thinking among faculty and also enhance their technical skill, we are motivating our faculty members to present and publish paper in well reputed Scopus indexed, International Journals/Conferences. Faculties have been provided reimbursement of registration fees for paper published.



Faculty Name	Paper Title	Conference
• Prof. Kaushiki Upadhyaya	Ru-Urb IoT - AI powered healthcare kit	IEEE- ICICCS 2021
• Prof. Rujata Chaudhari & Prof. Geetanjali Kalme	Orderista - AI-based Food Ordering Application	IEEE- ICAIS2021
• Prof. Kiran Deshpande	Online Certificate Generation & Verification using Blockchain Framework	Springer- ICSCS 2021
• Prof. Vishal Badgujar	Artificial Intelligence based Security Orchestration, Automation and Response System	IEEE-I2CT 2021
• Prof. Vishal Badgujar & Prof. Kaushik Upadhyaya	Smart UAV for Multi Assistance	Springer- ICTIS 2021
• Prof. Anagha Aher & Prof. Neha Deshmukh	Monitoring Health of IIOT Devices using Blockchain	IEEE-ICIEM 2021
• Dr. Sameer Nanivadekar & Prof. Kiran Deshpande	AI Based Document Digitization	UGC CARE- ICETET-2021
• Prof. Sonal Jain	Design in equidistant hexagonal coil system for demagnetization of naval vehicle	Springer Chapter



Faculty Development Programs

Faculty members are motivated to enroll in various FDP's to facilitate up-gradation of their knowledge and skill organized at University, state, National Level

Faculty Name

FDP/FDP's

Prof. Vishal Badgujar

- RESEARCH IN ENGINEERING - a way forward
- Blockchain
- Disruptive Technologies of Industry 4.0
- Internet of Things (IoT)

Prof. Anagha Aher

- Enviroment and Sustainability
- Artificial Intelligence
- Block chain
- Digital Teaching Technique
- RESEARCH IN ENGINEERING - a way forward

Prof. Geetanjali Kalme

- RESEARCH IN ENGINEERING - a way forward
- IOT and its Application
- Innovative Teaching Padagogy
- Online Techaning and learning tools
- Faculty Program on NBA
- Cloud Technology
- Data Science Using Python
- Data Science
- Importance of Innovation and Research Culture to Inculcate Startup and Entrepreneurship
- Essentials of Linux System Administration

Prof. Nahid Shaikh

- RESEARCH IN ENGINEERING - a way forward
- Cyber Security
- Data Sciences
- Essentials of Linux System Administration

Prof. Neha Deshmukh

- RESEARCH IN ENGINEERING - a way forward
- Cloud Technology
- Cyber Security
- Essentials of Linux System Administration
- Research in Engineering

Prof. Ganesh Gourshete

- RESEARCH IN ENGINEERING - a way forward
- Artificial Intelligence
- Data Science

Faculty Development Programs

Faculty Name

FDP/FDP's

Prof. Rujata Chaudhari

- Block chain
- Cyber Security
- RESEARCH IN ENGINEERING

Prof. Sonal Jain

- Control Systems & Sensors Technology
- Internet of Things (IoT)

Prof. Sonal Balpande

- Blockchain
- Automation/Application of Python Programming
- Advanced Python Programming

Prof. Vidya Shete

- Data Science & Big data Analytics

Prof. Yaminee Patil

- Essentials of Linux System Administration

Ms. Shweta Mahajan

- Artificial Intelligence
- Block chain
- Cyber Security
- Universal Human Values
- RESEARCH IN ENGINEERING



Short Term Training Programs

Faculty members are motivated to enrol in various STTPs to facilitate up-gradation of their knowledge and skill.

Faculty Name

Prof. Anagha Aher
Prof. Geetanjali Kalme

Prof. Nahid Shaikh
Prof. Neha Deshmukh

Prof. Ganesh Gourshete
Prof. Rujata Chaudhari
Prof. Yaminee Patil

Ms. Shweta Mahajan

Course Name

- Programming in Java
- Developing R & D culture in Educational Institute through PBL
- Programming in Java
- Programming in Java
- Developing R & D culture in Educational Institute through PBL
- Programming in Java
- Programming in Java
- Internet of Things(IoT): Challenges and Applications
- Internet Programming: The Full stack approach
- Developing R & D culture in Educational Institute through PBL
- Research Challenges and Applications of Internet of Things (IoT) in Smart Agriculture



Thadomal Shahani Engineering College
TPS III, P. G. Kher Marg, Bandra (w)



E- Certificate of Participation

This is to certify that Prof. Nahid kausar Abdul Jabbar shaikh from A. P. Shah Institute of Technology, University of Mumbai has participated in one week online National level STTP on "Programming in JAVA", organized by Computer Engineering Department at Thadomal Shahani Engineering College, Bandra, Mumbai, from 13th - 18th July 2020.

Ms. Manisha Dumbre
Coordinator

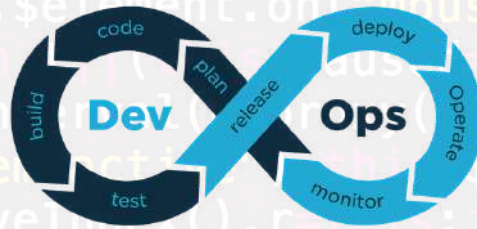
Ms. Juhi Ganwani
Coordinator

Dr. Tanuja Sarode
Co-convenor

Dr. G. T. Thampi
Convenor

STTP's/ Training Conducted by Faculty Members

Various Short-Term Training Programs are conducted to ensure students and faculty members enablement with latest trends in IT landscape along with basics.



Development and Operations

Training Conducted By:



Prof. Neha Deshmukh



Big Data Tools for Batch and Stream Analytics

Training Conducted By:



Prof. Vishal Badgujar

STTP's/ Training Conducted by Faculty Members



Using Simulators & Emulators for Network Design & Analysis

Training Conducted By:



Prof. Neha Deshmukh



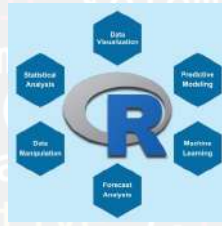
ESSENTIALS OF LINUX SYSTEM ADMINISTRATION

Training Conducted By:



Prof. Yaminee Patil

STTP's/ Training Conducted by Faculty Members



R programming

Training Conducted By:



Prof. Sonal Balpande



Python for Data Science

Training Conducted By:



Prof. Anagha Aher

STTP's/ Training Conducted by Faculty Members



Essentials of Cloud Computing

Training Conducted By:



Prof. Nahid Shaikh



Wireless Sensor Network & Internet of Everything

Training Conducted By:



Prof. Sonal Jain



**MOMENT
OF
PRIDE**

winner



Parvi Agrawal, A.P. Shah Institute

GLOBAL AMBASSADOR AWARD & COMMUNITY AWARD

Our Student Parvi Agrawal (TE IT) has received Global Ambassador award at WomenTech Network Global Award 2020. She was also keynote speaker at WomenTech Global conference 2020.

She was also student Ambassador of Red Hat Academy @APSIT, and a Volunteer at the National Service Scheme. She is a social worker and likes to help those in need.

Parvi has worked as a Mentor, Volunteer, and coordinator at various events. She is interested in Big Data, Cloud Computing, Digital Marketing, and Publicity.



Unparalleled Achievements

Chinmay Dharap, TEIT

Mr. Chinmay Dharap from TEIT secured 10th rank in EC Council's Global Ethical Hacking Leader board challenge. EC-Council, is the world's largest cyber security technical certification body. Which operate in 145 countries globally.

Congratulations!!

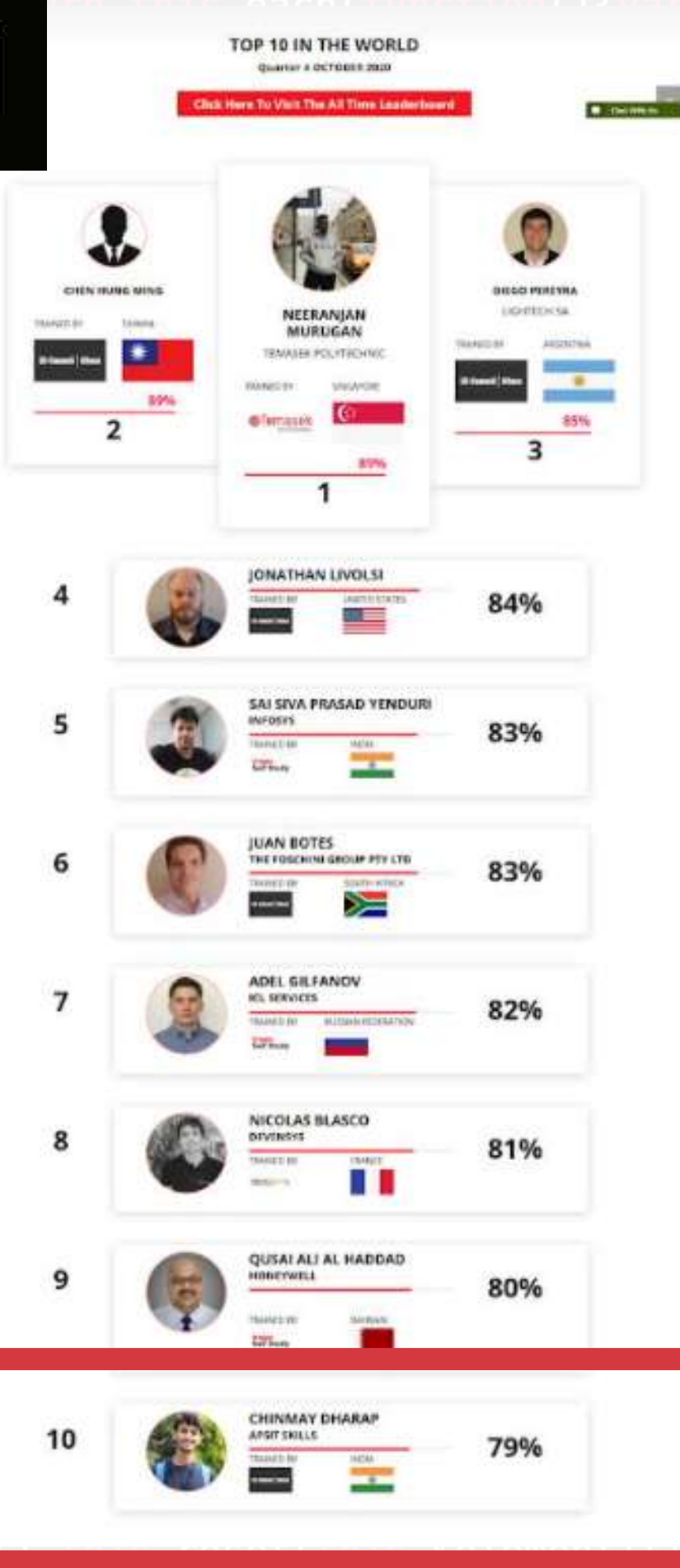
10TH RANK IN WORLD

EC Council's
"Global Ethical Hacking Leaderboard"
Quarter-4 OCTOBER 2020

Chinmay Dharap
(Third Year Information Technology)

APSIT

DEPARTMENT OF INFORMATION TECHNOLOGY





Outstanding Achievement

Prof. Neha Deshmukh

Prof. Neha Deshmukh, got Certified as Cisco Network Associate & Red Hat Certified System Administrator, most prestigious global IT Certifications.

My journey in networking domain has begun in APSIT itself. CCNA training and certification has accelerated my journey in networking field. Cisco Network academy courses are framed in such a way that provide great opportunity to any individual irrespective of their domain to learn concept of networking from anywhere and anytime. With this great experience and recognition of earning CCNA certification, this course has enhanced my knowledge in networking and security domain.

This certification has boosted my confidence to next level as I have acquired immense knowledge about these cutting edge technology. With this acquired knowledge and confidence I have become much better at my job.





PARSHVANATH CHARITABLE TRUST'S

A. P. SHAH INSTITUTE OF TECHNOLOGY

(All Branches NBA Accredited)



Congratulations!!

on Passing **World's Prestigious**
IT Certification



Neha Deshmukh
CCNA #CSCO13638819



Free Online Courses



Outstanding Achievement

Prof. Vishal Badgujar



Prof. Vishal Badgujar

NPTEL Local Chapter where I have started as a single point of contact (SPOC) for APSIT was just the start of journey. Under this initiative, I have achieved Elite Certification for 6 courses. NPTEL has initiated the process of translating the English transcripts of NPTEL video content into 8 regional languages - Bengali, Gujarati, Hindi, Kannada, Malayalam, Marathi, Tamil, Telugu. Under this initiative, I have got an opportunity to translate the content of popular subjects like Cloud computing and operating system as a translator into regional language. As a consequence of this, I have received a mail from IIT Bombay with another great opportunity to be a part of the reviewer team to review all the translated contents.

Although this process was quite time consuming but has given me rich insight into various interdisciplinary courses. I have reviewed overall 14 interdisciplinary courses so far. I have fetch the grant 10 lac+ along with honorarium for my contribution. All the course which i have translated have been converted into e-book and are the freely available for students. This provides students with an opportunity to learn these course and understand the concept in better way as it is available in there regional language. I find my self very fortunate to be part of this national Nobel cause of providing equal opportunity to all for learning any time from anywhere. I am really thankful to APSIT community for providing me such a great opportunity which has framed my career path in fruitful way.



NPTEL



CERTIFICATE

OF APPRECIATION

This Certificate is presented to

Vishal Sahebrao Badgjar

for performing Quality Check of the translated files (e-content)

in **Marathi** language.

Hours reviewed: 25.47 Course: Power System Engineering (108105104)

Date: **8/12/2020**

Andrew Thangaraj
Coordinator, NPTEL



STUDENT PROFESSIONAL ASSOCIATIONS

IEEE

Institute of Electrical and Electronics Engineers



Department has organized 20+ technical events through IEEE Student Branch @APSIT during A.Y. 2020-21.

IEEE is the world's largest technical society, bringing Members access to the industry's most essential technical information, networking opportunities, career development tools and many other exclusive benefits. An IEEE Student Branch provides opportunities to meet and learn from fellow IEEE Student and Graduate Student Members and engage with professional IEEE members locally. An active IEEE Student Branch can be one of the most positive elements of student academic career offering programs, activities and professional networking opportunities that build critical skills.

IEEE

Institute of Electrical and Electronics Engineers



Sr No.	Name of Event	Date
1	Talk Series 1.0	04-07-2020
2	Webinar on Introduction to Cloud Computing	08-07-2020
3	Training on AI and Machine learning	17-07-2020
4	Webinar on Renewable Energy in Industry 4.0	01-08-2020
5	IEEE APSIT SB is organising a webinar with NASA's Engineers on Opportunities and Challenges in Space	10-08-2020
6	Role of startups in fulfilling UN Sustainable Development Goals	25-09-2020
7	Ensuring sustainability of your startup	26-09-2020
8	Social Entrepreneurship	26-09-2020
9	From stamp licking to board meetings, the journey of a Startup founder	27-09-2020
10	Entrepreneur development phases	2nd Nov. 2020
11	Design Thinking, Critical thinking and Innovation Design	9th Nov. & 10th Nov 2020
12	Orientation Session on National Innovation and Startup Policy (NISIP)	25-11-2022
13	Salesforce Community at APSIT is back with another Introductory session INTRODUCTION TO SALESFORCE ECOSYSTEM.	30-11-2022
14	ApScript	06-02-2021
15	Intro-session for a Postman Student Expert Program	18-02-2021

CSI

Computer Society of India



Computer Society of India is the first and largest body of computer professionals in India. It was started on 6th March 1965 by a few computer professionals and has now grown to be the national body representing computer professionals. It has 72 chapters across India, 511 student branches, and 100,000 members. The Computer Society of India is a non-profit professional meet to exchange views and information, learn and share ideas. The wide spectrum of members is committed to the advancement of theory and practice of computer Engineering and Technology System, Science and Engineering, Information Processing and related Arts and sciences. The Society also encourages and assists professionals to maintain integrity and competence of the profession and fosters a sense of partnership among members. Besides the activities held at the Chapters and Student Branches, the Society also conducts periodic conferences, seminars. With a view to provide a diverse platform to our aspiring engineers, Department of Information Technology inaugurated the student chapter. This CSI Institutional membership and CSI Student chapter is an opportunity for networking with professionals, knowledge sharing through CSI Publication & Portal etc. It provides huge, long lasting benefits of value to the institution, its management, faculties and students.

CSI

Computer Society of India



Sr No.	Name of Event	Date
1	Eyestrain Special Session	30-08-2020
2	Webinar on Introduction to Containers, Kubernetes and Red Hat Openshift	29-08-2020
3	Hands-on training on Latex, GitHub and Overview of Mendeley tool	11-07-2020
4	RHA Ecosystem Webinar - Red Hat OpenShift Containers & Kubernetes (DO180)	18-01-2021
5	IT Week-Session on Application Development With Flutter	01-03-2021
6	IT Week-Session on Web App Development With Express.js, MongoDB, EJS & Deployment On Heroku	02-03-2021
7	IT Week-Session on Deep Learning	03-03-2021
8	IT Week-Session on Login and Sign-ups form using PHP, HTML, Javascript, and MySQL	03-03-2021
9	IT Week-Session on Unity Game Development	04-03-2021
10	IT Week-Session on Chatbot using Rasa	05-03-2021
11	IT Week-Session on 3D modeling in Blender	05-03-2021
12	Session on Cracking on and off campus placement	07-03-2021
13	APAC RHA Quarterly Webinar - Cloud Technologies - OpenStack Admin I (CL110)	14-05-2021

ITSA

Information Technology Students Association

ITSA 2020-21



Sanjana Nalawade
ITSA Vice President



Rutwik Gaikwad
ITSA President



Chinmay Dharap
ITSA Secretary

With a motive to provide to exhibit, explore and develop technical skills of the students, the institute had planned to form departmental and institute level associations for the students. ITSA was inaugurated and formed with a motive of creating a bond among students and working towards departmental and personal excellence. It provides students opportunities to learn various technologies and team work ethics. ITSA emphasizes on development and enablement of every individual associated. ITSA also promotes "for the students by the students" ideology for collaborative technical upliftment. ITSA overall brings together all students and creates a bonding which helps in enhancing students intellectual progress.

ITSA

Information Technology Students Association



Prof. Anagha Aher
CSI Incharge



Prof. Apeksha Mohite
ITSA Incharge



Prof. Nahid Shaikh
T&P Coordinator

ITSA 2020-21



Sanjana Nalawade
ITSA Vice President



Rutwik Gaikwad
ITSA President



Chinmay Dharap
ITSA Secretary



Dhruva Mhatre
Student Head T&P

Anurag Singh
T&P Co-ordinator

Chirag Jain
T&P Co-ordinator



Parvi Agrawal
CSI Head

Apoorva Gadkari
CSI Co-ordinator

Kunal Shinde
CSI Co-ordinator

Ganesh Jambuka
CSI Co-ordinator

Prasad Jadhav
Treasurer

Jainam Chopra
ITSA Co-ordinator

Rajan Khade
ITSA Co-ordinator

Pranjali Shimpi
Design Co-ordinator

Pratik Dhumal
Design Co-ordinator

Tanmay Doshi
Design Head

Anand Morye
Design Co-ordinator

Prem Vispute
Design Co-ordinator

ITSA

Information Technology Students Association

Sr No.	Name of Event	Date
1	Webinar on Roadmap for Education Abroad	21-02-2021
2	Session on GATE Tips and Tricks	28-02-2021
3	IT Week-Session on Application Development With Flutter	01-03-2021
4	IT Week-Session on Web App Development With Express Js, Mongodb, EJS & Deployment On Heroku	02-03-2021
5	IT Week-Session on Deep Learning	03-03-2021
6	IT Week-Session on Login and Sign-ups form using PHP, HTML, Javascript, and Mysql	03-03-2021
7	IT Week-Session on Unity Game Development	04-03-2021
8	IT Week-Session on Chatbot using Rasa	05-03-2021
9	IT Week-Session on 3D modeling in Blender	05-03-2021





INDUSTRIAL COLLABORATIONS

OPEN SOURCE EXPERIMENTAL LAB



Open Source Experimental Lab is a collaborative effort of APSIT and ASHNIK PTE LTD Singapore to impart skills in the areas of open source technologies including Database, Docker, Elastic Stack, NGINX, Cloud Computing to develop necessary industry skills. 50+ Students has successfully completed Docker Essentials :Developer Introduction Course.



ASHNIK
DELIVERING SOLUTIONS, THE OPEN SOURCE WAY.

AI/DL LAB POWERED BY NVIDIA

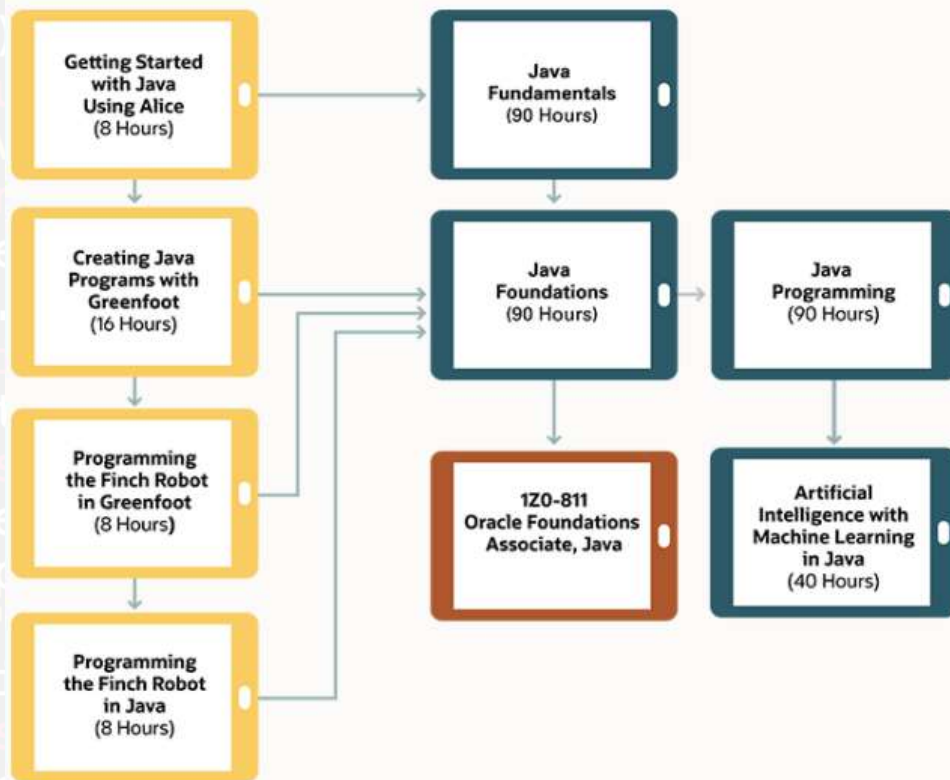


NVIDIA DGX workstation

NVIDIA has setup fully optimized AI Software - Deep Learning GPU Training System (DIGITS) including, NVIDIA driver, NVIDIA® CUDA® Toolkit, NVIDIA® DIGITSTM SW, NVIDIA® cuDNNTM, Caffe, Theano, Torch, BIDMach, NVIDIA RAPIDS for end-to-end data science and analytics pipelines and NVIDIA DGX Server in APSIT.



ORACLE ACADEMY



ORACLE[®]
Academy

Oracle Academy is a collaborative effort of APSIT & Oracle Corporation, USA to impart skills leading to global certifications in the domains like JAVA Programming, Database Design & Programming & PL/SQL



Course Completion through Oracle Academy

Course name	Course Completion
• Database Foundations	60
• Database Design	30
• Java Foundations	35

REDHAT ACADEMY



Red Academy is a collaborative effort of APSIT & Red Hat, Inc USA to impart the skills leading to global certifications in the areas of Core System Administration, Middleware Development & Microservices.

Why Red Hat Academy?

Red Hat Academy turns academic institutions into centres for enterprise-ready talent by outfitting them with Red Hat training and certification. Red Hat Academy provides a curriculum to help education institutions keep pace with the demands of industry. The curriculum involves hands-on instruction across platform, middleware, and cloud technologies built with input from Red Hat development, support, and field consulting teams. Rather than learning theoretical skills, students learn practical skills based on use cases from thousands of enterprise implementations.

Course Completion through Red Hat Academy

Course name

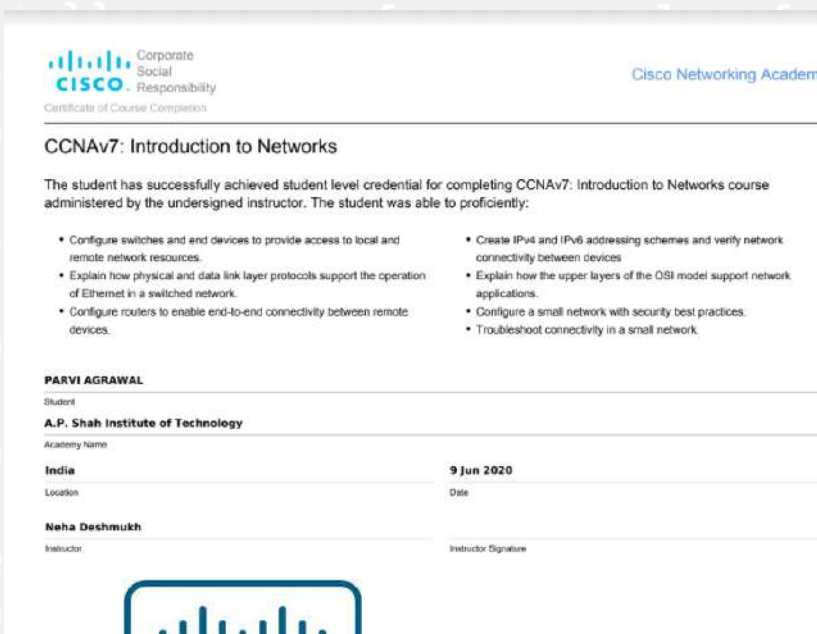
Course Completion

- | | |
|--|----|
| • Red hat System Administration | 30 |
| • Red Hat Open shift Container Platform | 75 |
| • Introduction to containers, Kubernetes and Red Hat OpenShift | 77 |

CISCO NETWORKING ACADEMY



CISCO Networking Academy has been set up in collaboration with Cisco Inc. USA. Courses lead to global certifications in the areas of Cybersecurity, IOT, Routing & Switching.



Course Completion through CISCO Networking Academy

Course name	Course Completion
• CCNA Module 1: Introduction to Networks	200
• CCNA Module 2: Routing and Switching Essentials	45
• Cybersecurity Essentials	173
• Programming Essentials in Python	90
• Introduction to Cybersecurity	125
• Programming in C	350
• Linux Unhatched	350
• Linux Essentials	63
• IOT Fundamentals	102
• IT Essentials	350



AWS ACADEMY



Amazon Web Services & Educate program prepares students for booming technology of Cloud Computing. AWS certification is a doorway to IT industry. AWS Academy Cloud computing curricula prepares students for industry-recognized certificates and in-demand cloud jobs.



aws  **CERTIFIED**

Sujoy Dev

has successfully completed the AWS Certification requirements and has achieved their:

AWS Certified Cloud Practitioner

Issue Date
Nov 02, 2019
Expiration Date
Nov 02, 2022


Maureen Lonergan
Director, Training and Certification

Validation Number 49TEMNHCMF4QQWG6
Validate at: <http://aws.amazon.com/verification>

Course Completion through AWS Academy

Course Name

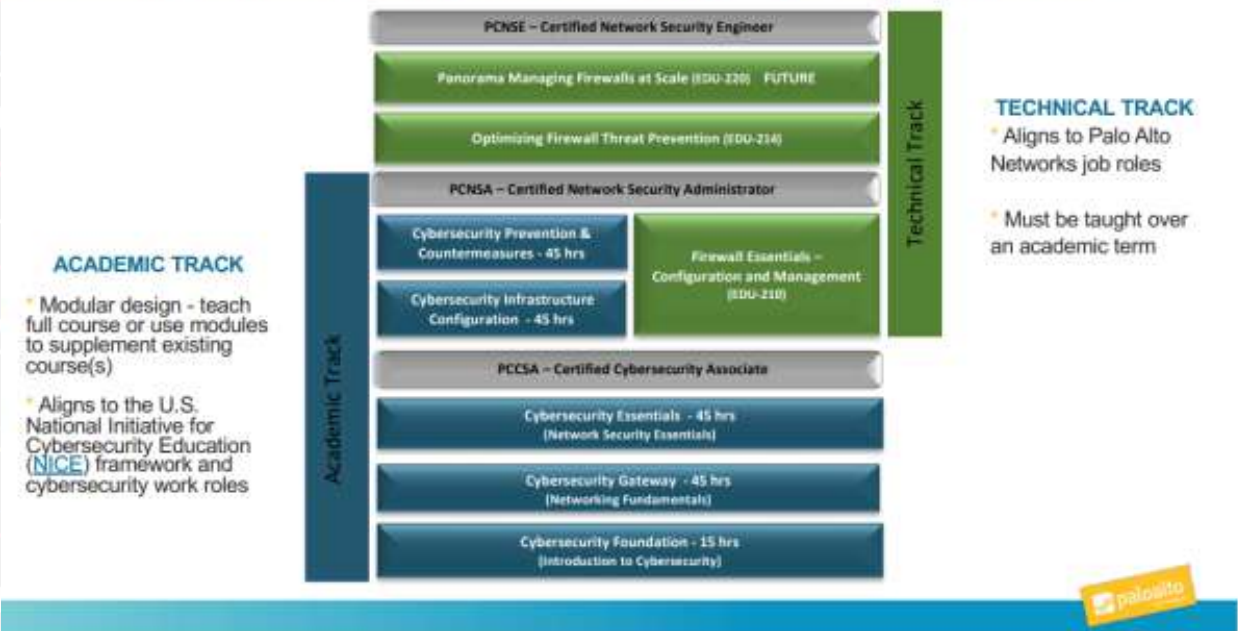
Course Completion

- AWS Cloud Foundations (AWS Cloud Practitioner)

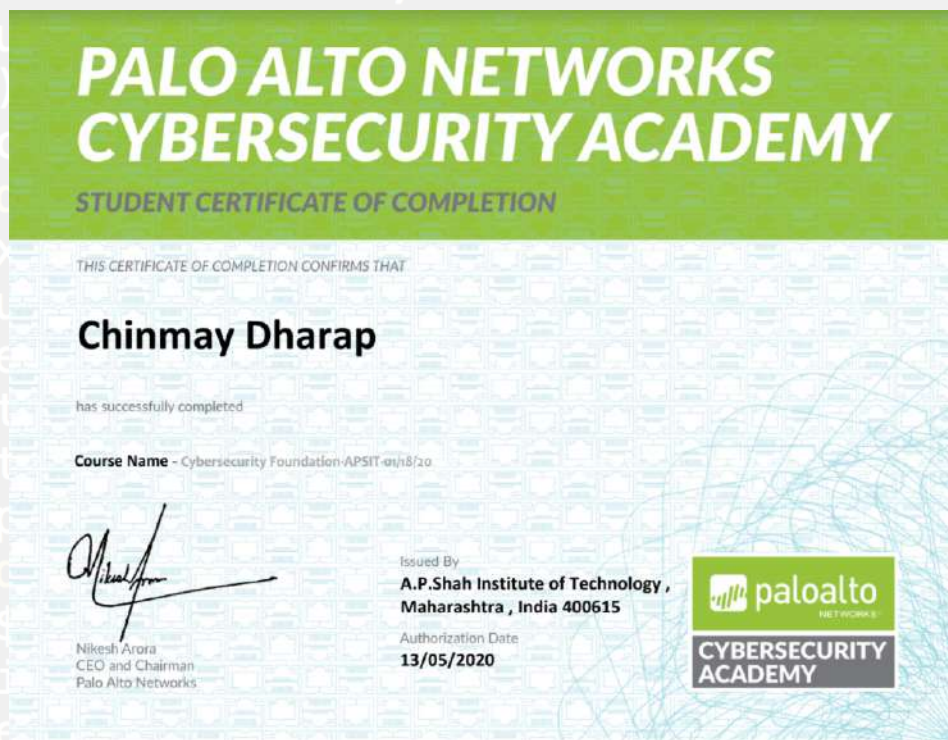
63

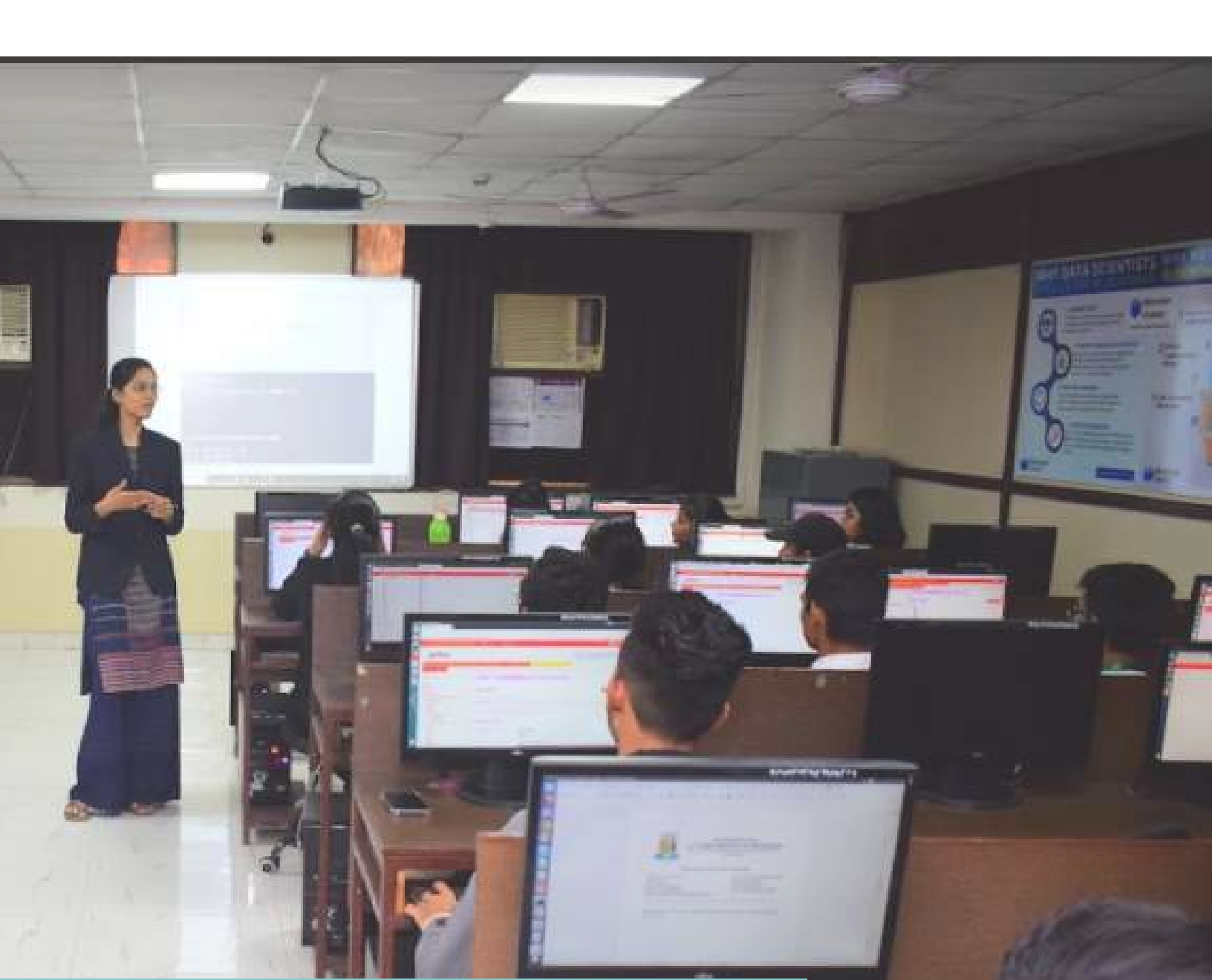
PALO ALTO NETWORKS CYBERSECURITY ACADEMY

ACADEMY CURRICULUM ROADMAP WITH INTEGRATED TRACKS



Becoming a Palo Alto Networks Certified cybersecurity Associates with the possession of enhanced knowledge about cutting-edge technology enables an individual to manage and tackle the potential cyber threats of tomorrow.





ACADEMIC INITIATIVES



IIT Bombay Spoken Tutorial



APSIT is a recognized Super Resource Center of IIT Bombay for Spoken Tutorial program under the MHRD, Govt. of India. Spoken Tutorial is a Training and certification program for all types of open-source programming languages, tools, and technologies for all branches of engineering.

Course Completion Statistics through IIT Bombay Spoken Tutorial Program A.Y. 2021-22

Spoken Tutorial	Courses	2020-2021
SEIT	JAVA	65
	Linux	55
	PHP and MYSQL	59
TEIT	Arduino	56
BEIT	R	45



IIT Bombay Spoken Tutorial

Java



Java™

Toppers:

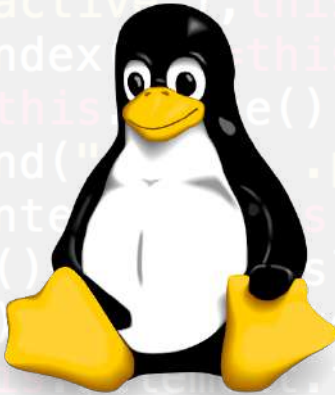
1. Anand Morey	90%
2. Anvit Mirjurkar	85%
3. Akansha Rawat	85%
4. Ayush Jain	82.5%

No. of students completed Certifications: 65



IIT Bombay Spoken Tutorial

Linux



Toppers:

1. Parth Bhoir	83.3%
2. Kunal Shetty	83.3%
3. Anvit Mirjurkar	83.3%

No. of students completed Certifications: 55



IIT Bombay Spoken Tutorial

PHP MYSQL



Toppers:

1. Nikhil rathod	84.7%
2. Jigar Desai	80.6%
3. Manish Kumar	73.6%
4. Aditya saini	73.6%

No. of students completed Certifications: 59



IIT Bombay Spoken Tutorial

R- Programming



Toppers:

1. Jayesh Bhosale	85%
2. Rutwik Gaikwad	80%
3. Sahil Naik	75%

No. of students completed Certifications: 45



IIT Bombay Spoken Tutorial

Arduino



Toppers:

1. Vaishnavi Sriramoju	100%
2. Kunal Sant	100%
3. Prerna kanawade	97.5%

No. of students completed Certifications: 56

PRE-PLACEMENT TRAINING


Training Program



Department not only believes in quantity but also in quality of education that should be delivered in all best possible ways to their students which will be beneficial in their upcoming career. To do so our college has also started preplacement training sessions right from third year itself. Also to maintain consistency of this activity our college took an initiative of conducting online tests through dedicated portal designed to monitor and analysis student progress before placement season begin. By doing so our college ensures that they never fail to prove that they never let their students down in any field and help their students in all possible ways so that they can reach certain height in their life.

Attendance Statistic of Preplacement Training

Sr No	Academic Year	Semester	Mode Of Conduction	Student Count	No. Of Days
1	2020-	VI	Online	59	15
2	2021	VII	Online	61	15



My journey at Apsit for the last 4 years has been indeed wonderful and that would not have been possible without receiving great support and guidance that Apsit has provided. Apsit strives so hard to make students globally competent for the corporate world. The Training and Placement Department always motivated us to be practically prepared and thereby bridging the gap between the way things are taught and implemented. Aptitude coaching conducted in the college for all the branches at no extra cost incurred to the students are the best examples of the efforts the institute takes continuously for it's students' bright future. TPO provided us with the best placement opportunities combined with many seminars by expertise and internship programs. Apsit has a remarkable placement cell. I'm grateful to the efforts of the department that helped me get a wonderful opportunity and achieve my career ahead.

-Janhavi Naik, BE-IT

INTERNSHIPS



Industry Internships Details of A.Y. 2020-21

Gautam Chaskar

UST

March 01, 2021 - May 01, 2021

**U -
S T**



Kunal Jadhav

Hudl

January 07, 2021 - March 06, 2021

Tanmay Rajadhyaksha

Kan Innovations

January 25, 2021 - March 24, 2021



KAN INNOVATIONS

Industry Internships Details of A.Y. 2020-21

Tejas Raibagi



CP Converge

December 07, 2020 - January 31, 2021



☎ 022 2610 3135 / 022 2619 5832
📍 Office No. 204, 2nd Floor M L Spaces,
D. J. Road, Opp. Old Jain Mandir
Vile Parle (W), Mumbai - 400056

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Mr. Tejas Raibagi has been working with CP Converge as a "Intern- Web Developer" from the period of **December 2020 to January 2021**.

Tejas has excellent communication skills and is extremely organized at whatever he does. He is reliable and has excellent computer skills. He can work independently and is able to follow through to ensure that the job gets done.

We found him to be sincere, hardworking, technically sound and result oriented during his tenure.

On behalf of the company, we wish him all the best for all his future endeavors.

Thanks & Regards,



CP Converge

Internship through APSIT SKILLS

A.Y. 2020-21



Students Name

- Rutwik Gaikwad
- Abhijeet Mishra
- Srushti Patil
- Shubhangi Tripathi
- Krish Shah
- Kunal Shinde
- Tanaya Patil
- Akshay Bura
- Shubham Khairnar
- Yugandhar Ghatge
- Parvi Agrawal
- Prem Vispute
- Pranav Mayekar
- Ganesh Jambuka

Project Name

- APSIT Skills Website
- Online Restaurant Management
- ONLINE FOOD ORDERING SYSTEM
- Retro Games
- Automatic Vehicle Classifier System
- Text Steganography
- Caesar Cipher
- Music Player
- Movie Recommender
- Online Restaurant Management
- Creating A Undetectable Trojan Backdoor Using Metasploit
- Tumor Detection in Brain using MRI Images
- Music Player
- Text Steganography



AICTE Virtual Internships Statistics A.Y. 2020-21

70+ Students have completed AICTE Virtual Internship program in Cybersecurity under guidance of Prof. Neha Deshmukh through Cisco Networking Academy.



Cisco Networking Academy grants this recognition to

NEELAY CHETAN UMROTKAR

A.P. Shah Institute of Technology

for successfully completing cyber security virtual internship program

Manoj K. Shah
Regional Manager APJ,
Corporate Affairs, Cisco

Prof. Anil D. Sahasrabudhe
Chairman,
AICTE

Kirti Sethi
HEAD,
NASSCOM FutureSkills

Program Partners



Student ID: STU60689468687971617466472



WORKSHOPS & TRAININGS

ESSENTIALS OF CLOUD COMPUTING

Short Term Training Program



A. P. SHAH INSTITUTE OF TECHNOLOGY
(All Branches NBA Accredited)

3 Days Online
Short Term Training Program
on
"AWS Cloud Foundation"
12th to 14th March, 2021

Resource Persons



Prof. Nahid Shaikh
Certified Instructor, AWS Academy,
APBIT Thane.

COURSE CONTENTS

- Cloud Concepts Overview
- Cloud Economics and Billing
- AWS Global Infrastructure Overview
- AWS Cloud Security
- Networking and Content Delivery
- Compute services overview
- Overview of storages services
- AWS database services
- AWS Well-Architected Framework and its purpose
- Automatic Scaling and Monitoring

REGISTRATION LINK

https://apshahinstituteoftechnology502.my.webex.com/apshahinstituteoftechnology_502.my/j.php?MTID=mr78889d8384ca306981d6855cd72722

TIMING :

Session 1: 11 AM to 1 PM
Session 2: 2 PM to 4 PM

CONTACT PERSONS

Prof. Neha Deshmukh
845484117
Ms. Shweta Mahajan
9860860299

Department of Information Technology organised a STTP for students on AWS Cloud Foundations from 12/03/2021 to 14/03/2021. This STTP was organised under the guidance of Prof. Kiran Deshpande, HOD IT Department. The Hands-on session was taken by Prof. Nahid Shaikh Assistant Professor and AWS Solution Architect. AWS Academy Cloud Foundations is intended for students who seek an overall understanding of cloud computing concepts, independent of specific technical roles. It provided a detailed overview of cloud concepts like, AWS core services, security, architecture, pricing, and support. The session was overall informative and motivational for 74 students of TE-IT. Proceeding towards the end, Online Test was conducted based on contents of STTP and Feedback for same was also collected from students about speakers and overall contents of STTP.

BIG DATA TOOLS FOR BATCH AND STREAM ANALYTICS

Short Term Training Program

A. P. SHAH INSTITUTE OF TECHNOLOGY
(All Branches NBA Accredited)

3 Days Online Short Term Training Program on "Big Data Tools for Batch and Stream Analytics"
29th April to 1st May, 2021

Resource Persons

- Prof. Vishal S. Badgujar**
Certified Instructor, Cisco Networking Academy, APSIT Thane.
- Prof. Amol Kalugade**
Subject Matter Expert, APSIT Thane.

COURSE CONTENTS

- Big Data Introduction and Application
- Big Data Characteristics and Frameworks
- Hadoop Physical Architecture and Ecosystem
- Nosql Data Architecture Patterns
- Map-Reduce Paradigm
- Configuration of Multi node Hadoop Cluster
- Data Import and Export on HDFS
- SaS Analytics, Social Network Analysis
- Hadoop Ecosystem Demonstration using Cloudera and HDP
- Introduction of Data Stream Processing and Tools
- Stream processing using Kafka

TIMING : Session 1: 11 AM to 1 PM
Session 2: 2 PM to 4 PM

REGISTRATION LINK
<https://us02web.zoom.us/j/81519524299>

PROGRAM COORDINATOR Prof. Vishal Badgujar

CONTACT PERSONS
Prof. Neha Deshmukh 845484117
Ms. Shweta Mahajan 9860860299

DEPARTMENT OF INFORMATION TECHNOLOGY APSIT THANE www.apsit.edu.in

Department of Information Technology has organised a STTP for students on Big Data Tools for Batch and stream analytics from 29/04/2021 to 01/05/2021. This STTP was organised under the guidance of HOD IT Prof. Kiran Deshpande. The Hands-on session was taken by Prof. Vishal Badgujar faculty of IT department and Prof. Amol Kalugade faculty of Computer Department of APSIT.

After successful completion of the STTP, student got enablement to demonstrate capability to use Big Data Frameworks like Hadoop for programming applications. This can be done using tools like Hive, pig, NO SQL and MongoDB for Big data Applications. This session also emphasized on how to design and implement algorithms to analyze Big data such as streams, Web Graphs and Social Media data. Applying the knowledge of Big Data help in development of BDA applications for real life scenario.

The session was overall informative and motivational for 78 students of BEIT. At the end, Online Test was conducted based on contents of STTP. Also Feedback was collected from students about speakers and overall contents of STTP.

ESSENTIALS OF LINUX SYSTEM ADMINISTRATION

Short Term Training Program

A. P. SHAH INSTITUTE OF TECHNOLOGY
(All Branches NBA Accredited)

3 Days Online Short Term Training Program on "ESSENTIALS OF LINUX ADMINISTRATION"
20th to 22nd April, 2021

Resource Persons

- Prof. Kiran B. Deshpande, HOD IT, SPOG Red Hat Academy, APSIT Thane.
- Prof. Neha Deshmukh, Instructor Red Hat Academy, APSIT Thane.
- Prof. Vishal S. Badgujar, Certified Instructor, Cisco Networking Academy, APSIT Thane.
- Prof. Yaminee Patil, Instructor Red Hat Academy, APSIT Thane.

COURSE CONTENTS

- Linux System Architecture
- Linux Filesystems, Filesystem Hierarchy Standard
- Linux System Administration
- Linux Backup Archiving and Transferring Files
- Essential System Services
- Networking Fundamentals
- Linux Package Management
- Shell, awk, Perl Scripting
- Virtual Hosting

TIMING : Session 1: 11 AM to 1 PM
Session 2: 2 PM to 4 PM

REGISTRATION LINK <https://us02web.zoom.us/join?register=1&pwd=0u5qj1qGtHeYQBlr8Td9HT6BOIgemT5>

PROGRAM COORDINATOR Prof. Yaminee Patil

CONTACT PERSONS Prof. Neha Deshmukh 845484117
Ms. Shweta Mahajan 9860860299

DEPARTMENT OF INFORMATION TECHNOLOGY
APSIT THANE www.apsit.edu.in

Linux System Administration is the essential domain in the world of control, automation and communication. For providing detailed knowledge about this Department of Information Technology organized a three days Short-term Training Program (STTP) on "Essentials of Linux System Administration" from 20th April 2021 to 21 April 2021. Prof. Yaminee Patil introduced the basic concepts of Linux system architecture, Linux file system and gave overview of command line of Linux. Prof. Vishal Badgujar explained the basics of Shell Scripting. The basics of Virtual Hosting and usage of hosting was explained by Prof. Neha Deshmukh. Then, Prof. Kiran Deshpande demonstrated few real time examples of shell scripting.

The session was overall informative for 72 students of SEIT. Proceeding towards the end, Prof. Kiran Deshpande also explained the need of Linux administration in IT. This rich insight about actual application of linux in IT industry has motivated student to further explore this domain.

R PROGRAMMING

Short Term Training Program



A. P. SHAH INSTITUTE OF TECHNOLOGY
(All Branches NBA Accredited)

3 Days Online Short Term Training Program on "R programming"
18th to 20th April, 2021

Resource Persons

- 
Prof. Sonal Balpande
Certified Instructor, APSIT Thane.
- 
Prof. Selvin Furtado
Subject Matter Expert, APSIT Thane.
- 
Prof. Bhushan Jadhav
Subject Matter Expert, TSEC, Mumbai.

COURSE CONTENTS

- Introduction To R
- The basic functionality of R will be demonstrated, Variable types in R.
- Data entry and exporting data
- Vectors, Matrices, Lists and Data frames.
- Loops and conditional execution, Functions
- Range, summary, mean, variance, median, standard deviation, histogram, box plot, scatterplot
- Working with larger datasets, Introduction to ggplot2 graphics
- Market Basket Analysis in R
- Machine Learning in R

TIMING : Session 1: 11 AM to 1 PM
Session 2: 2 PM to 4 PM

REGISTRATION LINK https://us02web.zoom.us/j/711200de61mDwsHNL58vEjicpyZtoRA6wM2_ID

PROGRAM COORDINATOR Prof. Sonal Balpande

CONTACT PERSONS Prof. Rujata Chaudhari
84549 66402
Ms. Shweta Mahajan
9860860299

DEPARTMENT OF INFORMATION TECHNOLOGY
APSIT THANE
www.apsit.edu.in

R Programming is object oriented programming language used for statistical data analysis, graphical visualization and predictive modelling which is used in almost every field. It is open source free software. It provides a framework to experiment, analyse and visualize data in almost all the applications.. For providing detailed knowledge of this, Department of Information Technology organized three days STTP on, "R Programming" from 18/03/21 to 20/03/21. Exploratory Data Analysis (EDA) is the process of visualizing and analysing data to extract insights from it. Summarizing important characteristics of data in order to gain better understanding of the dataset. It was very interestingly explained by Prof Selvin Furtado. Prof Sonal Balpande gave an overview of R language and demonstrated its usage. Prof. Bhushan Jadhav, familiarize students with various statistics which can be collected from Data exploration in R Programming. Mr. Vaseen Durrani, Director, Aedifico Tech Pvt.Ltd, Delhi conducted analytics and demonstrated data manipulation and visualization of datasets The session was overall informative, 69 students of BEIT attended it.

PYTHON FOR DATA SCIENCE

Short Term Training Program

A. P. SHAH INSTITUTE OF TECHNOLOGY
(All Branches NBA Accredited)

3 Days Online Short Term Training Program on "Python for Data Science"
15th to 17th April, 2021

Resource Persons

- Prof. Sonal Balpande**
Subject Matter Expert, APSIT Thane.
- Prof. Anagha Aher**
Instructor APSIT Skills, Thane.
- Prof. Bhushan Jadhav**
Subject Matter Expert, TSEC, Mumbai

COURSE CONTENTS

- Basics of Python, Classes and Objects,
- Class Declaration and Object Creation
- Class Variables and methods, Accessing Object and Class Attributes, Inheritance, Constructor in Inheritance, Exception Handling, Multithreading
- Graphical User Interface using Tkinter Library module
- Creating simple GUI, Database Connectivity
- Introduction to Numpy, Mathematical Functions of Numpy.
- Introduction to Pandas, Understanding Dataframe,
- Introduction to Matplotlib library
- Types of Plots

TIMING : Session 1: 11 AM to 1 PM
Session 2: 2 PM to 4 PM

REGISTRATION LINK <https://net2web.room.us/investor/register/27kcu5qaa0aHfwdKqWmCQz2CHC0uK0r2>

PROGRAM COORDINATOR Prof. Sonal Balpande

CONTACT PERSONS Prof. Rujata Chaudhari 84549 66402
Ms. Shweta Mahajan 9860860299

DEPARTMENT OF INFORMATION TECHNOLOGY
APSIT THANE www.apsit.edu.in

Data Science, is booming trend in industries. Python is a general-purpose, versatile, and powerful programming language. Its large and robust standard library makes Python score over other programming languages. For providing detailed knowledge of this Department of Information Technology has organized three days STTP on, " Python For Data Science" from 15/04/21 To 17/04/21 . Prof. Sonal Balpande had explained file handling, object oriented Programming concept in python using Colab Notebook. Designing GUI and Database connectivity in Python was very well covered by Prof Anagha Aher. Developing applications using variety of libraries and functions, exploring different Libraries like Numpy, Pandas and Matplotlib in Python were addressed by Prof Bhushan Jadhav. The session was overall informative, which was attended by 59 students of SE IT. STTP gave an insight into the python concepts and a kick-start learning of Python for Data Science.

CRACKING ON AND OFF CAMPUS PLACEMENTS

Training Session By the Students For the Students



LIVE WEBINAR

CRACKING ON AND OFF CAMPUS PLACEMENTS

Uddhabendra Maity
APSIT Alumni
Amazon Web Services (AWS)

Sunday 7th March | Time: 2:00 PM

Topics covered through the webinar:

- How to build your resume?
- Guidelines for Aptitude test
- How to build strong profile?
- Guidelines for Interview preparations

Registration Link :-
[/campus-session](#)

Campus placements are one of the most important phases in college life. To help students with this, Department of Information Technology organized webinar on topic "Cracking On and Off Campus Placements" on 7th March 2020. Mr. Uddhabendra Maity (APSIT Alumni) from Amazon Web Services (AWS) was the guest of honor. The talk aimed to provide guidance to students about how to crack the aptitude and technical rounds during placement drive. During the discussion Uddhabendra told students about the fact that most people save the efforts they have to put till the end, others start preparing much earlier so they can get their desired job. Preparing for placements is very important as it decides your career path right after you complete your graduation. Further in the discussion he shared the tips and tricks to build the resume, guidelines for clearing aptitude test. Further in the discussion Uddhabendra added a few important points to remember during placements like paying attention to pre-placement training, doing mock interviews, research on companies present scenario before interview only and also he told students to be confident but not overconfident. The session was overall informative and motivational for 53 students of TE IT and BE IT. Proceeding towards the end, Mr. Uddhabendra also discussed the questions asked in the technical round and HR interview which really motivated students.

GATE TIPS AND TRICKS

Training By the Students For Students

LIVE WEBINAR

GATE TIPS AND TRICKS

Sunday 28th Feb | Time: 2:00 PM

Tanmay Sule
APSIT Alumni
AIR - 2 CS
M.Tech, Computer Science
Indian Institute of Science (IISc)

Topics covered through the webinar:

- Tips & Tricks to crack GATE in 1st Attempt
- What is GATE Exam and its Objectives?
- When and How to Start Preparation?
- Career Opportunities through GATE

Registration Link :-
bit.ly/gate-session

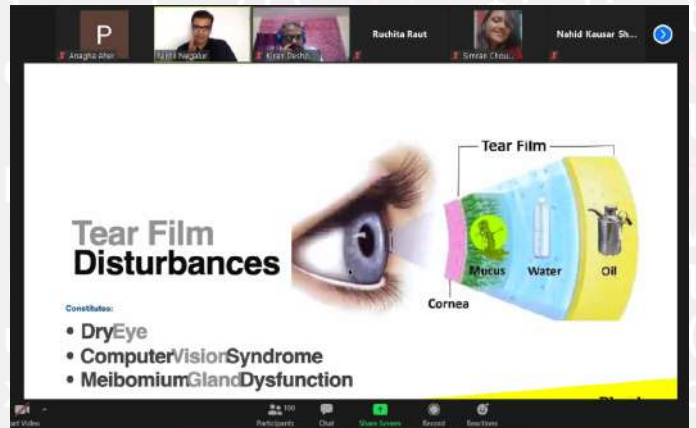
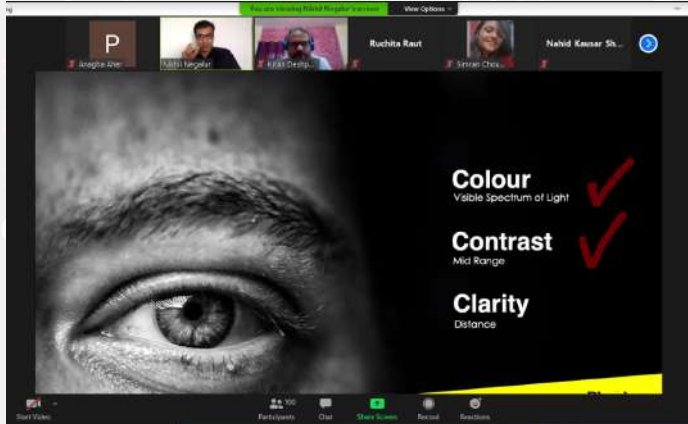
GATE (Graduate Aptitude Test in Engineering) Exam is a highly competitive entrance exam amongst the students of engineering. It provides the engineers to take admission in the prestigious institute like IITs, NITs, and other colleges in postgraduate programs. To help students with this Department of Information Technology has organized an expert talk on, "GATE Tips and Tricks" on 28th, February 2020 to help student in cracking this competitive exam. Mr. Tanmay Sule (APSIT Alumni who got AIR-2 in GATE 2020 CS) studying in Indian Institute of Science was the guest of honour. The talk aimed to provide guidance to students about how to prepare for GATE exams and also guidelines for preparing plan of studies for the exam was provided. During the discussion Tanmay told students about the GATE exam structure and objectives. Further in the discussion he shared the complete process starting from discussing syllabus for GATE CS, explaining the pattern of the exam along with structure of the question paper. Mr. Tanmay shared tips and tricks about preparing proper timetable for preparation. He also suggested students a few standard books and online resources helpful for preparation. Tanmay also stressed on the importance of solving the previous years question papers. The session was overall informative and motivational, for the 77 students of SE-IT, TE IT and BE IT who attended the session. Proceeding towards the end, Mr. Tanmay also discussed the career opportunities through GATE which motivated the students.



EVENTS

EXPERT TALKS

Screen Time & Eye Strain



With the current lockdown due to the COVID19 pandemic and “work from home” directives, students and faculties screen time has increased even more. Due to this students and faculties have seen an exponential rise in Dry Eye, eye strain and other eye complications. To help our students and guide them, Department of Information Technology organized an expert talk on “Screen Time & Eyestrain” on 30th August 2020. Dr. Nikhil Negalur from Bhaskar Eyecare was the guest of honour. The talk aimed to provide knowledge and information to students regarding ways to “digitally detox our eyes” and find a balance between work and health. Dr. Nikhil has suggested that students should reduce eye strain as much as possible so that they can carry out there work and daily activities without any complications. A few things suggested by Dr. Nikhil to protect your eyes were not to splash water in your eyes, have a good night’s sleep and treating the vitamin deficiency. The session was overall informative and motivational for 145 students of SE IT ,TE IT and BE IT. Proceeding towards the end, Dr. Nikhil also discussed a few a few tips and tricks to make sure your eyes remain healthy and a few myths about eye health and eye check-up followed by the question answer session with the students.

WEBINARS CONDUCTED DURING A.Y 2020-21

Sr No.	Expert Talks	Date
1	Webinar with NASA's Engineers on Opportunities and Challenges in Space	10-08-2020
2	Eyestrain Special Session	30-08-2020
3	Webinar on Introduction to Containers, Kubernetes and Red Hat Openshift	29-08-2020
4	Hands-on training on Latex, GitHub and Overview of Mendeley tool	11-7-2020
5	Webinar on INTRODUCTION TO SALESFORCE ECOSYSTEM.	30-11-2020
6	RHA Ecosystem Webinar - Red Hat OpenShift I: Containers & Kubernetes (DO180)	18-01-2021
7	Webinar on Roadmap for Education Abroad	21-02-2021
8	Session on GATE Tips and Tricks	28-02-2021
9	IT Week-Session on Application Development With Flutter	01-03-2021
10	IT Week-Session on Web App Development With Express.js, MongoDB, EJS & Deployment On Heroku	02-03-2021
11	IT Week-Session on Deep Learning	03-03-2021
12	IT Week-Session on Login and Sign-ups form using PHP, HTML, Javascript, and Mysql	03-03-2021
14	IT Week-Session on Unity Game Development	04-03-2021
15	IT Week-Session on Chatbot using Rasa	05-03-2021
16	IT Week-Session on 3D modeling in Blender	05-03-2021
17	Session on Cracking on and off campus placement	07-03-2021
18	APAC RHA Quarterly Webinar - Cloud Technologies - OpenStack Admin I (CL110)	14-05-2021



CODE-ATHON 2.0

Annual Coding Competition

Department of Information Technology had organized CODE-ATHON 2.0, a coding competition for students on 30/06/2021. Students who were willing to enhance their coding skills were invited to participate in this event from all the branches of the institute. Prizes were given to first three students to encourage students to take part in such event and to boost their confidence. This was mainly done to motivate student's to show their core skills and also provide them platform to compete with their peer. CODE-ATHON 2.0 was conducted on HackerRank platform. HackerRank supports automatic scoring based on the number of unit test cases passed. It also supports any custom scoring method defined in the problem statement. Total 36 students participated in this event. As a token of reward, e-certificates were also given to each student participated in this event regardless of his/her ranking. Solving contest problems is an excellent way to familiarize yourself with a programming language and its data structures, as well as get better at converting procedural ideas to code. These are very useful skills for a facing coding question during recruitment interviews and other competitive exams.

Winners of the event:-

Rank I- Prasad Jadhav (BE IT)

Rank II- Akshay Bura (TE IT)

Rank III- Akansha Rawat (TE IT)

CODE-ATHON 2.0

Annual Coding Competition



Department of Information Technology

in association with

Computer Society of India

presents

Code-athon 2.0

WINNERS

Rank II



Akshay Bura, TE IT

Rank I



Prasad Jadhav, BE IT

Rank III



Akansha Rawat, TE IT

EVENTS THROUGH IEEE STUDENT BRANCH @APSIT

Talkseries 1.0



PCT'S
A.P.SHAH INSTITUTE
OF TECHNOLOGY

IEEE APSIT
Student Branch

TALK SERIES 1.0

WITH **Googler**



Aditya Varshney
Graduated from IIIT Allahabad |
Software Engineer at Google |
Competitive Programmer |

4TH JULY, 2020 | https://bit.ly/TalkSeries_1
6:30 PM |  /IEEE APSIT

IEEE APSIT conducted a webinar on 4th July 2020 called as Talkseries 1.0 - with Googler. The speaker for the event was Mr Aaditya Varshney, who is a software engineer at Google. He graduated from IIIT Allahabad and worked with top MNCs such as Morgan Stanley and Flipkart before joining Google. The event was hosted by Mr. Rakshita Tantry, a member of IEEE. The event was live streamed on YouTube around 6:30 pm. It started with Rakshita introducing the speaker to the audience. In the interaction with the host, he answered various questions such as his college life, interest in coding, his previous work experiences and the work environment at Google. He explained that he started developing an interest in coding in 10th Std. The audience were enthusiastic and that led to an interesting, interactive session. Thus, it served as the perfect start to TalkSeries franchise.

EVENTS THROUGH IEEE STUDENT BRANCH @APSIT

Introduction to Cloud Computing



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Skills
We Set Trends

IEEE APSIT
Student Branch

IEEE

INTRODUCTION TO CLOUD COMPUTING

 **MANDAR CHAWATHE**
Principal Cloud Solution
Architect at Microsoft, USA.

8TH JULY 2020 | 6 PM

MEETING PLATFORM :  ZOOM

 bit.ly/MicrosoftCloud-Computing

IEEE APSIT Student Branch conducted a webinar on topic "Introduction to cloud computing" in collaboration with Apsit Skills on 9th July 2020. The speaker for the event was Mr Mandar Chawathe, a Principal Cloud Solution Architect with Microsoft, USA. The event was hosted by Dr. Sameer Nandivekar, Dean Administration of APSIT. The event was conducted online on Zoom platform around 6:00 p.m. It started with Dr. Sameer introducing the speaker to the audience. In the interaction with the host, he answered various questions such as how did he started his journey, his interest in cloud computing, the work environment in Microsoft and also shared the benefits of cloud computing. He shared numerous anecdotes from his life and regaled us with how he landed in the US at a young age and took interest in cloud technology.

EVENTS THROUGH IEEE STUDENT BRANCH @APSIT

AI and Machine Learning



PARSHVANATH CHARITABLE TRUST'S
A. P. SHAH INSTITUTE OF TECHNOLOGY, THANE
(ALL PROGRAMS ACCREDITED BY NBA)

with

IEEE APSIT Student Branch

17th July, 2020, Friday
at 6.00pm



Guest Speaker : Mr. Param Singh
He is a Data Scientist at Microsoft USA, in Customer Success, with a focus on Data Science, Advanced Analytics and AI. Experienced Senior Manager and Enterprise Software Architect.

Topic : AI and Machine Learning

Who Can Attend : Students and Faculty

Register at bit.ly/MicrosoftAI-ML

[/apsit_skills](https://www.instagram.com/apsit_skills) [/APSIT SKILLS](https://www.linkedin.com/company/apsit-skills)

IEEE APSIT Student Branch, in collaboration with APSIT Skills, organised a rousing webinar on the topic of 'AI and Machine Learning' on 17th July 2020. The guest speaker for the event was Mr Param Singh, a data scientist in customer success at Microsoft, USA. The webinar was held on Zoom platform. It was held to make the students as well as the faculty aware about this technology of the future. The webinar began at 6:05 p.m., with introduction the guest speaker. The mantle was then handed over to the speaker, Mr Singh. He initiated his talk by describing how he started out as a college student in New York and his experience in other companies before Microsoft. He then moved on to the main topic, with a brief explanation of the difference between Artificial Intelligence, Machine Learning and Data Science. The webinar received great response, with 240 participants. The audience were involved and eager with their questions, which contributed in making the event a success.

EVENTS THROUGH IEEE STUDENT BRANCH @APSIT

Renewable Energy in Industry 4.0



RENEWABLE ENERGY IN INDUSTRY 4.0

Dr. Chetan Singh Solanki
Solar Man of India. Professor at the Department of Energy Science and Engineering, IIT Bombay. An Educator, Innovator, Researcher Entrepreneur, Author and Philosopher, known for his remarkable work in solar sector.

1ST AUGUST, 2020 | 6 PM

MEETING PLATFORM :  **GOOGLE MEET**

bit.ly/RenewableIndustry4-0

IEEE APSIT Student Branch conducted a webinar on 1st August 2020. The topic for the event was "RENEWABLE ENERGY IN INDUSTRY 4.0" and the speaker was Dr. Chetan Singh Solanki who is also known as solar man of India for his remarkable work in solar sector. He is also a professor at the department of energy sciences and engineering at IIT Bombay. The event was hosted by Shyamkrishna Menon, a member of IEEE. The event was conducted on zoom platform and started at 6:00 pm. It was started by Shyamkrishna introducing the speaker to the audience. Dr Solanki began by reminding us about the uniqueness and significance of mother earth as it is the only planet in the galaxy that is compatible for human life to sustain. He introduced the concept of energy as the driver of life and that without energy human life would never be what it is and hence the need to sustain it so that our future generations would not have to suffer.

EVENTS THROUGH IEEE STUDENT BRANCH @APSIT

Opportunities and Challenges in Space

IEEE APSIT Student Branch

APSIT Skills
We Set Trends

OPPORTUNITIES AND CHALLENGES IN SPACE

DR. ROHIT GAWANDE
RF/ MICROWAVE ENGINEER WITH NASA
JET PROPULSION LABORATORY (JPL)

DR. CHAITALI PARASHARE
RF/ MICROWAVE ENGINEER WITH NASA
JET PROPULSION LABORATORY (JPL)

DATE: 10TH AUGUST 2020
TIME: 10.00 AM
PLATFORM : zoom

bit.ly/NASA-ExplorationOfSpace

IEEE APSIT Student Branch, in collaboration with APSIT Skills, organised an intriguing and informative webinar on the topic of 'Opportunities and Challenges in Space'. Dr Rohit Gawande and Dr Chaitali Parashare, both R/F Microwave Engineers at NASA's Jet Propulsion Laboratory (JPL), were the guest speakers. The webinar was held on 10th August 2020 on Zoom platform. The webinar took off at 10:03 a.m., with Dipali ma'am of APSIT giving a brief introduction about each speaker. Dr Gawande then took over. He then gave an overview of what his work comprises of at JPL, and talked about the Europa Clipper Mission, a mission to find water on Jupiter's moon Europa - the one he is working on. The audience at the event were very receptive and ask lot of questions through chat box. A session, which showed how enthusiastic they were. The event ended at 11:57 a.m.

EVENTS THROUGH IEEE STUDENT BRANCH @APSIT

Talkseries 2.0



The poster features a background image of a computer keyboard. At the top left is the logo of PCT'S A.P.SHAH INSTITUTE OF TECHNOLOGY. At the top right is the IEEE APSIT Student Branch logo. The main text reads: 'TALK SERIES 2.0 WITH AMAZONIAN'. Below this, it says 'JOHN BENEDICT BOGGALA, MANAGER I AT AMAZON INDIA, IEEE MEMBER.' To the right of the text is a circular portrait of John Benedict Boggala. At the bottom left, it says '8TH NOVEMBER 5:00 PM'. At the bottom right, there is a link 'bit.ly/TalkSeries_2' and a YouTube icon with the text '/IEEE APSIT'.

PCT'S A.P.SHAH INSTITUTE OF TECHNOLOGY

IEEE APSIT Student Branch

TALK SERIES 2.0

WITH AMAZONIAN

JOHN BENEDICT BOGGALA
MANAGER I AT AMAZON INDIA,
IEEE MEMBER.

8TH NOVEMBER
5:00 PM

bit.ly/TalkSeries_2

 **/IEEE APSIT**

IEEE APSIT conducted an interview called "TalkSeries 2.0 with an Amazonian" on the 8th of November, 2020. The speaker for the event was Mr. John Bannedict Boggala, who is currently working with Amazon as a manager for its digital and devices support team. He is also an IEEE South Asia YP Coordinator, Vice-Chair and Head of Data Management at IEEE Xtreme and has inspired many to join IEEE. The event was hosted by Prathamesh Hambar, an IEEE APSIT member. The event was live-streamed on YouTube at around 5:00 p.m. It started with the speaker telling us about his journey to the present. The speaker talked about the key stages of the interview process, his work environment, the role of his present job, and personal life experiences at interviews and workplace. He shared how much is the importance of soft skills along with technical skills.

EVENTS THROUGH IEEE STUDENT BRANCH @APSIT

ApScript-Hackathon



IEEE APSIT organised its biggest event yet with a 48-hour hackathon extravaganza, ApScript. The event got favourable reception from 586 participants, who were divided into 113 teams. It was supported by almost 100 campus ambassadors and 26 sponsors and community partners. Rewards worth INR 10,00,000 were bestowed in this event.

Tracks:

Four tracks were featured in ApScript, to make it accessible and pleasing:

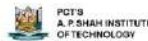
- Blockchain
- Machine Learning
- App Development
- Web Development

EVENTS THROUGH IEEE STUDENT BRANCH @APSIT

APSCRIPT Winners

Team of Department of Information Technology APSIT, Thane

- Rajan Khade
- Aditya Shinde
- Amit Pandey
- Dhruva Mhatre
- Prem Vispute



CERTIFICATE OF APPRECIATION

awarded to

Dhruva Mhatre

In recognition of being placed 1st in ApScript,
a 48-Hour hackathon conducted by IEEE APSIT on
6-7th February 2021.

Dr. Sameer Manivadekar
Dean Administration, APSIT

Prof. Hiran Deshpande
Faculty In-Charge, IEEE APSIT

Dr. Uttam Hulekar
Principal & Branch Counsellor,
IEEE APSIT



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EVENTS THROUGH IEEE STUDENT BRANCH @APSIT

Blog On!!



Blog On!!
A Blog Writing Contest
IEEE APSIT Student Branch

"Blog On!!" is an event of IEEE APSIT in collaboration with the IEEE Bombay Section. It is a blog writing contest that has the following three topics on which the blogs can be written:

- Start a Clean Energy Revolution from your home
- Importance of Clean Energy Awareness in Children
- Recent Developments in Clean Energy Technology and their Importance

The best three blogs will be shared on IEEE APSIT SB's Medium page.

📅 14th April 2021 🕒 20:00 IST(Submission Deadline)

🔗 <https://forms.gle/jFt1Rzr2Kk3xys4k6>

📱📺📷📧📧 /ieeepesday

IEEE APSIT Student Branch PES Chapter, on the occasion of PES Day 2021, organised "Blog On!!", a virtual blogging competition. The competition was held in order to promote writing skills and blogging aptitude among the participants. Owing to this year's PES Day theme, 'Clean Energy Revolution' was our central subject matter. However, three different options were put before the participants in the form of topics:

- a. Start a Clean Energy Revolution from your home
- b. Importance of Clean Energy Awareness in Children
- c. Recent Developments in Clean Energy Technology and their Importance

The competition was held on 14th April 2021. We received a total of eight submissions, from various colleges. An outside party was roped in to read all the blogs and make a fair, unbiased decision. The following were the winners:

- First position - Mukul Aigalikar, SE Mechanical, A P Shah Institute of Technology
- Second position - Safoat Saima Arpi, SE EEE, Islamic University of Technology
- Third position - Ruchika Kale, TE CS, A P Shah Institute of Technology

The winners' blogs were posted on IEEE APSIT SB's Medium page. The winners were also mentioned on IEEE APSIT Student Branch PES Chapter's Instagram page.



PLACEMENTS

OUR RECRUITERS



TRAINING AND PLACEMENT DEPARTMENT

We are pleased to inform

218+ Offers... (In Process)
till graduating batch 2020

Our Recruiters



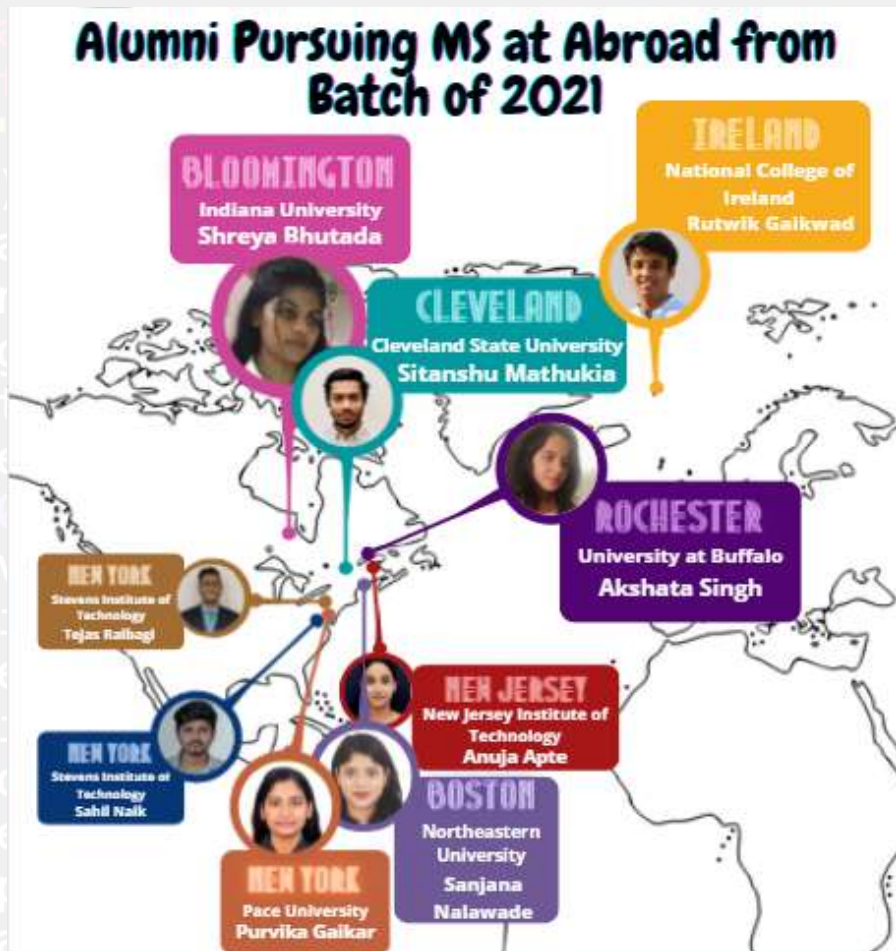
43 Students were placed during A.Y. 2020-21.



To help students in getting the best industry opportunities our training & placement cell provides various preplacement training programs & placement opportunities. We strive hard for overall development of students. Our students are placed in top-notch IT core companies during Academic Year 2020-21.

-Prof. Nahid Shaikh, T&P Co-ordinator.

STUDENTS PURSUING HIGHER STUDIES AT ABROAD FROM BATCH OF 2021



16 Students got admission in reputed Foreign University during AY 2020-21.

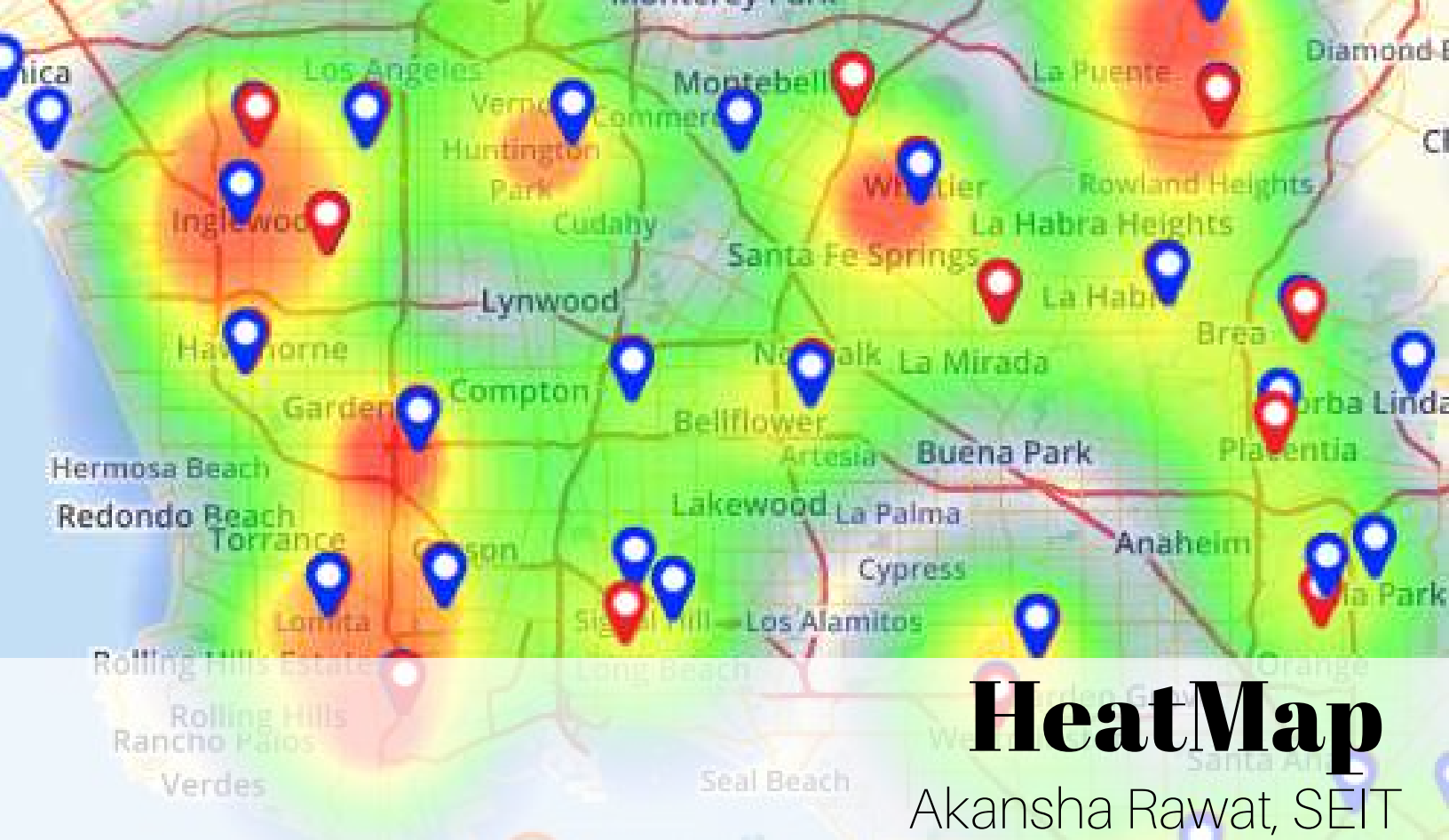


To help students in getting admission in reputed foreign Universities. Our training and placement cell provides GRE coaching classes free of cost. We strive hard over all development of students, as a result 16 students got admission in well known foreign Universities during A. Y. 2020-21.

- Prof. Nahid Shaikh, T&P Coordinator.



ARTICLES



HeatMap

Akansha Rawat, SEIT

A HeatMap is a 2-D graphical representation of data where the individual values contained in a matrix are represented as colors. It is a Python data visualization technique. The code involves steps such as :

- defining output grid size and radius of kernel shape.
- construct a grid using min() and max() functions.
- calculation of grid center points that will be used in calculating distance of dataset points.
- kernel density estimation used for point intensity or density calculation.
- Computing density value for each grid which overall will give the total intensity value of each grid.

Visualizing the result by adding a color bar and using matplotlib color mesh.

The algorithm used is KDE i.e Kernel Density Estimation. Kernel density estimation (KDE) is an algorithm which takes the mixture of Gaussians idea to its logical extreme and it uses a mixture consisting of one Gaussian component per point, resulting in a non-parametric estimator of density.

A basic way of creating HeatMap is by importing a few libraries from Python involving usage of math, matplotlib and numpy only. Mostly a common library used for this is either Scikit-learn or Seaborn. Math module performs certain mathematical tasks and has a set of methods and constants. It contains functions for calculating various trigonometric ratios for a given angle. Matplotlib is a basic library used for visualisation, that enables many other libraries to run and plot on its base including seaborn. Numpy is one of the most popular libraries. It is helpful for handling multi-dimensional arrays and matrices.

HeatMap can be created using several other ways too like using GIS software or tools.

GIS Softwares/Tools involves QGIS, ArcGSI, Google Fusion Table etc. QGIS is an open source GIS software that can be used to produce a heatmap from a set of data points with Heatmap Plugin. The plugin is using Kernel Density Estimation algorithm for creating a heatmap.



Web 3.0

Web 3.0

Atharv Joshi, SEIT

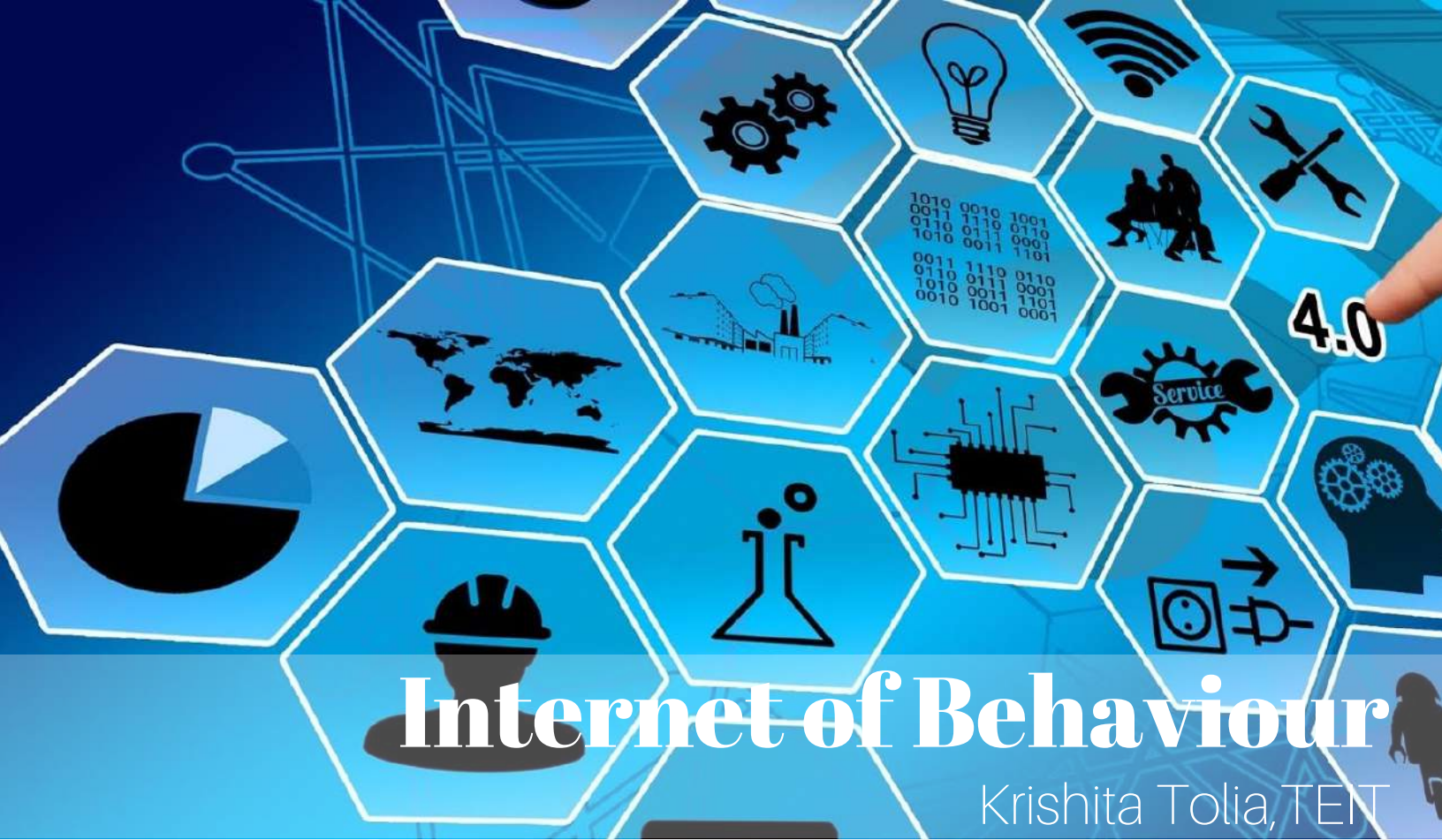
The internet, as we know it now, is very different from how it used to be. It has been ever changing since its inception. Now it is a place where you can get everything all of the time. Let's take this back to the beginning where it all began.

It is the 1960s and America is in the middle of the Cold war. The ability to transfer files between different computers has been invented, but it is limited only to the military. This is also because the computers are bulky and immobile. The American military fears that a nuclear attack could destroy all the data they have, so they develop a way to share and distribute the data- ARPANET (Advanced Research Projects Agency Network). It is still limited to the military and some research scholars. ARPANET later becomes the internet but not as we know it. That credit goes to Tim Berners-Lee who on 12 March 1989, proposed the idea of HyperText Transfer Protocol or HTTP. This is when the internet had its "origin story" per se.

Web 1.0 was all about static pages and Content served from the server's file system. It was a very primitive and limited method of sharing data but an important step towards the "information age". Most of the content on Web 1.0 was stored on a few servers and it was not user-generated. Tables and Frames were used to position and align the elements on a page. This was just the beginning.

Web 2.0 then came along. This was a whole new way of accessing and sharing information. It is also the current way of navigating and handling data. It was a shift from static and limited web pages to unlimited dynamic pages. It changed from free servers to expensive servers to interactive experiences and user-generated content. This brought about a major shift in the online landscape. The user-generated content gave us the quintessential social media along with some of the must use services such as Uber. Web 2.0 was and is all about user-generated data, the use of the cloud and most of all mobile internet. As soon as the internet was available on your mobile the cloud computing system came into the picture. The internet became more accessible and personal. The use of cloud computing also reduced the infrastructure cost of companies as they could rent the storage and focus on their product more than maintaining the databases. This gave some much-needed boost for some startups as they made use of the cheaply available resources which made the industry more accessible. The biggest example of Web 2.0 is the concept of SaaS or Software as a Service.

Now we come to the topic at hand, Web 3.0 which is also being called the semantic web is the future of the internet. This deals with the decentralization of data, i.e., instead of being a connection like server-client, it will make use of all the data available on the network. This means that an abundance of real-time data/resources will be available for anyone to use anytime. This, however, does not mean that the privacy of data is lost. All of the data can be accessed and bartered without giving up ownership of the data. Web 3.0 also depends on the new layers of networking such as Artificial intelligence and edge computing. The most common use-case of decentralisation of data can be seen in Blockchain and Cryptocurrency. Web 3.0 will allow not only humans but even machines to get the data. This is, however, just the beginning, we can only speculate what the future holds for us and the internet. Web 2.0 did to the internet what Quantum physics did to physics, it gave users the ability to control the outcome and changed the perspective of how we look towards the world. Who knows what this new era of the web has in store for us?



Internet of Behaviour

Krishita Tolia, TEIT

Internet of Behaviour, also known as IoB, refers to the behavioural data analysis gathered from the Internet of Things and other sources and then attempts to make effective use of. This data is amassed through wearable technologies, individual online activities, household electrical devices, which can provide valuable information about the behaviour and interest of users. With the help of both IoT and IoB, it has become possible now to track, gather, combine and interpret massive data generated via various online activities and personal behaviour, including social media behaviours and commercial transactions.

Importance of Internet of Behaviour:

The main purpose of the Internet of Behaviour is to collect, analyse, respond and understand all types of behaviours to improve customer/user experience. Other than that, behavioural data is also helping businesses to make more informed decisions and improve their service quality and value chain in the best possible way. Overall, psychology and marketing go side by side from the beginning of advertising. This way, businesses can get new insights into the data that's collected by IoT. The IoB has become a new yet powerful tool for businesses' sales and marketing worldwide. With this, businesses can get a deep understanding of their customers to keep them more satisfied. In short, the Internet of Behaviour is here to generate a significant boost in the industry development.

Applications of loB in 2021:

- Both Facebook and Google are using the behavioural data of their users to display advertisements to the people accordingly. This is helping businesses in getting connected with their potential audience as well as tracks their behaviours towards their ads via click-through rate.
- Similarly, YouTube is also utilizing behavioural analytics to improve the experience of its viewers. By tracking behavioural data, it is recommending users' videos and shows which they are more interested in.
- Even more, the latest technologies such as Siri, Google Home and Alexa also study and interpret the data and behaviour of the user to work more efficiently.

However, the overall concept of loB revolves around behavioural data's effective analysis and proper understanding, as well as the desire to apply the acquired knowledge to promote and create customized services and products. This will ultimately provide more value to both your customers and business.



The Future of IT in India

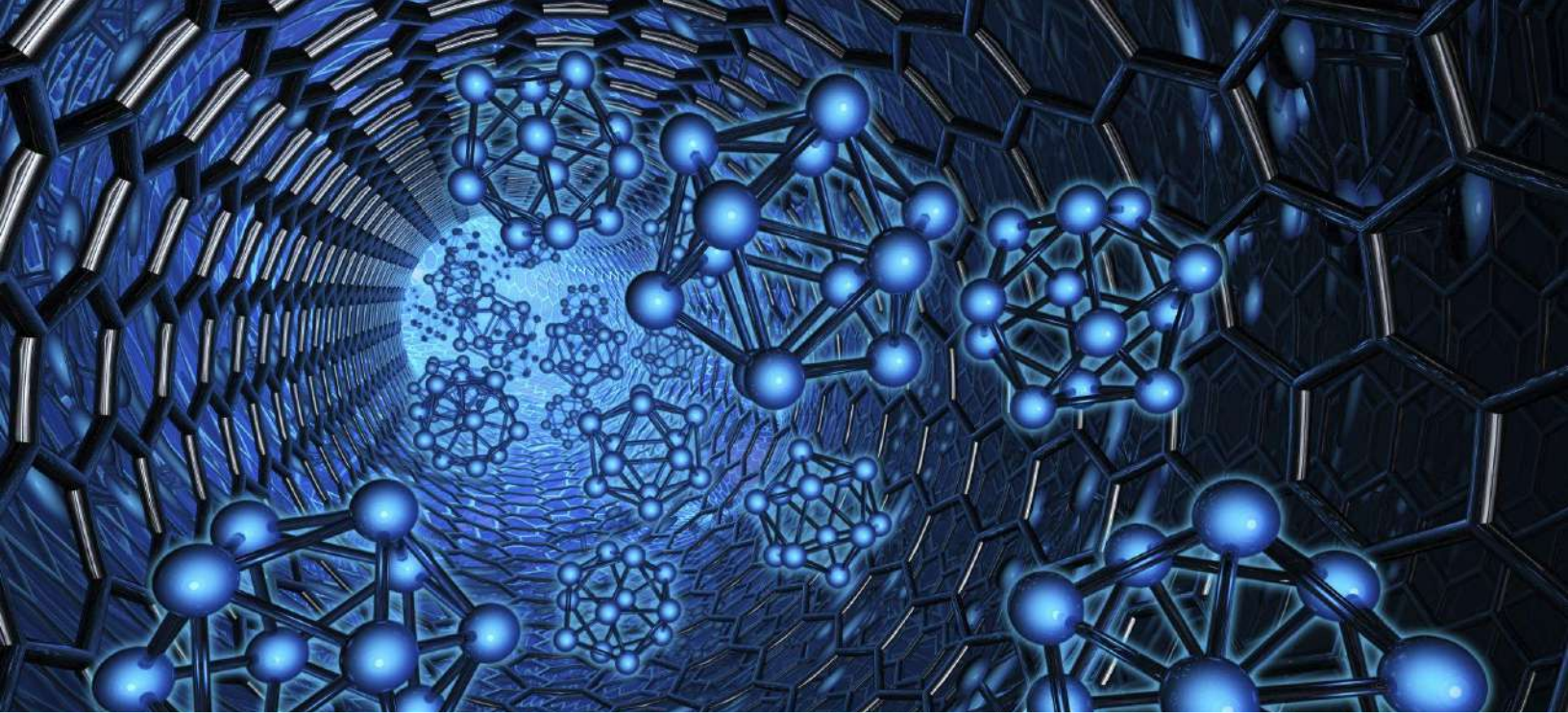
Dhruu Ahuja, TEIT

We live in a world where technology is a crucial need of humanity. We are so used to certain aspects of today's technology that we employ its sources in our day-to-day life. It is evident from the very fact that we are hooked on computers for everything we do and it's made our lives easier and cozy. This technology is the greatest boon to our society and one of the main industries during this regard is Information Technology. India has become one of the main IT jobs capitals of the planet generating 2.5 million jobs. The youngsters are interested in this industry because it's a bright future and offers high perks. The industry is growing faster than the other industries in India and it sustains the potential to form this country, a worldwide IT superpower.

The IT sector has been at a rate of growth over the past five years and is predicted to grow year by year within the future. Many sectors are hooked on IT to develop their business and expand their revenue using IT and ITES. The growing rate of the IT sector is notably fast and earning large revenue to the state in one or other terms. The IT sector has created additional jobs and thus reduces the unemployment rate of growth. The IT sector shows excellent prospects and lots of companies have engaged with foreign investors to develop the business in the IT sector.

The other critical factor that has impacted the potential to make jobs within this industry has been the shift towards using newer technologies like AI and automation. In one of the findings by the planet Bank, the urgency of this factor has been highlighted. This is reflected in its estimate that around 72% of jobs stand threatened due to automation in India. The report mentions that the present technology could “potentially disrupt the pattern of the normal economic path in developing countries.” Although this consists of the whole pool of employable skills that might get replaced as a result of automation, IT functions are sure at the forefront of facing such an incoming impact. A recent study revealed that in the coming years, AI is bound to become an essential component of the many IT companies' functions, going on to establish a direct business impact. This shift towards AI, the use of AI and automation along with its impact on India's core contribution to the global talent pool of skilled technical experts will be noticed in the foreseeable future.

Overall, once we check out the longer-term aspect of this industry, we can make certain that the IT boom isn't going to subside any time soon.



Nanotechnology

Sumeet Swain, TEIT

The emergence of nanotechnology took place when Richard Feynman, an American physicist described the concepts of nanoscience and nanotechnology whilst giving a talk at the California Institute of Technology back in 1959. The idea of future scientists controlling molecules and atoms was explained by Feynman which later on led to Professor Norio Taniguchi introducing the term nanotechnology after a few years. The spectrum of nanotechnology involves the combination of physics, biology and chemistry paired with engineering and material science. Additionally, nanotechnology, sometimes known as the "very small science," has immense potential and excels in the field of medicine. From providing more effective medicines to more rapid medical diagnosis, the opportunities are limitless.

Nanotechnology and COVID-19:

In the current COVID-19 pandemic, the development of nanotechnology can be utilized in the creation of vaccines as a cure. Nanomaterials are used in every aspect of vaccine development and distribution. Nanotechnology can help in vaccine manufacturing and distribution around the world, as well as viral disinfectants and detection systems based on nanomaterials. Vaccines are the most promising way to stop the spread of the SARS-CoV-2 Coronavirus. As a result, nanoparticles play an essential role in vaccine development.

Factual knowledge: Here's some facts on nanotechnology that might interest you!

#1: Nanoscience runs on a scale 1000 times smaller than an optical microscope can see.

#2: The cosmetics company L'Oreal produced nanosize vesicles known as nanosomes, which are widely used in their products to transfer active ingredients such as pure Vitamin E through customers' skin.

#3: Scientists at the University of California, San Diego, have designed a fluorescent nanoparticle that glows inside the human body, making cancers and organ damage simpler to detect and see.

#4: Metal oxide and carbon fibre, as well as anything containing metal mixes, include tiny nanoparticles that aid in the detoxification of toxic material. Their high solubility levels and chemical reactivity help them in locating the harmful substances. To conclude, nanotechnology is really a diverse scientific topic that is rapidly growing and has the potential to entirely alter the future.

Nanotechnology and its many advancements contain the power to transform and shape health, communications, genetics, and robotics in the future.

Did you know?

#1: Richard Feynman is known as the father of nanotechnology.

#2: Iron Man Suit: In the popular movie, the Avengers: Endgame, Iron Man's Mark L (Mark 50) suit was based on nanotechnology. The suit displayed various new features and enhanced the already existing powers of the suit. Nanotechnology brought new features like Nano handblade, Nano Shield, Nano Cannons, Nanotech Tissue Repair and Nanotech Suit Regeneration. It also allowed Tony Stark (Iron Man) to deploy his armor at any time which was not possible with the previous generation suits.



AI Based Car

Ayush Jain, SEIT

A self-driving car/driverless car is one of the applications of Artificial Intelligence. Self driving vehicles are equipped with various sensors, cameras, GPS, radar, etc which help them better to understand the surroundings and in path planning. To qualify as fully autonomous, a vehicle must be ready to navigate without human intervention to a predetermined destination over roads that are adapted for its use. A self-driving vehicle is almost entirely autonomous but it still requires a human driver to maintain the error performed by the software and also for the roads which are not adapted for self driving vehicles. Most companies have started developing and testing vehicles like Google, Tesla, Audi, etc.

- How self driving vehicles work

AI technologies power self driving car systems. Developers of self-driving vehicles use vast amounts of data from sensors and cameras and combine all of the data those systems generate to identify everything around the vehicle and predict what those objects might do next. This happens in fractions of a second. The more the system drives, the more data it can incorporate into its deep learning algorithms to make proper driving choices.

- Self driving vehicle safety challenges

vehicles must learn to identify objects on the path like animals ,people crossing roads,etc and according to condition vehicles should respond as quickly as possible. construction projects that cause lane changes or complex decisions, where to stop allow emergency vehicles to pass.the system needs to make instant decisions on when to slow down,continue acceleration normally. Whether heavy traffic all will impact on the accuracy of sensing capability. to avoid the obstacles on the road like potholes ,etc. there are also serious concerns that software used to operate autonomous vehicles can be hacked. There is a problem regarding accidents which involve an autonomous car operated by Uber. The company reported that the vehicle's software identified a pedestrian but deemed it a false positive and failed to swerve to avoid hitting a person.

- The pros and cons of self driving cars

The top benefit is that accidents caused by humans due to human error or poor choices such as drunk or distracted driving can be reduced by self-driving vehicles. Autonomous cars can remove the risk factor of causing accidents through human error though the error caused by the mechanical issues can still cause the accidents.

In theory if the roads are mostly occupied by the autonomous vehicles traffic would be less. congestion in fully automated car the occupants could do productive activities while commuting to work

Those with disabilities affecting their ability to drive would not have to rely on others or public transportation.

The problem for the software used in vehicles can be hacked and can be used to manipulate the route.

Jobs of the driver will be at risk due to autonomous vehicles.



QUANTUM COMPUTING

Pranjali Shimpi, SEIT

The word “quantum” gained popularity within the late 20th century as a descriptor signifying something so significant that it defied the utilization of common adjectives. As an example, a “quantum leap” could be a dramatic advancement. Though it's not a correct definition, when “quantum” is applied to “computing,” however, we are indeed entering an era of dramatic advancement. Quantum computing is that the exploitation of collective properties of quantum states, like superposition and entanglement, to perform computation. The devices that perform quantum computations are referred to as quantum computers. The study of quantum computing is a subfield of quantum information processing. Quantum computers are able to process information million times faster than classic computers. As per the study, the quantum computing market is projected to attain \$64.98 billion by 2030. Companies like Microsoft, Google, Intel, etc. are racing to make quantum computing tools.

The first quantum computing program appeared in 1994 by Peter Shor, who developed a quantum algorithm that might efficiently factorize large numbers. Quantum computing is technology supporting the principles of scientific theory, which explains the character of energy and matter on the atomic and subatomic level. It depends on the existence of mind-boggling quantum-mechanical phenomena, like superposition and entanglement.

Let's discuss how it'll help us create a better world. Quantum computing's purpose is to help and extend the skills of classical computing. Quantum computers will perform certain tasks rather more efficiently than classical computers, providing us with a replacement for several applications. Quantum computers won't replace their classical counterparts. In fact, quantum computers require classical computers to support their specialized abilities, like systems optimization.

Quantum computers are going to be useful in advancing solutions to challenges in diverse fields like energy, finance, healthcare and aerospace. Its capabilities will help us cure diseases, improve global financial markets, detangle traffic, fight global climate change and more. For example, quantum computing has the potential to hurry up pharmaceutical discovery and development, and to boost the accuracy of the atmospheric models used to track and explain global climate change and its adverse effects.

Quantum computing offers us a capability to jot down programs in an exceedingly completely new way. As an example, a quantum computer could incorporate a programming sequence which will be along the lines of "take all the superpositions of all the prior computations." This could permit extremely fast ways of solving certain mathematical problems, like factorization of enormous numbers.

We can call this "humanizing" quantum computing, because such a robust technology should be used to benefit humanity.

There are many advantages and also disadvantages of Quantum computing. Few are discussed below.

Few Advantages of Quantum Computing :

- Perform extremely complicated calculations easily such as extremely large systems of linear equations.
- Possible to simulate quantum systems uphill on traditional computers.
- Potentially thousands of times faster.

Few Disadvantages of Quantum Computing :

- Technology required to implement a quantum computer is not available at the present days.
- The minimum energy requirement for quantum logical operations is five times that of classical computers.
- Quantum CPU will have efficiency and heating problems of its own.
- When a measurement of any type is formed to a quantum system, decoherence is completely weakened and also the wave function collapses into one state.



DIGITAL TWIN

Snehal Shanbhag, SEIT

A digital twin may be a virtual representation that is the real-time digital counterpart of an object or process. In simple words it is a digital or virtual copy of physical assets or products.

The term digital twin was originally coined by Dr Michael Grieves in 2002. NASA was one among the primary to use digital twin technology for space exploration missions. Digital twins connect the real and virtual world by collecting real-time data from the mounted sensors. The collected data is either locally decentralized or centrally stored during a cloud. The data is then evaluated and simulated in a virtual copy of the assets. After receiving the information from simulation, the parameters are applied to real assets. This integration of knowledge in real and virtual representations helps in optimizing the performance of real assets.

Digital twins provide important insights when it involves planning, and execution of those core operational tasks. Maintenance managers can use digital twin data to inform a more proactive asset renovation strategy. Facility managers can model new, more efficient workspaces. Companies can become leaner, greener, and more cost-efficient by watching the info present within a digital twin. As a mirror of the physical space, a twin will inform the simplest course of action for optimizing it.

This pairing of the virtual and physical worlds allows analysis of knowledge and monitoring of systems to spot problems before they even occur, prevent downtime, develop new opportunities and even plan for the future by using simulators.

Digital twins, however, shouldn't be confused with digitization. An IoT digital twin doesn't substitute a physical item or process with a digital one to make it more accessible, efficient, or secure. It's a particular replica of the object and a way of testing and monitoring it without having to access to or testing on the important thing. These replicas are then combined with AI-powered analytics tools in a virtual setting.

Artificial intelligence and digital twins have a mutualist relation wherein each make contributions to every other. Digital twins can benefit from artificial intelligence. AI and machine learning algorithms enable businesses both to create some digital twins and also to process an outsized amount of knowledge collected from digital twins. For example, by leveraging AI capabilities with digital twins, engineers can accelerate the planning processes by quickly evaluating many possible design alternatives. Digital twins can help businesses generate simulated data which will be wont to train AI models. If modelled well, digital twins are often powerful tech – something which the facility industry has also realised.

Advantages:

- Visualizing merchandise in use, with the aid of using actual users, in actual-time
- Building a virtual thread, connecting disparate structures and selling traceability
- Refining assumptions with predictive analytics
- Troubleshooting far away equipment
- Managing complexities and linkage interior structures-of-structures

One of the examples is that Tesla makes use of this era to provide a higher client enjoyment and reliability. Moreover, they replace virtual dual software programs primarily based totally on the vehicle's sensor facts and add updates instantly into the car's system. Everything takes place easily and effectively. The client doesn't ought to lose time, and the producer has a higher perception of their merchandise.



IoT, bringing the age of reformed world!

Ekta Gujar, SEIT

Imagine a sci-fi movie, where a certain superhero connects all his devices mutually and operates it swiftly with his fingertips. Fascinating, isn't it? Well, it's not just limited to the sci-fi movies now. It's actually possible! In a world where we can connect everyday objects kitchen appliances, cars, thermostats, baby monitors to the internet via embedded devices, seamless communication is possible between people, processes, and things. In this hyper connected world, digital systems can record, monitor, and adjust each interaction between connected things. The physical world meets the digital world and they cooperate. All these is possible due to one evolving technology which is "Internet of Things (IoT)".

Over the past few years, IoT has become one of the most important technologies of the 21st century for the same reason. Wondering what IoT is? The Internet of Things, or IoT, refers to the billions of physical devices around the world that are now connected to the internet, all collecting and sharing data. Smart city, smart homes, pollution control, energy saving, smart transportation, smart industries are such transformations due to IoT. Extensive research studies have been done and available in terms of scientific articles, press reports both on internet and in the form of printed materials to illustrate the potential effectiveness and applicability of IoT transformations.

This article would help the readers and researcher to understand the IoT and its applicability to the real world. "Things" in the IoT sense, can refer to a wide variety of devices such as heart monitoring, biochip transponders on farm animals, electric clams in coastal waters, automobiles with built-in sensors, DNA analysis devices for environmental/food/pathogen monitoring or field operation that assist fire-fighters in search and rescue operations.

However, with all of its pons, there are some challenges that IoT has to face before its successful globalization. They can be stated as, software complexity, insufficient testing and updating, concern regarding data security and privacy, etc. Also, since there's no international standard of compatibility for IoT, it's difficult for devices from different manufacturers to communicate with each other. And if there's a bug, it's likely that every connected device will become erupted.

Regardless of these obstructions, IoT Analytics continues to track in which verticals most IoT projects are happening. The latest 2020 analysis shows that most IoT projects still happen in Manufacturing/Industrial settings, with verticals such as Transportation/Mobility, Energy, Retail and Healthcare having also increased their relative share in comparison to past analyses. The 2020 analysis is based on 1,414 actual IoT projects that were explored as part of IoT Analytics' research tracking IoT platforms and the underlying data is included in the 2020 list of 620 IoT platforms. The fact that more than 1,000 publicly announced IoT projects now make use of an IoT platform highlights the importance and pervasiveness of IoT platforms in bringing IoT solutions to market.

These devices will bridge the gap between physical and digital world to improve the quality and productivity of life, society and industries. With IoT catching up Smart homes is the most awaited feature, with brands already getting into the competition with smart appliances. Wearables are another feature trending second on the internet. With launch of Apple Watch and more devices to flow in, these connected devices are going to keep us hooked with the inter-connected world.

Pretty much any physical object can be transformed into an IoT device if it can be connected to the internet to be controlled or communicate information. A light bulb that can be switched on using a smartphone app is an IoT device, as is a motion sensor or a smart thermostat in your office or a connected streetlight. An IoT device could be as fluffy as a child's toy or as serious as a driverless truck. Some larger objects may themselves be filled with many smaller IoT components, such as a jet engine that's now filled with thousands of sensors collecting and transmitting data back to make sure it is operating efficiently. At an even bigger scale, smart cities projects are filling entire regions with sensors to help us understand and control the environment.

The Internet of Things (IoT) is one of the emerging research topics in which many researchers are working. The main goal of IoT is to provide quality of life to all human beings by connecting all objects in the environment with technologies. The IoT will bring automation to all things around us. Cloud service providers like AWS (Amazon Web Services), Microsoft Azure, Google also started providing a platform for IoT deployment. In future, networking and communication research have an opportunity to develop this budding field and transform our world with a "Gadget Revolution".



Interesting Technological Developments

Amit Kharwal, TEIT

1. Graphene Batteries:

As we all know there are various sorts of batteries. The foremost ones used are the Lithium-Ion batteries we see and use every day. However, there are different sorts of batteries too. The one I wanted to spotlight is the graphene batteries. Graphene batteries are an emerging technology that allows for increased electrode density, faster cycle times, also possessing the facility to hold the charge longer thus improving the battery's lifespan. Graphite batteries are well established and also are available in many forms. Graphene Batteries can also improve battery attributes such as energy density and form in many ways. Li-ion batteries and other sorts of rechargeable batteries are often enhanced by introducing graphene to the battery's anode and capitalizing on the materials conductivity and massive area traits to realize morphological optimization and improving performance. Graphene-based batteries have exciting potential and while they're not fully commercially available yet, Research and Development are intensive and can hopefully yield leads in the longer term.

2. Li-Fi:

Li-Fi may be a wireless optical network. Li-Fi may be a light-based Wi-Fi that uses light instead of radio waves to transmit information.

Li-Fi data is transmitted through LED bulbs and is received by a photoreceptor. because it uses light for the transmission of knowledge and therefore the operation of the entire system is dependent upon precise transmission of knowledge through light. Therefore it's termed Li-Fi. Li-Fi could also be a lightweight Communications system transmitting wireless internet communications at very high speeds. Li-Fi enables the device to connect online with no wire. To make a communication line between nodes, a Li-Fi needs a transceiver to transmit and receive the data. The transceiver will have a modulation technique to make the LED's able to carry the data using the sunshine. The emergence of Li-Fi is to beat the shortage within the present technology. We all know that WiFi is the foremost used technology to connect many devices online. In the future, the use of internet-based devices will be heavily increased. This increase made within the capacity of WiFi is reduced due to the limitation of frequency resources.

3. 6G:

In telecommunications, 6G goes to be the sixth generation standard for wireless communications technologies supporting cellular data networks. it's the planned successor for 5G and is probably going to be significantly faster, at speeds of 95 Gbit/s. Like its predecessors, 6G networks go to be broadband cellular networks, during which the place is split into small geographical areas called cells. Several companies like Nokia, Samsung, LG, Apple have shown interest in 6G. China, South Korea, and Japan have an interest in 6G. 6G will likely become commercially available within the 2030s. The addition of mobile edge computing (MEC) is going to be to some extent of consideration as an addition to 5G networks, MEC is getting to be built into all 6G networks. Edge and core computing will become far more seamlessly integrated as an area of a combined communications and computation infrastructure framework by the time 6G networks are deployed. This may provide many potential advantages as 6G technology becomes operational, including improved access to AI capabilities.

4. Optical Rectenna:

Engineers at the Georgia Institute of Technology developed optical rectennas that use carbon nanotubes which act as antennas that capture light from the sun or other sources. The sun rays hit the nanotube antennas creating an oscillating charge that moves through rectifier devices attached to it. The rectifiers activate and off at record-high petahertz speeds, creating a little DC.

5. SPOT Robot:

Spot is a nimble four-lagged robot dog developed by Boston Dynamics. It is compatible for unstructured environments and is also fully capable of climbing stairs and traveling through rough terrain. Spot is an agile mobile robot dog that navigates the terrain with unprecedented mobility, allowing you to automate routine inspection tasks and data capture safely, accurately, and frequently. It's very Strong and can Carry and power up to 14 kg of inspection equipment. You can control the robot dog from a long distance using a mobile application and inbuilt stereo cameras. Smart Program repeats missions to gather consistent data. It Uses 360 perception to map terrain and avoid obstacles as they seem. Balanced dynamically in uncertain surroundings of payloads of up to 14kg. Cruises easily over loose gravel, grass, curbs, and stairs. Using pre-built solutions acquired from existing third-party software and hardware. Attach and integrate unique hardware using mounting rails and payload ports. By using the Software Development Kit (SDK) to create custom controls, program missions, and integrate sensor inputs into data analysis tools. Mobile manipulation, Able to handle up to 14 kg payloads. 3D vision system with SLAM and avoid obstacles. Omni-directional walking and multiple walking help to climb and descend stairs. Bio inspired dynamic control. Balances and adjusts to physical disturbances. Remote controlled by an individual's operator while also having the power to navigate and perform some tasks autonomously. Ingress protection of IP54. The operating environment is about -20C to 45C.



DEPARTMENT OF INFORMATION TECHNOLOGY

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