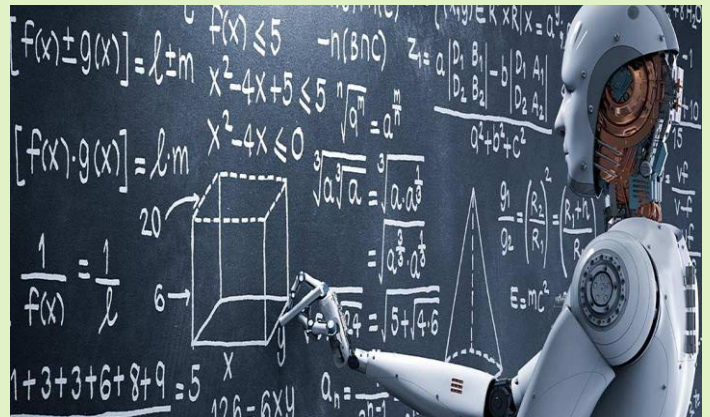# Department of Information Science and Engineering

"Five Day Open Course on"

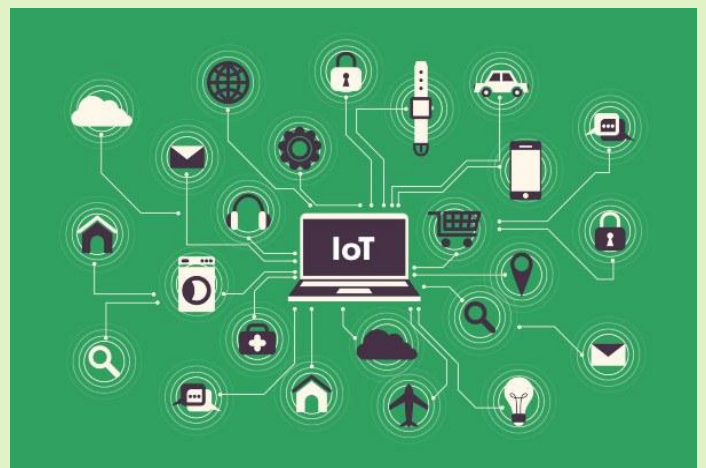## 13th to 17th June 2022

Problem solving using Java Program

Data Analytics Boot camp using Python

Complete Python Booting

Internet of Things

BMS Institute of Technology and Management

(An Autonomous Institution Under VTU)

Doddaballapura Main Road, Yelahanka,
Bengaluru-560064, Karnataka, India.

Department of Information Science and Engineering

VISION

Emerge as centre of learning in the field of information science & engineering with technical competency to serve the society.

MISSION

To provide excellent learning environment through balanced curriculum, best teaching methods, innovation, mentoring and industry institute interaction.

Contents

Brochure

1. PROBLEM SOLVING USING JAVA PROGRAMMING

BMS Institute of Technology Management
Yelahanka, Bengaluru -560064
Department of Information Science & Engineering
Five Day Open Course
On
"Problem solving using Java Programming"

13th June to 17th June 2022

ISE Dept.
Transform Here

Organizing Chair: Dr. Pushpa S K

About the Institute

In view of the growing demand for technical education and with the goal of establishing a premier technical education on par with international standards, a new technical institution by name 'BMS Institute of Technology and Management' was established in 2002. Currently, BMSIT & M offers seven UG, three PG programs and Ph.D. /M.Sc. (Engg.) in ten disciplines. BMSIT & M considers research to be of equal importance as academics for the betterment of an institution. Research culture has been embraced well by the faculty members and research scholars at BMSIT & M.

About the Department

The Department of Information Science and Engineering started in the Year 2010 with an approved intake of 60 and Enhanced to 180 from the academic year 2019-20. The Department has qualified and professionally dedicated faculty members practising OBE in the academic deliverables. The faculties have published research articles in various National, International Conferences and Journals. The department has modern laboratories to serve the teaching and research needs of the students as well as faculty members. The Department has been organizing conferences, workshops, expert lectures and student centric activities to encourage students to instil lifelong learning. Few of our students are working for consultancy projects along with few faculty members. The students are encouraged to attend the 10 days' internship to bridge the gap between the academics and industry. The department has admirable research ambience.

About the Open Course

The knowledge of programming is very essential for current scenario in order to automate the computations and solve complex problems. As per the relevance to the industry, programming in JAVA and knowledge of C++ is need of the day. Rich user friendly applications are being expected by all individual's. Students aspiring for technically sound and challenging career required to learn developing solutions to the problem through application of science, maths and technology. Niche skills are very essential for all engineering graduates to excel in their career and is the current IT industry need. Students participating in placement activities are required to be more focussed towards acquiring knowledge and programming skills. As per the current IT industry expects well trained and experienced programmers in JAVA and higher level languages.

Objectives of the Course

1. Apply and demonstrate OOP features to build simple JAVA programs.
2. Design Java programs to demonstrate various JAVA concepts.
3. Investigate real world case studies in JAVA with respect to database handling.

Target Audience

All the Students of BMSIT&M
Students are required to bring your own device

Course Material

Soft copy of presentation & software used in the programs will be provided for all the students along with the participation certificate.

Course Content

- Basics Concepts of Object-Oriented Programming
- Maths with Java Java Memory Management
- Inheritance
- Exception Handling in Java
- Database Programming using JDBC
- AWT Programming
- GUI Programming

Registration Details

Category	Amount
Registration Fee	*400*

Join WhatssApp Group using link:
https://chat.whatsapp.com/CL24Xtx2Qgi7Ncte2LaODT

Faculty Coordinators

Dr. Prakash G L, Asst. Prof., Dept. of ISE.
Mob:91-8979108446, Email: glprakash@bmsit.in
Prof. Shanthi D L, Asst. Prof., Dept. of ISE.
Mob: 91-9449176450, Email: gopalaiahshanthi@bmsit.in

Technical Staff:
Mr. Harish S, Mob:91- 8951550739, Email: harishs@bmsit.in

Student Coordinators:

B R Mukteshwar	Akansha Agarwal
1by19is035@bmsit.in	1by19is014@bmsit.in
8660928653	8102045206

Open Course Registration be done at:
http://projects.bmsit.ac.in/

Event Schedule

Department of Information Science and Engineering
Course Schedule: Problem Solving using Java Programming
2021-2022

Sl No.	Date	Topics covered 8:30 to 10:30 am	10:30 to 10:50	Topics covered 10:50 to 12:50 pm	12:50 to 1:50 pm	Topics covered 2:00 to 4:00	Assessment and Feedback 4:00 to 4:30 pm
1	13.06.2022	Basics Concepts of Object-Oriented Programming	TEA BREAK	Java Basics Language Constructs	LUNCH BREAK	Programming examples	Execution of sample programs
2	14.06.2022	Java String		Maths with Java Java Memory Management		Inheritance Abstract Class & Interface in Java	Programming Examples execution
3	15.06.2022	Exception Handling in Java		Multithreading in Java		Database Programming using JDBC	Programming examples
4	16.06.2022	Introduction to Java AWT		AWT Programming		Introduction to Event Handling	Execution of sample programs
5	17.06.2022	Programming with Event handling		A Collection of Useful Classes		GUI Programming	Programming Examples execution

Course Outcomes:

CO1: Apply and demonstrate OOP features to build simple JAVA programs – (PO1)
CO2: Design Java programs to demonstrate various JAVA concepts – (PO2)
CO3: Investigate real world case studies in JAVA with respect to database handling – (PO3)

Total number of participants:

PROBLEM SOLVING USING JAVA PROGRAMMING		
Sl. No	Name of the Student	USN
1.	PRERNA SHANKAR	1BY20IS119
2.	NIDHI KUMARI	1BY20IS097
3.	SANSKRITI AGRAWAL	1BY20IS147
4.	SREE PRIYA S	1BY20IS164
5.	TEJASWINI K S	1BY20IS183
6.	ANAND BHARDWAJ	1BY20IS023
7.	SNEHA B	1BY20IS163
8.	SANVI G R	1BY20IS148
9.	SAKSHI S TAPLE	1BY20IS139
10.	SHIREESHA J	1BY20IS153
11.	SANJANA PATIL	1BY20IS146
12.	ARPITHA A P	1BY20IS031
13.	DHANUSHA R G	1BY21IS404
14.	CHIDANANDA K	1BY19IS045
15.	R DEEKSHA	1BY19IS126
16.	KAVANA R GOPAL	1BY20IS069
17.	AAYUSHI JAISWAL	1BY20IS001
18.	AMIT BHUSHAN	1BY19IS022
19.	ANANYA K M	1BY19IS024
20.	AISIRI M R	1BY19IS012
21.	HEMANTH KUMAR K H	1BY20CS062
22.	NANDAN N KOPPLU	1BY20CS122
23.	K S KSHEERAJ	1BY20CS078
24.	ARCHANA S	1BY21CS401
25.	DARIVEMULA PAUL CHRISTIAN	1BY20CS048
26.	SANJEEV KUMAR SUMAN	1BY19CS209
27.	SHWETA BHAT	1BY19CS149
28.	SMRUTHI N. S	1BY19CS152
29.	TEJASWINI S RAO	1BY19CS169
30.	YALLAMRAJU ANUJA	1BY19CS184
31.	PRERANA R	BMSITM49
32.	SANJITH V	1BY19CS135
33.	P VAMSHI	1BY19CS097
34.	VANDANA B G	1BY19CS174
35.	JAIKEERTHI.U	1BY19CS056
36.	SURESH D M	1BY19CS164
37.	PRAJODH PRAGATH SUNDER	1BY19CS104
38.	PRATHAM H SUNNAL	1BY19CS109
39.	RAKSHITHGOWDA A	1BY19CS114
40.	MAJJALA GEETHIKA	1BY20EE025
41.	LEISHA K SELVASHREE	1BY20EE022
42.	SHIVANI SINGH	1BY20EE045
43.	S M VARASIDHI VINAYAKA	1BY20EC140

44.	CHIRAG KUMAR N	1BY20EC051
45.	CHANDU B R	1BY20EC049
46.	BITTU KUMAR	1BY20EC046
47.	SANSKRITI	1BY20EC148
48.	KAUSHALENDRA SINGH	1BY20EC081
49.	P PRAVEEN KUMAR	1BY20EC114
50.	HEMANTH S MANJUNATH	1BY19EC061
51.	M AKSHITA	1BY19EC091
52.	SHIVANI	1BY19EC147
53.	SHIVANI SINGH	1BY20EC196
54.	THEJASWINI H A	1BY20EC177
55.	SHIBHAM BORKOTOKY	1BY18ME051
56.	SANTANU SHEKHAR	1BY20AI047
57.	ANKIT BASAVARAJ HALASAGI	1BY20AI008
58.	ADITYA SINGH	1BY20AI005
59.	PRANAVI. K	1BY19AI025
60.	LAHARI BALE	1BY19AI026

Profile of Resource Persons:

Dr. Pushpa S. K. presently working as Professor and HoD at the Department of Information Science and Engineering, BMS Institute of Technology and Management. She obtained her Ph.D in the area of wireless sensor networks in the year 2017, M.E in Computer Science and Engineering from Bangalore University, Bangalore, Karnataka, India during the year 2004. Bachelor's Degree in Computer Science and Engineering from Bangalore University, Bangalore, Karnataka, India during the year 1995. She has 20+ years of teaching experience. She is involved in the organizing committee to organize the national conferences. She is a resource person for national workshops, Webinar, and Faculty Development Programs. She has published more than 30+ international papers in various journals and conferences. Her research area of interest is Wireless sensor networks, Data Analytics, Machine Learning algorithms, etc. She is a life member of professional bodies like ISTE, ISC & IEEE member.

Dr. Shanthi D L completed her Ph.D recently and B.E in Computer Science and Engineering from SJCIT, Chickballapur during 1999, and received her M.Tech in Computer Science and engineering from Visvesvaraya Technological University, Belgaum, Karnataka, India during the year 2017. She is having 21+ years of experience in teaching and 2 years in industry, currently she is working as assistant professor in Dept of ISE, BMSIT&M, Bengaluru. Her areas of interest include Networks, Wireless Sensor Networks, Computer network security, IoT, Big Data. She has published 16+ technical papers in various National & International Conferences and 10+ papers in Journals. She is a member of IEEE, ISTE, and has delivered various talks and lectures.

Dr. Prakash G L is presently working as faculty in the Department of Information Science and Engineering, BMS Institute of Technology, VTU Karnataka state, India. He has obtained his PhD in the area of cloud data security from the Computer Science and Engineering, University of Petroleum and Energy Studies, India. He has also obtained his M.E and B.E in Computer Science and Engineering from Bangalore University, India. He started his professional career as project assistant from Supercomputer Education and Research Center, Indian Institute of

Science, Bangalore. He has 19 years of teaching experience in various technical universities and also he was a visiting faculty for Bangalore university and Manipal University. He is involved in the organizing committee to organize the international conferences since 2006. He is a resource person for national workshops, Webinar, and Faculty Development Programs. He has published more than 25 international papers in journals and conferences in the area of data security in cloud computing. His research area of interest is design and analysis of algorithms, cloud data security, Machine Learning algorithms, etc.

About Open Course:

The knowledge of programming is very essential for current scenario in order to automate the computations and solve complex problems. As per the elevance to the industry, programming in JAVA and knowledge of C++ is need of the day. Rich user friendly applications are being expected by all individuals. Students aspiring for technically sound and challenging career required to learn developing solutions to the problem through application of science, math's and technology. Niche skills are very essential for all engineering graduates to excel in their career and is the current IT industry need. Students participating in placement activities are required to be more focused towards acquiring knowledge and programming skills. As per the current IT industry expects well trained and experienced programmers in JAVA and higher level languages**.**

Day 1: 13-06-2022
MORNING SESSION:
The entire day's session was handled by B R Mukteshwar, P Preethika and Akansha Agarwal, BE, 6th Semester Information Science and Engineering, BMSIT. In the morning session, they gave the introduction about the Basics Concepts of Object-Oriented Programming and Java Basics Language Constructs

AFTERNOON SESSION:
In afternoon session, B R Mukteshwar, Aftab Ahmed and Akansha Agarwal BE, 6th Semester Information Science and Engineering, BMSIT, discussed various problem solving methods using java and MCQ questions for placement perspective.

Day 2: 14-06-2022
MORNING SESSION:
The entire day's session was handled by B R Mukteshwar, P Preethika, Akansha Agarwal, Poojashree Prakash, BE, 6th Semester Information Science and Engineering, BMSIT. In the morning session, discussed about methods, types of methods, method overloading and constructor overloading with programming examples.

AFTERNOON SESSION:
In afternoon session, B R Mukteshwar, Aftab Ahmed, Poojashree Prakash and Akansha Agarwal BE, 6th Semester Information Science and Engineering, BMSIT,discussed member functions, types of member functions, programs for placements, and strings methods in java and examples

Day 3: 15-06-2022
MORNING SESSION:
The entire day's session was handled by B R Mukteshwar, Aftab Ahmed, P Preethika, Akansha Agarwal, Poojashree Prakash, BE, 6th Semester Information Science and Engineering, BMSIT. In the morning

session, discussed about java collections, exception handling in java with programming examples and gaming application with oops concepts.

AFTERNOON SESSION:
In afternoon session, B R Mukteshwar, Aftab Ahmed, Poojashree Prakash and Akansha Agarwal BE, 6th Semester Information Science and Engineering, BMSIT,discussed member functions, types of member functions, programs for placements, and strings methods in java and examples.

Day 4: 16-06-2022
MORNING SESSION:
The entire day's session was handled by MR. RATHAN MURALIDHAR, ML Engineer, Corporate Trainer and IP Consultant, Impavid Technologies. He has discussed importance of servlets and its life cycle, installation of software and servlet programming concepts.

AFTERNOON SESSION:

The entire day's session was handled by MR. RATHAN MURALIDHAR, ML Engineer, Corporate Trainer and IP Consultant, Impavid Technologies. He has discussed JDBC, Servlets and MySql database connection using java program.

Day 5: 17-06-2022
MORNING SESSION:

The entire day's session was handled by Dr. Prakash GL, Associate Professor, Department of ISE, BMSIT, He has discussed how to use to create window-based applications using Swing. He has explained various example to design GUI applications.

CO-PO Mapping for open course of "Problem solving using Java Programming"

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3											
CO2		3										
CO3			3									
CO4				3	3	2		2	2	2	2	2

Feedback Questions:

Feedback from external expert:
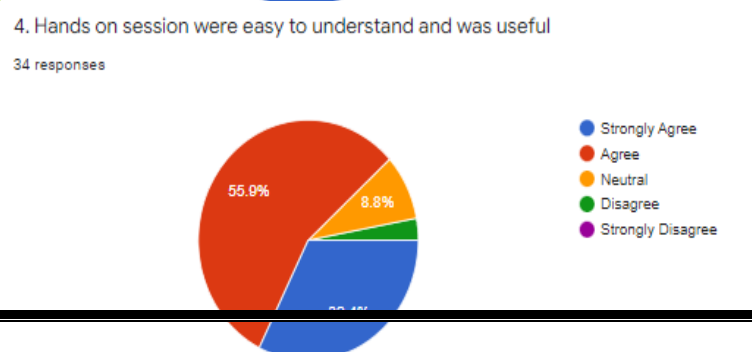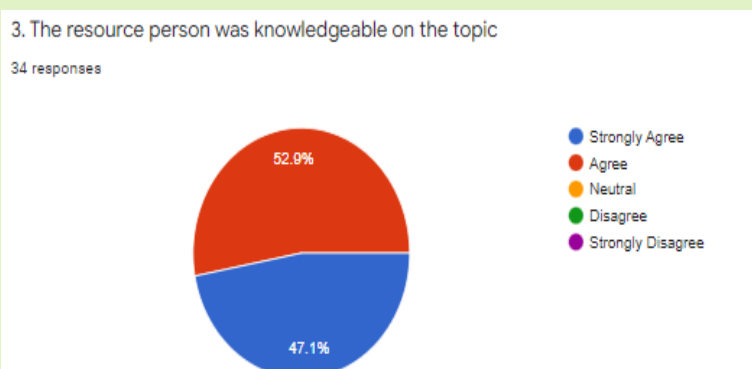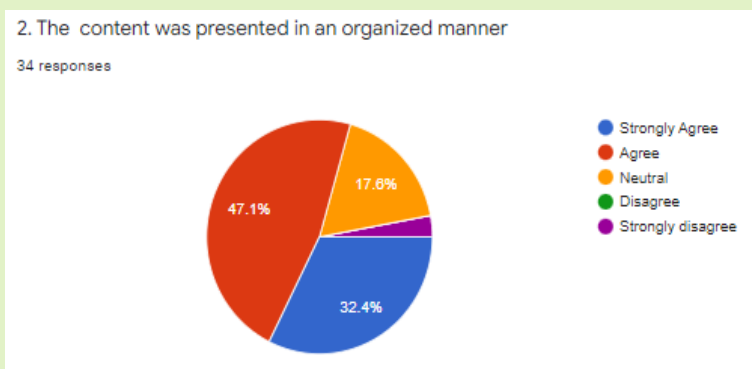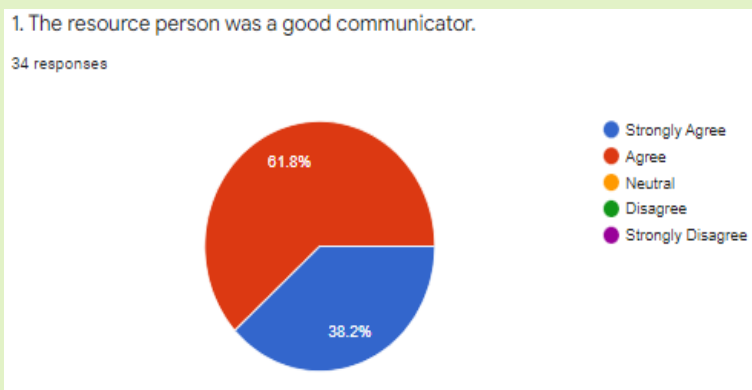1. External Speaker appreciated the participants for being interactive

Feedback (critical) from students:
1. Basic Java programming and algorithms must be covered before starting this course
2. Some of the sessions handled by external speaker should have been clearer

Corrective methods/suggestions to consider while conducting open course next time (at least two points)
1. Pre -requisite to be covered first
2. Sufficient time must be given to participants to complete their assignment

Sample feedback form:

1. The resource person was a good communicator.

34 responses

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

61.8%
38.2%

2. The content was presented in an organized manner

34 responses

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly disagree

17.6%
47.1%
32.4%

3. The resource person was knowledgeable on the topic

34 responses

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

52.9%
47.1%

4. Hands on session were easy to understand and was useful

34 responses

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

55.9%
8.8%

Brochure

2. DATA ANALYTICS BOOT CAMP USING PYTHON

BMS Institute of Technology Management
Yelahanka, Bengaluru -560064
Department of Information Science & Engineering

**Five Day Open Course
On**

"Data analytics -Boot Camp"

Organizing Chair: Dr. Pushpa S K

About the Institute

With the rising need for technical education, came the establishment of the BMS Institute of Technology and Management in 2002. BMSIT&M has recently gained its status as an autonomous institute affiliated with VTU. The institute currently offers eight UG programs, three PG programs and Ph.D./M.Sc. (engg). In ten disciplines.

About the Department

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About the Open Course

Data analytics is an essential aspect of any large business today. It is the process of analyzing raw data in order to draw out meaningful, actionable insights. These insights are then used to inform and drive smart business decisions. It is a lucrative field with a large number of opportunities. This course, will introduce one to the basics of data analytics while utilizing tools such as pandas and numpy, along with data cleaning and visualization using Tableau. Finally, the course will be concluded with a demonstration of data analytics in real world examples.

Objectives of the Course

1. To learn basics of python.
2. To learn advance Python Libraries.
3. Apply knowledge of Python for data cleansing, visualization and analysis.
4. To learn data visualization using Tableau

Target Audience:
All the Students of BMSIT&M

Course Content
Introduction to data analytics, Python fundamentals, Data structures, sorting algorithms, numpy, pandas, statistics and probability, data cleaning, data visualization, real world projects.

Registration Details
**Registration amount is Rs:400/-
http://projects.bmsit.ac.in/**

Details Contact
Dr. Pushpa S K HoD, Professor, Dept. of ISE.
Mob: +91 9449226987, Email: pushpask@bmsit.in
Dr. Geeta Patil, Assoc. Prof., Dept. of ISE.
Mob: +91 9764923424, Email: geetapatil@bmsit.in
Dr. K B Surekha, Assoc. Prof., Dept. of ISE.
Mob: +91 9035757671, Email: surekhakb@bmsit.in

Student Coordinators
Mr. Sudhanva Rao, Dept of ISE - +91 9380475166
Mr. Tharang S, Dept of ISE - +91 8618504188
Mr. Abhay M Pamadi, Dept of ISE - +91 9036900525

Event Schedule

Open course Schedule on "Data Analytics-Bootcamp"

Date:13th June 2022-17th June 2022

Day	Session-1		Session-2		Session-3		Session-4
Time	8:30am – 10:30am		10:50pm -12:50pm		200pm – 4:00pm		4:00pm- 4:30pm
Day1	Course Introduction, Data analytics and its scope / Dr. Pushpa SK	Break	Python Fundamentals / Dr. Geeta Patil	Lunch Break	Data structures in Python / Dr. Geeta Patil	Break	Hands On session and Feedback
Day2	Introduction to numpy, pandas	Break	Data exploration, Statistics and probability	Lunch Break	Hypothesis testing	Break	Hands On Session and Feedback
Day3	Data cleaning	Break	Data visualization	Lunch Break	Data analytics	Break	Hands On Session and Feedback
Day4	Case study: Growth of Indian startups	Break	Case Study: Advanced house price prediction	Lunch Break	Case study: ..	Break	Quiz
Day5	Introduction to tableau	Break	Discount mart sales and profit Analysis	Lunch Break	Tesla stock price analysis	Break	Feed Back and Valedictory

Course Outcomes:

CO1: Able to understand basics of python – (PO1, PO3 and PO5)

CO2: Able to understand advance Python Libraries – (PO1, PO3 and PO5)

CO3: Able to apply knowledge of Python for data cleansing, visualization and analysis – (PO1, PO2, PO3, PO4, PO5)

Total number of participants:

	DATA ANALYTICS BOOT CAMP USING PYTHON	
1.	PARUCHURU HRUSHIKESH	1BY20IS108
2.	JITENDRIYADEEP	1BY20IS065
3.	LAKSHYA AGARWAL	1BY20IS072
4.	MADINENI TARUN KUMAR	1BY20IS075
5.	NIHA SHANAVAS	1BY20IS098
6.	PARASA SAI HARI KEERTHANA	1BY20IS107
7.	GARVIT VASTAWAT	1BY20IS056
8.	ITISH AGARWAL	1BY20IS062
9.	T R RATHNA ROHAN	1BY20IS179
10.	N AKHIL	1BY20IS092
11.	MONISHA G	1BY20IS089
12.	PRATHAM R KAKADE	1BY20IS115
13.	NIKHIL D	1BY20IS194
14.	P P SHASHWATH AIYAPPA	1BY20IS106
15.	AYAN AKASH	1BY20IS035
16.	MODI SAURABH CHANDRA PRAKASH	1BY20IS081
17.	PONAKALA AGASTHYA MOHAN	1BY20IS111

18.	SUMITH S	1BY20IS173	
19.	VADIRAJ C N	1BY20IS186	
20.	SUDHARSAN ADITYA R K	1BY20IS170	
21.	RAJESH SHREEPAD NAIK	1BY20IS126	
22.	NIKHIL KUMAR	1BY20IS100	
23.	ABHINAV JHA	1BY20IS005	
24.	KIRAN S M	1BY20IS070	
25.	AKSHAY KUMAR R	1BY20IS019	
26.	ANANDHU A	1BY20IS024	
27.	ABHISHEK SHANKAR	1BY20IS009	
28.	ANUP G	1BY20IS029	
29.	DHANUSH H V	1BY20IS048	
30.	S SRIKANTH NAGU	1BY20IS135	
31.	DUDDELA RAMA KEERTHANA	1BY20IS055	
32.	BONTHALA SHARATH CHANDRA	1BY20IS043	
33.	ASHWINI KAMALADINNI	1BY20IS401	
34.	JEEVAN KUMAR S V	1BY20IS063	
35.	RAHUL RAJ	1BY20IS123	
36.	AMOGH YADWAD	1BY20IS021	
37.	MOHAMMAD SAQLAIN	1BY20IS086	
38.	Y S SIDDHARTH	1BY20IS193	
39.	SHREYA ANTAPUR	1BY19IS152	
40.	PRIYANSHU SARAWGI	1BY19IS125	
41.	KARTHIK C	1BY20IS068	
42.	ABHUDAYA AMAN	1BY20CS008	
43.	SURAKSHA M AVANTHAKAR	1BY19CS163	
44.	UJWALA B	1BY19CS172	
45.	SYED TABRAIZ MOHIUDDIN	1BY19CS165	
46.	GOURAV DUBEY	1BY19CS048	
47.	S.RAMYA	1BY19CS129	
48.	SHRAVANI V	1BY19CS144	
49.	ROHIT RAJ B	1BY19CS123	
50.	SHRUTHI LAYA K	1BY19CS147	
51.	ISHIKA AGARVAL	1BY19CS196	
52.	PARTHO PROTIN ROY	1BY19CS205	
53.	PASUVULA HARIKA	1BY20EE032	
54.	LITESH KUMAR M	1BY20EC091	
55.	JUEL MATHAIS GEORGE	1BY19EC069	
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61.	SAURABH JAYASWAL	1BY20AI049	
62.	ESHA UJJAIN	1BY19AI018	
63.	NIKHIL D	1BY20ME031	

Profile of Resource Persons:

Dr. Surekha K B, Associate Professor, The Internet of Things (IoT) refers to the interconnection of smart devices to collect data and make intelligent decisions. On the one hand, the ubiquitous nature of IoT encourages the creation of innovative applications for the end user, but, on the other hand, lack of security measure may lead to critical issues like persons subjected to physical damage such as burglary due to the hacking of the smart alarm system. Taking into account the predicted evolution of the IoT in the coming years, it is necessary to provide confidence in this huge incoming information source. Block chain has emerged as a key technology that will transform the way in which we share information. Building trust in distributed environments without the need for authorities is a technological advance that has the potential to change many industries, the IoT among them. This chapter focuses on this relationship, investigates challenges in block chain IoT applications, and surveys the most relevant work in order to analyse how blockchain could potentially improve the IoT.

Dr. Geeta Patil is currently working as a Associate Professor, Department of ISE, BMS Institute of Technology and Management. Prior to this she worked in Presidency University Bangalore for 1year, Birla Institute of Technology & Science for 9 years and Goa University for 6 years. She has completed her PhD from BITS PILANI K. K. BIRLA GOA CAMPUS, GOA. Her research interests are in areas of Cache Architecture, Multi-core / Many-core systems, Multi-processors and Real time systems.

About Open Course:

Data has been the buzzword for ages now. Either the data being generated from large-scale enterprises or the data generated from an individual, each and every aspect of data needs to be analyzed to benefit yourself from it. But how do we do it? Well, that's where the term 'Data Analytics' comes in. Data Analytics refers to the techniques used to analyze data to enhance productivity and business gain. Data is extracted from various sources and is cleaned and categorized to analyze various behavioral patterns. The techniques and the tools used vary according to the organization or individual. In this aspect, Dept. of ISE planned to conduct an open course on "Data Analytics-Boot Camp". 62 students from various branches of BMSIT registered for the same.

Day 1: 13-06-2022
MORNING SESSION:
The session started by Dr.Pushpa S.K. providing an insight in to Data Analytics and importance of it in all the fields. She also introduced Tableau and data cleansing. Dr.Geeta Patil mentioned the importance of Python in data analytics. She also gave introduction to basics of Python, data structures of Python and looping structures. Based on this sentiment Analysis application is covered in the session.

Day 1: 13-06-2022
AFTERNOON SESSION:

Mr. Sudhanva started the session with data exploration, Hypothesis Testing and case study on Hypothesis testing, He took the case study of street Tree Analysis.

Day 2: 14-06-2022
MORNING SESSION:

The session started by Dr. Geeta Patil. Hands on session on string tokenizing was conducted. Numpy and pandas python library functions were introduced with the illustration. Students did hands on by analysis covid data was done using pandas. Student Coordinator Mr.Tharang handled a session on Statistics and Probability and stressed on the importance of this in analysing the data.

Day 2: 14-06-2022
AFTERNOON SESSION:

Mr. Sudhanva started the session with data exploration, Hypothesis Testing and case study on Hypothesis
testing, He took the case study of street Tree Analysis.

Day 3: 15-06-2022
MORNING SESSION:

The session started by Mr. Sunil Gupta, CEO, Skillcurious Systems. Mr. Sunil covered the concepts Data cleansing, Data Science Life cycle. As an analyst, there is a need to understand business and collect data. Missing vales may give bias result. With this, ML model outcome can get affected. Data cleaning checklist: data should be up to date, no duplicate data is allowed.

Day 3: 15-06-2022
AFTERNOON SESSION:

The session was continued by Mr. Sunil Gupta by giving assignments related to recommendation engine.

Day 4: 16-06-2022
MORNING SESSION:

Dr. Geeta Patil started the session along with Ms. Sumitra Thapa. Topic for the day is Data Analytics with Tableau.In the first session Tableau software was introduced. Students downloaded the Tableau

desktop version and understood various interface components of it. They downloaded the Superstore data set and did various analyses using the data set.

During session 2 different types of graphs were explained and demonstrated. Students had hands-on experience using sales data sets. They plotted various types of graphs and inferred conclusions. During the third session Tesla Stock Price Analysis was done.

Day 4: 16-06-2022
AFTERNOON SESSION:

Day 5: 17-06-2022
MORNING SESSION:

Last Day's session was started with Mr. Sunil Guptha with Face detection image recognition Application. Assessment was done based on the previous day's session.

Movie recommendation system was taken as case study problem. The session ended with feedback by the participants. Mr.Sunil Guptha also shared his view regarding the difference between handling the sessions for Professional and students.
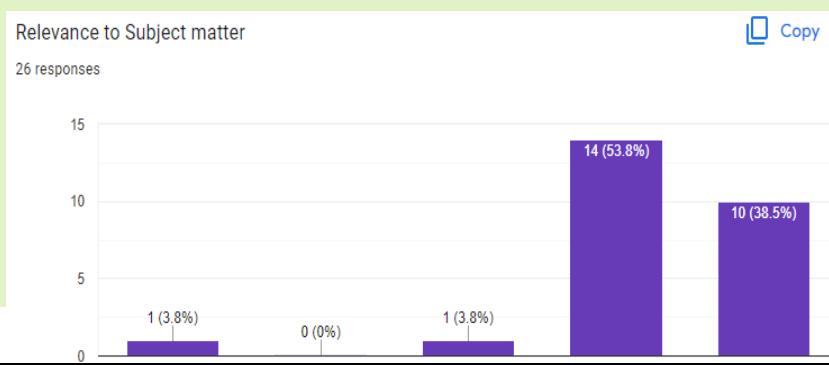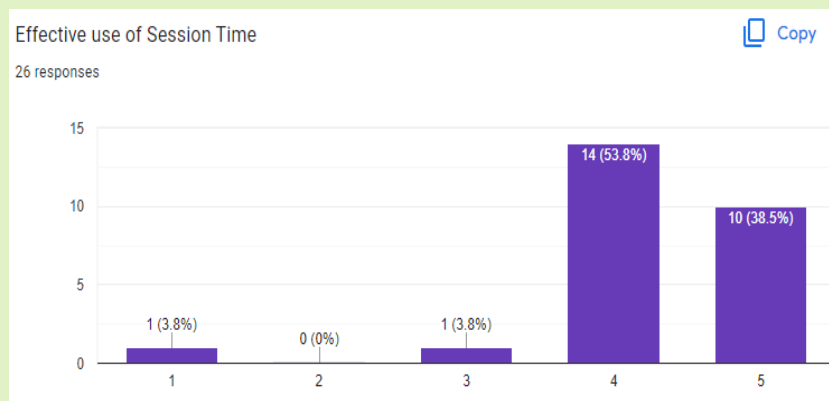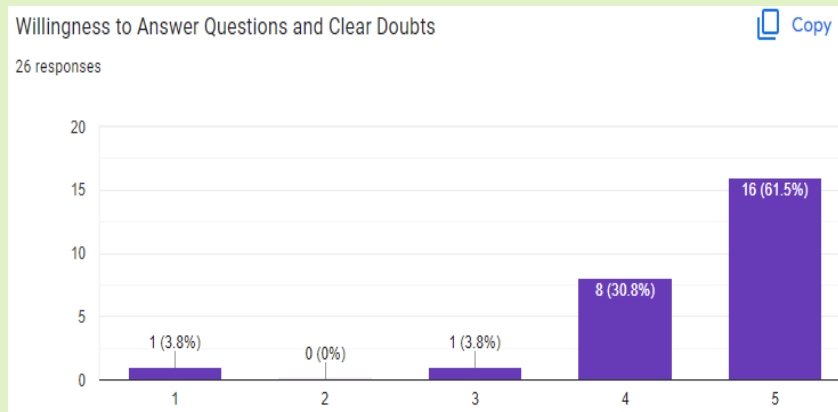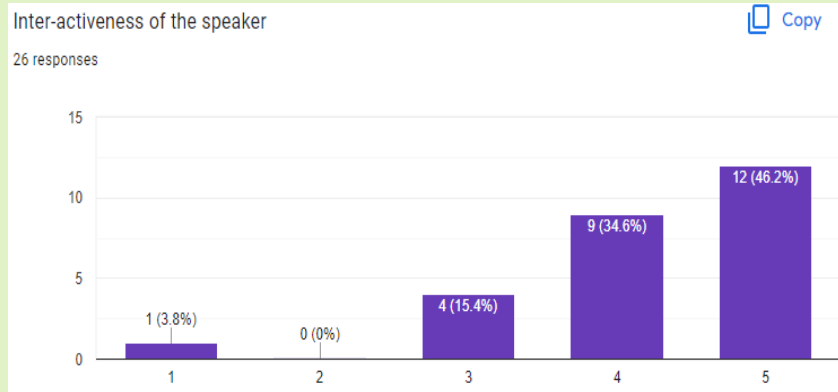
Feedback Questions:

1. Understand syntax and semantics of python programming.
2. Apply concept of files and Regular expressions in developing python applications
3. Interpret Object-Oriented Programming concepts in python programming language with respect to real
    world applications
4. Develop Python application programs using python core data structures to solve real world problems

CO-PO Mapping of open course for Data Analytics Boot Camp Using Python

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2											
CO2	3											
CO3		2										
CO4			3		3	2						

Sample feedback form:

Effective use of Session Time
26 responses

1 (3.8%) at 1, 0 (0%) at 2, 1 (3.8%) at 3, 14 (53.8%) at 4, 10 (38.5%) at 5

Relevance to Subject matter
26 responses

1 (3.8%), 0 (0%), 1 (3.8%), 14 (53.8%), 10 (38.5%)

Inter-activeness of the speaker

26 responses

1 (3.8%)	at 1
0 (0%)	at 2
4 (15.4%)	at 3
9 (34.6%)	at 4
12 (46.2%)	at 5

Willingness to Answer Questions and Clear Doubts

26 responses

1 (3.8%)	at 1
0 (0%)	at 2
1 (3.8%)	at 3
8 (30.8%)	at 4
16 (61.5%)	at 5

Brochure

3. COMPLETE PYTHON BOOTING

Event Schedule

BMS INSTITUTE OF TECHNOLOGY & MANAGEMENT
AVALAHALLI, YELAHANKA, BENGALURU-560064
Department of ISE
Course Schedule: Complete Python Bootcamp

2021-2022

Sl. No.	Date	Topics covered		Topics covered		Topics covered	Assessment and Feedback
		8:30 to 10:30 am	10:30 to 10:50 am	10:50 to 12:50 pm	12:50 to 1:50 pm	2:00 to 4:00	4:00 to 4:30 pm
1	13.06.2022	Key Note by Dr Manjunath T N		Introduction to Python by Mr. Chandrashekhar		Data Structures In python by Mr. Chandrashekhar	
2	14.06.2022	Introduction to Regular expressions by Mr. Gireesh Babu C N	TEA BREAK	Pattern matching with Regular expression by Mr. Gireesh Babu C N	LUNCH BREAK	Introduction to Web scraping using python by Kushal and Goutham	
3	15.06.2022	Applications of Web scrapping using python by Kushal and Goutham		Hands on: Web scrapping using python by Kushal and Goutham		Introduction to Open CV By Sathwik	
4	16.06.2022	Introduction to Machine learning by Abhay		Hands on Open CV and ML by Vimarsh		Hands on: Open CV and ML by Vimarsh	
5	17.06.2022	Python applications in Industry by Praveen AL Digipix Technologies		Hands on: Python projects Praveen AL Digipix Technologies		Hands on: Python projects Praveen AL Digipix Technologies	

Course Outcomes:

19

CO1: Understand syntax and semantics of python programming. – (PO1)

CO2: Apply concept of files and Regular expressions in developing python applications. – (PO1)

CO3: Interpret Object-Oriented Programming concepts in python programming language with respect to real world applications. – (PO2)

CO4: Develop Python application programs using python core data structures to solve real world problems. – (PO3, PO5, PO6)

Total number of participants:

	PROGRAMMING FOR PYTHON BOOTCAMP	
1.	SHIKHAR PAL	1BY20EC152
2.	ADITYA SRINIVAS K	1BY20EC012
3.	LATHA N	1BY20EC088
4.	KATARU YOHITHA	1BY20EC080
5.	NISHMITHA ANTON RODRIGUES	1BY20EC112
6.	KUMUDA V	1BY20EC084
7.	R SHREEYA REDDY	1BY20EC127
8.	PREETHI R POOJARY	1BY20EC126
9.	NIKITA BIRADAR	1BY20CS124
10.	YASHODHA S SHRIDHAR	1BY20EC191
11.	AYUSH RAJ	1BY20CS035
12.	PARUCHURI SREENIJA	1BY20EC117
13.	LEELA M N	1BY20EC089
14.	GONIGUNTLA VARSHITH	1BY20EC068
15.	BELLARY KEERTHI	1BY20EC082
16.	PONNAM NAGA SRAVAN REDDY	1BY20EC118
17.	MADEM NITHIN DATTA REDDY	1BY20EC093
18.	VISHAL RAJ	1BY20EC187
19.	K SAI KISHAN	1BY20EC076
20.	ADITI SINGH	1BY20ET002
21.	DIYA S	1BY20ET023
22.	DEEPTHI S GOWDA	1BY20ET022
23.	MANSI LOHITASHWA	1BY20ET034
24.	PAVAN KUMAR D R	1BY20CV030
25.	MULA MAHESWAR REDDY	1BY20EC104
26.	SAMBHAIAHPALEM SURENDRA	1BY20EC145
27.	HARSHINI BUJUTI	1BY20AI017
28.	DUBBIREDDY GARI VARUN KUMAR REDDY	1BY20AI013
29.	KUDUMALA SHANMUKHA VENKATA SUMANTH REDDY	1BY20EC083
30.	PIYUSH KUMAR	1BY20IS110
31.	AZRA RUMANA	1BY20IS036
32.	BHAVYATHA M	1BY20IS040
33.	AKANKSH P N	1BY20IS017
34.	C B SURAJ KRISHNAN	1BY20IS044
35.	D Rahul Gupta	1BY20AI011
36.	HARSHINI A	1BY19ET023
37.	DHANYASHREE PARAMESHWAR BHAT	1BY20IS049
38.	DUGGASANI VENKATA PRADEEP KUMAR REDDY	1BY20EC059
39.	SANIVARAPU JAYASREE	1BY20EE044
40.	RITU RAJ	1BY20IS129
41.	PAVAN M	1BY20ME035
42.	KARTHIK HOBALIDAR	1BY21ME406

43.	CHANDRASHEKAR R	1BY21ME403
44.	SAEED AHMED SAEED ALOJILY	1BY20CS159
45.	BHUMESH H G	1BY21ME402
46.	PRIYANKA B G	1BY20EE039
47.	SUDEEP RANGAN D R	1BY19IS162
48.	SAMUEL SAMPATH KUMAR	1BY19IS144
49.	KIRAN C	BMSITM65
50.	PRAVEEN A	1BY20ME410
51.	HARSHAVARDHAN CHOWDRY T	BMSITM64
52.	BHAVANA D V	1BY19ME009
53.	CHETHAN G	BMSITM61
54.	BHANUSHANKAR T J	1BY19ME008
55.	TIMMAREDDY	1BY20ME414
56.	SOMESH KUMAR	1BY19ME045
57.	RAUNEET VERMA	1BY19IS132
58.	H C RAKSHA	1BY20ET026
59.	BHUPESH ROUSHAN	1BY18EC192
60.	JANHAVI SHETTY	1BY20ET028

Profile of Resource Persons:

Dr. Chandrashekhara K. T recently completed Ph.D from VTU, received his Bachelor's Degree in Computer Science and Engineering from Visvesvaraya Technological University, Belgaum, Karnataka, India during the year 2002 and M. Tech in Computer Science and Engineering from VTU, Belgaum, Karnataka, India during the year 2008. Currently Mr. Chandrashekhara K. T is working as an Assistant Professor in BMSIT, Dept. of ISE, Bengaluru. He is having 6+ year of teaching experience and 3+ years of industry experience at Intellinet Technologies, Bengaluru and Wipro Technologies Ltd. Bengaluru. He is having 7 Journal papers in his credit. He is member of professional bodies like ISTE, CSI. His areas of interests are Smart Networks-IOT, Big Data and Data Mining.

Prof. Ravi Kumar B N working as an Assistant professor in Dept of ISE, BMSIT&M. He has completed his B.E in CSE at Sri Venkateshwara College of Engineering, Bengaluru in 2008 and M.Tech in CSE at SJC Institute of Technology 2013. He is having 11years of teaching experience and 1year of Industry experience. Pursuing research in the field of Software Engineering. His area of interest is Artificial Intelligence and Machine learning. He has published 10+ research papers in various International Conference and Journals and delivered 10+ expert talks on various topics of Machine learning, python and Artificial Intelligence.

About Open Course:

Preamble: Python programs are simple in syntax with extensive library support which helps the programmers to come up with required logic with few lines of code. It is popular and widely used in the data domains like data science, Machine learning, deep learning etc. Why learns Python? -Python developers are in demand: It could lead to a well-paid career. It's all so easy for beginners to use and learn, so jump in!

Topics Taught:

Install Python and write your first program

Utilize core programming tools such as functions, loops and more

You will be able to program in Python professionally

You will be able to use Python for data science and machine learning

Application of the course in Industry:

Python: Introduction to Python, Introduction to Data Structures In python. Regular Expressions: Introduction, Pattern Matching with Regular Expressions. Open Cv: Introduction, Build your first project in OpenVMS Project using Open Cv. Utilize core programming tools such as functions, loops and more you will be able to program in Python professionally you will be able to use Python for data science and machine learning. Python is mainly used in Industry in Data science, machine learning and Deep Learning Applications.

Day 1:
MORNING SESSION:

First day Key Note by Dr Manjunath T N, Professor, Dept. of ISE. In the morning session, he gave the introduction about the python. He also familiarized the students with various applications using python.

Day 1:
AFTERNOON SESSION:

In afternoon session, Prof. Chandrashekar K T, Assistant Professor, Dept. of ISE, explained Python data structures, Lists, Tuples, and Dictionaries using real time applications.

Day 2:

MORNING SESSION:

Second day Morning session by Prof. Girish B, Assistant Professor, Dept. of ISE. He has explained in detail about regular expressions in python. He also familiarized the students with following topics.

1. Finding patterns in a string or a file.
2. Replace the part of the string with another string.
3. Search substring in string or file.
4. Split string into substrings.
5. Validate email format.

Day 2:

AFTERNOON SESSION:

In afternoon session, Mr. Gautam and Mr. Kushal, Students, Dept. of ISE, gave introduction of Web Scraping using Python. They also taught few real time examples related to web scraping.

Day 3:

MORNING SESSION: Third day morning Hands on sessions -Introduction and Applications of Web scrapping using python and by Mr. Kushal and Mr. Goutham, students, 6th semester, Dept. of ISE.

Day3:
AFTERNOON SESSION:
Mr. Satwik, Student, 6th sem, Dept. of ISE, gave Introduction to Open CV

Introduction to open CV , Learn how to setup Open CV-python on your computer!
GUI features in Open CV, Here you will learn how to display and save images and videos, control mouse events and create track bar.

Day 4:
MORNING SESSION:
Fourth day morning - Introduction to Machine learning in python by Mr. Abhay, student, 6th semester, Dept. of ISE.

Day 4:
AFTERNOON SESSION:
In afternoon session, Hands on Open CV and Machine Learning by Vimarsh, Student, 6th sem, Dept. of ISE, gave Introduction to Open CV.

Day 5:
MORNING SESSION:
In Morning session Python applications in Industry by Praveen AL Digipix Technologies.

Day 5:
AFTERNOON SESSION:
In afternoon session, Hands on: Python projects Praveen AL Digipix Technologies.

Sample Feedback questions:
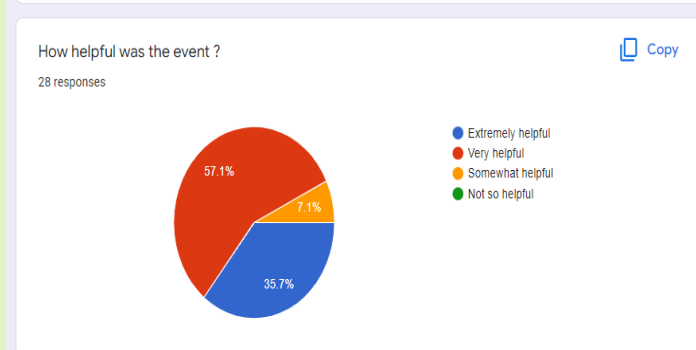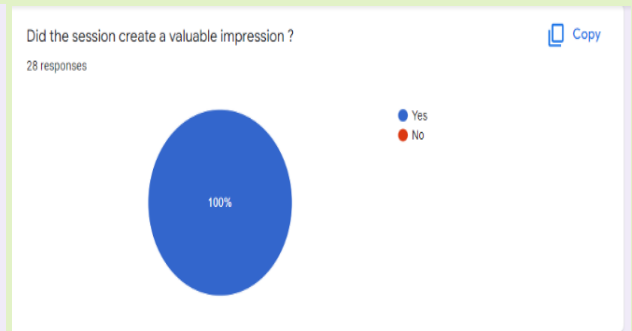
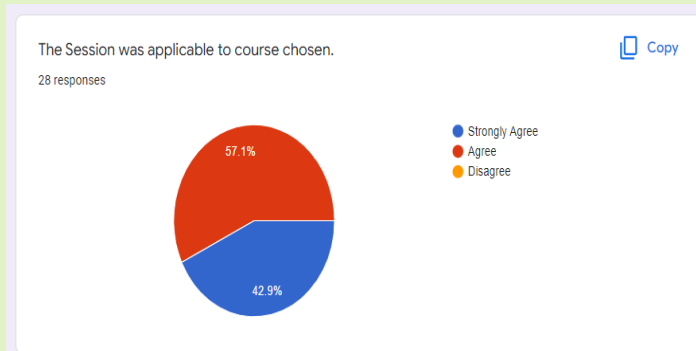**Feedback from external expert**:
Students were energetic and responsive.

Feedback (critical) from students:
Sessions were interesting and Hands on sessions and resource person were good

Corrective methods/suggestions to consider while conducting open course next time (at least two points)

1. Labs helps us to teach effectively compare to class room.

2. Introducing still more Hands-on sessions

The Session was applicable to course chosen.
28 responses

- Strongly Agree
- Agree
- Disagree

57.1%
42.9%

Copy

Did the session create a valuable impression ?
28 responses

- Yes
- No

100%

Copy

How helpful was the event ?
28 responses

- Extremely helpful
- Very helpful
- Somewhat helpful
- Not so helpful

57.1%
7.1%
35.7%

Copy

Any Suggestions?
7 responses

| No |
| Good |
| no |
| Nothing |
| N/A |

Brochure

4. INTERNET OF THINGS

BMS Institute of Technology Management
Yelahanka, Bengaluru -560064
Department of Information Science & Engineering

Five Day Open Course
On
"Internet of Things – Hands on approach"

13th June to 17th June 2022
In association with
INFIDATA TECHNOLOGIES

Organizing Chair: Dr. Pushpa S K

About the Institute
In view of the growing demand for technical education and with the goal of establishing a premier technical education on par with international standards, a new technical institution by name 'BMS Institute of Technology and Management' was established in 2002. Currently, BMSIT & M offers seven UG, three PG programs and Ph.D. /M.Sc. (Engg.) in ten disciplines. BMSIT & M considers research to be of equal importance as academics for the betterment of an institution. Research culture has been embraced well by the faculty members and research scholars at BMSIT & M.

About the Department
The Department of Information Science and Engineering started in the Year 2010 with an approved intake of 60 and Enhanced to 180 from the academic year 2019-20. The Department has qualified and professionally dedicated faculty members practising OBE in the academic deliverables. The faculty have published research articles in various National, International Conferences and Journals. The department has modern laboratories to serve the teaching and research needs of the students as well as faculty members. The department has admirable research ambience.

About the Open Course
The Internet of Things is transforming our physical world into a complex and dynamic system of connected devices on an unprecedented scale. This course aims to provide hands on experience to the student to understand the concepts of Internet of Things(IoT) and its applications in real world, also explain the fundamentals and protocols in IoT, explore the basics of industrial IoT pertaining to healthcare, smart cities, agriculture and etc.,

Objectives of the Course
1. To understand the concepts of Internet of Things and its protocols
2. To Apply the concepts of IoT in solving real world problems
3. To Develop an IoT based application for the societal problems

Course Material
Soft copy of presentation & software used in the program in the programs will be provided for all the students along with the participation certificate.

Resource persons from the industry
Mr. Vinith Kumar GP
Design Engineer, Infidata Technologies, Bengaluru

Course Content
1. Introduction to IoT
2. Working on Ardunio
3. Working NodeMCU
4. Introduction to BLYNK App
5. Challenges in IoT based Applications
6. Case Studies and Project demonstration

Registration Details
Students: **Rs. 400**
Link: http://projects.bmsit.ac.in

Faculty coordinators

Name	Prof.Vinutha K Dr.Narasimha Murthy M S
Contact Number	9739924054 9480013001
Email	vinuthak_ise2014@bmsit.in, narasimhamurthyms@bmsit.in

Event Schedule

BMS Institute of Technology Management
Yelahanka, Bengaluru -560064
Department of Information Science & Engineering

Open course Schedule on "Internet of Things- Hands on Approach"

13th June to 17th June 2022

Day	Session-1		Session-2		Session-3
Time	8:30am – 10:30am		10:50am -12:50pm		2:00pm – 4:00pm
Day1	Introduction to IoT Mr. Vinith Kumar GP Design Engineer, Infidata Technologies	Tea Break	Working on Ardunio Hands on Mr. Vinith Kumar GP Design Engineer, Infidata Technologies	Lunch Break	Working on Ardunio Hands on Mr. Vinith Kumar GP Design Engineer, Infidata Technologies
Day2	Working on NodeMCU Hands on Mr. Vinith Kumar GP Design Engineer, Infidata Technologies		Working on NodeMCU Hands on Mr. Vinith Kumar GP Design Engineer, Infidata Technologies		Working on NodeMCU Hands on Mr. Vinith Kumar GP Design Engineer, Infidata Technologies
Day3	Introduction to BLYNK App Mr. Vinith Kumar GP Design Engineer, Infidata Technologies		Introduction to BLYNK App Mr. Vinith Kumar GP Design Engineer, Infidata Technologies		Introduction to BLYNK App Mr. Vinith Kumar GP Design Engineer, Infidata Technologies
Day4	Edge computing in IOT Dr. Surekha K B Associate Professor, BMSIT&M		Project Demonstration Sumukha, Student, 8th semester, Dept. of ISE		Project Demonstration Sumukha, Student, 8th semester, Dept. of ISE
Day5	Case Studies On IOT Prof. Shanthi DL Assistant Professor, BMSIT&M		Challenges in IoT based Applications Dr. Mohan B A Assistant Professor, BMSIT&M		Feedback- Assessment Valedictory

Course Outcomes:

CO-1: Understand the concepts of Internet of Things and its protocols

CO-2: Apply the concepts of IoT in solving real world problems

CO-3: Develop an IoT based application for the societal problems

Total number of participants:

	INTERNET OF THINGS	
1.	SUCHITHRA R	1BY20IS168
2.	SYEDA HAFSA NAAZ	1BY20IS178
3.	SUCHITRA M	1BY20IS169
4.	PRIYAMVADA P	1BY20IS121
5.	M SHASHANK	1BY20CS101
6.	KRUTHIKA C K	1BY20CS090
7.	DARSHINI K J	1BY20CS049
8.	RAJATH S	1BY20CS143
9.	M K KUSHALAPPA	1BY20CS100
10.	NISHANTH Y	1BY20CS126
11.	UMME HANI	1BY20IS185
12.	NITHEESH M S	1BY20CS128
13.	AKSHAYA SUBRAHMANYA E	1BY20EC020
14.	LAKSHMI NARAYANA K R	1BY20CS093
15.	LAVENIA VIJAY KUMAR	1BY20CS095
16.	LIKHITH	1BY20CS096
17.	ADARSHA M	1BY20CS010
18.	GAGAN DEEP V M	1BY20CS054
19.	PRAJWAL N	1BY20CS135
20.	TARUN AGARWAL	1BY20ET060

21.	NEHA R THYAGARAJA	1BY20IS095
22.	SUHAAS N	1BY20IS171
23.	ANUSHKA YADAV	1BY20CS028
24.	NITHIN R SWAMY	1BY20CS129
25.	HEMANTH A	1BY20CS061
26.	PRANAV B C	1BY20EC121
27.	MANOJ K A	1BY20CS106
28.	CHARAN G S	1BY20EC050
29.	CHANDANA A	1BY20EC047
30.	BHUMIKA T V	1BY20EC043
31.	BHUVANA H	1BY20EC045
32.	DEEKSHITHA B S	1BY20EC052
33.	B MEGHANA	1BY20EC038
34.	MANASA C B	1BY20IS077
35.	TARUN U	1BY20EC200
36.	MADHUSUDHAN B N	1BY20EC204
37.	SUHAS T G	1BY20CS195
38.	PRABHULING	1BY20EC120
39.	NIKHIL S	1BY20EC109
40.	HRUSHIKESHVARMA V	1BY20CS065
41.	PRATHAM SAPRA	1BY20AI036
42.	ATHARVA DEEPAK DESAI	1BY20ME007
43.	GAURAV TRIPATI	1BY20ME017
44.	SUPRIYA K S	1BY20IS175
45.	AJAY V KAMATH	1BY20IS016
46.	PRAVIN M MALASHETTI	1BY20EC125
47.	DEVARAJ	1BY20EC056
48.	M S KAUSHIK	1BY20AI024
49.	SHALVI SINGH	1BY19IS201
50.	CHAITRA SRI NAIDU CHENABOINA	1BY20CS044
51.	TEJASHWINI S U	1BY20EE052
52.	PRAJWAL M	1BY19ET038
53.	VAIBHAV AHUJA	1BY20AI059
54.	HARSHAVARDHAN SHARMA	1BY20ME018
55.	ABHISHEK GOWDA A	1BY19ET001
56.	SHREYA H R	1BY20EE047
57.	KALYAN B	1BY20EE019
58.	OMKAR RAVINDRA BHAVI	1BY20EE030

Profile of Resource Persons:

Dr. Narasimha Murthy M S received his Bachelor's Degree in Computer Science and Engineering from Gulbarga, Gulbarga in the year 2001 and M.Tech in VLSI Design and Embedded System in the year 2007 from VTU , Belagavi. He obtain his Ph.D from VTU in the year 2018 in the domain of Cloud Computing and Software Testing. He has over 21 years of teaching and research experience and published more than 60+ research articles in reputed National & International Journals and also in conferences. He is the life member of professional bodies like ISTE, IAENG. His areas of interests are Software Testing, Cloud Computing, IoT, Cyber Security etc.,

Prof. Vinutha K working as an Assistant professor in Dept of ISE, BMSIT&M. she has completed her B.E in Channabasaveshwar Institute of Technology Tumkur in 2011 and M.Tech from AMC Engineering College 2013 in CSE. She is having 4.5years of teaching experience and pursuing research in the field of prediction models using Machine learning. Her area of interest is Machine learning and Data mining. She has published 10+ research papers in various International Conference and Journals and delivered 7+ expert talks on various topics of Machine learning, python and data mining.

About Open Course

Preamble: This course aims to teach the student to understand the concepts of Internet of Things (IoT) and its applications in real world, also explain the fundamentals and protocols in IoT, explore the basics of industrial IoT pertaining to healthcare, smart cities, agriculture and etc.,

Topics Taught:

1. Introduction to IoT

2. Working on Ardunio

3. Working NodeMCU

4. Introdution to BLYNK App

5. Challenges in IoT based Applications

6. Case Studies and Project Demonstration

Application of the course in Industry: Automobile, Agriculture, Healthcare, Smart City project.

Brief Details of course:
The Internet of Things is transforming our physical world into a complex and dynamic system of connected devices on an unprecedented scale. Advances in technology are making possible a more widespread adoption of IoT, from pill-shaped micro-cameras that can pinpoint thousands of images within the body, to smart sensors that can assess crop conditions on a farm, to the smart home devices that are becoming increasingly popular. But what are the building blocks of IoT? And what are the underlying technologies that drive the IoT revolution? This course delivers an overview of exciting and relevant technical areas essential to professionals in the IoT industry. This course focuses on the following possible application areas like agriculture, Sensors, Embedded Systems, Networking Circuits.

Day 1
MORNING SESSION 1 (8.30AM to 10.50AM):
The session was started by welcoming all the participants of "Internet of Things – Hands-on Approach" open Course by Open Course Coordinator by Dr. Narasimha Murthy and Prof Vinutha K.
The first session was engaged by Mr. Vinith Kumar, Design Engineer, Infidata Technologies. The session covered the basic concepts on Internet of Things, Machine to Machine/user less communication, use cases, components of

IOT, open source and commercial examples. Different IOT applications are discussed and Brain Storming IOT Utilization.

Session by Mr. Vinith Kumar, Design Engineer, Infidat Technologies

Day 1:
MORNING SESION 2(10:50 AM to 12:50PM):
The session was engaged by Mr. Vinith Kumar, Design Engineer, Infidata Technologies and Mr. Vishwas. The session covered the hands on Ardunio platform –UNO /Nano, Ardunio Board Layout and Architecture, Installation of software and basic programs are executed.

Session by Mr. Vinith Kumar, Design Engineer, Infidata Technologies

AFTERNOON SESSION 1(2:00PM to 4:30PM):
The first session was engaged by Mr. Vinith Kumar, Design Engineer, Infidata Technologies and Mr. Vishwas. The session covered the hands on interfacing sensors with Arduino, Reading from the sensor. Different activities like integrating sensors and Reading Environmental physical vales etc. are conducted. The session ended by assessment by giving quiz on complete sessions.

Day 2:

MORNING SESSION 1(8:30AM to 10:50AM):

The session was started by welcoming all the participants of "Internet of Things – Hands-on Approach" to second day of open course by Open Course Coordinator by Dr. Narasimha Murthy and Prof Vinutha K.

The first session was engaged by Mr. Vinith Kumar, Design Engineer, Infidata Technologies. The session covered various IOT projects using Ardunio Board.

Session by Mr. Vinith Kumar, Design Engineer, Infidata Technologies

MORNING SESION 2(10:50 AM to 12:50PM):

The session was engaged by Mr. Vinith Kumar, Design Engineer, Infidata Technologies and Mr. Vishwas. The session covered NodeMCU basics, layout, architecture and hands on basic projects using NodeMCU board.

Session by Mr. Vinith Kumar, Design Engineer, Infidata Technologies

Day 2:

AFTERNOON SESSION 1(2:00PM to 4:30PM):

The session was engaged by Mr. Vinith Kumar, Design Engineer, Infidata Technologies and Mr. Vishwas. The session covered the hands on interfacing sensors, reading values from sensor with NodeMCU. The session ended by assessment by giving quiz on complete sessions.

Session by Mr. Vishwas, Design Engineer, Infidata Technologies

Day 3:

MORNING SESSION 1(8:30AM to 10:50AM):

The session was started by welcoming all the participants of "Internet of Things – Hands-on Approach" to third day of open course by Open Course Coordinator by Dr. Narasimha Murthy and Prof Vinutha K.

The first session was engaged by Mr. Vinith Kumar, Design Engineer, Infidata Technologies. The session covered installation of Blynk app, and simple led programs using NodeMCU.

Session by Mr. Vinith Kumar, Design Engineer, Infidata Technologies

MORNING SESION 2(10:50 AM to 12:50PM):

The session was engaged by Mr. Vinith Kumar, Design Engineer, Infidata Technologies and Mr. Vishwas. The session continued hands on various Led program, integrating sensors with NodeMCU and working with soil moisture sensors.

Day 3:
AFTERNOON SESSION 1(2:00PM to 4:30PM): -
The session was engaged by Mr. Vinith Kumar, Design Engineer, Infidata Technologies and Mr. Vishwas. The session continued with working with soil moisture sensors and water level sensors with NodeMCU. The session ended by assessment by giving quiz on complete sessions.

Session by Mr. Vinith Kumar, Design Engineer, Infidata Technologies

Day 4:
MORNING SESSION 1(8:30AM to 10:50AM):
The session was started by welcoming all the participants of "Internet of Things – Hands-on Approach" to fifth day of open course by Open Course Coordinator by Dr. Narasimha Murthy and Prof Vinutha K. The first session was engaged by Prof. Shanthi D L , Assistant Professor, Dept. of ISE, BMSIT&M. The session covered case studies of IOT and Challenges in developing IOT applications.
Session by Prof. Shanthi D L, Assistant Professor, Dept. of ISE, BMSIT&M

MORNING SESION 2(10:50 AM to 12:50PM):
The session was engaged by Prof. Vinutha K, where students did chart presentation on their innovative ideas on how IOT can be used in solving various real world problems.

Students – chart Presentation

Day 4:
AFTERNOON SESSION 1(2:00PM to 4:30PM):
The session was engaged by Prof. Narasimha Murthy, where students did chart presentation on their innovative ideas on how IOT can be used in solving various real world problems. The session ended by assessment by giving quiz on complete sessions.

Students – Presentation

Day 5:
MORNING SESSION 1(8:30AM to 10:50AM):
The session was started by welcoming all the participants of "Internet of Things – Hands-on Approach" to fifth day of open course by Open Course Coordinator by Dr. Narasimha Murthy and Prof Vinutha K.

The first session was engaged by Prof. Shanthi D L, Assistant Professor, Dept. of ISE, and BMSIT&M. The session covered case studies of IOT and Challenges in developing IOT applications.

Session by Prof. Shanthi D L, Assistant Professor, Dept. of ISE, BMSIT&M

MORNING SESION 2(10:50 AM to 12:50PM):
The session was engaged by Prof. Vinutha K, where students did chart presentation on their innovative ideas on how IOT can be used in solving various real world problems.

Students – chart Presentation

Day 5:
AFTERNOON SESSION 1(2:00PM to 4:30PM): -
The session was engaged by Prof. Narasimha Murthy, where students did chart presentation on their innovative ideas on how IOT can be used in solving various real world problems. The session ended by assessment by giving quiz on complete sessions.

Students – Presentation

CO-PO Mapping for open course of "Internet of Things-Hands On"

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
CO1	3												
CO2	3	3	3	2								3	
CO3					3	3	3					3	

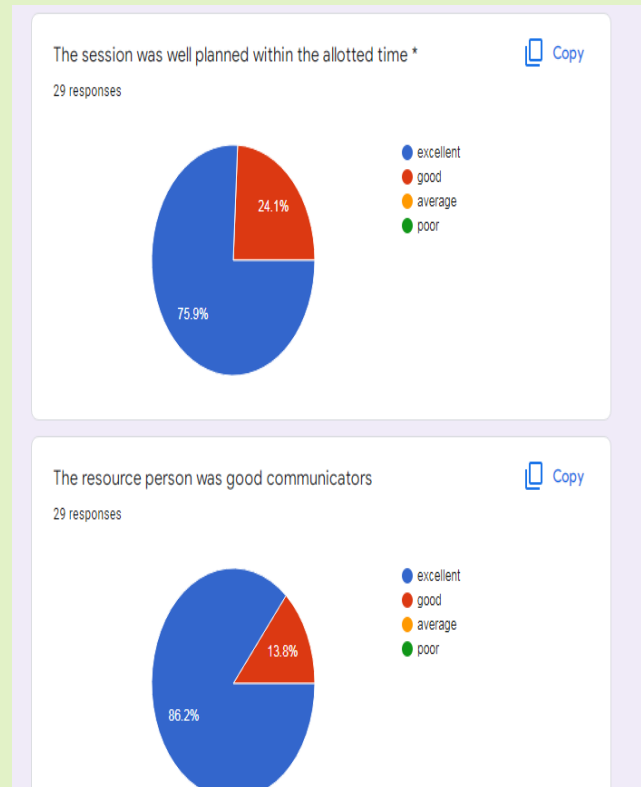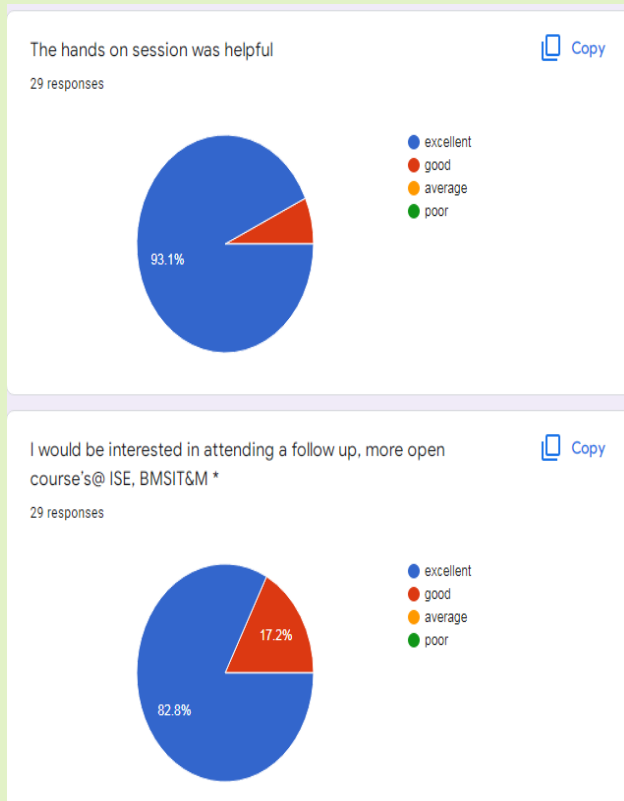## Sample Feedback questions:

Feedback from external expert:
   Students were energetic and responsive.
Feedback (critical) from students:

Sessions were interesting and Hands on sessions and resource person were good.

Corrective methods/suggestions to consider while conducting open course next time (at least two points)

1. There were 5 students working in each IOT kits, Number of kits can be increased to have more exposure.
2. Introducing still more Hands-on sessions

The hands on session was helpful
29 responses

- excellent
- good
- average
- poor

93.1%

The session was well planned within the allotted time *
29 responses

- excellent
- good
- average
- poor

24.1%
75.9%

I would be interested in attending a follow up, more open course's@ ISE, BMSIT&M *
29 responses

- excellent
- good
- average
- poor

17.2%
82.8%

The resource person was good communicators
29 responses

- excellent
- good
- average
- poor

13.8%
86.2%

PROGRAMME OUTCOMES (PO'S)

1. **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3. **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6. **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues, and the consequent responsibilities relevant to the professional engineering practice.

7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.

9. **Individual and teamwork**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. **Life-long learning**: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSO'S)

PSO-1: Apply the knowledge of information technology to develop software solutions.

PSO-2: Design and Develop hardware systems, manage and monitor resources in the product life cycle.

Thank you