

Welcome Ashraf Uz | [Home](#) | [Logout](#)[Suggerimenti](#) | Autenticato tramite Shibboleth - IDP: Studenti**Politecnico di Torino**

Academic Year 2010/11 (first time established in A.Y.2007/08)

01MEQJA

**Electronics I**

1st degree and Bachelor-level of the Bologna process in Electronic And Computer Engineering - Vercelli (III FACOLTA' DI INGEGNERIA)

Teacher	Status	SSD	Les	Ex	Lab	Years Stability
Pirola Marco	AC	ING-INF/01	5	2	2	3

SSD	CFU	Activities	Area context
ING-INF/01	9	B - Caratterizzanti	Ingegneria elettronica

**Objectives of the course**

The scope of the course is basically to give the students methodologies and tools to study the behavior of the active devices, seen within the Electron Devices course (e.g. BJT, FET), once embedded in an electrical circuit. The basic topologies of the amplifier will be presented and analyzed. The students will learn how to find the DC bias point and evaluate the small signal behaviour of an electronic circuit starting from the equivalent circuit of the active devices. In the last part of the course the students will start working with the ideal and real operation amplifiers getting acquainted with their most used applications together with the techniques to evaluate their behaviour.

**Expected skills**

Skills on DC and small signal solution of electronic circuits. Acquaintance with the most common topology of BJT and FET based amplifiers. Acquaintance with the most important circuits and applications based on operational amplifiers.

**Prerequisites**

Electron Devices and Electrotechnics courses.

**Syllabus**

BJT and FET Bias circuits design and analysis;  
 Small signal frequency behaviour of amplifier;  
 Study and comparison of the classical topologies of BJT and FET amplifiers: CE, CC and CB stages;  
 Differential stage  
 Ideal and real Operational Amplifiers  
 Operational amplifier basic topology  
 Operational amplifier based circuits

**Laboratories and/or exercises**

A significative part of the course will be devoted to solve exercises applying the knowledge learnt during the lesson hours. Some laboratories will be given on using the circuit simulator PSPICE to solve the exercises and to compare the solution obtained with the manual solutions.

**Bibliography**

J. Millman & C. Halkias, Microelectronics, McGraw-Hill.  
 S. Franco, Design with Operational Amplifiers and Analog Integrated Circuits, McGraw-Hill

**Revisions / Exam**

Solution of the proposed homework during the development of the course.  
 Final written test and oral examination.

Programma definitivo per l'A.A.2010/11

