**Al-Quds University**
**Faculty of Engineering**
**Department of Electronics Engineering**

# Electronics II (0701323)

Fall 2007/2008

| | |
|---|---|
| **Instructor :** | Dr. Ali Jamoos, ali@eng.alquds.edu |
| **Lectures :** | Sun., Tue., 9:30 – 10:50, 12:30 – 13:50 |
| **Office Hours :** | Sun., Tue., 11:00 – 12:00 |
| **Prerequisites :** | Electronics I (0701321) |
| **Textbook :** | Electronics Devices and Circuit Theory, Robert L. Boylestad, ninth edition, http://www.prenhall.com/boylestad/ |
| **Software :** | Electronics WorkBench Multisim, PSpice |

**References :**

1. Electronic Devices, Thomas L. Floyd
2. Microelectronics, Jacob Millman
3. Electronic Principles, Albert P. Malvino
4. Electronic Circuits, Donald L. Schilling

**Course Outline :**

- **Review of BJT Amplifiers**
  Transistor AC models, common-emitter common-collector and common-base configurations, effect of source and load resistances, multi-stage amplifiers (cascaded systems), RC-coupled BJT amplifiers, cascode connection, darlington connection
- **FET Amplifiers**
  FET small-signal model, JFET fixed-bias and self-bias configurations, JFET voltage-divider configuration, JFET source-follower configuration, JFET common-gate configuration, cascade configurations
- **BJT and JFET Frequency response**
  Logarithms and Decibels, general frequency considerations, Bode plot, low-frequency response of BJT and JFET amplifiers, Miller effect capacitance, high-frequency response of BJT and JFET amplifiers Multistage frequency effects
- **Operational Amplifiers**
  Differential amplifier circuits, Op-Amp basics, practical Op-Amp circuits: inverting and non-inverting amplifiers, summing amplifier, integrator and differentiator, comparators, instrumentation amplifier and other applications, Op-Amp specifications: DC offset and frequency parameters, case study: 741 Op-Amp IC
- **Negative Feedback**
  Feedback concepts, feedback connection types: voltage-series feedback, voltage-shunt feedback, current-series feedback and current-shunt feedback
- **Power Amplifiers**
  Series-fed class A amplifiers, transformer-coupled class A amplifiers, class B amplifier operation and circuits, amplifier distortion, power transistor heat sinking, class C and D amplifiers

**Grading :**

| | |
|---|---|
| First Hour Exam (28/10/2007) | 25% |
| Second Hour Exam (27/11/2007) | 25% |
| HomeWorks & Quizzes | 10% |
| Final Exam | 40% |
| Total | 100% |