



IITM GREEN HYDROGEN & HYDROCARBONS TECH CONSORTIUM

IIT MADRAS

offers

Web Enabled
Certification Programme
in
New and Renewable Energy
Including Hydrogen Energy
(CNREH)

About the programme

Zemblance Hydrocarbons Pvt. Ltd. along with IITM

Green Hydrogen and Hydrocarbons TECH Consortium started the Certification Programme in New and Renewable Energy including Hydrogen Energy (CNREH) programme. This hybrid program combines web-enabled courses in Renewable Energy and Hydrogen Energy, addressing industry requirements. With a rigorous academic curriculum and state of the art research facilities, the program prepares students for success in the field.

This comprehensive program is designed to provide students with an adaptive syllabus that not only enhances their employability but also enables them to stay updated with real-time industry advancements. The duration of the course spans 3 months (100 Learning Hours)

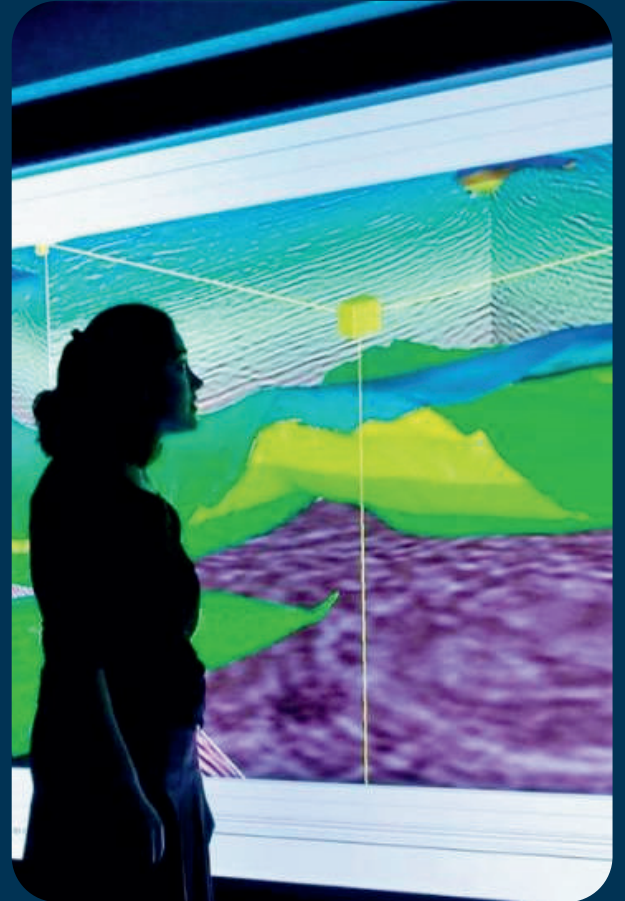
Structured around a quarter system, the program encompasses core courses, elective subjects, and industry-based projects. Throughout the program, students will engage in a well-rounded learning experience, culminating in a final project undertaken during the last two weeks. This ensures that students are equipped with the necessary skills and knowledge to excel in the AI and ML oil & gas, coal, renewable, and Hydrogen industries.



ABOUT US

IITM CONSORTIUM

IITM Green Hydrogen and Hydrocarbons TECH Consortium. It is an Energy consortium formed in the IIT Madras with multi disciplinary research labs of esteemed professors focusing on Green Hydrogen and Hydrocarbons



ZEMBLANCE HYDROCARBONS

Zemblance Hydrocarbons, a company located in the IIT Madras research park, was established by faculty and alumni of IIT Madras. Our company specializes in offering a range of services and research solutions to upstream oil and gas companies. With our advanced technologies and patented innovations in coal gasification and hydrogen production, we are at the forefront of the industry. Leveraging our strong background in research and academia, Zemblance also provides an educational technology (EdTech) program aimed at enhancing the knowledge of working professionals and students in the fields of petroleum and renewable energy. Through our program, individuals can upgrade their expertise and stay abreast of the latest developments in these industries.

DETAILS

This programme has 90% online learning modules and 10% live sessions

COURSES

5 Core courses
1 Capstone Project
IITM
Immersion experience

ELIGIBILITY

Diploma in any Engineering,
B.Tech in any discipline
and Bachelors in Sciences

INSTRUCTORS

IIT Madras Faculty,
Major oil and gas Experts
with several years of
experience

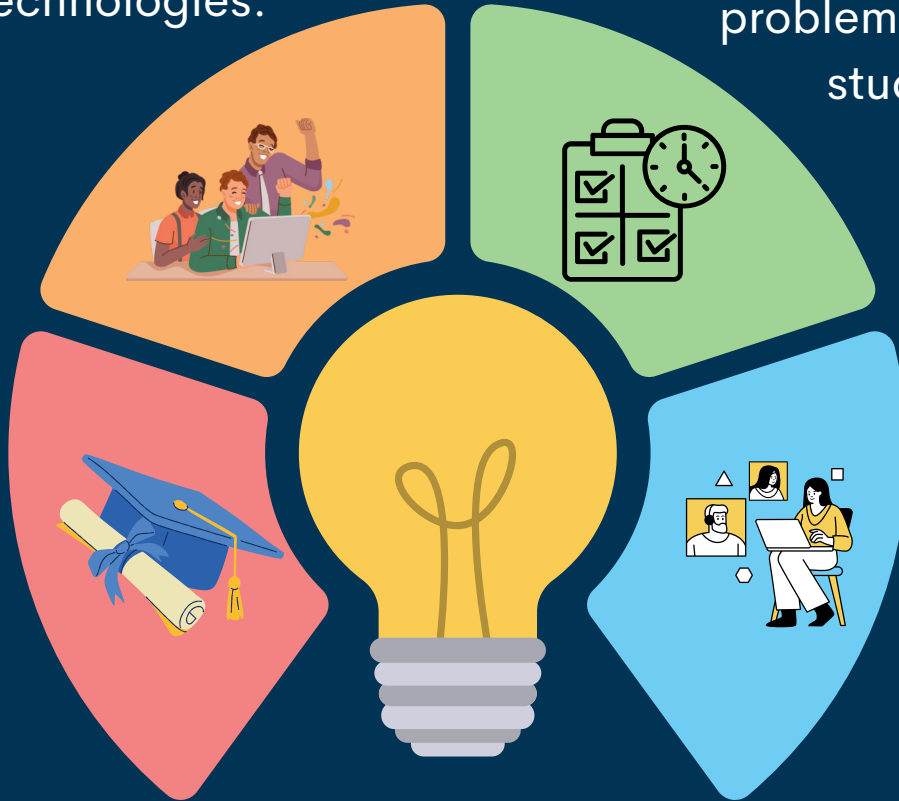
DURATION

3 Months
12 sessions/week
5 live sessions/month
100 learning Hours

Each recorded session will be 25 minutes and uploaded to the server and participants can get access. Each topic sessions will be updated on the server. Total 5 core courses and 1 Capstone project are mandatory for fulfillment of the credits, along with the IITM Immersion experience.

Term projects that improve problem-solving abilities and facilitate adaptation to emerging technologies.

Daily and weekly assignments/tasks with real-time industry problems and case studies



Finally to enhance the knowledge in the broad spectrum of New, Renewable Energy and Hydrogen energy

CNREH

Online Classes with international/National faculty and Industry Experts

Program Curriculum

* Each course is designed and will be taught in depth

* A total of 100 learning Hours

- **Course 1:** Strategic Green Finance, and decision making; Machine Learning (ML), Artificial Intelligence (AI) and digital signal processing
- **Course 2:** Renewable Energy (Geothermal, Wind, Solar, and Battery, Alternative Fuels, Underground Coal Gasification): Technologies, Applications, and Policies
- **Course 3:** Petrochemicals: Process Design and Optimization, Sustainable Petrochemical Manufacturing
- **Course 4:** Hydrogen Production: i. Methane steam reforming ii. Electrolysis iii. Biomass, Hydrogen Transportation and Storage
- **Course 5:** Bio-Fuels (Bio-Ethanol, Compressed Bio Gas, Sustainable Aviation Fuel): Production, Transportation, Storage, and Application

Course Details

- ❖ Total 100 learning hours
- ❖ 25 minutes recorded lecture sessions will be uploaded in the server and candidates can access them as per their convenience
- ❖ 2-3 assignments are needed to be submitted by the candidate within 3-4 months' time
- ❖ Each course is assisted by 2 teaching assistants, who can help the candidates with doubts clarification, assignments and course material.
- ❖ Candidates will be having live sessions with the course instructors 4-5 times a month.
- ❖ There will be an examination at the end of the course.
- ❖ There will be an IITM Immersion experience for the candidates, they can come to the IITM campus and IITM Research Park and have direct interactions with IITM faculty and course instructors and have a look at R&D works carried out in IIT Madras and Research Park.



Course Grading and Credit System

Program follows Grade Point Average (GPA) system. GPA is on a scale of 0 to 10. Letter grades and CGPA are awarded to learners based on the following criteria:

Grade	Points
S	10
A	9
B	8
C	7
D	6
E	4
U	0

A minimum D grade should be obtained by the candidate for obtaining this CNREH Programme certificate .

Faculty

Experienced Faculty from various departments from IIT Madras and abroad universities are the course instructors for this CNREH programme



Mechanical Engineering
Management Studies
Electrical Engineering
Computer Science Engineering
Petroleum Engineering Programme

Experienced Industry Experts from Indian national oil companies and International companies are the course instructors for this CNREH programme



Faculty

Renewable Energy



Dr. K. Srinivas Reddy
Professor
Department of
Mechanical Engineering
IIT Madras



Dr. V. Raghavan
Professor
Department of
Mechanical Engineering
IIT Madras



Dr. Hari Vuthaluru
Associate Professor
WA School of Mines: Minerals,
Energy and Chemical Engineering
Curtin University
Australia

Hydrogen Energy , Refining of Crude , Processing and Production



Dr. SSV Ramakumar
Director (R&D)
IOCL



Dr. Manivannan P. V.
Associate Professor
Department of
Mechanical Engineering
IIT Madras



Shri. T.N.K Bapiraju
CGM - Technical Services
Crude Refining
CPCL

Strategic Finance, Risk analysis, Green Finance, and decision making ML & AI and in Energy Industry



Dr. R. David Koilpillai
Qualcomm Institute
Chair Professor
Department of Electrical
Engineering
IIT Madras



Dr. M. Thenmozhi
Professor & HOD
Department of Management Studies
IIT Madras



Dr. Chandra Shekar L
Associate Professor
Department of Computer
Science & Engineering
IIT Madras

Applied Petroleum Engineering and Underground coal gasification



Dr. Rajesh R Nair
Professor
Petroleum Engineering Programme
Department of Ocean Engineering
IIT Madras



Dr. Venkatesh A
IIT Madras Alumni
CTO Zemblance Hydrocarbons

Certification Institutes

This Programme is Jointly certified by IITM Green Hydrogen and Hydrocarbons TECH Consortium and Zemblance Hydrocarbons (IIT Madras Research Park Company).

IITM Green Hydrogen and Hydrocarbons TECH Consortium

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Zemblance Hydrocarbons an IIT Madras Research Park Company

Zemblance Hydrocarbons, is an IIT Madras Research Park Company, specializes in offering a range of services in the oil and gas as well as the Hydrogen Energy industry. Their services are backed by a robust research and development (R&D) approach, focusing on the development of innovative technologies within the industry. Zemblance, in partnership with IITM Green Hydrogen and Hydrocarbons TECH Consortium, has recently launched a certification program focused on Applied Petroleum Engineering and Hydrogen Energy.





Participants



CNREH - GAIL AND EIL PARTICIPANTS



ऑयल इंडिया लिमिटेड
Oil India Limited

OIL INDIA PARTICIPANTS

For Payment

our bank details

Zemblance Hydrocarbons Private Limited

A/c No: 921020030850668

IFS Code: UTIB0003003

Axis Bank

Gandhi Nagar, Chennai

Tamil Nadu - 600020

Scan here to pay



ZEMBLANCE HYDROCARBONS , CHENNAI

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Reach us



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