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## INTERNET OF THINGS (IOT)

The internet of things, or IoT, is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.

A thing in the internet of things can be a person with a heart monitor implant, a farm animal with a biochip transponder, an automobile that has built-in sensors to alert the driver when tire pressure is low or any other natural or man-made object that can be assigned an IP address and is able to transfer data over a network.

Increasingly, organizations in a variety of industries are using IoT to operate more efficiently, better understand customers to deliver enhanced customer service, improve decision-making and increase the value of the business.

IoT has evolved from the convergence of wireless technologies, micro-electromechanical systems (MEMS), micro services and the internet. The convergence has helped tear down the silos between operational technologies (OT) and information technology (IT), enabling unstructured machine-generated data to be analyzed for insights to drive improvements.

### WORKING OF IOT

An IoT ecosystem consists of web-enabled smart devices that use embedded processors, sensors and communication hardware to collect, send and act on data they acquire from their environments. IoT devices share the sensor data they collect by connecting to an IoT gateway or other edge device where data is either sent to the cloud to be analyzed or analyzed locally. Sometimes, these devices communicate with other related devices and act

on the information they get from one another. The devices do most of the work without human intervention, although people can interact with the devices - for instance, to set them up, give them instructions or access the data.

The connectivity, networking and communication protocols used with these web-enabled devices largely depend on the specific IoT applications deployed.

### IN-HOUSE TRAINING:

Fifteen days in-house training was organized for the B.Tech students of all branches. An expert was hired to train the students. Around 500 students participated in this training. The training focused on the basics of IoT and how to get started with the IoT concept. The training also discussed the basics of ARM platform and how to connect different sensors, transmit and receive sensed data. The training was conducted on the "Project and Outcome" based Methodology with hands-on-labs. The learning outcomes of the training session were-

- explain the definition and usage of the term 'the internet of things' in different contexts
- understand where the IoT concept fits within the broader ICT industry and possible future trends
- understand the various network protocols used in IoT
- be familiar with the key wireless technologies used in IoT systems, such as WiFi, 6LoWPAN, bluetooth and ZigBee.
- understand and be able to explain the role of big data, cloud computing and data analytics in a typical IoT system
- design a simple IoT system made up of sensors, wireless network connection, data analytics and display/actuators, and write the necessary control software
- build and test a complete working IoT system.

**Upskilling  
for the  
Future**



# INDUSTRIAL TRAININGS



## STAAD PRO

**T**raining was organized for the students of BIST/BIRT/BIRTS students of CE Branch III and V semesters. STAAD Pro is a general purpose structural analysis and design program with applications primarily in the building industry-commercial buildings, bridges and highway structures, industrial structures, chemical plant structures, dams, retaining walls, turbine foundations, culverts and other embedded structures, etc. The training program consisted of the following tasks-

1. Graphical model generation utilities as well as text editor based commands for creating the mathematical model. Beam and column members are represented using lines. Walls, slabs and panel type entities are represented using triangular and quadrilateral finite

elements. Solid blocks are represented using brick elements. These utilities allow the user to create the geometry, assign properties, orient cross sections as desired, assign materials like steel, concrete, timber, aluminum, specify supports, apply loads explicitly as well as have the program generate loads, design parameters etc.

2. Analysis engines for performing linear elastic and pdelta analysis, finite element analysis, frequency extraction, and dynamic response (spectrum, time history, steady state, etc.).
3. Design engines for code checking and optimization of steel, aluminum and timber members. Reinforcement calculations for concrete beams, columns, slabs and shear walls. Design of shear and moment connections for steel members.
4. Result viewing, result verification and report generation tools for examining displacement diagrams, bending moment and shear force diagrams, beam, plate and solid stress contours, etc.
5. Peripheral tools for activities like import and export of data from and to other widely accepted formats, links with other popular softwares for niche areas like reinforced and prestressed concrete slab design, footing design, steel connection design, etc.

## OVERHAULING OF INTERNAL COMBUSTION ENGINES

**A** Training programme on 'Overhauling of Internal Combustion Engine' was organized from 15th July 2019 to 31st July 2019 for BIST/BIRT/BIRTS, ME Branch, 3rd & 5th Semester students. Diesel Engine Overhauling, an overhauled engine is an engine which has been removed, disassembled. (torn down), cleaned, inspected, repaired as necessary and tested using factory service manual. When a vehicle engine is being overhauled, it is completely taken apart, every piece is inspected and what ever piece shows appreciable wear is reconditioned to its original shape and dimensions or replaced by a new one. After this the engine is reassembled, put on a test stand, started, tuned up, and carefully tested. Since it is difficult to keep and accurate maintenance log for a vehicle away from the garage sometimes for days or week and since the operators of these vehicles need not be first class mechanics,



and because nobody is concerned how efficiently an engine works as long as it runs and pulls the lead, a general overhauling of the engine is done at regular intervals, every 12 or 18 months as the case may be.

In general, the methods of overhaul do not differ from maintenance procedure, except that in overhauling a more strict examination is in order as the intervals are considerably greater than in maintenance work, a part even slightly worn, if it is not subject to maintenance inspection periodically, should therefore be either reconditioned or replaced.

The training programme helped the students to gain knowledge the general procedure for removing the engine from the vehicle which can be summed up as follows:

- (i) Drain oil from the sump
- (ii) Drain water from radiator and jackets, opening all taps in the cooling system.
- (iii) Remove engine bonnet and where filled vertical side members.
- (iv) Remove radiator
- (v) Disconnect cable from battery

## QUAD COPTER



**T**raining on aeromodelling was organized from 15th July to 31st July for BIST/BIRT, EC & CSE Branch 5th semester students. A quadcopter, or multirotor, drone, or quadrotor, is a simple flying mechanical vehicle that has four arms, and in each arm there is a motor attached to a propeller. Multicopters with three, six or eight arms are also possible, but work on the same principal as a quadcopter. Two of the rotors turn clockwise, while the other two turn counter clockwise. Quadcopters are aerodynamically unstable, and require a flight computer to convert your input commands into commands that change the RPMs of the propellers to produce the desired motion. Quadcopters differ from a helicopter or a fixed wing aircraft in the way they generate lift and control forces. The advancement of electronic technology in flight control computers, coreless or brushless motors, smaller microprocessors, batteries, accelerometers, cameras, and even GPS systems made it possible to design and fly quadcopters. The simplicity of the quadcopter has made it a very effective aerial photography and video platform.

- (vi) Disconnect fuel fed supply line
- (vii) Remove L.T. cables from ignition system and disconnect wiring to horn.
- (viii) Disconnect radiator hose from the engine side
- (ix) Disconnect oil pipe to instrument pressure gage and thermometer pipe
- (x) Remove electric horn if liable to obstruct engine removal
- (xi) Take off cable connections to dynamo and starting motor (It is better to remove both starting motor and dynamo if readily accessible, as this allows better access to engine mounting nuts)
- (xii) Remove exhaust pipe flange nuts
- (xiii) Take off accelerator and air choke controls
- (xiv) Take out all foot boards as far back as rear of gear box
- (xv) Disconnect clutch pedal operating rod and pull of spring.
- (xvi) Disconnect foot brake pedal and hand brake, if anchored to engine unit
- (xvii) As the engine, clutch, and gear box are built as integral unit at most medium vehicles, it is more convenient to remove the complete unit than gear box; these operations can be performed better on the bench than on the chassis and much time save thereby.

# BGI EVENT CALENDAR



On 2<sup>nd</sup> Oct to pay tribute to Mahatma Gandhi on his 150<sup>th</sup> birth anniversary, the NSS Unit performed Nukkad Natak and also took pledge to eradicate insanitation and will remain committed towards cleanliness.

On the occasion of Ganesh Chaturthi, BIST ex-student Poonam Tiwari conducted a workshop on Eco friendly Ganesh Idol making on 28<sup>th</sup> August.



On 30<sup>th</sup> Sep NSS Unit organized an Orientation programme to welcome the first year students.



Students of BIST attended a workshop on Hepatitis at AIIMS Bhopal on 29<sup>th</sup> July.



Motivational lecture was delivered on 27<sup>th</sup> Sep by Shri Satish kumar on 'Employability Opportunities & Challenges in the Present Scenerio' for BGI students.

On 15<sup>th</sup> July Pharmaceutical Royal Society conducted a seminar on Entrepreneurial Opportunities in Pharma industry & Health Care Sector for BCP students.



On 18<sup>th</sup> Sep a workshop on 'Cyber Safety & Security Awareness' was organized for BGI students.



BIST EC Branch 5<sup>th</sup> Semester students visited Bansal News Office, Bhopal on 14<sup>th</sup> Sep. where the students gathered scrupulous information regarding transmission of audio and video signals.



During one week Hindi Diwas BIST conducted a poster making and essay writing competition on 16<sup>th</sup> Sep.

10 days camp from 16<sup>th</sup> Sep to 26<sup>th</sup> Sep was organized by MP Girls Battalion at BHEL, Bhopal for BGI students. The main attractions of camp were Painting competition, poster making competition, quiz competition etc. Shikha Sahu acquired 2<sup>nd</sup> position in poster making competition.



# BGI EVENT CALENDAR



On 31<sup>st</sup> August an expert lecture was conducted by Mr. Nikhil Kaushik of PCRA (Petroleum Conservation and regulatory authority) for the students of 3<sup>rd</sup> & 5<sup>th</sup> semester EX Branch.

Expert lecture on "Green & Energy Efficient Buildings" by Ar. Surinder Bahga (Saakar Foundation, Chandigarh) was organized for CE Branch, V & VII Semester students.



Bansal College of Pharmacy was awarded with Best Achiever Institute by Chief Minister of M.P. Shri Kamal Nath on 17<sup>th</sup> Sep 2019.



National conference on Innovation in Drug Delivery through Academic & Industry collaboration' was organized by Bansal College of Pharmacy and supported by PRISAL on 8<sup>th</sup> Sep 2019.



BIST 1<sup>st</sup> semester students of all branches visited The Regional Science Centre (RSCB) on 20<sup>th</sup> July 2019 where they got a chance to see 266 interactive science exhibits spanning a wide range of scientific disciplines.

One day workshop on 'Optical Fibre' was organized on 20<sup>th</sup> Sep 2019 for EC Branch students of 3<sup>rd</sup> & 5<sup>th</sup> semesters.



Expert lecture was delivered on 31<sup>st</sup> August 2019 by Dr. Vishnu Prasad on 'Computational Fluid Dynamics' for BIST/BIRT/ BIRTS, ME Branch students.



In order to develop scientific instincts, the students of BIST first semester all branches visited Science Exhibition on 14<sup>th</sup> Sep. 2019 .



On 18<sup>th</sup> Sep a seminar was conducted by IITian Rupendra Gajbiye, founder of Taking Forward on 'Financial & Technical Analysis' for MBA students of 1<sup>st</sup> & 3<sup>rd</sup> semesters.

BIST, IT Branch, Sem-I student Muskan Singh and her team won the State Level Basketball Tournament on 14<sup>th</sup> Sep. 2019.



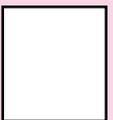
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Bansal Campus, Kokta, Anand Nagar, Raisen Rd., Bhopal (M.P.)  
Phone : 0755 - 6681100, Mobile : 887 846 8786  
website : www.bistbpl.in | e-mail : sanjay@bistbpl.in

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