COMPUTER ENGINEERING DEPARTMENT

STUDENT ACTIVITY REPORT

Academic Year- 2016-17

BIRLA VISHVAKARMA MAHAVIDYALAYA

ENGINEERING COLLEGE, VALLAH VIDYANAGAR

(ENGINEERING COLLEGE)

Computer Engineering Department Events Organized During Year 2016-17

SEMESTER – I

Sno	Event Title	Participants	Date	Coordinators	Experts/Recourse Person
1	Expert Lecture on IOT System	38 CP Students	16-07-2016	Prof. S.A. Bakhru	Mr. Sombabu Gunithi Mr. Harsh Mehta e-infochip and eiTRA, Ahmedabad
2	One day workshop on Cloud Computing	34 Students 3rd and 4th Year of Computer engineering	23-07-2016	Dr. N.M.Patel Prof. K.J.Sharma	Mr. Nilesh Vaghela, CEO Ms. Namrata Parmar. Developer ElectroMech Corporation Ahmedabad
3	2 Day (Teqip & ISTE sponsored) national workshop on "Research Trends in Engineering & Technology"	29 Faculties	22-23/08/2016	Prof. B. A. Tanawala Prof. M. J. Joshi	Experts from various institution and industries
4	Village Visit sponsored by Teqip II	58 Students 1st Year CP Students	09-08-2016	Prof. K.J.Sharma Ms. Nirali Patel	------
5	One day workshop on Interactive Computing with Aurdino	52 Students 2nd Year CP	10-09-2016	Prof. K.J.Sharma	Mr. Ashutosh Bhatt, eInfochip Ltd., Ahmedabad
6	Expert Lecture on Computer Network Devices	2nd Year CP Students	17-10-2017	Dr. N.M. Patel	Prof. Priyank Bhatt, GCET, V.V.Nagar
7	One Day Workshop on ' Experimenting with Sensors and Auctuators'	57 Students 2nd Year CP	22-10-2016	Prof. K.J.Sharma Prof. M. I. Hasan	Mr. Jignesh Patoliya, CHANGA, Mr. Ashutosh Bhatt, einfochip Ltd.,Ahmedabad
8	Expert Lecture by Sukant shah, BSNL	29 Students 2nd Year CP	21-11-2016	Dr. N. M. Patel	Mr. Sukant Shah, BSNL
9	BSNL RTTC & ISRO A'bad Visit	61 Students 2nd year CP	24-11-2016	Dr. N.M.Patel Prof. K.J.Sharma Prof. M.J. Joshi	-------
10	One Week Tequip Sponsored STTP on Wireless Sensor Networks and Applications	35 Faculties	19 to 24-12-2016	Dr. Mayur Vegad Dr. Uday Jaliya	Experts from various institution and industries
11	One Day Workshop on 'Raspberry PI and Visual Programming	22 Students of 3rd Year CP	31-12-2016`	Prof. K.J.Sharma Prof. M. I. Hasan	Mr. Jignesh Patoliya, CHANGA, Mr. Krupal Patel eiTRA,Ahmedabad

SEMESTER II

Sno	Event Title	Participants	Date	Coordinators	Experts/Recourse Person
12	One Day Workshop on 'IoT & Paython'	47 Students 2nd Year CP	07-01-2017	Dr. N. M.Patel Prof. K.J.Sharma	Mr. Malav Patel & Mr. Nirpam Bhavsar Teksun Microsysy Pvt. Ltd, Ahmedabad
13	Vibrant Gujarat Visit 2017	43 Students 3rd Year CP	12-01-2017	Prof. K.J.Sharma Prof. B. A. Tanawala	--------
14	Lecture session on"Collaboration as the Mantra for Academic and Social Excellence"	39 Students 1st year CP	11-02-2017	Dr. N.M.Patel Prof. S.A. Bakhru Dr. Uday Jaliya	Dr. Nandita Acharya, Co-founder & Director, Sannibh Technologies
15	Campus Recruitment training Program for Computer Engineering Dept Students	30 Students from 2nd and 3rd Year CP	21-01-2017, 28-01-2017,11-02-2017	Dr. N.M.Patel	Faculty from well recognized institute T.I.M.E
16	One day workshop on 'Angular JS'	93 Students 2nd and 3rd Year CP	11-02-2017	Dr. N.M Patel & Prof. Bhavesh Tanawala	Experts from TOPS Technologies, Ahmedabad
17	Expert talk on Skills required for employability in Small scale Industries	40 Students 2nd ,3rd and 4th Year CP	18-03-2017	Dr. Mayur Vegad	Mr. Digant Vora and Mr. Rajesh Karia
18	One day Workshop on GPU Architecture & Programming	30 Students 2nd Year CP	27-03-2017	Dr. N.M.Patel Prof. M.J. Joshi	Mrs Vibha Patel, NIRMA University, Ahmedabad
19	Project Expo 2017 & III Meet 2017	All 4th Year CP Students	30-03-2017	All CP faculties	Er. J.S. Patel CEO Elecon Er. Jagdish Patel, Parkage Industies, UV Nagar
20	E Presentation by FYBE CP students IOT- Vaishali Pandita Clound Computing- Purven Dudhaiya	1st year CP Students	15-03-2017 18-03-2017	Guided by- Dr. N.M. Patel & Prof S. A. Bakharu	By FYBE CP Student Vaishali Pandita(160070107064) Purven Dudhaiya (160070107011)
21	Activity by FYBE-CP students Tips on Writing a Review (report) Paper and how to do well at competitive events. Purven Dudhaiya	1st year CP Students	20-03-2017	Guided by- Dr. N.M. Patel & Prof S. A. Bakharu	By FYBE CP Student Purven Dudhaiya (160070107011)
22	One Day Workshop on "Windows Server 2016 Installation and Configuration	47 Students 3rd and 2nd Year CP	01-04-2017	Prof. Kirtikumar J sharma	Abhi Goswami, Abhishek Mehta and Dinesh Solanki of 4th year CP

1) Expert Lecture on " IOT System"

Expert lecture with industry experts from e-infochips / eiTRA industry Ahmedabad, on

Topic: "IOT Systems"

Date: 16th July, 2016

Time: 2.30 to 4.30 pm

Coordinator: Prof. S. A. Bhakhru

Covering topics such as Building Basic IOT Systems, IOT Architecture, Protocols, IOT Operating systems, Applications at Home, Automobile, Health, and Industry etc.

2) One Day Workshop on "Cloud Computing"

Expert:

1) Mr. Nilesh Vaghela, CEO
2) Ms. Namrata Parmar. Developer

ElectroMech Corporation
302, New York Plaza,
Opp. Judges Bunglow Road, Bodakdev
Ahmedabad 380054 Gujarat India.
www.electromech.info

Date: 23/07/2016

Time: 10:00 am to 1:00 pm and 02:00 pm to 05:00 pm

Total Hours: 6

Place: LAB 8, F Block

Coordinators: Dr N M Patel and Prof. Kirti J Sharma

Total Participants: 34 Students from 3rd and 4th Year, Computer Engineering

Topic Covered:

1) Introduction to Cloud Computing architecture
2) Deployment and usage model of Cloud Computing
3) Hands-on practice working with cloud technologies and software like Qwik labs.

4) Student were able to do following exercises
    a. Creating Amazon EC2 Instances (for Linux)
    b. Working with Elastic Load Balancing
    c. Maintaining High Availability with Auto Scaling (for Linux)
    d. Working with Amazon Elastic Block Store (EBS)
    e. Using Open Data with Amazon S3
    f. User Management using IAM

Glimpse of Workshop

Course Outcomes:

- The student gained the knowledge on different practical approaches to Cloud Computing.
- All students also learned how to deploy Cloud Platform using Qwik lab.
- The student gained the knowledge in subjects of Cloud Computing improve the understand ability by practical approaches.

3) Two Day (Teqip & ISTE sponsored) national workshop on "Research Trends in Engineering & Technology"

Department of Computer Engineering, Birla Vishvakarma Mahavidyalaya Engineering College, V.V. Nagar, Gujarat has organized TEQIP-II sponsored and ISTE Approved *Two days* National Workshop on "Research Trends in Engineering and Technology" on 22nd - 23rd August, 2016.

This workshop is meant for discipline of Computer and IT of technical institutes, academicians and engineers from industries.

4) Village Visit sponsored by Teqip II

Name of Village: Sunav, Anand
Duration: 1 Day
Date of event: 9th August, 2016
Faculty Coordinator: Kirti Sharma
Lady Faculty: Ms. Nirali Patel
Student: Total 58 students of 1st Year Computer Engineering Department
Location: Sunav is located at 22°32' North latitude and 72°49' East longitude in the Anand district, Gujarat, India. It is located along the Western Railway's Nadiad-Bhadran rail-line and is close to National Highway 8.

History: In the 11th century, Rajputs established a settlement in this town. Later, different communities like Shahs, Rabaris, etc, came and settled in the township. At the time, the town was well to do and self sufficient according to historical recourses. Later, due to the demise of success, the settlers left and the town became deserted and was reduced to ruins. Archaeological finds of the town were discovered between Ghoghal Talavadi and Dudhia Talav (Both being lakes) during construction of Kasor road. Shree Vikabhai Kalyanji Patel of Kasor Town in 1269 A.D. (V.S. 1212) established the present Township of Sunav for settlement. The ceremony was performed in Sravan Nakhshatra, and therefore the town was called SRAVANAVYA. Later, it became Sunav. The 24th ancestor of Shree Vikabhai Patel namely Shree Ganeshji Patel build Vaijanath Mahadev Devalaya on Dev Talav, which is still present. After establishment of Shree Vikabhai Patel, the town became self sufficient and steady. Other communities also came for settlement, as the Patidar community grew in the town. At the 22nd generation, Vishram Patel and his three brothers are known to have existed. Vishram Patel stayed at Sunav while his three brothers left. Sunav, some 17Km. west of Anand, enjoys an important status among the settlement in Charotar despite having a population of only 9500. Sunav is always counted within the leading towns of Charotar Pradesh. Sunav had emerged as an ideal village. As a result, it was visited by dignitaries like Mahatma Gandhi, Sardar Vallabhbhai Patel, Sarojini Naidu, Dr. Rajendra Prasad, the President of India and foreign reporters. Under the guidance of Shree Vallbhbhai B. Patel and Shree Kishorbhai L. Patel, there was the emergence of V.B. Vinay Mandir in 1919 as an educational institution, which allowed Sunav to become an educational center in the area. In 1920 when the non co-operation movement started in India against British Rule it became a National School. During the self-governing movement of 1930 and 1932, the teachers and students of the school participated

with great passion and many of them went to prison. Since, Sunav has been a spotless town at a national levelSince independence the donation of Shree Somabhai V. Patel, Shree Govindbhai J. Patel, Shree Ambalal J. Patel and Shree Purshottam K. Patel for the overall progressive development of Sunav has been very helpful and remains very well remembered and respected even to the present time. Population: The village has a population of 9500 within a 2 square mile area. Patidars make up most of Sunav's population where as Muslims and Christians are the minorities. Like other villages, many families migrated to East Africa and later to the United Kingdom, Canada and the United States. Education: The first foundation for education was laid in 1865 and the first two schools were established in 1918. Since then, the following institutions were established with generous contributions from the people of Sunav and managed by Sunav Kelvani Mandal Shri Khushalbhai Shankerbhai Kanyashala, established in 1948 Shri V. B. Patel Technical School, provides education and training in Agriculture, Arts, Science and Technical subjects. Shri V. B. Girls School Jorabhai Shankerbhai Kumarshala, established in 1942 Prabhudas Dayalji Bal-Mandir Surajba Adhayan Mandir, established in 1966 for the benefit of women Purushottam Devjibhai Patel Physical Education School Sunav English Teaching School R. K. Technical School, provides vocational training in Carpentry, Milling and Turning, Building works etc for ITI and ITB course work recognized by the Government of India Kishabhai Smarak Sarvajanik Library opened in 1934 by Sardar Vallabhbhai Patel in memory of Shri Kishabhai, the headmaster of the primary school, who had inspired many youngsters to obtain higher education Kesharba Maternity Home was established in 1949 and a hospital with 40 beds and accomodatins for doctors and nurses was opened in 1977It has Sunav Nagrik Cooperative Bank, Kheda Center Cooperative Bank and branch offices for national banks such as the Bank of Baroda, Union bank and Bank of India. Religious and Cultural Institutions: There is one mosque for the Muslim population and several temples for the Hindus and Jains of Sunav. Temples includes Ramji Mandir, Swaminarayana Temple, Jain Derasar, Sanyas Ashram, Upasaraya, Mahadev and Vaishnav Mandir,

Our Visit to the village:

We left for Sunav early in the morning 10am and then we visited small village having pleasant weather named as Sunav. We visited Panchayat of Sunav. We also asked the villagers about the condition of the village. We talked with many villagers about the future plans of their village and what type of upliftment of the village was needed. It was very nice talking to them. We had visited few clinics and Government Hospials. We also saw Banks like Bank of Baroda. It was very interesting visit as we came to know about how people in villages live.

We then visited School nearby Sunav village. It was nice seeing that student were having self-discipline and were having their studies properly. **During this visit following paces were visited**

1) Panchayat

2) Revdas Tower

3) Discussion with villagers

4) Bus Facility at Sunav

5) Schools: Vividhlakshi Vidhyalaya

6) Bank:


ધી ખેડા જીલ્લા મધ્યસ્થ સહકારી બેંક લિ.
સુણાવ શાખા
હેડ ઓફીસ : કે.ડી.સી.સી. બેંક ભવન, સરદાર પટેલ રોડ, નડીઆદ. ૩૮૭૦૦૧. ફોન : ૨૫૪૯૦૫૩

Outcome:

- Student got the knowledge of lifestyle of village and communicate with people.
- This practical knowledge was helpful not only to increase Communication skill but it also helped the students to know that they have the Social Responsibility towards the Society.
- Due to this Social Responsibility, students should see the problems faced by village people and should try to uplift the villages and make it modern too.
- By making such future plans, even villages can make great progress and that would help our Nation to be Developed Nation.

5) One day workshop on "Interactive Computing with Aurdino"

Expert: Mr. Ashutosh Bhatt, Electronics Engineer eInfochips Ltd, Ahmedabad

Date: 10/09/2016

Time: 11 am to 2 pm

Total Hours: 3

Place: Lab 8, F block

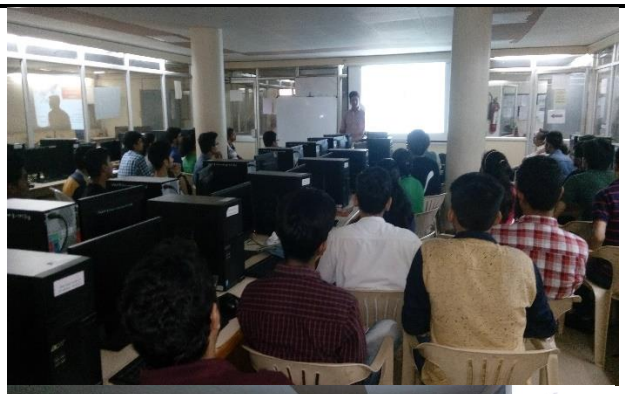
Total Participants: 52 Students from 2nd Year

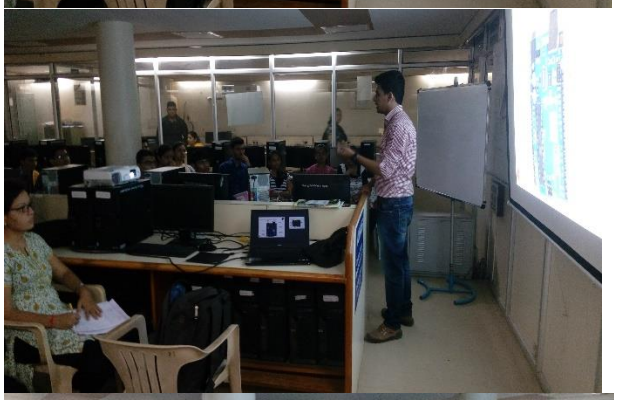
Coordinator: Prof. Kirti J. Sharma

Topic Covered:

- Introduction to IOT.
- Hardware Architecture of Arduino Board.
- The open-source Arduino Software (IDE) makes it easy to write code and upload it to the board.
- Simulation of IOT project on Arduino board as well as in simulator.
- Demand of IOT based project in India.
- Applications related to IoT

Glimpse of Workshop





Course Outcomes:

- The students gained the knowledge about Architecture of Arduino board.
- Student can able to write basic program and porting programme on Arduino board.
- Above lecture knowledge helpful to create IOT projects in future.
- Overall feedback of students was excellence.
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6) Expert Lecture on " Computer Network Devices" by Prof. Priyank Bhatt, GCET, V.V.Nagar

Computer Engineering Department has organized Expert talk on Computer Network Devices for Second year students on 17/10/2016. In second year we have subject CP205: Communication principles and applications. This lecture was organized as supplementary class for above subject. Prof Priyang Bhatt has nicely covered various network devices like Hub, Bridge, Switch, Router etc. He has also demonstrated working of all these devices using simulator. This lecture is very helpful to second year students in understanding physical layer of computer Network.

Coordinated by: Dr. N . M. Patel

7) One Day Workshop on " Experimenting with Sensors and Auctuators"

Coordinators: Prof Kirtikumar J Sharma & Prof M I Hasan
Total Participant: 57 Students of 2nd year Computer Engineering Department
Place: Lab 8, F Block

Experts:

[1] Mr. Jignesh Patoliya
Department of EC engineering,
Charotar University of Science and Technology
Changa, Gujarat INDIA
[2] Mr. Ashutosh Bhatt
Electronics Engineer in eInfochips Ltd,
Ahmedabad
Product Engineering Services Division.

Session 1:
Time: 8.30 a.m. to 11.30 a.m
Expert: Mr. Jignesh Patoliya

First Prof M I Hasan Introduced and welcomed two experts. Then students were first made to revisit the topics which were covered in the first workshop. A quick revision ensured that some students who were unable to attend the first workshop could be made to quickly understand the topics covered earlier. The students were introduced to Buzzer. Various properties and

implementation of the same were discussed. Programs were developed and the implementation shown by the experts on Arduino Uno board. An electronic design simulation software Proteus was used to virtually design the circuits and check their working. Also sensors (digital) with their various types and properties were discussed. A short break of 30 minutes was given at 11:30 AM.

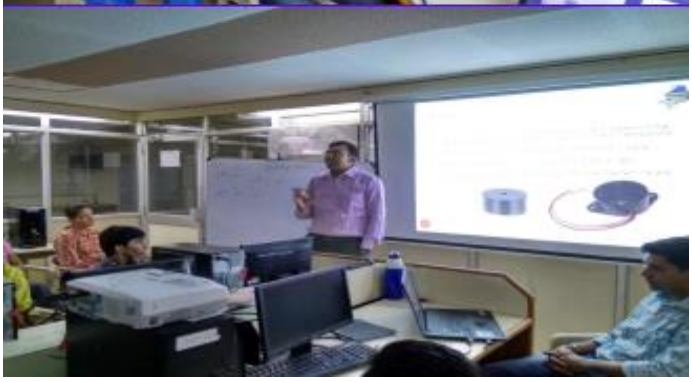
Session 2:

Time: 12 p.m. to 03.00 p.m.

The workshop resumed at 12:00PM. Students were taught how to design and implement various
electronic circuits. Some of these were:

1. Analog sensors
2. DC motors.
3. Movement of robots.
4. Serial Communication

The workshop ended at 3:00PM.Finally Prof. Kirti Sharma thanked the experts on behalf of BVM Engineering College. The students were asked for their feedback which was really positive. They said that they really enjoyed the workshop and that it was very informative and a great learning experience. They also said that they would want the experts to host another workshop on Arduino which covered more advanced topics.



8) Expert Lecture by Sukant Shah, BSNL

Mr Sukanat shah has delivered expert talk on Signaling in Telephone system on 21st Nov, 2016. Twenty nine students of Second year computer engineering department has attended this lecture. He has explained functioning of Telephone system: switching mechanism, types of modulation used etc

In telephony, signaling is the exchange of information between involved points in the network that sets up, controls, and terminates each telephone call. In in-band signaling, the signaling is on the same channel as the telephone call. In out-of-band signaling, signaling is on separate channels dedicated for the purpose

Outcome: In second year first semester they have subject named “Communication Principles & Applications. This lecture has strengthen their understanding of the subject

Coordinated by: Dr. N.M. Patel

9) Industrial Visit BSNL RTTC & ISRO Ahmedabad

Name of Company: Regional Telecom Training Center, Ahmedabad
And ISRO, Ahmedabad.
Duration: 1 Day
Date of event: 24st November, 2016

Faculty Coordinators: Dr. N.M. Patel, Prof. K J Sharma
Lady Faculty: Prof. M J Joshi
Student: Total 61 students of 2nd Year Computer Engineering Department

Coordinators: Dr. N. M. Patel, Prof. K. J. Sharma and Prof. M. J. Joshi

Outcome: Regional Telecom Training Centre, Ahmedabad is one of the prime training centers of BSNL in the western region. The Centre is an ISO 9001:2008 Certified Institute. It was established in 1973 catering to the training needs in telecom sector. Telecommunication has emerged as one of the most rapidly advancing and expanding sector.

- Student got the practical knowledge of various technologies Like Broadband, IPBX, Wireless LAN, PSTN, Optical Fiber and Network, GSM Network.
- This practical knowledge helpful in Computer Network subject.
- Students also visited ISRO which helped them visualize the scientific research process and got overview on space technology.

Detail report

On December 24th of 2016, the students of the class of CP'19, under the guidance of the Prof. N. M. Patel and Prof. K. J Sharma, organized a One Day Industrial visit covering places around Ahmedabad and Gandhinagar. The bus left the BVM campus at 07:20 with spirits soaring higher than the sun. On route the RTTC – BSNL the bus caravan halted for a few minutes at the Vaishnavdevi Temple at 09:30. The students had a good time stretching their muscles a going through the cavelike forms at the temple while they seeked blessings from The Almighty. The engines revved over the temple at 09:50. The group reached its first destination – Regional Telecom Training Centre, BSNL just before 11:00. The students and the faculty members joined the staffers at the RTTC in morning prayers in the main reception area. Shortly after that the sixty students were divided into three groups of twenty so that it would be easier for the experts to show the students the delicate and costly electronic machinery and easier for the students to grasp. The officials from the RTTC showed the students seven different labs: GSM lab -Where the students were introduced to the basic skeleton of the GSM network constructed by BSNL. They were also shown the BTS and the antenna and were made familiar to the parts and functions of these modules. C-DOT lab. The students were shown the machineries which were developed, designed (in and for) and manufactured in India! FTTH lab -Students were introduced and made familiar to the plans and execution of BSNL's Fiber to the Home project. Museum -The students were told the story of telecom: from the first Morse-Codes to the STDPCOs. Valuable, antique pieces from the history of this glorious industry were on display. Data Lab-Here, the students were introduced

to the various layer 1, 2 and 3 devices viz. Bus, Switch and Routers. They were also familiarized with Routing algorithms. Broadband lab -Students were familiarized with the concept of Broadband and the skeleton that BSNL has built in India over the past decades. OFC lab -Different concepts relating to Optical Fiber technology were discussed. Different techniques that are incorporated to protect the underground cables and to make the suspended cables lighter were also discussed. The students were shown the machine that is used for fusing two ends of optical fibers together.

After having feasted on knowledge, the group took lunch in the RTTC canteen itself. They took the group photographs and left for ISRO's Vikram Sarabhai Space Exhibition. As soon as the bus docked at ISRO, the students were intrigued about the 1:3 sized model of ISRO's latest rocket: GSLV Mk. III, next to which was ISRO's indigenously developed VIKAS cryogenic engine. The group was first led into the indoor theatre facility at the exhibition Centre where the Centre In-charge interacted with the students, telling them interesting stories about the origins and current working of the great organization that ISRO is. The students were shown 3D and 2D movies in the theatre. After that, the group started towards the exhibitsthat covered almost all aspects of the ISRO missions. The students were first made familiar with the term *satellite*, its control and disposing. Some striking ideas were exchanged throughout the tour. The students were then shown the working of ISRO's own navigational system: the IRNSS.

The boys and girls were shown the working and conceptualizations of the *Chandrayaan*

I, Chandrayaan II, and the *Mangalyaan* a.k.a Mars Orbiter Mission. The different payloads and their functionalities were discussed. Some of the payloads which were designed in the research centre at Ahmedabad were discussed in much more detail! The students were shown pictures of India's research facility in Antarctica: *Maitri*. The volunteers also explained to the students, in detail, about the flight trajectories and mechanisms of the PSLV and GSLV rockets. The volunteers aptly solved all the doubts fired at them by the curious students.

The group was to leave the premises before 17:00 but it seemed there was no force in the cosmos that could have driven those minds burning with curiosity to leave before all their questions were answered. Even the volunteers who were excited to have received such an enthusiastic lot went an extra mile and explained all the technicalities beyond their hours of duty without so much of an expression of boredom on their face. Finally, the group took a few more photographs and began their sail homewards bidding goodbye to all the amazing people they had met.

10) One Week Teqip Sponsored STTP on "Wireless Sensor Networks and Applications"

About Participants:
There were 35 participants from various academic institutes in Gujarat. Out of these only 8 were from BVM, making 22% of total participation.
Coordinators: Dr. Mayur Vegad and Dr. Uday Jaliya
Inauguration Function:
Mechanical Engineering Department of BVM Engineering College had also organized a STTP (on the theme of Solar Energy Applications) during the same duration. Hence, a joint inauguration function for the two STTPs was planned. It was held in the Library Resource Utilization Room, first floor, BVM Central Library. Dr. S G Patel, the Hon. Secretary of Charutar Vidyamandal presided over the function. The chief guest of this function was Prof. Milind Rane, Mechanical Engineering Department, IIT Bombay. The function was also graced by the presence of Dr. I N Patel, the Principal of BVM Engineering College, Dr. D G Thakore, the TEQIP-II Coordinator at BVM and the Head of Computer Engineering Department, and Dr. P M George, Head of MechanicalEngineering Department.

List of Experts (ordered as per the planned schedule)
Sr. Expert's Name Affiliation Topic

List of Experts (ordered as per the planned schedule)				
Sr.	**Expert's Name**	**Duration (Hrs)**	**Affiliation**	**Topic**
1	Dr. Vijay Ukani	2	Nirma University	Overview to WSN
2	Dr. Yash Vasavada	3	DAIICT, Gandhinagar	Localization techniques, research issues
3	Dr. Santhi Thilagam	2	NIT, Surathkal, Karnataka	In-network processing and data
4	Dr. Sharada Valiveti	2	Faculty of Technology, Nirma University, Ahmedabad	Security issues in WSN
5	Dr. Gaurang Raval	2	Faculty of Technology, Nirma University, Ahmedabad	Clustering protocols used for aggregation.
6	Dr. Sankita Patel	2	SVNIT, Surat	Privacy preserving techniques and its applications to WSNs
7	Dr. Mehul B Shah	1	ET Dept, BVM Engg College, V V Nagar	Energy Aware Routing Protocols
8	Mr. Utkarsh Mishra	3	M/s Eigen Tech Pvt Ltd., New Delhi	WSN and its Applications: Demo using SenseNuts platform
9	Mr. Apurv Brahmbhatt	2	M/s SLS Pvt Ltd., V U Nagar	WSN and IoT
10	Dr. Sonali Patil	2	Pimpri Chinchwad College, Pune	MAC Protocols for WSN
11	Dr. Vijay Ukani	2	Faculty of Technology, Nirma University, Ahmedabad	Geographic routing protocols: with hands-on on Castalia Simulator
12	Dr. Keyur Rana	2	SCET, Surat	Optimized Routing Protocol for WSN using PSO and GA
13	Dr. Hemal Shah	2	Ganpat Uni, Ahmedabad	Bluetooth Low Energy Technology
14	Dr. Rakesh Vanzara	2	Ganpat Uni, Mehsana	Transport protocols for WSN
15	Prof. Tejas Vasavada	2	LEC, Morvi	TDMA scheduling of Tree based wireless sensor networks

Brief of each session:

1. Dr. Vijay Ukani: Overview of WSN: Covering Introduction, Applications, System Architecture and Protocols for Sensor Networks covering research issues at Application Network, MAC and Physical Layers.
2. Dr. YashVasavda: Overview of WSN, focusing on localization techniques, and reseach issues covering: Timing Protocol for Sensor Networks (TPSN), Reference Broadcast Synchronization (RBS), and Synchronization Protocol (FTSP).
3. Dr. SanthiThilagam: Sensor Data Management: Covering issues such as how to collect, store and retrieve. Understanding of various specific databases such as TinyDB for such purposes, and issues such as query optimization.
4. Dr. Sharda Valiveti: Security Issues in Ad Hoc Networks: Issues with Ad Hoc Network such as Key Management and Intrusion Detection in Ad Hoc Networks. Covering Stand-alone Intrusion Detection System, Hierarchical Intrusion Detection System, Mobile Agent based Intrusion Detection System, Distributed and cooperative Intrusion Detection System, Based on Data Collection mechanisms,
5. Dr. Gaurang Raval: Clustering protocols used for Aggregation: Clustering techniques in wireless sensor networks enables energy efficient coordination among the densely deployed nodes for data delivery till the base station. Various centralized clustering techniques for wireless sensor networks using LEACH-Centralized, KMeans-CP, FCM-CP and HSA-CP protocols with respect to clustering and data delivery process for various realistic topologies, with simulation results.
6. Dr. Sankita J Patel: Privacy Preserving Techniques and applications in Wireless Sensor Networks: Privacy Issues in WSN, Introduction to Privacy, Motivation for Privacy-Preservation in Wireless Sensor Networks, Privacy Preserving Techniques. Non-cryptography and Cryptography based approaches, Homomorphic Encryption, Partial and Fully Homomorphic Encryption schemes. Privacy Homomorphism and Secure Data Aggregation in WSN
7. Dr. Mehul Shah: Energy Efficiency in Wireless Sensor Networks: Routing challenges, Sensor Protocols for Information via Negotiation, SPIN, Directed Diffusion A Scalable and Robust Communication Paradigm for Sensor Networks, Hierarchical Routing with higher energy nodes doing the processing and transmitting and the low energy nodes doing the sensing, LEACH (Low-Energy Adaptive Clustering Hierarchy), MCFA (Minimum Cost Forwarding Algorithm), Energy Efficiency by sink mobility, Mobility-aware multihop routing protocols.
8. Mr. Utkarsh Mishra: Wireless Sensor Networks IEEE-802.15.4: Demonstration of various modules: Radio module, Sensor, Gateway, Battery, Extender modules with SENSEnuts Protocol Stack and SENSEnutsGUI.
9. Mr. Apurv Brahmbhatt: Wireless Sensor Network IOT, Communication Standards, Applications, Application Development Consideration, 802.15.4, 802.15.4 – Message Types, 6LowPan, ZigBee, Nebulae, Real Time Data Collection.
10. Dr. Sonali: MAC Protocols for WSN: Introduction to MAC, Performance Requirements, Energy Consumption in MAC, Classification of MAC in WSN, Contention Based MAC, TDMA based MAC, Hybrid MAC

11. Dr. Vijay Ukani:Location Aware Routing Protocols for Wireless Sensor Network, Basics of Geographic Routing, Greedy Routing, Benefits of GF, Greedy Perimeter Stateless Routing (GPSR), Perimeters, Dealing with Void: Right-Hand Rule, SPEED- a deadline-driven geographic routing protocol based on GPSR, Void avoidance in SPEED, Geographic routing without positions – GEM, GeRaF.
12. Dr. Keyur Rana: Optimized Routing Protocol for WSN, Introduction, Issues and Challenges, Routing in WSN, Particle Swarm Optimization (PSO) based Routing, Particle Swarm Optimization, PSO based Routing.
13. Dr. Hemal Shah: Bluetooth Low Energy Technology, What is Bluetooth Low Energy? How do the components work? What is Bluetooth Low Energy good for? How the Cloud can find and drive Smart sensors, Case Study.
14. Dr. Rakesh Vanzara: Transport Layer Protocols for WSN, When to use TCP, UDP? Can We use TCP for WSN? TCP Variations, Evolution of TCP, TCP cause Congestion, Self-clocking or ACK Clock, TCP Algorithms, Slow Start, Congestion Avoidance, Slow Start & Congestion Avoidance, TCP Variants, TCP-Tahoe, TCP-Reno, Fast Retransmit & Fast Recovery, TCP NewReno, Modifications to Fast Recovery, TVP Vegas.
15. Prof. Tejas Vasavda: Data Collection in Wireless Sensor Networks, Introduction, Deployment, Control Message Dissemination, Data Collection using Mobile Elements, Data Collection using Multihop Forwarding, TDMA Scheduling of Tree, Data Delivery –Use of Mobile Elements –Use of Multihop Forwarding, Joint Scheduling and Tree Formation.

Valedictory Function:

After collecting written feedbacks (voluntarily anonymous) from all the participants, the valedictory function was held at Lab – 8 (F-Block) of Computer Engineering Department in the august presence of Prof. Tejas Vasavada, the speaker of the last technical session, Dr. D G Thakore, the TEQIP-II Coordinator at BVM and the Head of Computer Engineering Department and Dr. T D Pawar, the procurement coordinator of TEQIP-II at BVM. A couple of oral feedbacks were also sought in the function. All the participants were issued the certificates of participation.

Gist of the Written Feedback from Participants and Coordinators' Remarks:

1. All the feedbacks are positive and are appreciating the overall structure of the program.

2. Majority (15 out of 29 received) of the participants have suggested to arrange hands-on sessions along with the theoretical ones. The coordinators agree with this feedback. However, the objective of this STTP was to give overview of the concepts involved in the domain of WSNs and provoke research interest among the participants in this area. Accordingly we placed all the sessions, starting from the very introduction to the research issues in the domain. Hence, though some practical demo sessions were kept in the program, it was not possible to conduct hands-on sessions.

Glimpse of Training Program

11) One Day Workshop on "Raspberry PI and Visual Programming"

Faculty Coordinated by	**:**	Prof Kirtikumar J Sharma & Prof M I Hasan
Student Coordinator	**:**	Vatsal Trivedi
Total Participants	**:**	22 Students of 3rd year Computer Engineering Department
Place	**:**	Lab 8, F Block
Expert Invited	:	[1] Mr. Jignesh Patoliya Department of EC engineering, Charotar University of Science and Technology Changa, Gujarat INDIA [2] Mr. Krupalkumar Hanishbhai Ka.Patel Embedded Engineer, eiTRA, Ahmedabad

Session 1:
Time: 8.30 a.m. to 11.30 a.m
Expert: Mr. Jignesh Patoliya

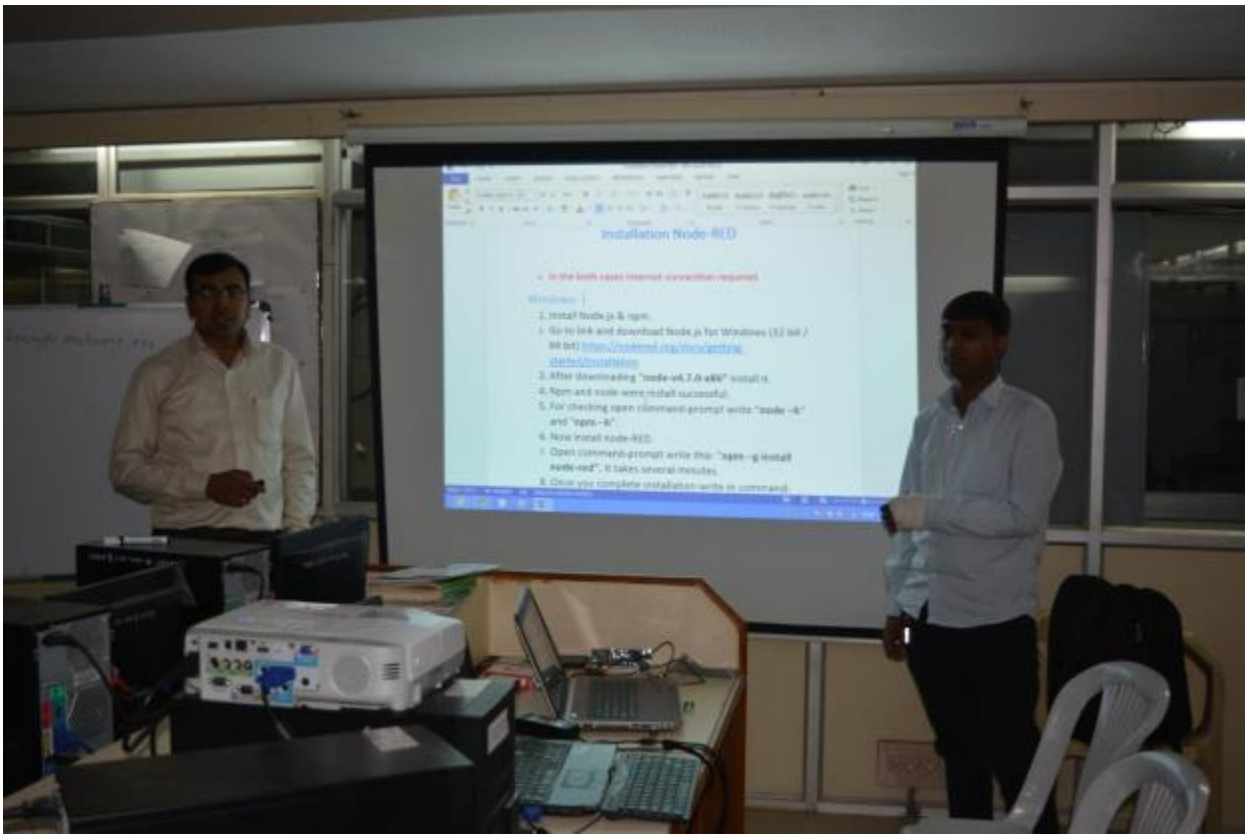
First Prof. K J Sharma Introduced and welcomed two experts. Then students were first made to revisit the topics which were covered in the previous workshop on Arduino. The students were introduced various version of raspberry pi embedded board with its architecture. Various properties and implementation of the same were discussed. Programs were developed and the implementation shown by the experts on raspberry pi. Also programming with python language also were discussed. At the end of this session students will able to understand various properties of raspberry pi board, architecture of board, basic of Python programming to interact with board and execute basic program on it. A short break of 30 minutes was given at 11:30 AM.

Session 2:
Time: 12 p.m. to 03.00 p.m.
Expert: Mr. Krupalkumar Hanishbhai Ka.Patel

The workshop resumed at 12:00PM. Students were taught how to design and implement internet of thing application visually using Node-Red (A visual tool for wiring the Internet of Things). NodeRED is a tool for wiring together hardware devices, APIs and online services in new and interesting ways. At the end of this session students will able to execute the IoT applications and send the alarm message through email, twitter and SMS.
The workshop ended at 3:15PM.Finally Prof. Kirti Sharma thanked the experts on behalf of BVM Engineering College. The students were asked for their feedback which was really positive. They said that they really enjoyed the workshop and that it was very informative and a great learning

experience. They also said that they would want the experts to host another workshop on same which covered more advanced topics.

Glimpse of Workshop


Installation Node-RED

12) One Day Workshop on "IoT with Paython Programming and Raspberry PI"

Faculty Coordinator	**:**	Dr. N M Patel & Prof. Kirtikumar J Sharma
Total Participants	**:**	47 Students of 2nd year Computer Engineering Department
Place	**:**	Lab 8, F Block
Expert Invited	**:**	Mr. Malav Patel and Mr. Nipam Bhavsar Teksun Microsys Pvt. Ltd. Ahmedabad, Gujarat

The main aim of the workshop was to give an idea of new technologies like Internet of Things and higher level programming languages such as Python and provide an interaction with industry experts for the students.

The workshop titled "IoT with Raspberry Pi and Python" began with a brief introduction of the experts given by Dr. N M Patel and welcoming of the experts.

The workshop was divided in two parts and at the end of each session the students were shown short clips consisting of commercial material for the products actually competing in the market. This proved to be quite stimulating for the audience.

In the first session, the students were first acquainted with the idea of levels of programming languages. After that, the students were taught how to install the required software to develop programs in Python on Windows and LINUX environment. As soon as this process got completed, the students were taught to build their first traditional "Hello world program" using Python. In the course of the next, two hours, the students were introduced to and were allowed to experiment with different functionalities of the Python programming language. The students were told how Python intelligently assigns datatypes to variables, automatically and how we can typecast variables according to requirement.

Students were also made familiar with the various types of control-structures and their workings. Students were introduced to concepts of lists and strings. Students were shown how to make their own functions which could return more than one variable! To students only familiar with C/C++, this came as quite a shock and surprise.

In between the two sessions, the students and experts were provided with a lunch-break.

The second session began with introduction of the machine level interface of a computer. The students were deeply urged to learn and be proficient in LINUX environments such as Ubuntu, Fedora, Mint and others. The difference between a Microcontroller and a Microprocessor was emphasized. The students were shown the Raspberry Pi 3 board. They were also introduced with all the peripherals available on the board of the RPi2 and RPi3. The students were shown

how to load the RPi (which is a computer in its own right) with an Operating System. Then they were taught how to run programs written in Python on the RPi board.

At the end of session II, the students were a shown a live-and-working implementation of IoT called “The Smart Home” was demonstrated to the students in groups of 20-30. After the demonstration, the students were given a free lever to ask question which they exercised fully. Students were extremely excited to have their questions answered and this resulted in the workshop lasting for about 30 minutes more than scheduled.

The gathering dispersed with a vote of thanks by Prof. Kirti Sharma and exchange of goodwill among the students.

13) Lecture session on “Collaboration as the Mantra for Academic and Social Excellence”

By Dr. Nandita Acharya Co founder and director training Sannibh Technologies

Organized by: Computer Engineering Department, BVM

Date: 11-02-2017

The lecture was organized by computer engineering department for the students of first year CP for improving their inter personal interaction abilities.

The session was conducted by Dr. Nandita Acharya. It covered the topic interaction pattern in education system. It is important for academic and social excellence, Interaction pattern in education settings, how to achieve excellence through collaboration, essential elements of collaboration and how to make work.

It was excellent session and was very much appreciated by students.

14) Campus Recruitment training Program for Computer Engineering Dept Students

Birla Vishwakarma College organised the campus recruitment training for the computer branch students on Saturdays in the month of January and February. The classes were been taken by Faculty from well recognized institute T.I.M.E under supervision of **Dr N.M.patel.**

Students have actively taken part in those sessions. This training provides student a smooth path to enter the job market straight from the campus. It includes mental calculations, playing with numbers and various tricks to solve the problem which was been teached as per various aptitude tests been conducted all over India. Various levels of assignments were provided to enhance the understanding. Schedule of teaching is been described in brief below:

Date- 21-january-2017

-> Logic developer-1 was been solved in class

-> Logic developer-2(homework)

Date- 28-january-2017

Topics covered in class:

-> SPEED MATHS- Fast multiplication, Squares, Square root, Cubes, Cube root, Linear equations in two variables

-> Doubts solving of logic developer-2

-> Assignment on simple equation (homework)

Date-11-febuary-2017

Topics covered in class:

-> SPEED MATHS- Frequency of a numbers, alphanumeric problems, Calendars, Clocks

-> Logic developer-3 and calendar (homework)

15) One day workshop on "Angular JS"

Computer Engineering department of BVM Engineering College, have organised One day Workshop on **"Angular - JS" for Second and Third year students on 11th February, 2017** for two hours. There were total **93 participants**, who attended the workshop. The expense of the workshop has been approved under TEQIP-II fund.

The expert was invited from **TOPS Technologies, Ahmedabad**. The topics covered in the workshop as below:

- JavaScript Framework
- Introduction of Angular JS
- Advantage of Angular JS
- SPA in Angular JS
- MVC and MVVM
- Core features of Angular JS
- Components of Angular JS

The motive of this workshop was, students can learn the grooming technologies in the area of Web Technologies and Java Scripts. Also it can helpful to the students for their project work in final year.

Coordinators: Dr. N. M. Patel and Prof. Bhavesh Tanawala

16) One day workshop on "GPU Architecture & Programming"

On 25th March 2017, a workshop on "General Purpose Programming on Graphical Processing Unit" was organized by the Department Of Computer Engineering, Birla Vishvkarma Mahavidyalaya and co-ordinated by Dr. N. M. Patel & Prof M J Joshi. The audience mainly constituted of students belonging to the second level.The workshop was attended by 30 students. Dr. Vibha Patel from NIRMA University was invited as the main resource person for the workshop.

She began her talk by listing out the main difference between a GPU and a CPU and the motivation to develop the former. She then continued with a brief history on how the present-day-GPU came into existence. She elaborated on the various generations of the GPUs. Then she went on comparing the GPUs and CPUs generation-wise. It was concluded that GPUs are developing at a much faster rate than the CPUs and are likely to adhere to the Moore's law for quite some time. Students were introduced to platforms like CUDA and OpenCL.

After a few minutes of break, the session began with the expert explaining the key structure of the GPU. She narrated the low-level-mechanism which is in place to help interface the GPU with the CPU. The students were introduced with the concepts of blocks, grids, different types of caches and layering of the GPU.

The final part of the workshop aimed at giving the students first-hand feel of how it is like to program the NVIDIA GPUs using the CUDA API which extends C language. There was also an enlightening discussion on how to develop algorithms which would otherwise be considered inefficient but worked exceptionally well with a GPU and vice-versa.
The last topic was a real program that exploits the GPU resources to add two arrays of size N with time complexity of O(1) assuming the GPU has enough cores.

The gathering dispersed after the ceremonial vote of thanks.

Coordinators: Dr N M Patel and Prof M J Joshi

17) Project expo 2017 and III Meet 2017

Industry Institute Interaction committee and BVM Engineering College, Vallabh Vidyanagar, with the support of all the faculty members and students from the College, are organizing a PROJECT EXPO 2017 on date30-03-2017. The purpose of this event is to showcase the projects of all the Final Year BE Students of all the disciplines of the BVM Engineering College.

Chief Guest: Er. J. S.Patel, CEO, Elecon Engineering Company, V.V.Nagar
Guest of Honor: Er. Jagdishbhai Patel, Parkage Industries, V.U.Nagar
President: Er. V.M.Patel, Hon Jt. Secretary CVM

Experts

- Raj Kothari, Carrier Coach
- Shreyansh Bhavsar, Collabera
- Dr. Varang Acharya, Sannibh Technology
- Nirmit Patel, Senior Tech, Infochip
- Mr. Suthar, Q&A Head Infochip

All the fourth-year students of the BVM engineering college were gathered in the auditorium on 30th March for 'Project Expo – 2017'. Then after lighting the lamp ceremony by our honorable chief guests. After that a small speech by our chief guests on significant of project expo.

Memorable information:

- o Meet the unspoken needs by going the extra mile to discover what your client really wants but is afraid to ask for
- o When you think, you're done, let it sit on the shelf for a day. Then go back and make it even better.
- o Don't ask whether your client will like what you've done; ask yourself if *you* would purchase the product based on the advertising you've provided

Glimpse of Project Expo 2017

Project Expo Winners

1st: STUDENT ACTIVITY ANALYZER

Student Activity Analyzer is an android application which will be used for day to day life, user first have to input their data as required in the application and it will present that data in aninteresting manner. The data will be saved in our data base with the help of AWS (Amazon WebServices) and application will generate graphs for the better understanding. We will also providethe analysis of the data, which can be useful for the college and student to improve

theirperformance better. Last module is the location tracking module which is for the college side onlyto track the location of the students, which can be used for auto attendance also. With the help ofthe location module we'll generate graphs to see how many students are present in the call out oftotal. The data will be anonyms so we'll not show any particular student data either we will showthe total numbers.

2nd: HARAKA MAIL SERVER WITH AWS MICROSERVICE

Containerization of microservices to reduce the development as well as deployment time of microservices. HARAKA an Smtp mail server having Plugin architecture written in Node is framework interacts with Ldap (Lightweight Directory Access Protocol) to authenticate its users which are entered as a part of Administrative User interface programmed in Java using JSP. We have used Docker as a containerization technology.

3rd: SMART FARM

Agriculture is mankind's oldest and still its most important economic activity, providing the food, feed, fiber, and fuel necessary for our survival. Plus, automation can play a significant role in increasing efficiency and reducing cost. On the other hand, one must know that India is the only country to use its 90% of fresh water for agriculture activities. So, based on these three facts,main motive of **Smart Farm** is to address the issue of farmers in agriculture activities by automating the irrigation process based on the environmental conditions like moisture, temperature, and light, and helping government body to gauge water usage by providing analysisof water usage. Thus, we can say Smart Farm is an IoT-based Irrigation Automation System.

III Meet 2017

The III Meet event organized by the department of Computer Engineering of BVM engineering college on 30th March 2017 at BVM Engineering College, 4:00 pm onwards. The industry people from the various industries are invited. The main objective of the event is expression of interest (EOI) and Memorandum of understanding (MOU). We have received EOI from 6 companies and signed MOU with 3 Companies namely E-Infochip, Vision Consultants, Collabera Technologies.

Glimpse of III Meet 2017

18) E Presentation by FYBE CP students IOT- Vaishali Pandita and Clound Computing- Purven Dudhaiya

E presentation prepared and given by FYBE CP students. Vaishali Pandita given presentation on Internat of Things and Purven Dudhaiya given presentation on cloud computing to their classmates. It has covered the various topic of internet of things and cloud computing. It was excellent and very much appreciated by students.

19) Activity by FYBE-CP students Tips on Writing a Review (report) Paper and how to do well at the competitive events. Purven Dudhaiya

On 20th March 2017, Tuesday, an interaction meet was organized by the first year and second year students of Computer Engineering Department.

The purpose of the activity name was to get 'Tips on Writing a Review (report) Paper' from two seniors of Second Year Computer Engineering, Ishan and Pranshu , who had recently presented a review paper at the International Conference -ICRISET 2017, ooganized at BVM.

The purpose of the activity name was to also get tips on how to do well at the competitive events, from the two seniors of Second Year Computer Engineering , Heenal and Dhruti, who have secured third place at the Hackathon, a state level competition organized at theGEC Gandhinagar -before the internal test.

The activity was held at 10:30 AM. The students shared their experience and encouraged us for these kind of activities and writing of such research paper, and how to prepare for the events such as Hackthone.

The first year students were privileged by this effort by their seniors. The activity was guided by Prof. Sunil Bakhru and Prof. N M Patel. The first year students were delighted and wish to look forward for more.

20) One Day Workshop on "Windows Server 2016 Installation and Configuration"

Expert: Abhi Goswami, Abhishek Mehta and Dinesh Solanki, 4th year Computer Engineering, Students, BVM

Coordinator: Prof. Kirtikumar J sharma.

Date: 01/04/2017

Time: 10:00 am to 1:30 pm

Total Hours: 3.5 Hours

Place: LAB 8, F Block

Total Participants: 47 Students from 3rd and 2nd Year, Computer Engineering

Abhi Goswami, Abhishek Mehta and Dinesh Solanki of fourth year department of computer engineering were invited to present their project on the given topic in this workshop. During the workshop, students were taught how to install window server 2016, how to use Hyper-V, and some im

portant networking protocols were explained. The experts also gave a live demonstration on how to create clients and servers along with their configuration. A detailed explanation was given on the various aspects of computer networking such as domain, internet, DNS server, DHCP, etc. For students who were interested to study further about this area of expertise, approaches to this fields were explained. Areas such as database administration, network administration and security were discussed.

The workshop was carried out for about 3.5 hours with a positive response from the students. Doubts and questions regarding the discussion were solved by the experts. Computer networks is a vast field with multiple areas of expertise and further study about this topic will be advantages to all the students