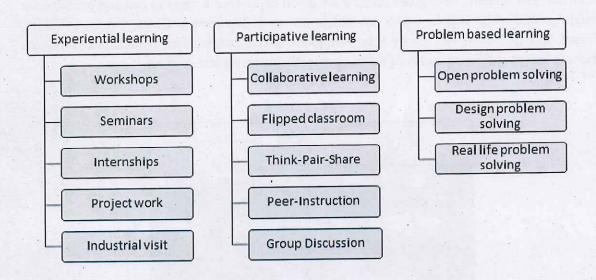


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2.3.1. Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences (20)

We at SIESGST, conduct various student centric activities to improve the quality of teaching-learning. The activities that are conducted under experiential learning, participative learning and problem solving methodologies are shown in figure 1.



The following are the reports of some of the samples of student centric methods adopted by the departments.

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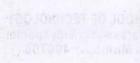
Workshops:

Bootstrap workshop- July 31, 2019 - August 6, 2019.

Students were trained in Bootstrap in accordance with the web development subject (Internet Programming) for Third Year Engineering. The workshop had a head count of over 25 students. It was over a duration of 4-days. The students were taught about various CSS classes and its properties in Bootstrap. The students were exposed to various bootstrap classes and the techniques required to implement them in various web applications. They raised doubts and queries and got it solved. The students were given time for hands-on experience to modify and execute the code taught to them. The various topics covered in the workshop include Cards, Carousel, Tables, Forms, Tooltip, Navbar etc. The workshop on Bootstrap framework helped the students to enhance the web design and functionality of their Internet Programming mini-project.







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Network Security & Ethical Hacking from 16/12/2019 to 21/12/2019

Students were trained in identifying the security parameters and penetration techniques in any organization in ethical manner and mitigating threats.

Description:

The department of Computer Engineering of SIES Graduate School of Technology, Nerul, Navi Mumbai has successfully organized and conducted one week student development program on Network Security & Ethical Hacking for Second year students of CE branch from Dec 16-21, 2019 with 15 days of internship.

OBJECTIVES AND GOALS: The main objective of this SDP was to give insight to the participants of ever expanding field of Internet/cyber security world. It is aimed to provide knowledge to the students on how to identify the security parameters and penetration level in any organization in ethical manner andmitigating threats.

The goal is to identify general methodology of performing penetration in the internet world, tools available in performing actions and mitigating the risk .

Outcomes:

As a result of successful completion of this workshop, participants will be able to

- · Understand current cyber security threats
- Analyze traffic patterns associated with suspicious network behavior
- Select and configure various Open-Source tools for network security in Kali Linux.

Attendees:

First year engineering students from EXTC/CE/IT/MECH branch. Total 17 participants have attended the program.

Session: Major topics covered during the workshop are

One week Student development program on Network Security & Ethical Hacking From Dec 16-21,2019

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- 1) Basics of Networking Hackby Prof. Kalyani P
- 2) Scanning and sniffing using open source tools by Prof.SuvarnaChoure
- 3) Password cracking by Prof.SuvarnaChoure
- 4) Metasploit FrameworkProf.Aparna Bannore
- 5) Introduction to Blockchain: Dr. Rizwana Shaikh
- 6)SQLinjection,CSS and Malware detection by Prof.UjwalaRavale
- 7) Browser Exploitation by Dr. Vijay katkar

Mini projects: The students demonstrated the skills developed through various mini projects developed during the workshop.

The topics were Project 1) Metasploit: for hacking windows XP system using Kali linux

Project 2: Keyloggerkeylogger(windows OS)

Project3: Steganography using windows Os using Openstego

Project4: Angry Ip scanner(Windows OS)

Project5: Web vulnerability scanner :netSparkar

Project6: SQLmap using Kali Linux





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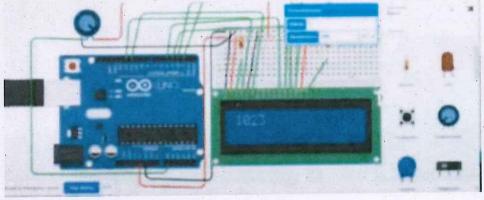


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Embedded System Design Using Arduino Uno- 17th December 2019 To: 31st December 2019

The workshop was arranged to provide knowledge and experience on the aspects of Arduino. The reason behind this was it gives project idea and market knowledge of Arduino. This workshop introduces fundamental concepts of designing various application orientated projects using Arduino board. The workshop involved interfacing of various sensors, actuators and displays devices with Arduino board along with practical knowledge using simulation. The workshop conducted by hands on training followed by designing of various mini projects.







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Project based learning (2019)

Project Competition: Projexions 2.0, October 22-23, 2019

PROJEXIONS, a project exhibition for the Third Year and Final Year IT students to showcase their projects on IoT and Android App Development domains respectively. The participants demonstrated their projects, their features, and implementation. The competition was judged in 2 rounds. Teams that were shortlisted for the second round were judged by faculties from CE and EXTC departments in the final round.

The winning teams for the IoT domain projects were Abhilash Nayak, Altaf Ali and Chirag Bidawatka for 'Express Noodles'. The 1st runners-up were Nithya Kannan, Avantika Pawar, Rahul Ganesh for 'CleanSweep UI' followed by the 2nd runners-up team of Amrita Nair, Sandip Mondal and Abhishek Lonari for 'Smart Car Parking System'.

In Android App Development domain, Siddhesh Menon, Abhirup Kamath and Karthik Ramani won the competition for 'Saloon Booking Application' and the runners up were Aditya Acharya, Anandu Gopi, Pranav Ashtapure for 'Child Monitoring Application'.

IoT domain projects exhibitions:





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Android App Development domain projects exhibitions:





Valedictory:









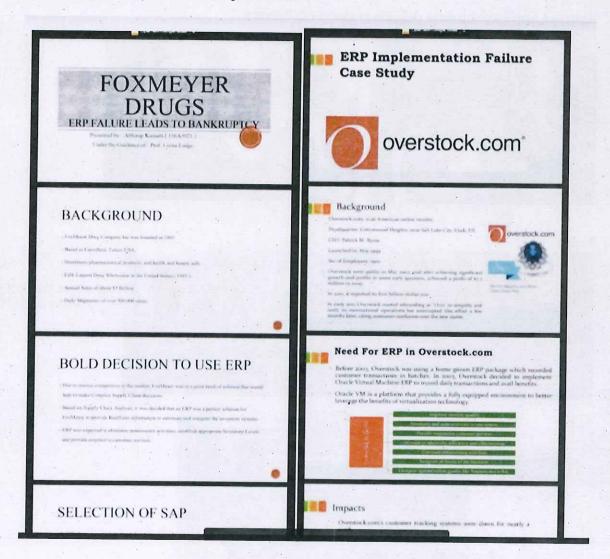
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Name of the faculty: Prof. Leena Ladge

Class: BE IT(VIII SEM)

Case Study Presentation: Two of the assignments given to students were such that they had to individually prepare the case studies and present the same. All the students prepared very beautifully and presented with a lot of confidence. This has helped them to develop the interest in the subject and update themselves on the latest developments in ERP. This kind of exercise also helped them to learn the concept of ERP, benefits of ERP, various technologies associated with ERP, ERP for Manufacturing, ERP implementation life cycle, e-commerce & e-business for ERP.

Some examples of case studies are presented here.







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Project Based Learning:

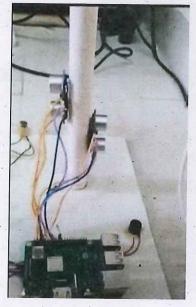
In EXTC department, BE projects are belonging to variety of core fields like antenna design, digital communication, embedded system, IoT and also to inter-disciplinary fields like Machine learning, deep learning etc.

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National Level Project Competition

The CSI Student Chapter of SIES Graduate School of Technology organized a national level project competition, INNOVATIONS, on 28 th February, 2020. Innovations served as a platform for young minds to take this window of opportunity and bring forward their innovative ideas in the form of projects.

This time the CSI council of SIES GST, Nerul worked hard and strategically thus creating a mark of receiving 70+ abstracts. The projects were from various fields such as computers,

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information technology, electronics, Internet of Things, Robotics, Mechanical, etc. Out of the received abstracts, 27 projects were selected for the competition after carefully analyzing each project based on parameters such as novelty, effectiveness, positive impact on society and scalability. "Spending quality time, quality efforts and hard work provides quality results, was proved by the participating teams."

Competition was held in two venues:

Venue A – presentations related to computer and IT.

Venue B – presentations related to IOT, mechanical and Electronics.





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Department level Project Competition - Computer Engineering Department

Computer Department of SIES GST organized and conducted a project competition under Web Development Laboratory on 22nd October 2019 at CE department SIES Graduate School of Technology, Nerul.

In the competition students developed and presented various website projects. Students learned core concepts of front end and backend programming using HTML5, CSS, Javascript, PHP and MySQL in the web development laboratory. Student's projects are evaluated on the basis of various criteria by our esteemed judges of the CE department. At the end of project competition best three projects were selected. Guests felicitated our winners of the project competition.

Total 113 participants attended the session from TE CE Department. The concluding remarks were given by Dr. Aparna Bannore, HOD of CE SIES GST. The session was well received with admiration by the students.

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Industrial visits (2019)

DICE Boot Camp, October 05, 2019.

A Boot Camp on Design Thinking and Data Science was organized at the Indian School of Management and Entrepreneurship, One India Bulls, Parel. In its second iteration, this boot camp was aimed at providing students with new insights and career opportunities after their Engineering. This boot camp was attended by 118 students from BE, across all years of engineering, 7 volunteers from TE-IT accompanied by 11 faculty members.





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Highlights of the sessions and speakers:













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• The CE department organized visit of reliance jio for CE students. Total 48 students along with 2 faculty members visited Reliance JIO campus.

The visit started by registering at the main gate and issuing visiting cards. Later students had been taken across the organization while JIO representative explained about various teams and their roles in industry. Majorly he made student familiar to services and product group.

He made students familiar to various concepts in travel industry with real life examples. He told importance of basic concepts and 5G Technology. Finally the visit was concluded with vote of thanks.



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• An Industrial Visit was organized for Second Year PPT students by the Faculty Mr. Gaurav Fasate to the company Decaltech Pvt. Ltd, Bhiwandi on October 12, 2019. This visit was organized to give an insight to the students about the printing industry and its processes. Around 50 students were present for the visit.



• Prof. Sagar Waghmare along with 5 TEPPT students attended the YesGo event on ESKO Design software on Sept. 20, 2019.



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Student-centric activities

Name of the faculty: Prof. LakshmiSudha K. Class: BE IT(VIII SEM)

Participative learning activity: Crossword test_WN_Aril 14, 2020

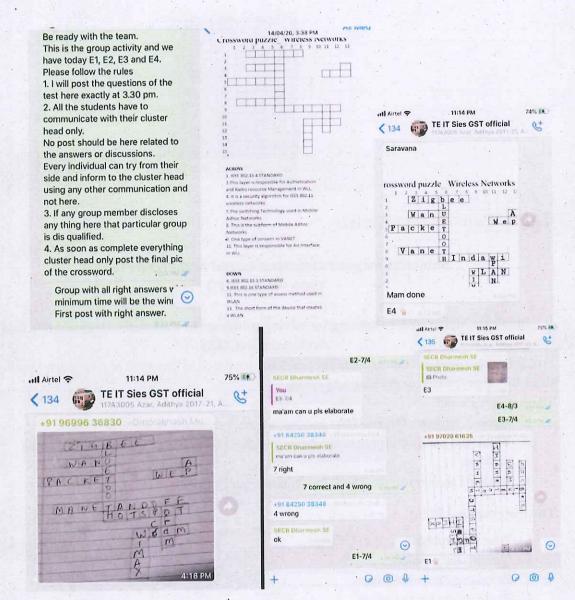
1. Informed students to come forward one student from each group.

- 2. Given the crossword template without questions at around 1.30 pm and asked them to be ready for the test at 3.30 pm.
- 3. At 3.30pm given the questions and rules for the game.
- 4. Students have coordinated with the team leader and solved the puzzle.





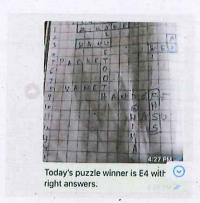
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Think-Pair-Share -Activity

Subject: Computer Organization and Architecture (COA) (Sem -IV-FH2017)

Inculcate higher order thinking by solving problems in Computer Organization and Architecture (COA)

Problems are solved in class and similar problems are posed to inculcate higher order thinking skills like apply, analyze, evaluate and create.

The students should

- 1. Apply Computer Organization and Architecture concepts to solve problem
- 2. Think and create multiple solutions and evaluate to find best solution for the given problem
- 3. Students should use the Think-Pair-Share strategy (TPS)

The instructional Plan:

- 1. Pose the problem
- 2. Identify the problem
- 3. Propose different solutions
- 4. Evaluate the best solution.
- 5. Pose a similar problem
- 6. Guide the students to list multiple solutions and evaluate.
- 7. Students should apply basic concepts of solving floating point multiplication

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The problems solved in class are attached along with result analysis

Sr. No	НОТѕ	Specific Los	Activity Conducted	Date of conduction	Class	Result	Objective Achieved or not
1.	Analyze	60 % students should be able to solve the posed open problem to achieve higher order thinking skills	TPS activity conducted on topic: floating point multiplication and division flowchart	31/1/2017	SE CE- C	appeared, 50% students were able to obtain >=60%	Achieved
2	Understand, Apply	60 % students should be able to solve the posed open problem to achieve higher order thinking skills	Peer assessment on peripherals	3/4/2017	SE CE- D	appeared, 60% students were able to answer the questions correctly	Achieved



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Statistics for measuring LO's for TPS (SE - CE - C Div)

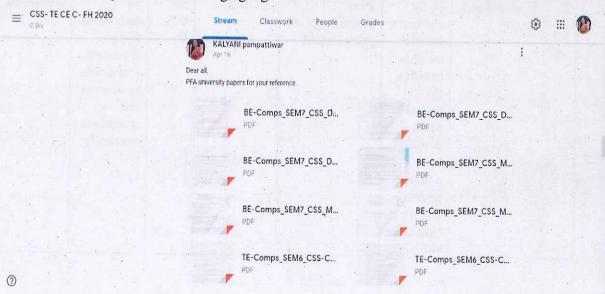
Marks Range	Number of students In the marks range	% of students in the range
4 to 5	23	50
2 to 3	20	43
0 to 1	3	7

Rubric for above Activities:

Learning objective	5 marks	4 marks	3 marks	0 to 1 Marks
Answer all the questions in the posed problem	Answer all the questions with correct solution	Answer the question partly	Answered only part of the question with incorrect answer	Neither of the question is answered properly

Use of google classroom -

Sharing of teaching Resources through google classroom



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Problem-based learning

Subject: Human Machine Interaction (BE - CE - FH2020)

Design Problem: Redesign the UI of any innovative application by using modern interfaces. Follow

the stages of design.

Steps to be followed in formation of the case study

- 1. Identify any application like (PC for divers, Space rover application, etc.)
- 2. Modify the existing interface to Speech, VR, AR, MR, BCI, Gesture based, NLP etc., if its an existing application or suggest a suitable modern interface with justification.
- 3. Build a conceptual Model.
- 4. Prototype if essential.
- 5. Test (Usability testing or heuristic evaluation if designs are made).

Note: Every group has to list under each step what they have done. Designs can be sketches or u can

use any tool to make the designs.

Sample Design by the students:

Sample Case Study

Aim: Case Study Documentation for "Sky-View: VR".

1. Identifying an application-

Sky-View is an augmented reality space app that aims to bring stargazing to everyone, free of cost. Users

can find stars or constellations in the sky by just opening the SkyView app, which would then guide them



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to their location and identify the stars, planets and constellations. SkyView is a beautiful and intuitive stargazing app that uses the phone's camera to precisely spot and identify celestial objects in the sky, be it day or night. Users can find popular constellations as they fade in and out while they scan across the sky, locate planets in the solar system, discover distant galaxies, and witness satellite fly-bys.

Some of the features of the app are as follows:

- Simple: Point the device at the sky to identify galaxies, stars, constellations, planets, and satellites (including the ISS and Hubble) passing overhead at your location.
- Night Mode: Preserve night vision with red or green night mode filters.
- · Augmented Reality (AR): Use the camera to spot objects in the sky, day or night.
- Time Travel: Jump to the future or the past and see the sky on different dates and times.
- Social: Capture and share beautiful images with friends and family on social networks.
- Supports Space Navigator™ binoculars, spotting scope, and telescopes.
- Mobile: WiFi is NOT required (does not require a data signal or GPS to function).
- Sky Paths: Follow the sky track for any object to see it's exact location in the sky on any date and time.

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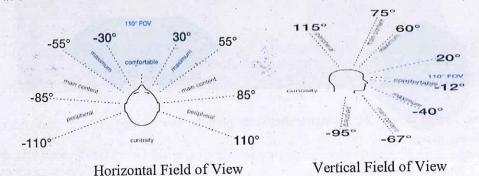
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2. Modifying the existing interface to VR-

The existing model requires a mobile device to view the planets and constellations. The user needs to point the device to the exact location in order to view the constellations present. This is a limitation as the user can only see constellations and stars that fit in the mobile screen. Also, the user might find it difficult to point the device in the exact direction.

To overcome these limitations, we have proposed to incorporate the Virtual Reality technology with SkyView. In our proposed system, the user will wear a VR headset. The user can then just look at the direction he wants to look at and all the constellations and planets present in that location will be visible to him/her. This will also overcome the limitation of having a small screen as the field of view will be the same as the FOV of the human eye i.e. 110 degrees.





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3. Build a conceptual Model-

The VR application will be similar to the Skyview mobile application. Once the user starts the application, he/she can use the headset to point at any direction. The application will use the current location of the user and the current time to determine what to project in front of him/her. After that, these projections will be displayed to the user. The user can interact with the projections in different ways like zooming in/out, show additional information, hide a specific projection if the user is not interested, etc.

4. Prototype-



The user will look at a direction to look at the planets. Here the user is looking at Earth. The red dot acts as a cursor and helps the user to precisely look at smaller stars, constellations, etc.

Following is another such example where the user is looking at planet saturn.



The user can view further details like distance between planets, stars, constellations and other information as shown above.



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If needed, the user can pinpoint a specific entity to get in detail information.

Conclusion: Sky-View is redesigned inculcating virtual reality.



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