

Program	09TT- Engineering in Telecommunication Technologies and Services
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Course number and name	
Number	95000020
Name	Analog Electronics Electrónica Analógica
Semester	Y2-S4

Credits and contact hours	
ECTS Credits	3
Contact hours	30

Coordinator's name	Javier Ferreiros López
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Specific course information		
Description of course content		
This subject addresses the mastering of the methodology of frequency response analysis of circuits and its representation as asymptotic Bode diagram (magnitude and phase) as well as the mastering of the methodology of feedback circuits analysis and their frequency response with the analysis of their stability, their compensation or their oscillation.		
List of topics to be covered		
1. Analysis of frequency response of circuits and its representation as asymptotic Bode diagram 1.1 Low frequency analysis 1.2 Bode diagrams 1.3 High frequency analysis 2. Analysis of feedback circuits and their frequency response with analysis of stability, compensation or oscillation 2.1 Introduction. Feedback theory 2.2 Effects of sensitivity, bandwidth and distortion 2.3 Basic topologies of feedback amplifiers 2.4 Analysis of feedback amplifiers 2.5 Stability of feedback amplifiers 2.6 Sinusoidal oscillators		
Prerequisites or co-requisites		
None specified		
Course category in the program		
<input checked="" type="checkbox"/> R (required)	<input type="checkbox"/> E (elective)	<input type="checkbox"/> SE (selective elective)

Specific goals for the course

Specific outcomes of instruction

RA3: Feedback and oscillation understanding.

RA202: Ability for the analysis of the frequency response of electronic circuits and its representation as asymptotic Bode diagram (magnitude and phase).

RA203: Ability for the analysis of feedback electronic circuits and their frequency response with the analysis of stability, their compensation or their oscillation.

Student outcomes addressed by the course

CECT1, CG2, CG5

Bibliography and supplemental materials

N.R. Malik, "Electronic Circuits: Analysis, Simulation and Design", Prentice Hall, 1997. Disponible en castellano, Prentice Hall, 1996

Equipo docente de Electrónica Analógica del curso 2013-14, "Método de análisis de circuitos con realimentación negativa en frecuencias medias", publicaciones ETSIT-UPM

J.I. Izpura, "Diseño con Amplificadores Operacionales: Control básico de las realimentaciones", Fundetel, ETSIT-UPM, 2004

A.S. Sedra & K.C. Smith, "Microelectronic Circuits", Oxford University Press, 1998. Disponible en castellano, Oxford University Press, 1999

Sergio Franco, "Design with operational amplifiers and analog integrated circuits", McGraw-Hill 2002, 3ªed. Disponible en castellano, McGraw-Hill 2005, 3ªed.

J.M. Fiore, "Amplificadores Operacionales y Circuitos Integrados Lineales", Thomson International, 2002

P.R. Gray & R.G. Meyer, "Análisis y diseño de circuitos integrados analógicos", Prentice Hall Hispanoamericana, 1995Página web de la asignatura

Teaching methodology

<u> </u> X <u> </u> lectures	<u> </u> X <u> </u> problem solving sessions	<u> </u> collaborative actions	<u> </u> laboratory sessions
Other: 2 In-class exercises with qualification			