Annexure – E (Report of FDP / training programme with minimum five photographs and a video CD of selected sessions)

REPORT
On
Faculty Development Programme on Sustainable Development – Present & Future:
March 11th- 15th, 2019

Introduction

This one-week long Faculty Development Programme focused on the recent trends (globally and locally) of Sustainable Development.

The host Institute Government Polytechnic for Girls, Ahmedabad gave this opportunity to the academicians to enhance their skills and understand the current scenario through this FDP. The Faculty Development Programme summarized the aspects relating to the Climate change and its impact on sustainable development, Effect of Transportation on sustainable development, Millennium Development Goals, Climate Vulnerability, Urban Challenges in Infrastructure, Urban Challenges in Mobility, Urban Challenges in Environment, Sustainable development strategies, etc. This FDP intended to orient participants towards understanding needs of sustainable development as a whole.

Objectives

The major objectives kept in mind while framing this Faculty Development Programme were as follows:

- Identify issues related to organizational sustainability
- Elaborate the problem related to sustainability
- Enhance knowledge of current issues related to subject
- Contribute for solving the problems related to sustainable development.
- Improve the general awareness about sustainable development.
- Prevent environmental degradation caused by facilities and infrastructure.
- Create built environments that are livable, comfortable

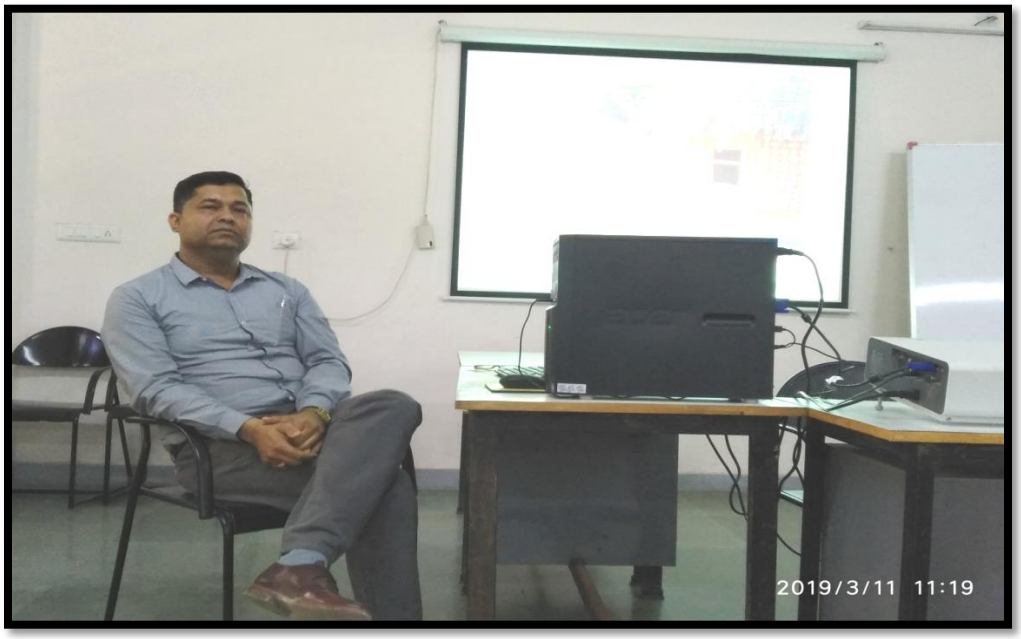
The programme was attended by 29 participants out of whom 13 were external participants (all over Gujarat State) 16 internal faculties including Head of Civil Engineering Department.3 participants were from L.D. College of Engineering,

Ahmedabad. 2 high tea (Morning & Evening) and Lunch was provided to the participants daily and one kit was issued to each participant.

Day 1, Session 1

Opening Session

The faculty development programme started on 11th March, 2019 at 10:30 am by Opening Session of Architect Naresh M. Chhatwani who is working as an Associate Professor at Indus University, Ahmedabad.



He introduced the topic to the participants. Furtherhe elaborated the importance of sustainable development in Architecture by giving examples of conspicuouswork done by renownedBritish-born Indian architect Lawrence Wilfred famously known ad Laurie Baker. Laurie Baker is renowned for his initiatives in cost-effective energy-efficient architecture and designs that maximized space, ventilation and light and maintained an uncluttered yet striking aesthetic sensibility.Influenced by Mahatma Gandhi and his own experiences in the remote Himalayas, he promoted the revival of regional building practices and use of local materials; and combined this with a design philosophy that emphasized a responsible and prudent use of resources and energy. He was a pioneer of sustainable architecture as well as organic architecture, incorporating in his designs

even in the late 1960s, concepts such as rain-water harvesting, minimizing usage of energy-inefficient building materials, minimizing damage to the building site and seamlessly merging with the surroundings.

Day 1, Session 2

Introduction to Climate Change and Sustainable Development

ByMs. Purvi Vyas, Ahmedabad University, Science Officer, IPCC WGIII Technical Support Unit, Global Centre for Environment and Energy, Ahmedabad University
Navrangpura, Ahmedabad 380009, Gujarat, India.

Ms. Vyas mainly focused on impact of climate change on sustainable development. Some of the highlights of her session are as mentioned below:

- Conceptual overview of linkages between climate change and sustainable Development
- Consequences of climate change response actions (mitigation, adaptation, andvulnerability reduction) for sustainable development prospects in varioussectors, systems, and regions.
- Mutual interlinkages between different overall development paths (that cutacross various sectors and systems), including strategies for technology

development, diffusion and transfer processes, and climate change responses.

- Synergies and tradeoffs between different sustainable development strategiesand options for increasing adaptive capacity and reducing vulnerability toclimate change, in various sectors, systems and regions.

Day 1, Session 3
Sustainable Development and Transport

byDr. Prof. Pradip Gundaliya, Professor in Civil Engineering at L.D. College of Engineering, Ahmedabad.

Prof. Gundaliya mainly focused on Transportation and Urban Sustainability with respect to transportation in India, Smart Transportation, ITS and Policies. He further explained in detail concept of urban sustainability with respect to Infrastructure, land use, etc. He also compared between Global Sustainability and Urban Sustainability.

Some of the highlights of his session are as mentioned below:

- Limits imposed by the environment for needs of sustainability.

- Urban Sustainability offer to its population a suitable urban environment, employment, food, housing and transportation without compromising the welfare of the future population of that city, without compromising the welfare of its surrounding areas, little environmental damage, a good conservation of resources such as water, land and energy and the capability of handling change.
- Various Unsustainable effects like CFCs (air cooling systems), noise, land consumption (sprawl), congestion, accidents, etc.
- General Indicators of Urban Sustainability.
- Major areas of ITS

Day 1, Session 4
Millennium Development Goals and Sustainable Development Goals

byDr. Ushma U. Anerao, Head- Architecture Department & Principal, GPG, Ahmedabad. Dr. Anerao mainly focused on different goals of Development and Sustainability.

Some of the highlights of her session are as mentioned below:

- In September 2000, leaders of 189 countries gathered at the United Nations headquarters and signed the historic Millennium Declaration, in which they committed to achieving a set of eight measurable goals that range from halving extreme poverty and hunger to promoting gender equality and reducing child mortality, by the target date of 2015.
- The MDGs were revolutionary in providing a common language to reach global agreement. The 8 goals were realistic and easy to communicate, with a clear measurement/monitoring mechanism.
- Eight Millennium Development Goals (MDGs) are 1. Eradicate extreme poverty and hunger, 2. Achieve universal primary education, 3. Promote gender equality and empower women, 4. Reduce child mortality, 5. Improve maternal health, 6. Combating HIV/AIDs, malaria, and other diseases, 7. Ensure environmental sustainability, 8. Develop a global partnership for development.

Day 2, Session 1

Disasters, Risk, Vulnerability

by Prof. Pratima Singh, Assistant Professor, Nirma University, Ahmedabad.

Prof. Singh mainly discussedvarious aspects of disasters, risk and vulnerability and how it affects sustainable development.

Some of the highlights of her session are as mentioned below:

- The Role and Impact of Population and Society. Increasing disaster threats not only reflect the onset of events such as earthquakes or floods, but also the changing demographics and socioeconomic characteristics of the population. A large, violent tornado, for instance, passing through an open field presents little danger. On the other hand, a relatively weak tornado can pose significant risks to human life and can result in great economic losses in densely populated areas. While the intensity is important, of equal or greater importance is the presence of a population whose demographic or socioeconomic characteristics may place its members at greater risk of harm before, during, and after a disaster.
- The “vulnerability” perspective in disasters, which is rapidly emerging as a dominant view in the field, assumes that a real disaster occurs when it strikes an underprivileged population. Vulnerability is formally defined as “the

characteristics of a person or group and their situation that influences their capacity to anticipate, cope with, resist, and recover from the impact of a natural hazard."1 Implicit here is "differential vulnerability"; that is, different populations face different levels of risk and vulnerability. Consequently, policies aimed at addressing risk and vulnerability must also take into account these differential impacts and outcomes of disasters. Although the sources of vulnerability are multiple and quite diverse, some of the most important factors that affect vulnerability include population growth and distribution and social diversity.

- Risk (or more specifically, disaster risk) is the potential disaster losses (in terms of lives, health status, livelihoods, assets and services) which could occur to a particular community or a society over some specified future time period. (Reference UNISDR Terminology). It considers the probability of harmful consequences, or expected losses (deaths, injuries, property, livelihoods, economic activity disrupted or environmentally damaged) resulting from interactions between natural or human induced hazards and vulnerable conditions. Risk can be calculated using the following equation: Risk = Probability of Hazard x Degree of Vulnerability. There are different ways of dealing with risk, such as: Risk Acceptance, Risk Avoidance, Risk Reduction and Risk Transfer

Day 2, Session 2

Climate Vulnerability in AMC Slums

by Ms. Bhavna Maheriya, Programme Manager, Mahila Housing Trust, SEWA

Some of the highlights of her session are as mentioned below:

- Women from Slum Communities are most vulnerable to Climate Change while having least adaptation capacity. Slum Communities caught in "Poverty trap" due to multiple deprivations.
- Some of the barriers include information barriers, institutional barriers, technology barriers and financial barriers.
- Climate Stresses a "Slow but Potent Disaster"
- To minimize the problem various training modules were developed targeting women in slums.

Ms. Maheriya mainly discussedand identified key issues related to climate change and slum dwellers.

Day 2, Session 3

Urban Challenges - Infrastructure

by MrSubhrangsu Goswami, Assistant Professor, Faculty of Planning, CEPT University

Some of the highlights of his session are as mentioned below:

- Various challenges of urban infrastructure include lack a modern planning framework, the multiplicity of local bodies obstructs efficient planning andland use, Rigid master plans and restrictive zoning regulations, strong bias towards adding physical infrastructurerather than providing financially and environmentally sustainable services, stringent infra audits and more transparency, etc.
- Critical issues that need to be addressed are Local governance, Availability of finances and the financial state of affairs, Inappropriate planning that leads to high costs of housing andoffice space, some of which are amongst the highest in the world, Critical infrastructure shortages and major servicedeficiencies, such as

erratic water and power supply and not so adequate transportation systems, Rapidly deteriorating environment.

Prof. Goswami mainly focused on challenges of urban infrastructure development and its impact of sustainable development.

Day 2, Session 4
Urban Challenges – Mobility
by Dr Rutul Joshi, Associate Professor, Faculty of Planning, CEPT University

In his candid discussion Dr Joshi mainly focused on issues related to urban mobility.
Some of the highlights of his session are as mentioned below:

- Achieving sustainable, energy-efficient and environmentally friendly transport systems is one of the key aims. Sustainable Urban Mobility Plans are an instrument that contributes to reaching the climate and energy targets. However, cities frequently face major barriers while creating their own Sustainable Urban Mobility Plans.
- Urban Mobility Challenges addresses the four most pressing challenges in SUMP development and implementation and develops innovative and transferable

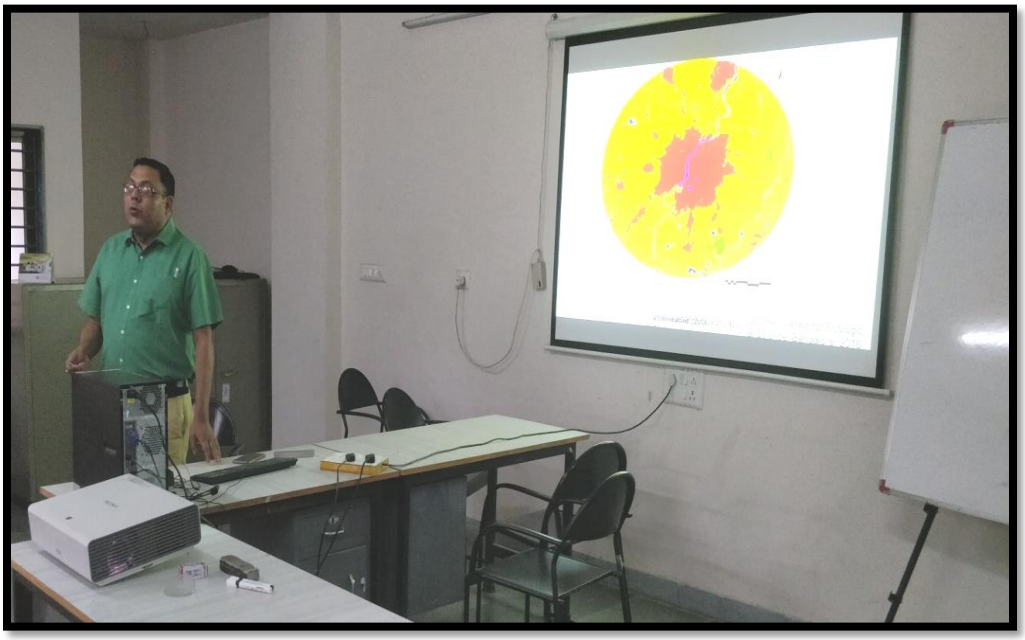
solutions in the areas of Stakeholder participation and citizen involvement, Institutional cooperation between sectors and disciplines, Identification of the most effective policy measures and Monitoring and evaluation of progress in SUMP development.

- Cities move. People hurry from corner to corner; cars and trucks roll along the roads, while bicycles and scooters jostle for space.But sometimes that movement falters, and with it the dynamism that is the hallmark of great cities. Unhealthy smog levels and traffic jams, with their chorus of horns and shouts, are routine irritations of urban lives, and things could get much worse. The world's cities are facing an urgent set of challenges when it comes to ensuring that fundamental right of urban living: getting around.
- By 2030, 60 percent of the world's population will live in cities, up from about 50 percent today.Over the same period, more than two billion people are likely to enter the middle class, with the majority of them living in cities in emerging markets, particularly China. The number of megacities with more than ten million people will continue to grow.

Day 3, Session 1

Sustainable Development and resilience

by Dr. Saswat Bandyopadhyay, Professor, Faculty of Planning, CEPT University.



Dr. Bandyopadhyay mainly discussed Urban Resilience, Climate Change and how it affects sustainable development.

Some of the highlights of his session are as mentioned below:

- Inevitable urban explosion in Indian cities.
- Case study of peripheral expansion of Ahmedabad city from 1981 to 2031 by satellite images.
- How can urban planning reduce urban vulnerability?
- Vulnerability : Flood Model – Ahmedabad
- Environmental Kruznets Curve (EKC): In economics, a Kuznets curve graphs the hypothesis that as an economy develops, market forces first increase and then decrease economic inequality. The hypothesis was first advanced by economist Simon Kuznets in the 1950s and '60s.
- Nine ways to achieve sustainability: 1. Leave everything in pristine state, or return it to pristine state. 2. Develop so as to not overwhelm carrying capacity of

the system. 3. Sustainability will take care of itself as economic growth proceeds. 4. Polluter and victim can arrive at an efficient solution by themselves. 5. Let the market take care of it! 6. Leave for future generations the options or the capacity to be as well off as we areinternalizing externalities. 7. Reinvest rents for nonrenewable resources 8.Let the national economic accounting systems reflect defensive expenditures 9. Leave for future generations the options or the capacity to be as well off as we are.

Day 3, Session 2

Urban Challenges- Environmental Pollution and Climate Change

by Mr. Bhavesh M. Patel, Lecturer in Architecture, Government Polytechnic for Girls, Ahmedabad.

Mr. Patel mainly focused onvarious urban challenges in concern with the environmental pollution and climate changes.

Some of the highlights of his session are as mentioned below:

- The current energy model is the main cause of two of the most important environmental problems. Two of the planet's main environmental problems, climate change and air pollution, are linked. To begin with, though, it's important to distinguish clearly between them to understand the links they have, in what way they differ, and the solutions they might share.
- First, climate change is the global variation of the climate of the Earth due to natural causes and also human actions. It has many consequences with global impact, mainly due to changes in climate patterns, the rising sea level and more extreme meteorological phenomena. Climate change is not only an environmental phenomenon; its negative impacts have social and economic consequences, too.
- For its part, air pollution is the presence, in the air, of substances or particles that imply danger, damage or disturbance for humans, flora or fauna. The main sources of atmospheric contamination are tropospheric ozone gases (O3), sulfur oxides (SO2 and SO3), nitrogen oxides (NO and NO2), benzo(a)pyrene (BaP) and particulate matter (PM). These gases result mainly from emissions caused by the

burning of fossil fuels (including emissions generated by transport), industrial processes, burning of forests, aerosol use, and radiation.

- Both problems are a result of the same context: the current energy model. Both climate change and air pollution are worsened by the burning of fuel, increasing the CO2 emissions which cause global warming. Meanwhile, the generation of other pollutants, such as nitrogen oxides (NO and NO2), sulfur oxides (SO2 and SO3) and particulate matter, is the main reason the air is contaminated.
- Another characteristic shared by both phenomena is their serious impact on society. Climate change causes drought, flooding, deforestation, homelessness and extinction of animal and plant species… resulting in famine and disease. Atmospheric pollution causes six million deaths a year worldwide and a quarter of lung cancer cases, heart attacks and strokes, representing 0.3% of world GDP in health costs, as well as reducing productivity at work.
- Energy transition as a common solution. The final comparison we can make between climate change and air pollution is the most hopeful: both share a common solution, the introduction of a more sustainable energy model. Energy efficiency, more renewable energy, the use of electric vehicles, less resource consumption, application of measures from the Paris Agreement… will ultimately serve to reduce the polluting emissions that raise the temperature of the planet and make the atmosphere such a polluted environment.

Day 3, Session 3
Field Visit to Pirana (Sanitary Landfill Site-Gyaspur)

A filed visit was made to see

- Reuse of construction waste by making paver blocks, pots, garden bench, etc.
- Preparation of compost from Municipal Solid Waste.
- Bifurcation of MSW for recycling.

Reuse of construction waste

Converting compost from MSW

Solid Waste Segregation

Day 4, Session 1

Sustainability and Culture: World Heritage Cities of Ahmedabad

by Mr. Debasis Nayak, Founder-Director, Centre for Heritage Management, Ahmedabad University &Member, Heritage Conservation Committee, Ahmedabad Municipal Corporation.

Mr. Nayak mainly discussed importance of culture and heritage in sustainability module.

Some of the highlights of his session are as mentioned below:

- Cultural sustainability as it relates to sustainable development (to sustainability), has to do with the maintaining of cultural beliefs, cultural practices, heritage conservation, culture as its own entity, and attempts to answer the question of whether or not any given cultures will exist in the context of the future. Culture is defined as a set of beliefs, morals, methods, and a collection of human knowledge that is dependent on the transmission of these characteristics to younger generations. Sustainability is defined as the ability to sustain or continue. The two concepts have been intertwined within social and political

domains, and as such, have become one of the more important concepts of sustainability.

- Cultural sustainability has always been categorized under the social pillar of the three pillars of sustainability, but with recent developments within this field considerations are being made in order to make Cultural Sustainability its own pillar, due to its growing importance within social, political, environmental, and economic spheres. The importance of cultural sustainability lies within its influential power over the people, as decisions that are made within the context of society are heavily weighed by the beliefs of that society.
- The city of Ahmedabad is endowed with a rich architectural heritage that is vital to the local identity and continuity of the place. Along with the foremost heritage Indo-Islamic monuments of the 15th to 17th centuries, there are potential heritage precincts in the form of the Pols, the traditional residential clusters of the medieval period, which makes Ahmedabad exceptional. Combining these all, the historic walled city of Ahmedabad has it all to be the first city in India to be Inscribed in UNESCO's World Heritage City list of 2017.

Day 4, Session 2

SDG Goal 11: Smart Cities and Communities

by Ms. Neeru Bansal, Associate Professor, Faculty of Planning, CEPT University.

Some of the highlights of hersession are as mentioned below:

- More than half of the world's population now lives in urban areas. By 2050, that figure will have risen to 6.5 billion people – two-thirds of all humanity. Sustainable development cannot be achieved without significantly transforming the way we build and manage our urban spaces.
- The rapid growth of cities in the developing world, coupled with increasing rural to urban migration, has led to a boom in mega-cities. In 1990, there were ten mega-cities with 10 million inhabitants or more. In 2014, there were 28 mega-cities, home to a total 453 million people.
- Extreme poverty is often concentrated in urban spaces and national and city governments struggle to accommodate the rising population in these areas. Making cities safe and sustainable means ensuring access to safe and affordable housing, and upgrading slum settlements. It also involves investment in public transport, creating green public spaces, and improving urban planning and management in a way that is both participatory and inclusive.
- By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums.
- By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.
- By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries.
- Strengthen efforts to protect and safeguard the world's cultural and natural heritage.
- By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations.

- By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.
- By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities.
- Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning.
- By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels
- Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials.

Day 4, Session 3

Sustainable DevelopmentStrategies - Sanitation

by Ms. Mona Iyer, Associate Professor, Faculty of Planning, CEPT University.

Some of the highlights of her session are as mentioned below:

- Over the past several decades, ever-growing demands for – and misuse of – water resources have increased the risks of pollution and severe water stress in many parts of the world. The frequency and intensity of local water crises have been increasing, with serious implications for public health, environmental sustainability, food and energy security, and economic development. Demographics continue changing and unsustainable economic practices are affecting the quantity and quality of the water at our disposal, making water an increasingly scarce and expensive resource — especially for the poor, the marginalized and the vulnerable.
- The importance of water is traced to the 1977 Mar del Plata conference in Argentina which created an Action Plan on "Community Water Supply", declaring that all peoples have the right to access to drinking water in quantities and quality equal to their basic needs. The importance of water was further raised in the International Drinking Water Supply and Sanitation Decade from 1981 to 1990 and in 1992 at the UN Conference on Environment and Development in Rio de Janeiro (Agenda 21, Chapter 18), as well as at the International Conference on Water and the Environment (ICWE) in Dublin. In 1993 the World Water Day was designated on 22 March by the UN General Assembly, and in 2013 World Toilet Day on 19 November.
- There is an inescapable truth that we don't often hear in all the talk about technological advancement: while the world around us changes, we will be the same creatures we have always been. At least for the foreseeable future, robots are unlikely to outnumber human beings who, to survive, need water and somewhere to go to the toilet.
- The Global Goals have set an ambitious new agenda for sustainable development. The new goal for the water sector, Goal 6, aims to achieve universal, sustainable and equitable access to safe drinking water, sanitation and hygiene by 2030.

Day 4, Session 4

Invited Panel Discussion

By Dr. Ushma U. Anerao, Head- Architecture Department & Principal, GPG, Ahmedabad.

Some of the highlights of discussion are as mentioned below:

- The Sustainable Development Goals (or SDGs) are a set of 17 aims created by the United Nations (UN) General Assembly in 2015, in an attempt to tackle principle international needs including ending hunger, ensuring environmental sustainability, and furthering economic progress. The guest speakers, coming from backgrounds in Environmental Politics, Human Rights, and Social Anthropology, spoke expertly about the effectiveness of the UN and how the SDGs should be viewed in comparison to previous principles regarding international development. The pressure on the environment will continue to increase, as the human population and its development needs require sound and inclusive economic growth. Current production and consumption models will face significant challenges, as most prices for goods and services fail today to incorporate their full environmental and social costs. These challenges affect the entire global economy and in particular, developing countries, as many of them still confront significant growth, competitiveness, technological and financial constraints.
- The evening ended with a healthy debate in the Question & Answer session, which focused on climate change, elucidating the passion that both the guest speakers and the students have for the future of Sustainable Development in relation to the United Nations.

Day 5, Session 1 & 2

A Lecture on Moral Values, Ethics, Behavioral Sciences and Attitude*(Mandatory lecture as specified by GTU/AICTE Guidelines)*

byMs. Zankhana Dave, Ex. Asst. Professor, Amiraj College of Engineering& Art of Living Practioner.

Some of the highlights of her session are as mentioned below:

- Ethics, also called moral philosophy, the discipline concerned with what is morally good and bad, right and wrong. The term is also applied to any system or theory of moral values or principles.System of Moral Principles affecting how people make decisions and lead their lives on every front.Set of moral values have been firmly established in ranging from a person, organization, city, state, country and world. Ranging across societies, races, castes and culture.

- Significance of behavioral science, as discussed below.
- It is a systematic analysis and investigation of living organisms' behaviour through controlled and naturalistic observation and disciplined scientific experimentation.
- Purpose: applying the knowledge and skill to the well being of persons, organizations, communities and the society at large.
- Broader Areas of Application: Industries / Corporate Sectors / Research Institutions / Law, Justice and Crime / NGOs/ Educational Institutes / All government- Non-government sectors/ Defense.
- Attitude helps us define how we see situations, as well as define how we behave toward the situation or object.

Day 5, Session 3

Test *(Mandatory lecture as specified by GTU/AICTE Guidelines)*

- Ms. Anjum M. Mirza, Assistant Professor in Civil Engineering, L. D. College of Enginereing, Ahmedabad was asked to set paper based on topics discussed in 5 days of FDP.

- Test Question Paper and Marksheet is attached in Annexure – C.

Day 5, Session 4

ValedictoryFunction

- On final day post Tea certificates were distributed to the participants. Programme Coordinator Dr. Ushma Anerao honoured the participants with the certificates. Vote of thanks was delivered by Mr. Abhijit Rathod (FDP Convener) & Mr. Dipesh H. Dalal (FDP Co-Convener). Finally participants were asked to come on the dice and share their experience and learning of the whole program. The program was concluded with happy note from everyone.