



## Master of Science in Mechanical Engineering

### Thesis Option

#### Course Structure

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Institution Requirements				
College Requirements				
Program Requirements	4	4	12	40%
	4	4	12	40%
Thesis	1	1	6	20%
Field Training/ Internship	NA			
Residency year	NA			
Others				
<b>Total</b>		9	30	100%

#### Course Plan

Level	Course Code	Course Title	Required or Elective	Pre-Requisite	Credit Hours	Theory	Lab	Type of requirements (Institution, College, or Program)
Level 1	7101-ME-3	Advanced Numerical Methods in Engineering	Required	NA	3	3		Program
	7102-ME-3	Advanced Applied Mechanics	Required	NA	3	3		Program
	7103-ME-3	Properties of Advanced Materials	Required	NA	3	3		Program
Level 2	7106-ME-3	Advanced Heat Transfer	Required	NA	3	3		Program
	71XX-ME-3	Elective-1 (List-1)	Elective	NA	3	3		Program
	71XX-ME-3	Elective-2 (List-2)	Elective	NA	3	3		Program
Level 3	71XX-ME-3	Elective-3 (List-3)	Elective	NA	3	3		Program
	7186-ME-6	Thesis-6	Required	NA	3	3		Program



Level	Course Code	Course Title	Required or Elective	Pre-Requisite	Credit Hours	Theory	Lab	Type of requirements (Institution, College, or Program)
						3		
Level 4	71XX-ME-3	Elective 4 (list 4)	Elective	NA	3	3		Program
	7186-ME-6	Thesis-6	Elective	NA	3	3		Program

### Elective courses

List	Course Code	Course Title	Required or Elective	Pre-Requisite	Credit Hours
List-1	7105-ME-3	Computational Fluid Dynamics	Elective	NA	3
	7104-ME-3	Finite Elements Method	Elective	NA	3
	7107-ME-3	Advanced Thermodynamics	Elective	NA	3
	7108-ME-3	Advanced Combustion	Elective	NA	3
	7109-ME-3	Renewable Energy	Elective	NA	3
	7110-ME-3	Advanced Mechanical Vibrations	Elective	NA	3
List-2	7111-ME-3	Material characterization and testing	Elective	NA	3
	7112-ME-3	Fatigue and Failure Analysis	Elective	NA	3
	7113-ME-3	Nanotechnology	Elective	NA	3
	7114-ME-3	Compressible flow	Elective	NA	3
	7115-ME-3	Materials Selection	Elective	NA	3
	7116-ME-3	Heat Treatment of Metals and alloys	Elective	NA	3
List-3	7117-ME-3	Design of Composite Materials	Elective	NA	3
	7118-ME-3	Analysis of Mechanical Systems	Elective	NA	3
	7119-ME-3	Solar Energy	Elective	NA	3
	7120-ME-3	Advanced Fluid Mechanics	Elective	NA	3
	7121-ME-3	Convective heat transfer	Elective	NA	3
	7122-ME-3	Manufacturing System Design	Elective	NA	3
List-4	7123-ME-3	Tribology	Elective	NA	3
	7124-ME-3	Feedback Control Design and Analysis	Elective	NA	3
	7125-ME-3	Energy Efficiency	Elective	NA	3

List	Course Code	Course Title	Required or Elective	Pre-Requisite	Credit Hours
	7126-ME-3	Desalination	Elective	NA	3
	7127-ME-3	Nuclear Energy	Elective	NA	3
	7128-ME-3	Principles of Management for Engineers	Elective	NA	3
	7129-ME-3	Robotics and Automation	Elective	NA	3
	7130-ME-3	Artificial Intelligence & Machine Learning	Elective	NA	3
	7131-ME-3	Special topics	Elective	NA	3
	7132-ME-3	Advanced Manufacturing Science	Elective	NA	3
	CE-7601-3	Environmental Impact and Risk Assessment	Elective	NA	3
	7202-EE-3	Power System Operation and Control	Elective	NA	3