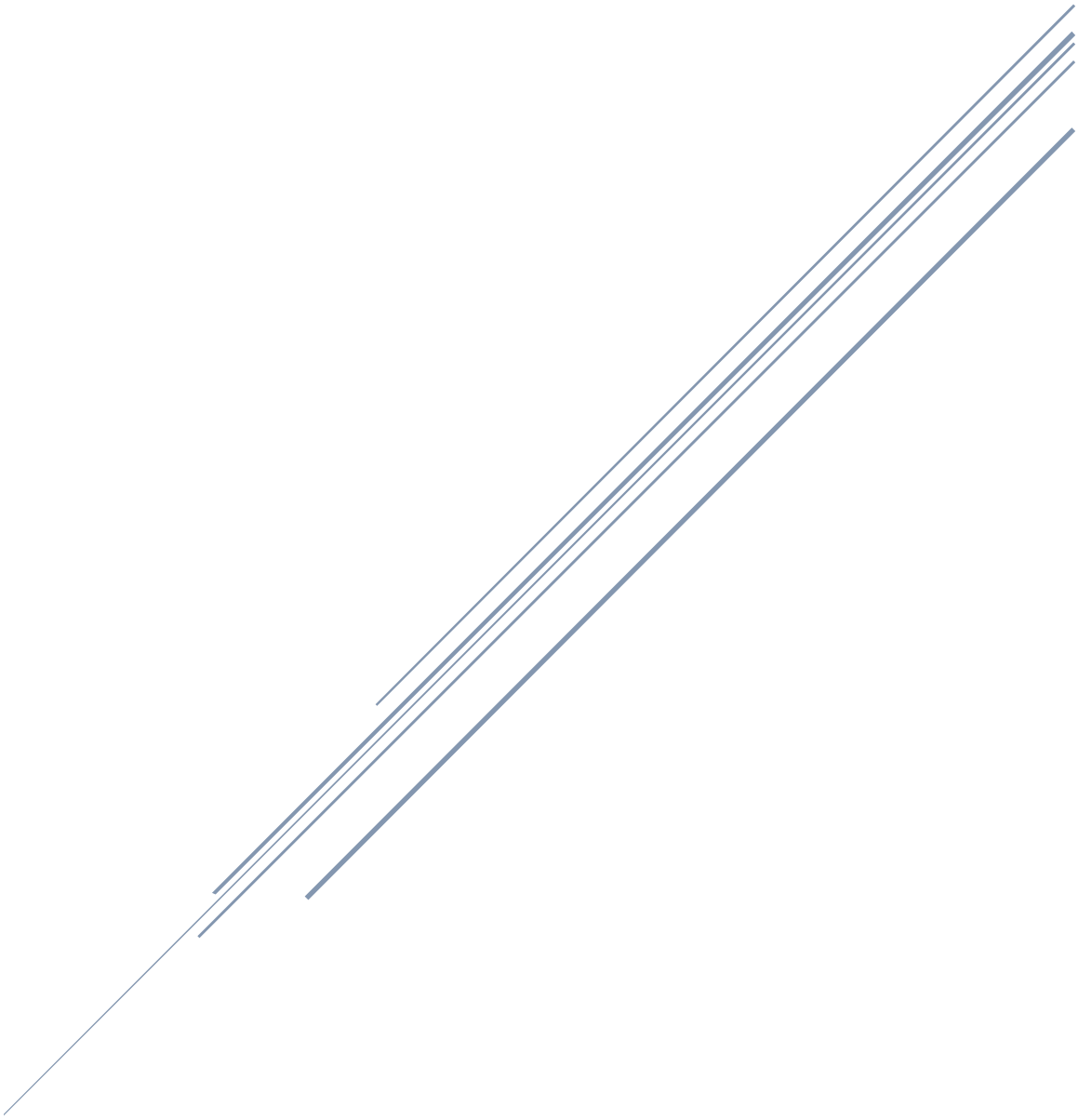
PROGRAMS OFFERED



PROGRAMS OFFERED

- Skill oriented Internships
- Industrial training
- Research Internships
- Project Internships
- Awareness programs
- One credit programs
- Minor degree program
- Diploma Progrms
- Certificate programs

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Skill oriented Internships

Internships for the period of minimum 6 days to the maximum of 24 days in the following area:

- Refrigeration, Air Conditioning & Heat Pumps
- Energy auditing
- Solar Photovoltaics

Refrigeration, Air Conditioning & Heat Pumps

- Servicing of Equipment
- Design of Cold Storage and ripening units
- Design and selection of HVAC components
- Design of Condensers, Evaporators, Cooling Towers
- Compression Chillers
- VRF systems
- Refrigerant selection
- Design of Heat Pumps for drying and water heating
- Energy Conservation in HVAC systems
- HVAC Design, Drafting and Commissioning
- Testing, Balancing and Adjusting

Energy Auditing

- Energy Conservation in HVAC Systems
- Energy Audit in HVAC systems
- Energy conservation in Thermal processes Industries
- Energy Conservation in Electrical Utilities
- Energy Conservation in Air Compressors
- Energy Conservation in heating systems
- Economics of Energy Conservation Projects

Solar Photovoltaics

- Types of Photovoltaic panels
- On-Grid, Off-Grid and Hybrid Mode systems
- Maintenance of photovoltaic panels

- Cooling of photovoltaic panels
- Battery ratings for storage
- Economics of Solar photovoltaics

Industrial training

Industrial training for the minimum of 5 days to the maximum of 20 days. The major contents of the course are as follows:

- Design of Heat Pump Driers
- Design of Heat Pump Water heaters
- Development and Servicing of Heat Pump water heaters and driers.
- Design and Selection of components for Cold storage
- Modifications in compression cycles
- Performance assessments of HVAC systems
- Types of HVAC systems
- Duct Design
- Piping design
- Design and Selection of components for HVAC systems
- Chill water Pump Selection
- Fan Engineering

Research internships and support

Research internship programs are offered to the Masters and Ph.D research students for the minimum period of 30 days to the maximum of 60 days. Following major equipment are available to carry out research:

- Heat pump systems with modified cycles
- Solar powered Refrigeration and Air Conditioning systems
- Energy Conservation in HVAC systems
- Heat Pumps integration with renewable energy
- Heat Pumps for regeneration of waste heat
- Cascade heat pump
- Autocascade cycle for heating and cooling
- Photovoltaic assisted heat pump systems
- Photovoltaic water pumping systems

- Vapour injection in refrigeration cycles
- Heat pump assisted solar drying systems
- Desiccant assisted cooling systems
- Desiccant assisted dryers
- Refrigeration cycle dehumidifiers
- Solar Photovoltaic assisted air conditioners
- Solar Distillers
- Desiccant based solar dryers
- Environment friendly working fluids

Project internships (Under-Graduate degree students)

Under-Graduate degree students with fundamental knowledge on thermodynamics, heat transfer, refrigeration, air conditioning and Heat pump systems may undergo project internship for the period of minimum 10 days to the maximum of 25 days.

Following are the thrust area:

- Heat pump dryer
- Solar assisted heat pump water heater
- Solar air collectors
- Heat storage
- Heat pump water heaters
- Vapour injection cycles
- Solar dryers with sensible and latent heat stroage
- Solar water collectors with heat storage
- Heat Pump integrated thermal desalination
- Energy conservation in HVAC systems
- Modified compression refrigeration cycles
- Performance testing using alternative refrigerants
- Solar photovoltaic powered refrigeration, air conditioning and heat pump system

Awareness programs

One day awareness program on following topics:

- Energy efficient Heating Systems
- Energy Conservation in HVAC systems,
- Environment friendly Refrigerants,

- Solar Energy Utilization for Refrigeration, Air Conditioning and Heat Pumps
- Energy Conservation in Industries
- Design of Heat Exchangers

Skill training for Industrial Technicians

Skill oriented training for the period of minimum 5 days and maximum of 20 days is offered to the technicians working in industry. Following are the modules available:

- Gas welding
- Copper tube operations
- Use of refrigeration tools
- Assemble of components
- Leak test using nitrogen
- Advanced Refrigeration cycles
- Evacuation using vacuum pumps
- Refrigerant gas charging
- Handling of flammable refrigerants
- Safety precautions
- Basics of thermodynamics
- Electrical controls
- Accessories used in compression cycle
- Refrigeration controls
- Servicing of refrigeration, air conditioning and
- heat pump systems
- VRF systems
- Chillers
- Commissioning of Refrigeration, Air Conditioning and Heat Pumps
- Testing, Adjusting and Balancing of HVAC systems
- System validation
- Energy audit instruments for HVAC systems
- Trouble shootings and its remedies
- Maintenance of equipment
- New product development

Minor degree Programs

Following are the subjects available in Minor degree programs

- Principles of Refrigeration
- Air Conditioning Systems
- Heat Pump Technology
- Design of Condensers, Evaporators and Cooling Towers
- Instrumentation and Controls for Refrigeration and Air Conditioning
- Energy Conservation in Refrigeration and Air Conditioning Systems
- One Project in the filed of Refrigeration, Air Conditioning and Heat Pumps

One Credit Course

One credit course for the period of 30 to 45 hours to enhance the practical skills:

- Copper tube operations
- Gas welding, brazing and soldering
- Leak test, Evacuation and Gas charging
- Electrical controls trouble shootings and remedy
- Instruments used in Refrigeration, Air Conditioning and Heat Pumps

Diploma Course

The Comprehensive Diploma Course on **Mechanical, Electrical and Plumbing** is offering for the duration of 150 hours.