Teaching Plan

Subject Planning for Semester 16172/IJA (SEMESTER 2 SESSION 2016/2017)

Subject	**APPLIED THERMODYNAMICS**
Subject Code	**BMM2683**
Credit Hours	3
Faculty	FAKULTI KEJURUTERAAN MEKANIKAL
Passing Mark	40

Prerequisite
BMM2673
BMM2513

Equivalency BMM2523

Synopsis
This course focuses on the application of the thermodynamics knwoledge in various engineering systems. The subject covers the gas and vapour power cycles, refrigeration and heat pump, the complete air conditioning system, and the consepts of chemical reactions in combustion.

Objective

1 CO1: To solve applied problems related to process involved in gas power cylces, vapor power cycles, vapor-compresion refrigeration cycles, air conditioning, and combustion based on thermodynamics principles.
2 CO2: To analyze the performance of gas power cycles, vapor power cycles, vapor-compression refrigeration cycles and air conditioning based on themodynamics principles.
3 CO3: To work effectively in a team as a leader or member in solving applied problems related to processes invloved in gas power cycles, vapor power cycles, vapor-compression refrigeration cycles, air conditioning, and combustion based on themodynamics principles.

Contact Hour

References

1 Cengel, Y.A. Thermodynamics An Engineering Approach McGraw Hill
1 Cengel, Y. A and Boles, M.A Thermodynamics: An Engineering Approach, 8th Edition McGraw Hill
2 Nag P.K. Engineering Thermodynamcis Tata McGraw Hill
2 Nag, P.K Engineering Thermodynamics Tata McGraw Hill
3 Balmer, R Thermodynamics, 2nd Edition Jaico Publication
3 Kenneth Wark Thermodynamics McGraw Hill
4 Turns, S.R An Introduction to Combustion: Concepts and Applications Mc Graw Hill
4 Edward Anderson Thermodynamcis Thomson
5 Cengel Introduction to Thermodynamics and Heat Transfer, 2nd Edition McGraw Hill

Assessment Plan

ASSIGNMENT 1	2 %
QUIZ 1	2 %
ASSIGNMENT 2	2 %
ASSIGNMENT 6	5 %
QUIZ 2	2 %
ASSIGNMENT 3	2 %
MID TERM TEST	30 %
ASSIGNMENT 4	2 %
ASSIGNMENT 7	5 %
QUIZ 3	2 %
ASSIGNMENT 5	2 %

QUIZ 4	2 %
QUIZ 5	2 %
FINAL EXAM	40 %

Subject Planning

Week	Chapter	Topic	Assessment
1	1	Compressor 1 Basic considerations in the analysis of power cycles 2 The Carnot cycle and its value in engineering 3 Air standard assumptions 4 An overview of reciprocating engines	
	1	Compressor	
	1	Compressor	
	1	Compressor	
	1	Compressor	
2	1	Compressor 1 Otto cycle : The ideal cycle for spark-ignition (SI) engines 2 Diesel cycle : The ideal cycle for compression-ignition (CI) engines	ASSIGNMENT 1 2%
3	2	Gas Power Cycles 1 Stirling and Ericsson cycles	QUIZ 1 2%
4	2	Gas Power Cycles 1 Brayton cycle : The ideal cycle for gas-turbine engines 2 The Brayton cycle with regeration 3 The Brayton cycle with intercooling, reheating and regeration	ASSIGNMENT 2 2%
	2	Gas Power Cycles 1 Brayton cycle : The ideal cycle for gas-turbine engines 2 The Brayton cycle with regeration 3 The Brayton cycle with intercooling, reheating and regeration	
5	3	Vapor and combined power cycles 1 The Carnot vapor cycles 2 Rankine cycle : The ideal cycle for Vapor power cycles	ASSIGNMENT 6 5%
	3	Vapor and combined power cycles 1 The Carnot vapor cycles 2 Rankine cycle : The ideal cycle for Vapor power cycles	

Teaching Plan

Week	Chapter	Topic	Assessment
6	3	Vapor and combined power cycles 1 Refrigerators and heat pumps 2 The reversed Carnot cycle	QUIZ 2 2%
	3	Vapor and combined power cycles 1 Refrigerators and heat pumps 2 The reversed Carnot cycle	
7	4	Refrigeration cycles 1 The ideal vapor-compression refrigeration cycle 2 Actual vapor-compression refrigeration cycle 3 Selecting the right refrigerant	ASSIGNMENT 3 2% MID TERM TEST 30%
	4	Refrigeration cycles 1 The ideal vapor-compression refrigeration cycle 2 Actual vapor-compression refrigeration cycle 3 Selecting the right refrigerant	
8	4	Refrigeration cycles 1 Heat pump systems 2 Innovative vapor-compression refrigeration systems	ASSIGNMENT 4 2%
	4	Refrigeration cycles 1 Heat pump systems 2 Innovative vapor-compression refrigeration systems	