



## Event Report

on

### GUJCOST sponsored Three Days Workshop on “Role of Applied Science & Humanities to Engineering”

26<sup>th</sup> to 28<sup>th</sup> November, 2020

#### About Program

The workshop is aimed at imparting knowledge and training on the fundamental subjects and their importance to Engineering. The main objective is to make the participants familiar with the application of basic engineering subject to the civil services. This programme may be beneficial to young technocrats who intend to practice/develop systems for the community..

#### About MBIT

Madhuben & Bhanubhai Patel Institute of Technology (MBIT) established in 2009; contributing to society by making proficient Engineers. MBIT epitomizes the commitment of Charutar Vidya Mandal towards academia and society, the institute professes to add the technical quantum competent personnel. The institute has charted out a long-term plan to inculcate its core ideology of social welfare and thus emerge as an exemplary Utopia of academics. To achieve real Woman Empowerment, MBIT got conversion from only women to Co-Education from 2019-20. Mr. Prayasvin B. Patel, Chairman, and Managing Director, Elecon Engineering Company Limited; is the chief patron of this institute and also a president of CVM.

#### Organizing Committee

##### Chief Patron

**Er. Bhikhubhai B. Patel**  
(Hon. Chairman, CVM & President CVMU)

##### Patron

**Shri Manishbhai S. Patel**  
(Hon. Vice President, CVM)

**Dr. S. G. Patel**  
(Hon. Secretary, CVM)

**Shri. Mehulbhai Patel** **Shri. V. H. Patel**  
(Hon. Jt. Secretary, CVM) (Hon. Jt. Secretary, CVM)

**Shri. B. P. Patel** **Shri R. C. Talati**  
(Hon. Jt. Secretary, CVM) (Hon. Jt. Secretary, CVM)

##### Convener & Patron

**Prof. (Dr.) Archana S. Nanoty**  
(Principal, MBIT)

##### Coordinator

**Dr. Bhavesh Rajpara**  
(Head and Associate Professor,  
ASH Department)

**Prof. Sandeep Panchal**  
(Assistant Professor, ASH Department)

##### Co-Coordinator

**Prof. Mayur Ayar**



**GUJCOST Sponsored**  
**Three Days Workshop**

**On**

**Role of Applied Science &**  
**Humanities to Engineering**

26<sup>th</sup> November 2020 – 28<sup>th</sup> November 2020



#### Organized By

Madhuben & Bhanubhai Patel  
Institute of Technology  
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New Vallabh Vidyanagar, 388 121.  
Gujarat, India.  
Tel: +91-2692-230823  
Website: [www.mbict.ac.in](http://www.mbict.ac.in)

Organized By:-

Department of Applied Science & Humanities

Madhuben & Bhanubhai Patel Institute of Technology

(A Constituent College of CVM University), New Vallabh Vidyanagar



## PROGRAMME SCHEDULE

DAY - 1 (26 <sup>th</sup> November, 2020)	
TIME	SESSION
9:30 AM - 10:00 AM	<b>Inauguration</b>
10:00 AM - 11:00 AM	<b>Session - 1</b> <b>Dr. Mayur Parmar</b> Assistant Professor, H M Patel Institute Of English Training & Research, Vallabh Vidyanagar <b>Topic:</b> Importance of Communication Skills for Engineers
11:00 AM - 12:00 PM	<b>Session - 1</b> <b>Dr. Utpal Ganatra</b> Lecturer In English, Government Polytechnic, Dahod <b>Topic:</b> Transformation: School to College
12:00 PM - 01:00 PM	<b>Lunch Break</b>
01:00 PM - 02:00 PM	<b>Session - 2</b> <b>Dr. Snehal Amol Popli</b> Associate Professor, Civil Engineering Department, GCET <b>Topic:</b> Environmental Engineering
02:00 PM - 03:00 PM	<b>Session - 2</b> <b>Dr. R. B. Gandhi</b> Associate Professor, Department of Mathematics, BVM <b>Topic:</b> Integral Calculus: Single and Multivariate

DAY - 2 (27 <sup>th</sup> November, 2020)	
TIME	SESSION
10:00 AM - 11:00 AM	<b>Session - 1</b> <b>Dr. Darshana Prajapati</b> Associate Professor, Department of Mathematics, MBIT <b>Topic:</b> Vedic Maths



11:00 AM - 12:00 PM	<b>Session - 1</b> <b>Dr. Urvashi Acharya</b> Ex. Assistant Professor, SVIT, ADIT & MBIT <b>Topic:</b> Differential Calculus
12:00 PM - 01:00 PM	<b>Lunch Break</b>
01:00 PM - 02:00 PM	<b>Session - 2</b> <b>Dr. Dhananjay</b> Assistant Professor, N. V. Patel College of Pure and Applied Sciences, Vallabh Vidyanagar <b>Topic:</b> Application of Applied Physics in Engineering
02:00 PM - 03:00 PM	<b>Session - 2</b> <b>Dr. Naveen Agrawal</b> Assistant Professor, N. V. Patel College of Pure and Applied Sciences, Vallabh Vidyanagar <b>Topic:</b> Foundation of Engineering in contest to Physics

**DAY - 3 (28<sup>th</sup> November, 2020)**

<b>TIME</b>	<b>SESSION</b>
10:00 AM - 11:00 AM	<b>Session - 1</b> <b>Dr. M.E. Shimpi</b> Associate Professor, Department of Mathematics, BVM <b>Topic:</b> A Tour to calculus
11:00 AM - 12:00 PM	<b>Session - 1</b> <b>Dr. Sudha Srikanth</b> Associate Professor, Department of Electrical Engineering, KDKCE, Nagpur <b>Topic:</b> Life without electricity
12:00 PM - 01:00 PM	<b>Lunch Break</b>
01:00 PM - 02:00 PM	<b>Session - 2</b> <b>Dr. Shailee G. Acharya</b> Assistant Professor, Department of Mechanical Engineering, SVIT



	<b>Topic: Need of interdisciplinary approach in engineering</b>
02:00 PM - 03:00 PM	<b>Session - 2</b> <b>Prof. Manoj Kumar</b> Assistant Professor, Department of Mechanical Engineering, ADIT <b>Topic: Importance of Mech. Engg. in Computer Branch</b>

The aim of this Workshop is to explain about Humanities courses emphasize on social skills and are rigorous in written and oral communication. These courses prepare students to become better scientists and engineers. They prepare students to fulfill their civic and cultural responsibilities. Studying the humanities allows students to become familiar with and use the creative ideas from great minds outside of their field of study – which can help them generate new ideas and broaden their horizons. Even the state of the art scientific knowledge and techniques that students learn in college can sometimes have a limited shelf-life for example in the evolving disciplines of computer science. Humanities study can strengthen a student’s ability to communicate and work with others. The wall that exists among disciplines has been lowered and students can move across disciplines more freely – the effective writing and oral skills can help facilitate this transition. Students must realize that interdisciplinary learning adds value to one’s education. A student is more likely to succeed in an engineering or scientific discipline if they have strong communication and interpersonal skills.



**DAY - 1: (26<sup>th</sup> November, 2020)**

**Inaugural Ceremony was on 26<sup>th</sup> November, 2020 at 09:30 AM.**

Inauguration commenced with Welcome Note by **Prof. Hina Patel**. She warmly welcomed the dignitaries and participants. Then blessings of God were taken by playing Saraswati Vandana by **Prof. Nirav Raja**.

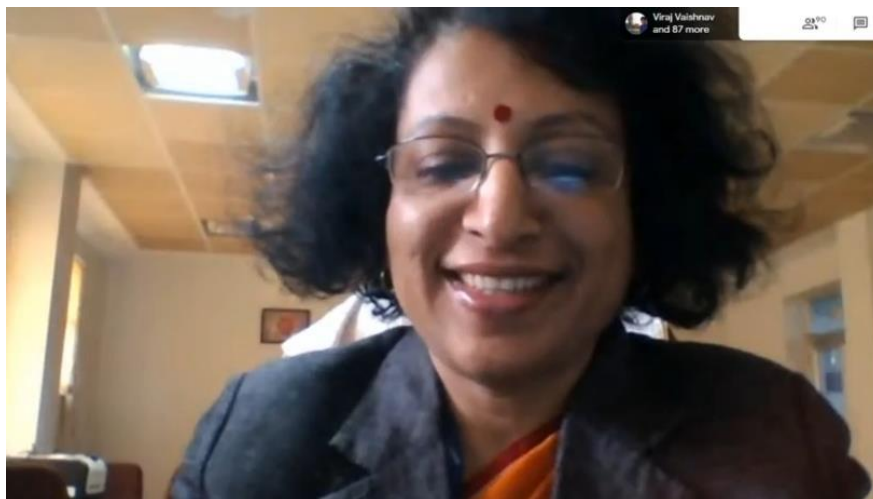
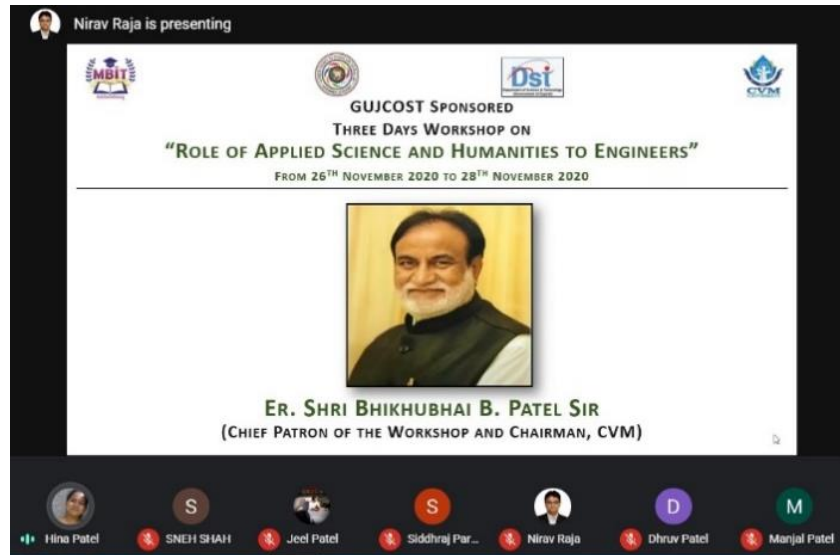


In the beginning of the function, the Honorable Chairman of CVM and Chief Patron of this Workshop **Er. Shri Bhikhubhai Patel sir** motivated us with his blessings and encouraging words.

After that, **Prof. Dr. Archana Nanoty** Principal, MBIT, gave a brief introduction about how technology has helped us during this pandemic time. She welcomed all the participants of the workshop. She thanked to **Dr. Narottam Sahoo, Member Secretary of GUJCOST** for providing the financial support for this workshop. She also talked about the importance of Applied Science & Humanities in Engineering. She ended her speech by wishing participants that the workshop will be helpful to them.



After that, **Dr. Bhavesh Rajpara** Head, ASH Dept., MBIT warmly welcomed the dignitaries and participants and given a vote of thanks.





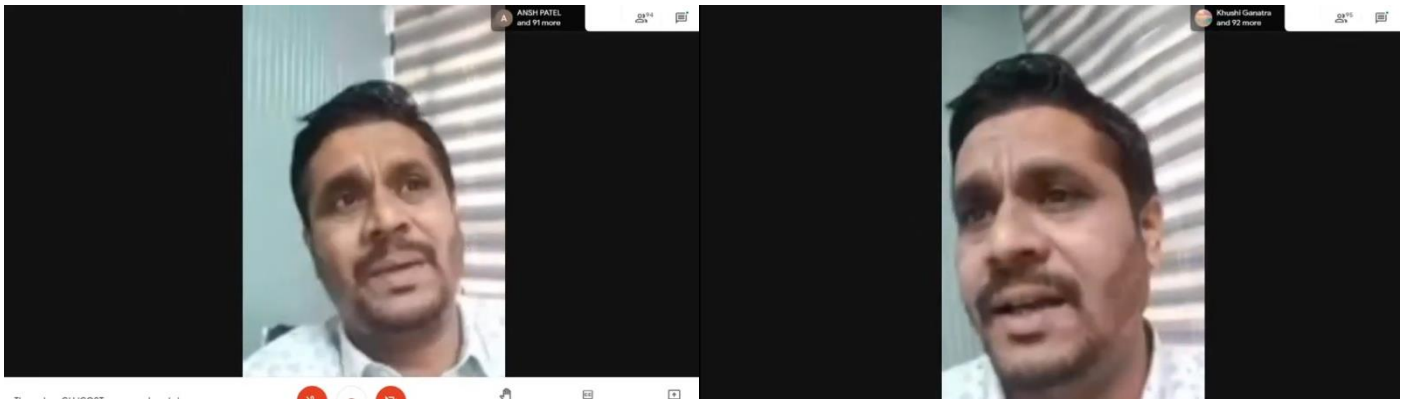
## DAY - 1: Session - 1 (26<sup>th</sup> November, 2020)

### DR. MAYUR PARMAR

Assistant Professor, H M Patel Institute Of English Training & Research Vallabh Vidyanagar, Anand, Gujarat.

#### **Topic:** Importance of Communication Skills for Engineers

He nicely explained that how engineers have to communicate on a daily basis — with each other, with supervisors, with people in different departments, and even with clients. Their work is complex and technical, but not everyone they work with has the same technical expertise, which makes it even more important for them to have good communication skills. Effective communication in engineering is critical to ensuring that all project participants are on the same page.



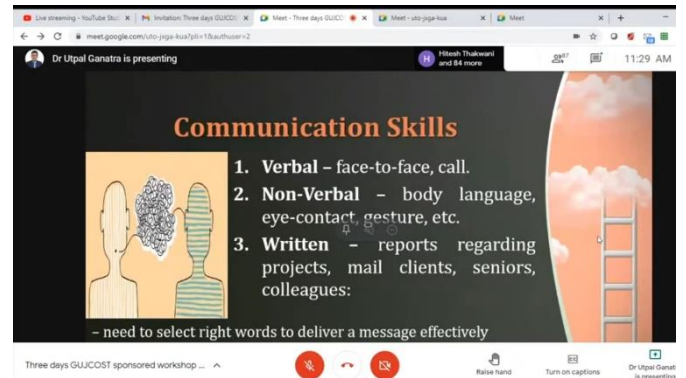
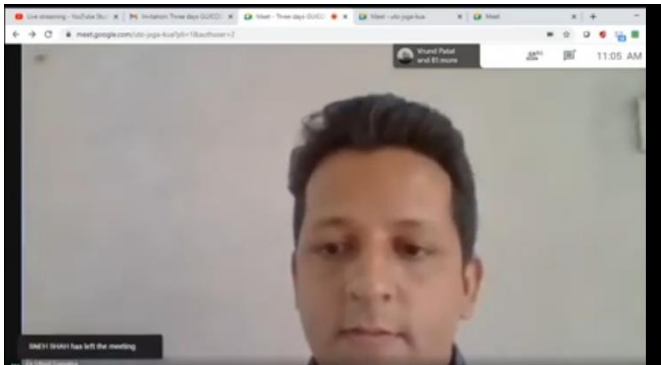
## DAY - 1 : Session - 1 (26<sup>th</sup> November,2020)

### Dr. Utpal Ganatra

Lecturer in English, Government Polytechnic, Dahod.

#### **Topic:** Transformation: School to College

Learning is a procedure, one that works in a circle. Just as you begin to feel that you have learnt a lesson, another excites you. But an important part of learning is the act of unlearning. Some transitions in the act of learning come to you as a first. But every now and then, you learn something that makes you want to question your prior knowledge of the matter. And that is precisely what makes this process an adventure.



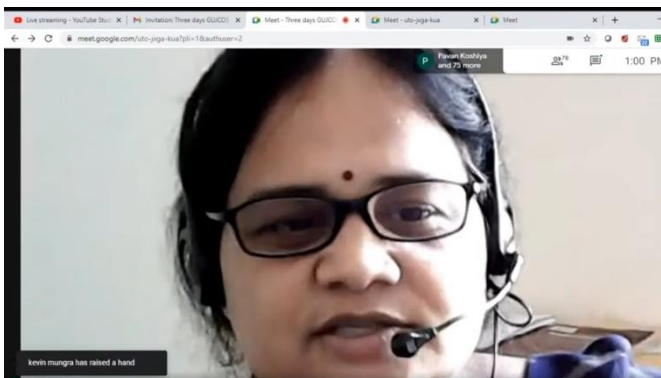
## DAY - 1 : Session - 2 (26<sup>th</sup> November,2020)

### Dr. Snehal Amol Popli

Associate Professor, Civil Engineering Department, GCET

#### Topic: Environmental Engineering

Environmental problems at local, national, and international levels mostly occur due to lack of awareness. Environmental science aims to educate and equip learners with the necessary environmental skills to pass to the community in order to create awareness. Environmental awareness can be created through social media, creating a blog dedicated to creating awareness, community-centered green clubs, women forums, and religious podiums.







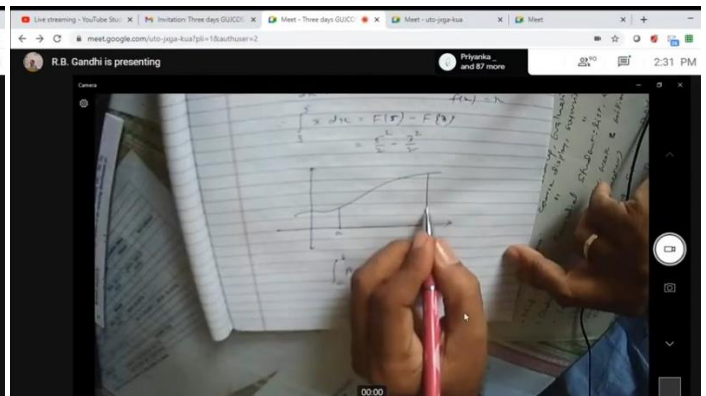
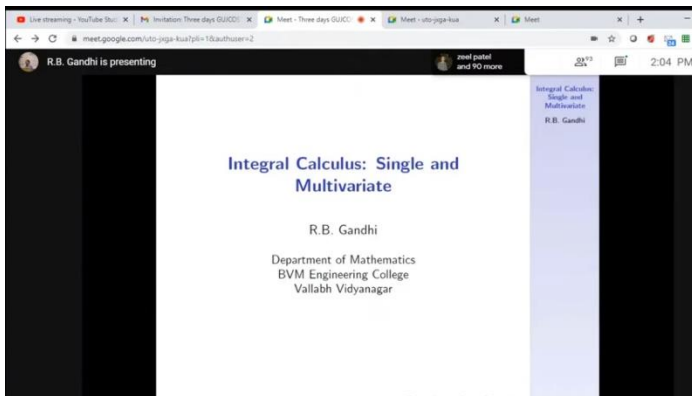
## DAY - 1 : Session - 2 (26<sup>th</sup> November,2020)

**Dr. R. B. Gandhi**

Associate Professor, Department Of Mathematics, BVM

**Topic:** Integral Calculus: Single and Multivariate

Multivariable Calculus deals with the functions of multiple variables, whereas single variable calculus deals with the function of one variable. The differentiation and integration process are similar to the single variable calculus. In multivariable calculus, to find a partial derivative, first, take the derivative of the appropriate variable while holding the other variables as constant. It majorly deals with three-dimensional objects or higher dimensions.



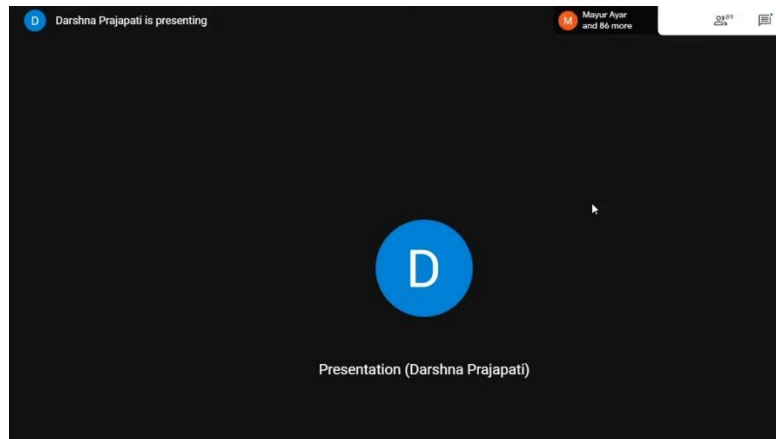
## DAY - 2 : Session - 1 (27<sup>th</sup> November,2020)

**Dr. Darshana Prajapati**

Associate Professor, Department of Mathematics, MBIT

**Topic:** Vedic Maths

Once the mind of a student develops an understanding of mental mathematics, he/she begins to think systematically and more creatively. In her talk, she discussed some of the most basic Vedic maths tricks for beginners under different categories, with relevant examples and explanations. Vedic Maths is a collection of techniques/sutras to solve mathematical problem sets in a fast and easy way. These tricks introduce wonderful applications of Arithmetical computation, theory of numbers, mathematical and algebraic operations, higher-level mathematics, calculus, and coordinate geometry, etc. It is very important to make students learn some of the Vedic maths tricks and concepts at an early stage to build a strong foundation.



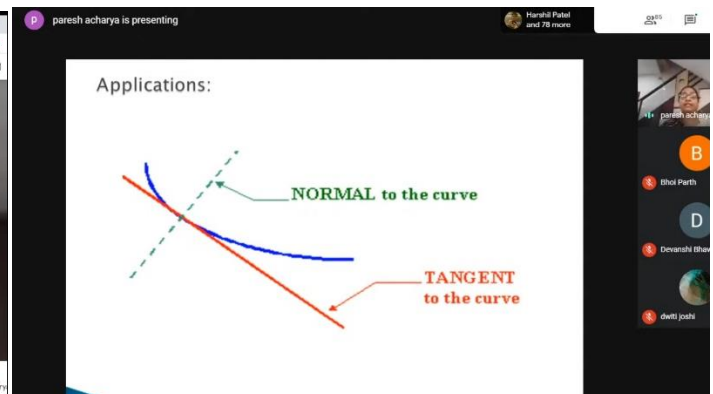
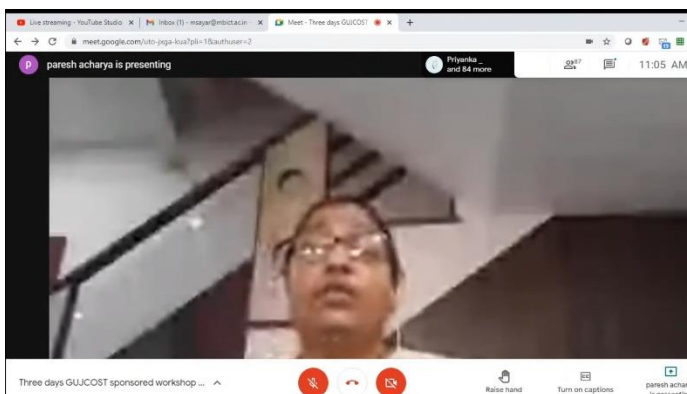
## DAY - 2 : Session - 1 (27<sup>th</sup> November,2020)

**Dr. Urvashi Acharya**

Ex. Assistant Professor, Department of Mathematics, SVIT, ADIT & MBIT

**Topic:** Differential Calculus

In mathematics, differential calculus is a subfield of calculus that studies the rates at which quantities change. It is one of the two traditional divisions of calculus, the other being integral calculus—the study of the area beneath a curve. The primary objects of study in differential calculus are the derivative of a function, related notions such as the differential, and their applications. The derivative of a function at a chosen input value describes the rate of change of the function near that input value. The process of finding a derivative is called differentiation. Geometrically, the derivative at a point is the slope of the tangent line to the graph of the function at that point, provided that the derivative exists and is defined at that point. For a real-valued function of a single real variable, the derivative of a function at a point generally determines the best linear approximation to the function at that point. Differential calculus and integral calculus are connected by the fundamental theorem of calculus, which states that differentiation is the reverse process to integration.





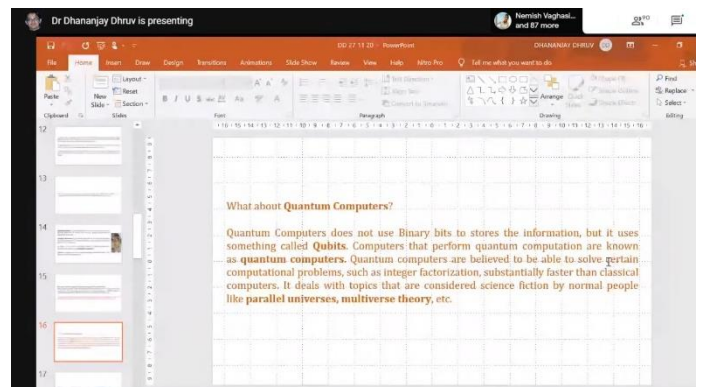
## DAY - 2 : Session - 2 (27<sup>th</sup> November,2020)

### Dr. Dhananjay

Assistant Professor, N. V. Patel College of Pure and Applied Sciences, Vallabh Vidyanagar

#### Topic: Application of Applied Physics in Engineering

Applied physics is the application of physical theories to problem-solving. It is the use of theoretical knowledge of the properties of physical bodies with the intention of achieving a particular technological or practical goal. It is also usually considered to be a bridge or a connection between physics and engineering. Applied physics is rooted in the fundamental truths and basic concepts of the physical sciences, but is concerned with the utilization of scientific principles in practical devices and systems, and in the application of physics in other areas of science. It usually differs from engineering in that an applied physicist may not be designing something in particular, but rather is using physics or conducting physics research with the aim of developing new technologies or solving an engineering problem. This approach is similar to that of applied mathematics. Applied physics is rooted in the fundamental truths and basic concepts of the physical sciences but is concerned with the utilization of these scientific principles in practical devices and systems.



## DAY - 2: Session - 2 (27<sup>th</sup> November,2020)

### Dr. Naveen Agrawal

Assistant Professor, N. V. Patel College of Pure and Applied Sciences, Vallabh Vidyanagar

#### Topic: Foundation of Engineering in contest to Physics

The role of physics in engineering education is not a static one. It must respond and evolve with the momentous changes in both engineering and physics which are occurring continually. The predominant reliance of early engineering upon art is giving way to a modern technology based squarely upon the physical sciences. Since the beginning of this century we have seen as much progress in physics as had been obtained in the whole previous history of mankind. Yet the obvious and enormous increase in subject matter of modern physics is not the most significant factor relating to the aim of instruction in physics in the education of engineers. On the contrary, the cardinal aim should be that of imparting to the student a point of view, an attitude of mind,



and a capacity to deal with the principles and methods of analysis of contemporary physics, for, without training and experience in these modes of thought, neither physicist nor engineer will prove competent to deal with the emerging problems of science and technology.

Dr. Naveen Agrawal is presenting

Alger Salameh and 87 more

Shivam Tivedi has left the meeting

### Acoustic Emission testing (AE)

- *Acoustic: Sense of hearing*
- AE is performed by applying a localized external force such as an abrupt mechanical load or rapid temperature or pressure change to the part being tested.
- The resulting stress waves in turn generate short-lived, high frequency elastic waves in the form of small material displacements, or plastic deformation.
- On the part surface that are detected by sensors that have been attached to the part surface.
- when multiple sensors are used the resulting data can be evaluated to locate

1. AMPLIFICATION  
2. PRE-AMPLIFICATION  
3. ANALOGUE SYSTEM  
4. ANALOGUE AND DIGITAL  
5. SOFTWARE

## DAY - 3: Session - 1 (28<sup>th</sup> November,2020)

**Dr. M.E. Shimpi**

Associate Professor, Department of Mathematics, BVM

**Topic:** A Tour to calculus

Calculus is the language of engineers, scientists, and economists. The work of these professionals has a huge impact on a daily life – from microwaves, cell phones, TV, and car to medicine, economy, and national defense. Calculus, defined as the mathematical study of change, was developed independently by Isaac Newton and Gottfried Wilhelm von Leibniz in the 17th century. Engineering is defined as "the profession in which a knowledge of the mathematical and natural sciences gained by study, experience, and practice is applied with judgment to develop ways to utilize, economically, the materials and forces of nature for the benefit of mankind." Some engineers directly use calculus in their daily practice and some use computer programs based on calculus that simplify engineering design. Two methods of calculus, differentiation and integration, are particularly useful in the practice of engineering, and are generally used for optimization and summation, respectively.

Mukesh Shimpi is presenting

NIKSHA PATEL and 72 more

Sini Patel and 73 more

Video 1 [Courtesy YouTube]

### Calculus

33 CIP



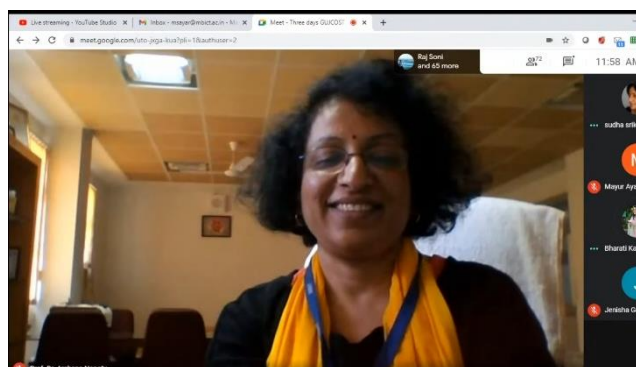
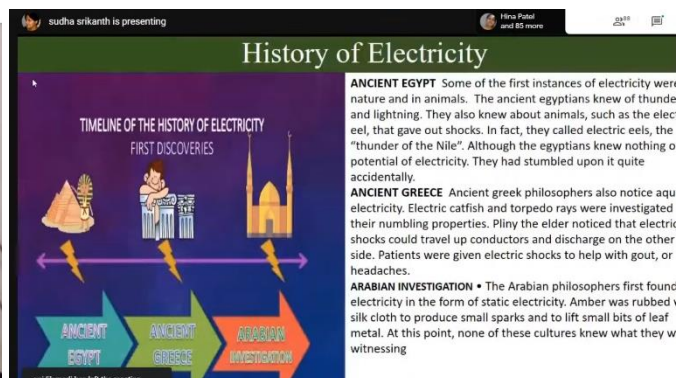
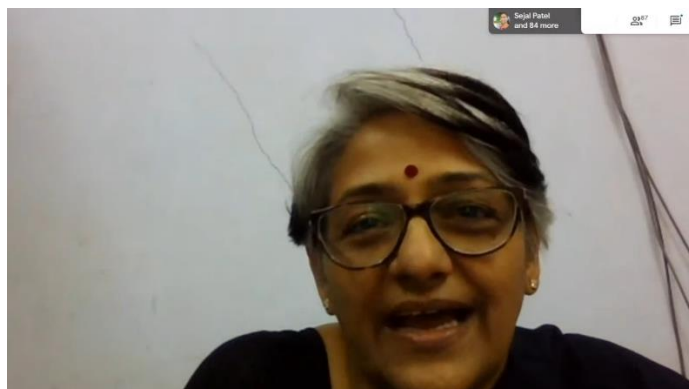
## DAY - 3: Session - 1 (28<sup>th</sup> November,2020)

**Dr. Sudha Srikanth**

Associate Professor, Department of Electrical Engineering, KDKCE, Nagpur

**Topic:** Life without electricity

Living with no electricity might not be as easy as we may think and we not realize how many items in our home rely on it to function. Electrically managed technologies supply us with many things, such as heat, food, water, transport, energy, entertainment and communication. Despite surviving thousands of years without it before, we have come to depend on it to complete our everyday tasks and have built our lives around it. We are so reliant on electrical power that it would be a shock to many if you no longer had the regular supply. Some people prefer to not be so reliant on electrical energy and opt for an off-the-grid lifestyle, utilizing alternative energy sources for their power. For many years, they were considered to be eco warriors and often eccentric with a different and extreme way of life, but it is becoming a popular choice for many.





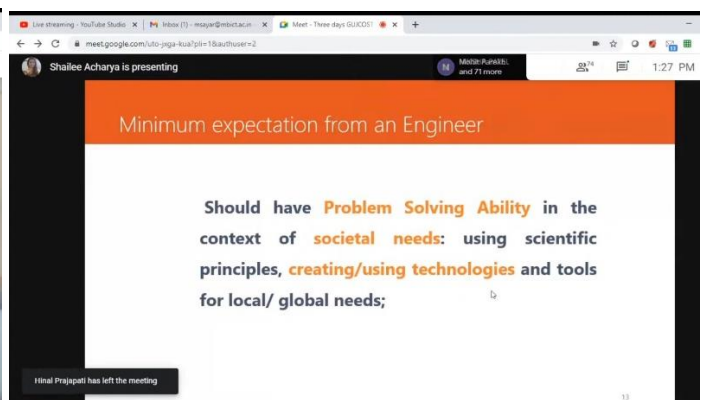
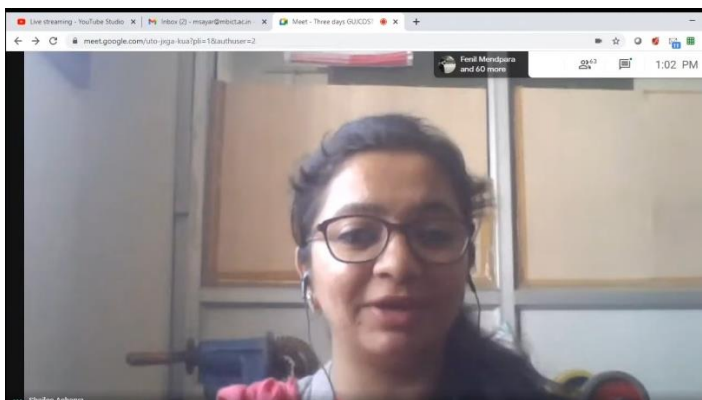
## DAY - 3: Session - 2 (28<sup>th</sup> November, 2020)

### Dr. Shailee G. Acharya

Assistant Professor, Department of Mechanical Engineering, SVIT

#### Topic: Need of interdisciplinary approach in engineering

Interdisciplinarity is now all the buzz within engineering schools. First, it was the research funding bodies demanding interdisciplinary research. Now it is industry, governments and engineering professional institutions demanding interdisciplinary education. Interdisciplinary research is hugely challenging, not least because the current university system remains clustered around individual disciplines, and mono-disciplinarity remains the modus operandi in day-to-day academic practice. Interdisciplinary engineering education raises the challenges faced by engineering schools even further. Engineers routinely deal with interdisciplinarity in their practice. For instance, the design of an everyday product like a motor vehicle requires the integration of knowledge and skills from disparate disciplines such as mechanical, electronic and computer engineering, battery technology and energy systems, environmental and sustainability engineering, and ergonomics. Hence, for engineering, interdisciplinarity is not, and has never been an option. It is only that engineering education has so far managed to get away without incorporating interdisciplinarity for so long. However, as so many engineering education researchers have observed, this head-in-the-sand approach is no longer tenable in the 21st century.





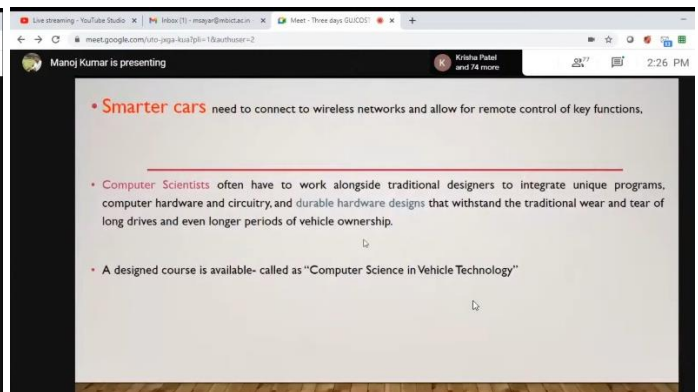
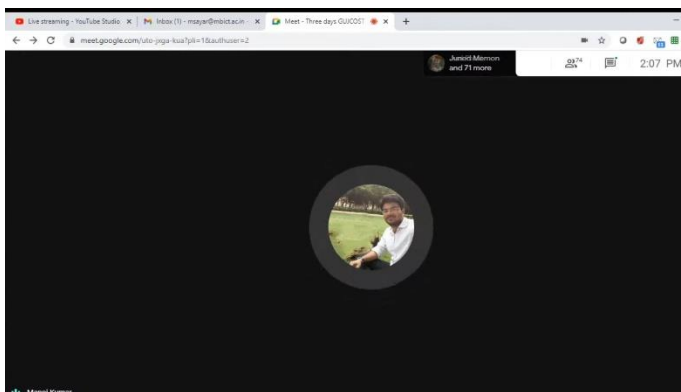
## DAY - 3: Session - 2 (28<sup>th</sup> November, 2020)

### Prof. Manojkumar

Assistant Professor, Department Of Mechanical Engineering, ADIT

**Topic:** Importance of Mech. Engg. in Computer Branch

Mechanical engineers design, develop, and test physical machines and devices while computer scientists do so with digital concepts. Both strive to solve complex problems in their fields using a foundation of math and science. Mechanical engineers and computer scientists also have a place in many industries. Mechanical engineers and computer scientists advance the limits of what we can do, if on a different plane. The professionals also support one another in a number of ways. Mechanical engineers use nanotechnology to build the ever smaller and more capable computer chips upon which computer scientists rely. Computer scientists, meanwhile, help develop the computer programs and processes that allow mechanical engineers to analyze important data and conduct analyses.



**No. of Participants: 280 +**

**Organized Team:** We are thankful our principal and CVM for providing such opportunity to provide us a platform to conduct such Workshop for the students and gain knowledge in such a pandemic situation. We are also grateful to GUJCOST for providing financial support for this workshop.