

Noorul Islam Centre for Higher Education

(Deemed to be University u/s 3 of the UGC Act 1956)

Kumaracoil, Thuckalay, Kanyakumari District - 629 180

Accredited by NAAC with 'A' Grade

TE25 M.ETHERMAL ENGINEERING



Student Performance and Learning Outcomes

TE25 M.ETHERMAL ENGINEERING

Programme Outcome (PO)	
PO-A	Improve the ability of applying knowledge gained from subjects learned.
PO-B	Increase the ability to design and conduct experiments as well as analyzing and interpreting data.
PO-C	Increase the ability to design a system, component or process to meet desired needs.
PO-D	Increase the ability to familiarize multidisciplinary skills and ethical values.
PO-E	Improves personal and social responsibilities to respond human needs like environmental protection.
PO-F	Engages lifelong learning including the ability to show proficiency in current technologies.
PO-G	Increases the ability of communicating effectively.
PO-H	Increases the ability of working collaboratively as a team and serves the role of team leader innovatively.
PO-I	Understanding the impact of engineering solutions in global, economic, environmental & societal context.
PO-J	Ability to demonstrate critical thinking and the usage of appropriate strategies, tools to conduct investigation in appropriate manner.
PO-K	Improves the skill of applying techniques and modern engineering tools necessary for project development.
PO-L	Understanding management policies/principles and apply those to manage the projects in the context of technological change.

Programme Specific Outcomes (PSO)	
PSO1	Graduates will demonstrate sound domain knowledge on wider perspective to become successful professionals.
PSO2	Graduates will demonstrate an ability to identify, formulate and solve thermal engineering problems.
PSO3	Graduates will demonstrate an ability to conceptualize designs of thermal system or component and evaluate them to select optimal feasible solution considering safety, environment and other realistic constraints.
PSO4	Graduates will demonstrate research skills to critically analyse complex thermal engineering problem for synthesizing new and existing information for their solutions.
PSO5	Graduates will demonstrate skills to use modern engineering tools, software and equipment to analyze and solve complex engineering problems.

Sl.No	Subject Code	Subject Name
SEMESTER II		
1.	TE2505	Design of Heat Exchangers
2.	TE2506	Advanced Heat and mass Transfer
3.	TE2507	Heating Ventilation Air Conditioning (HVAC).
4.	TE2508	Fuels and Combustion
5.	TE2509	Energy Systems Modeling and Analysis
6.	TE25B1	Transport Phenomena
7.	TE2572	Thermal Engineering Laboratory - II
SEMESTER IV		
8.	TE25P5	Project work – Phase II

TE2505-Design of Heat Exchangers	
CO1	Upon successful completion of the course, students should be able to : have knowledge of advanced features of fluid mechanics, thermodynamics, heat and momentum transfer pertaining to thermo-fluid problem,
CO2	Understand the significance of course content for thermo-fluid problems,
CO3	Apply knowledge in analysis and interpretation of thermo-fluid problem
CO4	Analyze and evaluate an existing thermal system and recommend their ideas.
CO5	Ability to design and analyze reactor heating and cooling systems

TE2506-Advanced Heat and mass Transfer	
CO1	Upon successful completion of this course, the student will be able to: Understand the basic laws of heat transfer.
CO2	Account for the consequence of heat transfer in thermal analyses of engineering systems.
CO3	Analyze problems involving steady state heat conduction in simple geometries.
CO4	Develop solutions for transient heat conduction in simple geometries.
CO5	Obtain numerical solutions for conduction and radiation heat transfer problems.

TE2507-Heating Ventilation Air Conditioning (HVAC).	
CO1	Students who graduate from this program will be able to: Read and interpret electrical diagrams, wire control systems from electrical diagrams, set controls, design controls systems and diagnose and repair faults in electrical control systems
CO2	Properly size HVAC systems, design HVAC systems, correctly install HVAC system components, install HVAC systems following the relevant codes and industry practice
CO3	Articulate the purpose and operation of HVAC system components, the operation of HVAC systems, diagnose, repair faults and perform maintenance on HVAC systems
CO4	Demonstrate positive work traits and good customer skills, and continue to upgrade their knowledge and skills
CO5	Troubleshoot and diagnose problems and perform service tasks.

TE2508-Fuels and Combustion	
CO1	Interpret and distinguish between the different types of conventional and non-conventional fuels.
CO2	Demonstrate the utilization of synthetic and substitute fuels for practical applications.
CO3	Describe various parameters that are utilized to characterize fuels and its combustion process.
CO4	Analyze the kinetic mechanism involved in combustion and chemical reaction
CO5	Differentiate between diffusion and premixed flame and their utilization in combustion devices

TE2509-Energy Systems Modeling and Analysis	
CO1	Assess the capabilities and limitations of various modelling methods.
CO2	Apply innovative modelling and simulation to solve complex multi-disciplinary energy system problems individually and in teams.
CO3	Demonstrate knowledge and comprehension of theoretical principles and operational skills underlying modelling programmes.
CO4	Implement numerical design tools and employ computational skills for improvement individually and in teams.
CO5	Develop consistent energy and climate scenarios.

TE25B1-Transport Phenomena	
CO1	At the end of the course the students should know: Generalized equations for mass, momentum and heat.
CO2	Reynolds and Gauss theorems.
CO3	Combined diffusive and convective transport.
CO4	Film- and penetration models for mass and heat transfer.
CO5	Stefan-Maxwells equations for multi-component diffusion.

TE2572-Thermal Engineering Laboratory - II	
CO1	After the completion of the course, students should be able to: Identify the various fuel characterizations through experimental testing
CO2	Analyze the performance characteristics of an internal combustion engines
CO3	Evaluate the performance parameters of refrigeration systems
CO4	Analyze the air compressor characteristics
CO5	Calculate the cooling load of air conditioning systems and cooling towers.

TE25P5- PROJECT WORK –PHASE II	
CO1	Demonstrate a sound technical knowledge of their selected project topic.
CO2	Undertake problem identification, formulation and solution.
CO3	Design engineering solutions to complex problems utilising a systems approach.
CO4	Conduct an engineering project
CO5	Demonstrate the knowledge, skills and attitudes of a professional engineer.