

**Online**  
**Short-Term Course (e-STC)**

**On**

**EVOLUTION OF CCHP AND  
THERMAL POLYGENERATION**

**(ECTP-2024)**

**27<sup>th</sup> May–31<sup>st</sup> May 2024 (Five Days)**



**Organized by**

**Department of Mechanical Engineering  
National Institute of Technology Hamirpur**

**Hamirpur, Himachal Pradesh, India**

**Web: [www.nith.ac.in](http://www.nith.ac.in)**

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**Department of Mechanical Engineering  
National Institute of Technology Hamirpur  
Hamirpur-177005, Himachal Pradesh, India.**

**About the Institution**

National Institute of Technology Hamirpur is one of the thirty-one NITs of the country, established in 1986 as Regional Engineering College, as a joint and cooperative enterprise of the Govt. of India and Govt. of Himachal Pradesh. On 26<sup>th</sup> June 2002, REC Hamirpur was awarded the status of Deemed University and upgraded to National Institute of Technology.

The goals of the institute as embodied in the logo are truly remarkable in their scope of vision. The Institute provides Undergraduate, Postgraduate and Doctorate Education in Engineering, Sciences & Humanities; fostering the spirit of National Integration among the students, a close interaction with industry and a strong emphasis on research, both basic and applied.

**About the Department**

The Department of Mechanical Engineering came into its existence right from the inception of the Regional Engineering College Hamirpur (now National Institute of Technology Hamirpur) in the year 1986 and served as catering department to other disciplines. The discipline of Mechanical Engineering started offering undergraduate programme leading to four year Bachelor of Technology (B.Tech) degree in Mechanical Engineering in the year 1994.

The Department of Mechanical Engineering has evolved into one of the finest in terms of teaching curriculum and methodology supported by a well-organized and adequately funded research program. The Department has a very well-established B. Tech. program complemented by M.Tech. and Ph.D. programs in Design, Thermal, and Manufacturing.

### Objective of e-STC

- ❖ To provide a comprehensive overview of the principles, concepts, and technologies involved in thermal polygeneration, encompassing combined heat and power (CHP), trigeneration (CCHP), and multi-generation systems.
- ❖ To explore various thermal polygeneration technologies, their efficiency, applicability in different settings, and factors influencing technology selection, considering economic, environmental, and operational aspects.
- ❖ To teach participants how to design, model, and optimize thermal polygeneration systems, including integration techniques, energy management, and system control strategies to maximize overall efficiency and performance.
- ❖ To present real-world case studies and practical examples demonstrating successful implementation of thermal polygeneration in various sectors like industrial, residential, commercial, and institutional settings. Participants can gain insights into challenges, solutions, and best practices from these cases.

### Resource Persons/Speakers

Faculties/Experts from IITs, NITs, Industries and other premier Institutions/Organizations will deliver the lectures.

### Topics to be Covered:

Evolution of CCHP and polygeneration: significance, schemes, performance assessment and possible future paths, Transcritical CO<sub>2</sub> systems for simultaneous heating and cooling applications, Polygeneration Plants for Electricity, Freshwater, Air Conditioning, Hot Water and Air Heater, power systems, Life Cycle Assessment, Evolution of Purge and Novel designs of Rotary Dehumidifier, Solar-based combined power, cooling and desalination for remote area and Coastal Village etc.

### Certificate

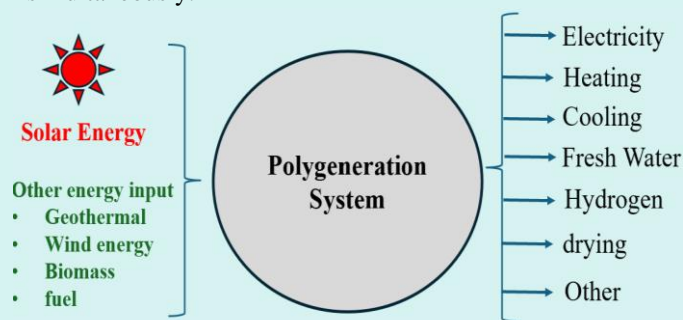
e-Certificate will be issued to the participants, with at least 75% attendance and after successfully submitting the feedback form on completion of the online STC.

### Important Dates

Last Date of Registration	22 <sup>nd</sup> May 2024
e-STC Duration	27 <sup>th</sup> -31 <sup>st</sup> May 2024

### About the e-STC

In the realm of thermal polygeneration, addressing energy needs while mitigating environmental impact remains a significant challenge. Polygeneration refers to the simultaneous production of multiple forms of energy or useful products from one or more natural resources. It is a highly efficient and sustainable approach to energy production and resource utilization. Ongoing research aims to enhance current systems and introduce new technologies to improve their efficiency, sustainability, and overall performance in providing multiple forms of energy simultaneously.



Organizing an online short course titled "Evolution of CCHP and Thermal Polygeneration" is crucial to disseminate these advancements globally. This course not only bridges the gap between experts and new researchers but also offers a unique learning opportunity for participants. Through interactive sessions, attendees can grasp cutting-edge concepts, engage in discussions with industry leaders, and gain insights into practical applications. Additionally, it serves as a platform for speakers to share their extensive knowledge and expertise among students and faculty members, fostering a rich exchange of ideas and skills essential for the advancement of this critical energy sector.

### Eligibility

This program is open to faculty members, scientists, research scholars, PG & UG Students and industrial Personnel.

**Registration Fee: Rs. 200 for each participant**

### How to Apply

The interested participants must deposit the nonrefundable registration fee through SBI-I collect and filling the Google form as given below:

<https://forms.gle/uLATQYfyj2hDG4re7>



### The SBI-I collect has following steps:

- 1) Visit SBI collect at <https://www.onlinesbi.sbi/sbicollect/icollecthome.htm>
- 2) Select State of Corporate/ Institution: Himachal Pradesh and Type of Corporate/Institution as Educational Institution and click Go.
- 3) Select Educational Institutions Name: NIT Hamirpur
- 4) Select Payment Category: WORKSHOP STC FDP CONFERENCE (Last option)
- 5) Fill up all the details.
  - a. Write TITLE of e-STC
  - b. Organizing Department
- 6) Address: Filling Postal code is must
- 7) Submit the form and generate the receipt.

**Notes:** the applications will be accepted on first cum first serve basis.

**Venue:** Through Google Meet. The link for the online course will be shared through email/ WhatsApp group later.