



Al-Balqa' Applied University
Faculty of Engineering
Detailed Course Outline for Associate Degree in Engineering Program Specializations

Specialization Family: Electrical Engineering Technology - EET

Specialization: Electrical Wiring - EET1 - (75 Credit Hours)

Unit Eight: Emergency and standby equipment

- 1- Standby loads, Emergency loads
- 2- Signurance lighting, objectives and classifications
- 3- Emergency & standby power sources
- 4- UPS applications
- 5- Emergent loads protection against interior and exterior faults, (Schematic diagrams, ratings)
- 6- Standby loads protection against interior and exterior faults (Schematic diagrams and ratings)
- 7- General requirements of emergency wiring, standby wiring.

Unit Nine: Telephone, Radio, clock Systems

- 1- Schematic diagrams of telephone circuits, intercom,
- 2- Telephone wiring requirements
- 3- Loudspeakers radio station-wiring diagrams, in public and hotel buildings
- 4- TV signal wiring, schemes and requirements
- 5- block diagrams, function, and applications of simple and complex electrical clock systems (chronopher, pull-synoptic system)

Unit Ten: monitoring and controlling systems

- 1- Block diagram and application of moving TV controls
- 2- Monitoring system watched to burglar warning system
- 3- Low light TV system (control system)
- 4- Swart TV control systems

Grading:

Homeworks [Project], quizzes, and performance: 10 %

First Examination 25 %

Second Examination 25 %

Final Examination 40 %

References:

- 1- electrical installation Technology, Michael neidle ELBS 1982
- 2- Practical Electrical Wiring, H.P. Richter, mcGraw-Hill 1984
- 3- Eléctrical Design for building construction John Traister, McGraw -hill 1985
- 4- Handbook of Practical Electrical Design, J.F. McPartland - McGraw Hill New York 1984
- 5- Electrical Installation Technology and practice J.O. Paddack 1981
- 6- الإلكترونيات في الأمن والامان للحماية من السرقات / فاروق محمد العمري - الدار المصرية اللبنانية ١٩٨٩

EET217 Power Systems

نظم القدرة

Credit Hours: 3 Theory: 3 Practical: 0 Pre-Req 1: Pre-Req 2: Co-Req:

Course Description:

وصف للمادة:

Power generation plants, transformation stations, high voltage networks, electrical distribution systems & their faults. Visits and technical reports.

Detailed Course Outline:

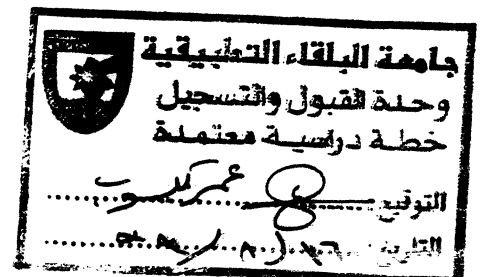
وصف للمادة التفصيلي:

Objectives:

- 1-Importance of Electrical Power.
- 2-Structures of Power Systems.
- 3-Elements such as Generating Stations.
- 4-Elements such as Transformation Stations.
- 5-Elements of Power Transmission Lines.
- 6-Elements &structure of Electrical Distribution Systems &Their Faults.

Course Outline:

- 1-Electrical power system:
 - Importance of the Electrical power system in modern life.
 - Factors of modern Elec. power system.
 - Components of The electrical power system.
 - The Jordanian Elec. power system.





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2-Power Generation Plants:

- Sources of Energy.
- Thermal Electrical power station .
- Hydro-Elec. power plant.
- Gas Turbine power plant.
- Solar cells.
- Diesel engine Plants.
- Wind power plant.
- Block diagram of each system.
- Generators Connections with a power system.

3-Transformation Station.

- Need of Transformation Station.
- Structure & description of Transformation Station components: Transformer, C.B, Busbars, VT, CT, Air Isolator, Earthing Switch, Lightning Arrestor, Control Room, and Diesel Engine.
- Types & block diagrams of Transformation stations according to Busbars: Single, Double, Triple Parallel Busbars, Serial Busbars.
- Types of Transformation Station according to their location: Knot Station, Distribution, Branch, End station.
- Plan of load distribution in transformation Station.

4-High Voltage Networks.

- Structure & distribution.
- Voltages in Elec. Power Nets.
- Conducting materials used & their constants in the networks.
- Factors affecting conductors materials choice.
- Calculation of economic cross-section.
- Suggested Voltage according to Transmitted Power, Distance, Cross- Section, & Drop voltage.
- Relation between Transmitted Power, Voltage, Current & Losses, (ZALSKY, STEEL, Relations).
- Simple Equivalent circuits of Transmission Line: (Short, Medium, Long).
- Corona Effect, Say calculation, Transposition.

5-Electrical Distribution Systems.

- Kinds: Aerial, Ground.
- Conducting materials.
- Calculation Cross-Section, Drop Voltage.
- Network Laying.
- Transmission Line at No- Load, Full- Load & Overload.
- Types of Faults, Short circuits faults distribution systems.
- Calculations of three-phase Balanced fault current.
- Losses.
- Maintenance.

Grading:

Homeworks [Project], quizzes, and performance: 10 %

First Examination 25 %

Second Examination 25 %

Final Examination 40 %

Recommended References:

- | | |
|-----------------------------|---------------------------------|
| 1-Electrical power systems. | B.M. Weedy. |
| 2-Power Plant Engineering. | G.R. Nagpal. |
| 3-Power System Handbook. | Davison, Fice. |
| 4-Power System Operation. | R.Miller. |
| 5- ميشيل حاتم | تصميم وتنظيم الشبكات الكهربائية |
| 6- د. محمد نوري خياط | نقل وتوزيع الطاقة الكهربائية |
| 7- د. محمد علي عثمان | محطات القدرة الكهربائية |
| 8-Power system Analysis. | John Grainger & D.Stevenson. |

