A

Report on

Short Term Course on

"Clean and Green Technologies for Environment Sustainability"

(In collaboration with NITTR Chandigarh)

May 27-31, 2024

Organized by:

Department of Electrical Engineering

SwamiKeshvanandInstituteofTechnology,Management&Gramothan,Jaipur

Submitted by:

Dr. Prateek Kumar Singhal

Mr. Tarun Naruka

Host Institute Coordinators

TABLEOFCONTENTS

Our Inspiration

"The main factor causing India's backwardness is widespread illiteracy. We must address it as soon as possible if we wish to see the country advance quickly".

–Swami Keshvanand

Over 300 schools, 50 hostels, countless libraries, social service centres, and museums were founded by the illiterate, itinerant, and orphan Swami Keshvanand. He never got a formal education. The desert region's agricultural society was profoundly understood by Swami Keshvanand. He addressed the issues, provided acceptable and rational answers, and described the characteristics of the arid area. Eliminating social problems like as untouchability, child marriage, debt, poverty, backwardness, alcohol misuse, moral decay, etc. was Swami Keshvanand's lifelong goal.

1. ABOUT SKIT:-

Swami Keshvanand Institute of Technology, Management & Gramothan (SKIT) has been Ranked No.1 Engineering Institute in Rajasthan by RTU Kota consecutively for the last five years. The institute was established in the year 2000 by a team of committed professionals and academicians. During all the past years SKIT hasemergedasapremiercenteroftechnicaleducationnotonlyinRajasthanbutalsoinNorthern India which has been realized through efficient and dedicated faculty members, innovative teaching learning methods, and core value of discipline. The various undergraduate programmes of the institute are accredited by the National Board of Accreditation (NBA).

2. ABOUT DEPARTMENT OF ELECTRICAL ENGINEERING:-

The Department of Electrical Engineering is distinctly focused towards integrating academics with cutting edge technology in the field of Electrical Engineering. The

B.Tech. Program has been accredited four times in succession by NBA since 2009.

Department is also conducting M. Tech. and PhD Program in Power Systems specialization. All efforts are subtly harnessed with the aim of preparing the budding engineers to face the challenging dimensions of technical excellence in are as such as Analog & Digital Electronics, Electrical Machines, Control & Automation, Power Systems Design and Power Electronics. The department puts in consistent efforts for field exposure to students through various research-oriented projects taken up for meeting the industry demands. The department offers a perfect blend of electrical, electronics and computer related courses to help students pursue a professional career or higher studies.

3. ABOUT THE STC

Clean and green technologies are innovative solutions designed to minimize environmental impact and promote sustainability. These technologies focus on reducing pollution, conserving resources, and improving energy efficiency. Examples include renewable energy sources like solar, wind, and hydropower, which reduce reliance on fossil fuels and lower greenhouse gas emissions. Additionally, advancements in waste management, such as recycling and biodegradable materials, help reduce environmental contamination. The adoption of these technologies is crucial for combating climate change, preserving biodiversity, and ensuring a healthier planet for future generations. By integrating clean and green technologies into industries, transportation, and everyday life, we can build a more sustainable and resilient world.

4. VISION, MISSION & QUALITY POLICY OF THE INSTITUTE:-

Vision

To promote higher learning in advanced technology and industrial research to make our country a global player.

Mission

To promote quality education, training and research in field of Engineering by establishing effective interface with industry and to encourage faculty to undertake industry sponsored projects for students.

Quality Policy

We are committed to 'achievement of quality' as an integral part of our institutional policy by continuous self-evaluation and striving to improve ourselves.

Institute would pursue quality in

• All its endeavors like admissions, teaching-learning processes, examinations, extra and co-curricular activities, industry institution interaction, research & development, continuing education, and consultancy.

• Functional areas like teaching departments, Training & Placement Cell, library, administrative office, accounts office, hostels, canteen, security services, transport, maintenance section and all other services."

5. BROCHURE OF THE STC:-

6. SCHEDULE OF THE STC:-

National Institute of Technical Teachers Training and Research, Chandigarh
Electrical Engineering Department
ICT based STC on
"Clean and Green Technologies for Environment Sustainability"
27.05.2024 to 31.05.2024
(O.Plan No. ICT-12)
TIME-TABLE

DAY/DATE	Session - 1 10 AM to 11.30 AM	Session - 2 11.30 AM to 1 PM	Session - 3 2.30 PM to 4 PM
Monday 27/5/2024	Introduction to the Course Environment, Pollution and Sustainable Development - An Overview (Prof. Poonam Syal, NITTTR, Chd)	Air Pollution and its Mitigation Technologies (Prof. SC Jain, Former Dean & Chairman, Chemical Engineering and Technology Department, Panjab University, Chandigarh)	Water Resource Management (Dr. Samanpreet Kaur, Professor, Soil & Water Engineering Deptt. College of Agricultural Engg. & Technology PAU, Ludhiana)
Tuesday 28/5/2024	Electric Vehicle (Dr. Avik Bhattacharya, Associate Professor IIT, Roorkee,)	ECBC, PAT Scheme for Energy Efficiency (Er. Money Khanna, Project Engineer PEDA, Chandigarh)	Water Pollution and its Control (Prof. Sanjay Sharma , NITTTR, Chd)
Wednesday 29/5/2024	Nanotechnology for Pollution Control (Prof. Pankaj Sharma, NITTTR, Chd)	Soil Health Management (Dr. Sharmistha Pal, Sr. Scientist (Soil Science) ICAR- Indian Institute of Soil and Water Conservation, Chd)	Renewable Energy Sources (Prof. Poonam Syal)
Thursday 30/5/2024	Wind Power Generation (Dr. Vineet P Chandra, Deputy Manager- Technology Group, Suzlon Energy Ltd. Pune)	Smart Grid for Sustainable Environment (Prof. Lini Mathew NITTTR, Chd)	Green Buildings and Ratings (Dr. Chitrarekha Kabre , Professor, Department of Architecture, School of Planning and Architecture, Delhi)
Friday 31/5/2043	Organic Farming (Dr. Sohan Singh Walia, Director-cum-Principal Agronomist, School of Organic Farming, College of Agriculture,PAU, Ludhiana)	Millets for Environment Sustainability (Prof. Poonam Syal, NITTTR, Chd)	Course feedback and Valediction (Prof. Poonam Syal, NITTTR, Chd)

Course Coordinator:
Dr. Poonam Sanyal Professor, Department of Electrical Engineering,
NITTTR Chandigarh

7. OBJECTIVE OF THE STC:-

The main objectives of this STC are:

- To gain thorough understanding of the essentials and the way to Green Energy.
- Energy resources of India and World, Sankey diagrams
- Wind, biomass and solar energy resources
- Per capita energy consumption and impact on social and economic parameters
- Future scenarios of energy requirements

This STC promotes the aims of a research, such as expanding knowledge, support values require for collaborative work and mutual respect.

8. EXPECTED OUTCOME OF THE STTP:-

After attending this STC, Participants will be able to:

O1: Understand fundamental components of Energy Sector for sustainable growth.

O2: Develop understanding of how to use optimization techniques to explore the different energy sectors.

O3: Green innovation can help people society nation to reach their environmental goals by improving material productivity, reducing pollution and mitigating climate change.

The short term course outcomes are mapped with the program outcomes indicators of UG program. The matrix is shown in Table 1:

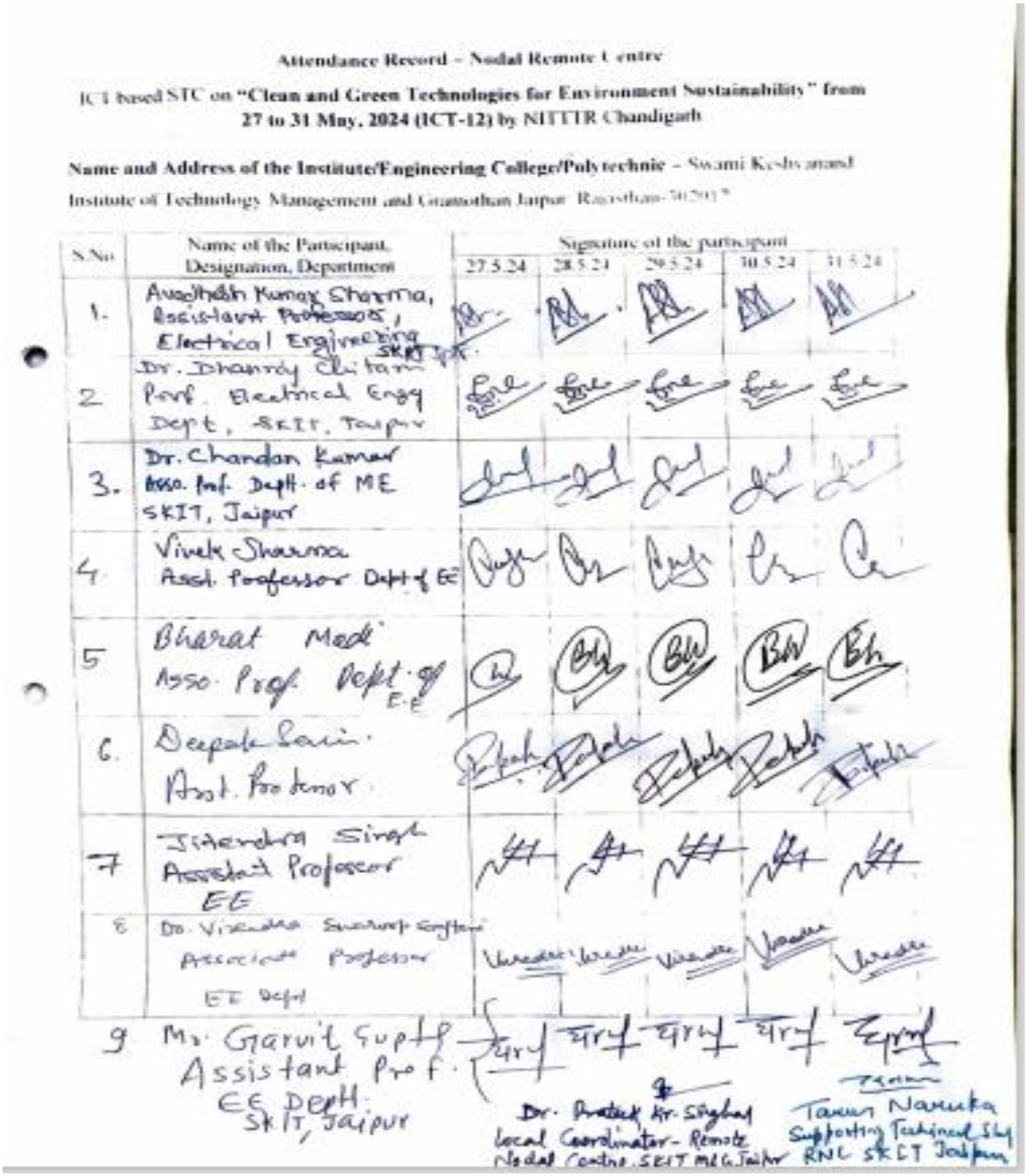
Table 1: Mapping with BL level PO & PSO indicators

Outcomes	Bloom's Level	PO Indicators	PSO Indicators
O1	L2	1.2.1,1.3.1,1.4.1,2.1.3,2.2.2,2.2.3,2.3.1,2.4.2,7.1.1, 7.1.2,7.2.2,12.1.2,12.2.1,12.2.2,12.3.1,12.3.2	1.1.1,1.1.3,1.2.1, 2.2.1,2.2.2
O2	L2	1.1.2,1.3.1,1.4.1,2.1.1,2.1.3,2.2.2,2.2.3,2.2.4,2.3.1, 2.3.2,2.4.2,2.4.3,2.4.4,3.1.3, 3.1.6, 3.2.1, 3.2.2, 3.2.3, 3.3.1,3.4.1, 4.1.1,4.1.2,4.1.3,4.2.1, 4.3.1, 5.1.2, 5.2.1, 5.2.2, 5.3.1, 5.3.2, 7.1.1,7.1.2,7.2.2, 12.1.2,12.2.1,12.2.2,12.3.1,12.3.2	1.1.1,1.1.2,1.1.3, 1.2.1,2.1.1, 2.2.1,2.2.2
O3	L3	1.1.2,1.3.1,1.4.1,2.1.1,2.1.3,2.2.2,2.2.3,2.2.4,2.3.1, 2.3.2,2.4.2,2.4.3,2.4.4,3.1.3, 3.1.6, 3.2.1, 3.2.2, 3.2.3, 3.3.1,3.4.1, 4.1.1,4.1.2,4.1.3,4.2.1, 4.3.1, 5.1.2, 5.2.1, 5.2.2, 5.3.1, 5.3.2,7.1.1,7.1.2,7.2.2, 12.1.2,12.2.1,12.2.2,12.3.1,12.3.2	1.1.1,1.1.2,1.1.3, 1.2.1,2.1.1, 2.2.1,2.2.2

Table 2: Workshop Outcomes-PO-PSO mapping

Outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
O1	2	2	-	-	-	-	3	-	-	-	-	3	3	3
O2	2	3	2	2	3	-	3	-	-	-	-	3	3	3
O3	2	3	2	2	3	-	3	-	-	-	-	3	3	3
Average	2	3	2	2	3	-	3	-	-	-	-	3	3	3

9. ATTENDANCE RECORD OF PARTICIPANTS FOR THE DURATION OF THE EVENT



Attendance Record – Nodal Remote Centre

ICT based STC on **"Clean and Green Technologies for Environment Sustainability" from 27 to 31 May, 2024 (ICT-12)** by NITTTR Chandigarh

Name and Address of the Institute/Engineering College/Polytechnic – Swami Keshvanand Institute of Technology Management and Gramothan Jaipur Rajasthan-302017

S.No	Name of the Participant, Designation, Department	Signature of the participant				
		27.5.24	28.5.24	29.5.24	30.5.24	31.5.24
1.	Avadhesh Kumar Sharma, Assistant Professor, Electrical Engineering SKIT					
2	Dr. Dhanraj Chittora Prof. Electrical Engg Dept, SKIT, Jaipur					
3.	Dr. Chandan Kumar Asso. Prof. Deptt. of ME SKIT, Jaipur					
4	Vivek Sharma Asst. Professor Deptt of EE					
5	Bharat Modi Asso. Prof. Deptt. of E.E					
6.	Deepak Saini Asst. Professor					
7	Jitendra Singh Assistant Professor EE					
8	Dr. Virendra Swarnkar Associate Professor EE Deptt					
9	Mr. Garvit Gupta Assistant Prof. EE Deptt. SKIT, Jaipur					

Dr. Prateek Kr. Singhal
Local Coordinator- Remote
Nodal Centre SKIT MEG Jaipur

Tarun Nanuka
Supporting Technical Staff
RNC SKIT Jaipur

Attendance Record – Nodal Remote Centre

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Name and Address of the Institute/Engineering College/Polytechnic – Swami Keshvanand Institute of Technology Management and Gramothan Jaipur, Rajasthan-302017

S.No	Name of the Participant, Designation, Department	Signature of the participant				
		27.5.24	28.5.24	29.5.24	30.5.24	31.5.24
10	Dr Jyoti Shukla, Asst. Prof. Electrical Engg.					
11	Smriti Jain					
12	Dr. Suman Sharma					
13.	MD. YUSUF SHARIF AP-II, SKIT JAIPUR					
14	Vikas Mahala A.P-II SKIT Jaipur					
15	Sanjay choudhary A.P-I SKIT Jaipur					
16	Manish Kumar Sharma AP II SKIT, Jaipur					
17	Dr. YOGENDRA KUMAR GUPTA Associate Prof., SKIT Jaipur					

Dr. Prateek Kr. Singhal
Local Coordinator – Remote Nodal Centre (SKIT M&G Jaipur)

Tanvi
Tanvi Narula
Supporting Technical Staff
RNC (SKIT Jaipur)

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S.No	Name of the Participant, Designation, Department	Signature of the participant				
		27.5.24	28.5.24	29.5.24	30.5.24	31.5.24
18.	Amit Kumar Sharma Asst. Prof. CSE, SKIT Jaipur					
19.	Sanjeev Kumar Associate Prof. (EE) SKIT, Jaipur					
20.	Dr Suman Sharma Associate Prof (EE) SKIT M&G Jaipur					
21.	Smita Jain, Assoc. Prof. (EE) SKIT, Jaipur					
22.	Dr. Vinay Kanungo Associate Prof. Deptt. of CSE, SKIT Jaipur					
23.	Dr. Abhishek Gupta. Associate Prof. Deptt. of EE, SKIT, Jaipur					
24.	Ajay Bhardwaj Assistant Prof. Deptt of EE, SKIT, Jaipur					
25.	Dr. Pooja Jain Assoc. Prof. Deptt of EE, SKIT, Jaipur.					

Dr. Pradeep Kr. Singhal
Local Coordinator – Remote
Nodal Centre (SKIT M&G Jaipur)

Tarun Narula
Supporting Technical Staff
RNC, (SKIT, Jaipur)

Attendance Record – Nodal Remote Centre

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S.No	Name of the Participant, Designation, Department	Signature of the participant				
		27.5.24	28.5.24	29.5.24	30.5.24	31.5.24
26	Shalini Singhal Assistant Professor Department of IT					
27	Pushpendra Kr. Sharma Asst. Professor Jagannath University					
28.	Deepti Tesla Asst. Prof. Deptt. of EE, SKIT					
29	Dr. Sarfaraz Nawaz Associate Prof. Department of E E SKIT M & G, Jaipur					
30.	Dr Ankush Tandon, Associate Prof. Deptt. of EE SKIT M&G, Jaipur.					
31	Mahender Kumar Associate Prof. Dept. of CSE SKIT, Jaipur					
32.	Tarun Nanuka Asso. Prof, Dept of EE SKIT. Jaipur					
33.	Dr. Pradeek Kumar Singhal Associate Professor, EE Dept., SKIT M&G Jaipur					

Dr. Pradeek Kr. Singhal
Local Coordinator – Remote Nodal Centre (SKIT M&G Jaipur)

Tarun Nanuka
Supporting Technical Staff
RNC, (SKIT, Jaipur)

Attendance Record – Nodal Remote Centre

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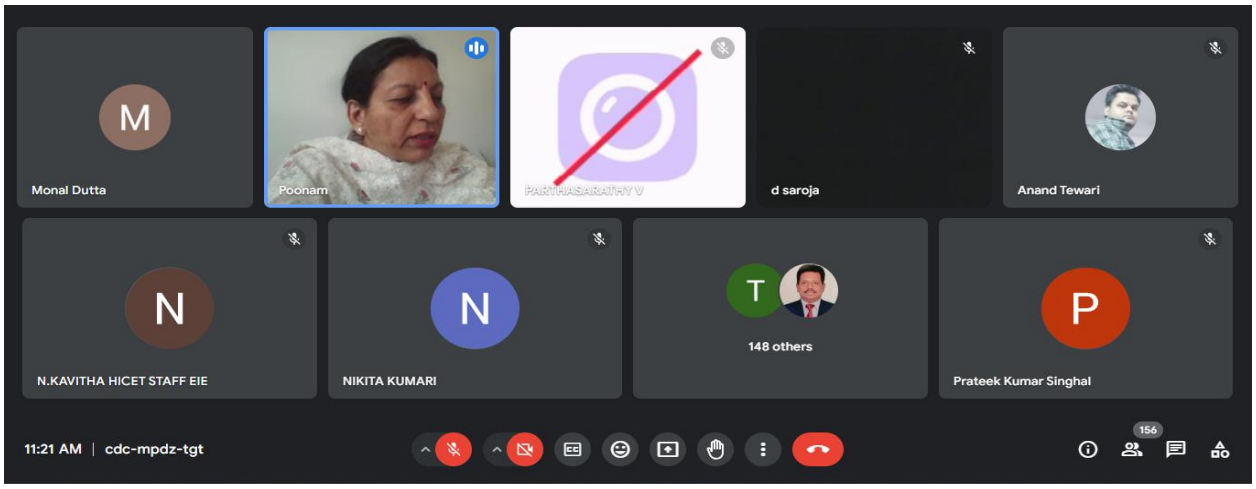
S.No	Name of the Participant, Designation, Department	Signature of the participant				
		27.5.24	28.5.24	29.5.24	30.5.24	31.5.24
34.	Ankit Kumar Agarwal Associate Professor, ME Deptt., SKIT, Jaipur					
35.	Manoj Kumar, ASSISTANT Prof. ME Dept SKIT Jaipur					

1. Dr. Prateek Singhal
2. (Tarun Nanuka)

Local Coordinator & Supporting Technical Coordination Staff – Remote Nodal Centre SKIT M&G Jaipur

Dr. Santosh Nawal
Head
Department of Electrical Engineering
Swami Keshvanand Institute of Technology Management & Gramothan, Jaipur

10. IMAGES OF THE STC



11. SAMPLE COPY OF CERTIFICATES

Certificate No: ICT-1712/24

National Institute of
Technical Teachers Training and Research
Chandigarh

MINISTRY OF EDUCATION, GOVERNMENT OF INDIA

Certificate

This is to certify that

TARUN NARUKA

SKIT M AND G JAIPUR, JAIPUR
RAJASTHAN

Participated in the AICTE Recognized Faculty Development Programme

on

Clean and Green Technologies for Environment Sustainability

Conducted by

Electrical Engineering Department

from

27/05/2024 to 31/05/2024 (One Week)

at

Swami Keshvanand Institute of Technology, Jaipur, Rajasthan

Coordinator

Director

12. DAYWISE DETAILED REPORT OF THE STC:-

One week online Short Term Course on "Clean and Green Technologies for Environment Sustainability" was organized by Swami Keshvanand Institute of Technology, Management & Gramothan, Jaipur as a remote center of NITTTR, Chandigarh for this STC on 27-31 May 2024. This workshop was jointly organized by Departments of Electrical Engineering (in association with NITTTR, Chandigarh). The coordinators of the events were **Dr. Prateek Kumar Singhal (EE Deptt.) and Mr. Tarun Naruka (EE Deptt.).**

In this STC, On the very first day, introduction session was taken **by Dr. Poonam Syal Professor, NITTTR, Chandigarh** about environment and pollution an overview while in second session lecture on Air Pollution and its Mitigation Technologies was delivered **by Prof. SC Jain**, Former Dean & Chairman, Chemical Engineering and Technology Department, Panjab University, Chandigarh) He gives us very insightful knowledge by taking consideration of beginners for this topic. The third session on the first day was taken by **Dr. Samanpreet Kaur, Professor,** (Soil & Water Engineering Deptt., College of Agricultural Engg. & Technology PAU, Ludhiana) on Water Resource Management

Second day, the first session was taken by **Dr. Avik Bhattacharya**, (Associate Professor IIT, Roorkee,) on Electric Vehicle. Second session was taken by **Er. Money Khanna,** (Project Engineer PEDA, Chandigarh) on ECBC, PAT Scheme for Energy. The third session was taken on Water Pollution and its Control **(Prof. Sanjay Sharma**, NITTTR, Chd).

Third day, the first session was taken on Nanotechnology for Pollution Control by

Prof. Pankaj Sharma, NITTTR, Chandigarh. Second session was taken by **Dr. Sharmistha Pal,** Sr. Scientist (Soil Science) ICAR- Indian Institute of Soil and Water Conservation, Chandigarh) on topic entitled "Soil Health Management". Third session on Renewable Energy Sources was taken by **Prof. Poonam Syal.**

Fourth day, a topic entitled Wind Power Generation was delivered by **Dr. Vineet P Chandra,** Deputy Manager- Technology Group, Suzlon Energy Ltd. Pune). The next session was on Smart Grid for Sustainable Environment by **Prof. Lini Mathew** NITTTR, Chd). In the last session, Green Buildings and Ratings was discussed by **Dr. Chitrarekha Kabre**, Professor, Department of Architecture, School of Planning and Architecture, Delhi.

On last day, some enlights was thrown on some latest issues like Organic Farming **Dr. Sohan Singh Walia**, Director-cum Principal Agronomist, School of Organic Farming, College of Agriculture, PAU, Ludhiana).
In the next session Millets for Environment Sustainability was discussed by **Prof. Poonam Syal**, NITTTR, Chandigarh.

In the final session, Course feedback and Valediction program was addressed by **Prof. Poonam Syal**, NITTTR, Chd. She motivated the faculty members to face new challenges and think about innovative ideas and develop these in EVs.