بسـم ﷲ الرحمن الرحيم

**Faculty of Science**
**Department of Physics**

**Electronics 0402311**
Instructor**: Dr. Husam El-Nasser (<ins>hnasser@aabu.edu.jo</ins>) ext.(2169)**

| Lecture | Subject | Week |
|---|---|---|
| 1 | **Alternating Current Circuits** | I |
| 2 | AC Sources and Phasors | |
| 3 | Resistors, Inductors, and Capacitors in an AC Circuits | |
| 4 | The RLC Series Circuit | II |
| 5 | Power in an AC Circuits | |
| 6 | Resonance in a Series RLC Circuits | |
| 7 | Applications: Filter Circuits | III |
| 8 | **Introduction to Semiconductors** | |
| 9 | Atomic Structures, Semiconductors, Conductors, and Insulators | |
| 10 | Covalent Bonds, Conduction in Semiconductors. N-Type, and P-Type Semiconductors | IV |
| 11 | The Diode, Biasing the Diode. | |
| 12 | Voltage-Current Characteristic of a Diode, Diode Models | |
| 13 | **Diode Applications** | V |
| 14 | Half-Wave Rectifiers | |
| 15 | Full-Wave Rectifiers | |
| **First Exam (Mon. 27/10/2014)** | | |
| 16 | Power Supply Filters and Regulators | VI |
| 17 | Diode Limiting and Clamping Circuits | |
| 18 | The Diode Data Sheet | |
| 19 | **Special Purpose Diodes** | VII |
| 20 | Zener Diode and its Applications | |
| 21 | Varactor Diode | |
| 22 | Optical Diodes | VIII |

| 23 | **Bipolar Junction Transistors(BJTs)** | |
|---|---|---|
| 24 | Transistor Structure | |
| 25 | Basic Transistor Operation | IX |
| 26 | Transistor Characteristics and Parameters | |
| 27 | Transistor Applications: Transistor as an Amplifier | |
| 28 | Transistor as a Switch | X |
| 29 | The DC Operating Point | |
| 30 | Solved Problems | |
| **Second Exam (Mon. 5/12/2014)** | | |
| 31 | **Transistor Bias Circuits** | XI |
| 32 | Voltage-Divider Bias | |
| 33 | Base Bias | |
| 34 | Emitter Bias | XII |
| 35 | Collector-Feedback Bias | |
| 36 | **BJT Amplifiers** | |
| 37 | Transistor AC Equivalent Circuits | XIII |
| 38 | The Common-Emitter Amplifier | |
| 39 | The Common-Collector Amplifier | |
| 40 | The Common-Base Amplifier | XIV |
| 41 | **Field Effect Transistors (FETs)** | |
| 42 | The JFET | |
| 43 | JFET Characteristics and Parameters, JFET Biasing | XV |
| 44 | **Operational Amplifiers** | |
| 45 | Op-Amp Input Modes and Parameters | |
| 46 | Negative Feedback and its Effect on Op-Amp | XVI |
| 47 | Basic Op-Amp Applications: Comparators | |
| 48 | Summing Amplifiers | |
| **Final Exam** | | |

## Core Text

**Tom Floyd, *Electronic Devices* (<sup>6th</sup> edition), Pretice-Hall, Inc.**

**http://www.prenhall.com/floyd**