السيد رئيس قسم هندسة تقنيات التبريد والتكييف

م/ وصف المقررات الدراسية

تحية طيبة....

نرفق لكم ربطاً وصف المقررات الدراسية للمواد الدراسية في القسم للتفضل بالمصادقة عليها.

مع فائق الاحترام والتقدير.....

السيد رئيس القسم المحترم
تحية طيبة ... مع الشكر
رئيس اللجنة

م.م. ولاء ناصر عباس

مسؤول ضمان الجودة في الكلية

19/3/2024

السيد رئيس القسم المحترم .
السلام عليكم
مع تحيات اللجنة العلمية
وصلنا الالتزام مع مصادقة نموذج
وصف المقررات وتعميمه على بقية المواد .
مع التقدير

Course Description Form

1. Course Name:	
Power Plants	
2. Course Code:	
MPAC402	
3. Semester / Year:	
Annual System 2023/2024 – 30 weeks	
4. Description Preparation Date:	
1/10/2023	
5. Available Attendance Forms:	
4 hours/week - "theoretical + Practical"	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Teaching hours	credit
Theoretical lectures = 60 hrs	4
Practical lab = 60 hrs	2
Total hours = 120 hrs	6
7. Course administrator's name (mention all, if more than one name)	
Name: Raoof Mohammed Radhi Email: raof@uowa.edu.iq & raof@g.uowa.edu.iq	
8. Course Objectives	
Teaching the student, the steam properties, thermal processes types of boilers fuels and combustion the turbines which needed in air conditioning	
9. Teaching and Learning Strategies	
Strategy	Data show lecture with discussion to ensure understanding Video clip during lectures for respective clarification Strong emphasis on scientific visits to related sites Example solving with students participation Tutorial sheet solution as Home work Frequent quizzes to motivate student Lab exam Encourage student to attend seminars & discussion work-shops Students seminars Serious attention for class attendance to reduce "% absences"

10. Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1 - 4	8-8	Student Understanding The lecture	Plant Steam Cycles, M Cycles, Reheat Cy Regenerative Cycle, C Feed Water Heater, Clo Feed Water Heater, Combi Cycles, Binary Cycle Worl on Mercury and Ste Combined Condenser.	Theoretical And practical	Weekly Quiz and Lab report
6-5	4-4	Student Understanding The lecture	Introduction to H Exchangers, Theoret Principles, Parallel Flow H Counter Flow H.E, Cross F H.E, The Log M Temperature Differe Method, The NTU Meth Shell and Tubes H Condensing, Evaporation.	Theoretical And practical	Weekly Quiz and Lab report
7-11	10-10	Student Understanding The lecture	Steam Boilers, Kinds, Burn Air Preheated, Preheated Superheated, Combustion Fuels, Complete Incomplete Combust Correct Air/Fuel Ratio, Ac Air Supplied, Heat Generat Boiler Efficiency, pi principle.	Theoretical And practical	Weekly Quiz and Lab report
12-14	6-6	Student Understanding The lecture	Steam Condensers, Ki Direct Contact Condens Surface Condenser, Design Manufacturing, Efficiency the Condensers.	Theoretical And practical	Weekly Quiz and Lab report
15-16	4-4	Student Understanding The lecture	Steam Nozzles, Applicati Steam Expansion, Discha Velocity of Steam Thro Nozzles, Values of Crit Pressure, Diameters of Th and Exit for Maximum	Theoretical And practical	Weekly Quiz and Lab report
17-18	4-4	Student Understanding The lecture	Turbo-Machinery, Classification, Princ Theory, Dimension Numbers.	Theoretical And practical	Weekly Quiz and Lab report
19-22	8-8	Student Understanding The lecture	The Pumps, Kinds of Pur System Characteristics, Pu Characteristics, Matcl Pumps to Sys Characteristics, Operation Pumps in series and Para Centrifugal pumps, Hydraulic Characteris Cavitation	Theoretical And practical	Weekly Quiz and Lab report
23-28	12-12	Student Understanding The lecture	Steam Turbines, The Ki Impulse Turbine, Bla Efficiency, Reaction Turb Reaction Ratio, Installat	Theoretical And practical	Weekly Quiz and Lab

			Multi Stage Blades Velocity Triangles, Blades Guidance, The Blades ,External Guidance,		report
29-30	4-4	Student Understanding The lecture	Power Plants Systems, Feed Water Cycle, Water Treatm and Testing, Piping Syste Valves, Globe Valve, G Valve, Chick Valve, Spe Valves, Safety Valves, Cor Systems, Blow Measurement instruments, Goal of Measureme Classifications, Tempera Measurements, Press Measurements, Discha Measurements, Gas Analy Velocity Measurements, L Recorder, Electr Measurements	Theoretical And practical	Weekly Quiz and Lab report

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	A Textbook of Thermal Engineering" . by R.S. KHURMY and J.K. GUPTA
Main references (sources)	Engineering an Thermodynamics" Approach "fifth edition by YUNUS A.CENGEL
Recommended books and references (scientific journals, reports…)	Applied Thermodynamics Onkar - Singh 3rd_Edition
Electronic References, Websites	1- WWW.B-OK.ORG 2- WWW.BOOKFI.ORG