

820027 - PSB - Biomedical Signal Processing

Coordinating unit: 295 - EEBE - Barcelona East School of Engineering
 Teaching unit: 707 - ESAII - Department of Automatic Control
 Academic year: 2018
 Degree: BACHELOR'S DEGREE IN BIOMEDICAL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory)
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 ECTS credits: 6 Teaching languages: Catalan, Spanish

Teaching staff

Coordinator: MIGUEL ANGEL MAÑANAS VILLANUEVA
 Others: JOAN FRANCESC ALONSO LÓPEZ - MIGUEL ANGEL MAÑANAS VILLANUEVA - ABEL TORRES
 CEBRIAN

Opening hours

Timetable: Check schedule

Degree competences to which the subject contributes

Specific:

1. Apply the techniques for analysing and interpreting biomedical signals and images.

Transversal:

2. TEAMWORK - Level 3. Managing and making work groups effective. Resolving possible conflicts, valuing working with others, assessing the effectiveness of a team and presenting the final results.

Learning objectives of the subject

Study load

Total learning time: 150h	Hours large group:	45h	30.00%
	Hours medium group:	0h	0.00%
	Hours small group:	15h	10.00%
	Guided activities:	0h	0.00%
	Self study:	90h	60.00%

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Content

(ENG) INTRODUCCIÓ	Learning time: 11h 30m Theory classes: 4h Laboratory classes: 2h 30m Self study : 5h
(ENG) SENYALS I SISTEMES DE TEMPS DISCRET	Learning time: 20h 30m Theory classes: 8h Laboratory classes: 2h 30m Self study : 10h
(ENG) LA TRANSFORMADA Z	Learning time: 13h Theory classes: 5h Self study : 8h
(ENG) ANÀLISI FREQUÈNCIAL DE SENYALS	Learning time: 37h 30m Theory classes: 15h Laboratory classes: 2h 30m Self study : 20h
(ENG) FILTRATGE I INTERPRETACIÓ DE SENYALS BIOMÈDICS	Learning time: 25h 30m Theory classes: 10h Laboratory classes: 2h 30m Self study : 13h
Description: * Sistemes LTI com filtres selectius en freqüència * Filtres FIR * Filtres IIR	
(ENG) EXEMPLES DE PROCESSAMENT DE SENYALS BIOMÈDICS	Learning time: 9h 30m Theory classes: 3h Laboratory classes: 2h 30m Self study : 4h

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(ENG) SISTEMA DE MESURA DE PRESSIÓ ARTERIAL NO INVASIVA	Learning time: 32h 30m Laboratory classes: 2h 30m Self study : 30h
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Bibliography

Basic:

Proakis, John G.; Manolakis, Dimitris G. Tratamiento digital de señales. 4ª ed. Madrid [etc.]: Prentice-Hall, 2007. ISBN 9788483223475.

Bruce, Eugene N. Biomedical signal processing and signal modeling. New York: John Wiley & Sons, 2001. ISBN 0471345407.

Complementary:

Sörnmo, Leif; Laguna, Pablo. Bioelectrical signal processing in cardiac and neurological applications. Burlington [etc.]: Elsevier Academic Press, cop. 2005. ISBN 0124375529.

Semmlow, John L. Biosignal and biomedical image processing : MATLAB-based applications. New York: Marcel Dekker, 2004. ISBN 0824748034.

Bronzino, Joseph D. The Biomedical Engineering Handbook, section VI. Boca Raton [Fla.]: CRC Press, cop. 2000.

Najarian, Kayvan; Splinter, Robert. Biomedical signal and image processing. Boca Raton: CRC/Taylor & Francis, 2005. ISBN 0849320992.

Tompkins, Willis J. Biomedical digital signal processing : C-language examples and laboratory experiments for the IBM PC. Englewood Cliffs [etc.]: Prentice Hall, 1993. ISBN 0130672165.

Others resources:

Hyperlink

<http://ieeexplore.ieee.org/>

Base de dades d'articles de revistes i congressos científics de la Societat IEEE

<http://www.sciencedirect.com>

Base de dades d'articles de revistes i congressos científics de l'editorial Elsevier

<http://www.pubmed.com>

Base de dades d'articles de revistes i congressos científics en el camp de l'Enginyeria Biomèdica i la Medicina