

Código: 201340000	História da Computação em Arquitectura	Tipo de Unidade Curricular Optativa
Ano Lectivo 2014-2015	Curso: Vários CDA-HT, CEA_CAUD	Ciclo Estudos: 1º <input type="checkbox"/> 2º <input type="checkbox"/> 3º <input checked="" type="checkbox"/>
Créditos: 5,0 ECTS	Idioma leccionado <input checked="" type="checkbox"/> Português <input checked="" type="checkbox"/> Inglês <input type="checkbox"/> Outro idioma	Ano Curricular: 1º <input checked="" type="checkbox"/> 2º <input type="checkbox"/> 3º <input type="checkbox"/> 4º <input type="checkbox"/> 5º <input type="checkbox"/>
Área Científica: <input type="checkbox"/> Arq. ^a <input type="checkbox"/> Urb. ^o <input type="checkbox"/> Design <input type="checkbox"/> DCV <input type="checkbox"/> CST <input type="checkbox"/> TAUD <input checked="" type="checkbox"/> HTAUD		Anual: <input type="checkbox"/>
Pré-requisitos: Sim <input type="checkbox"/> Não <input checked="" type="checkbox"/>	Não existem pré-requisitos para esta unidade curricular	Semestral: 1º <input type="checkbox"/> 2º <input checked="" type="checkbox"/>
		Trimestral: 1º <input type="checkbox"/> 2º <input type="checkbox"/> 3º <input type="checkbox"/>

Docente(s) Responsável(eis) pela U.C.

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José P. Duarte Categoria:	Email: jduarte@fa.ulisboa.pt	URL: www.fa.ulisboa.pt/~lromao

Docente(s) da U.C.

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Categoria:	Email:	URL:
Categoria:	Email:	URL:

Horas de Contacto:

Teóricas:	Práticas:	Teórico-Práticas:	Laboratoriais:	Seminários:	Tutoriais:	Outras:	Total Horas de Contacto:
21,0 H	0,0 H	0,0 H	0,0 H	0,0 H	0,0 H	0,0 H	21,0 Horas

Estimativa de Horas Totais de Trabalho:

Inclui o total de horas de contacto mais as horas extra dedicadas à unidade curricular.	Horas Totais de Trabalho: 14,0,0 Horas
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Objectivos (tópicos) limite 900 caracteres

Esta disciplina tem como objetivos concretos:

- (1) Introduzir uma narrativa interpretativa da historia da computação em arquitectura;
- (2) Apresentar os contextos tecnologicos, politicos, culturais e sociais que favoreceram o aparecimentos dos primeiros centros de pesquisa realacionados com computação em erquitectura;
- (3) Apresentar as principais diferenças ideologicas, teoricas e computacionais que cada Centro desenvolveu contribuindo para a formação de um novo campo disciplinar;
- (4) Apresentar linhas de pesquisa neste campo, particularmente no contexto Português.

Conteúdos Programáticos / Programa limite 1500 caracteres

1. Física e Arte: As novas Leis da criatividade.
2. Avant-Garde: Artistas e Cientistas um novo paradigma.
3. Refugiados de Guerra em Londres: Ulm, Bahuaus e Circle.
4. Guernica e a II Guerra Mundial.
5. Modernismo em Londres: Walter Gropius, Berthold Lubetkin, Wells Coates e Over Arup.
6. Alan Turing e Bletchley Park: Computação analógica e computação digital.
7. Pós Guerra: A figura pioneira de Desmond Bernal.
8. Computação e Design: Serge Chermayeff, Christopher Alexander e Lionel March.
9. Os primeiros Centros de Investigação: LUBFS e Architecture Machine Group.
10. Diaspora Computacional: Design Research Center, USA.
11. Software e Programação : Arquitectura algoritmica e parametrica.

Competências a adquirir pelo discente (tópicos) limite 3000 caracteres

- (a) Capacidade de entender numa perspetiva multidisciplinar o contexto em que surgiu o campo da computação em arquitectura.
- (b) Capacidade de realizar pesquisa em qualquer um dos tópicos do curso, contribuindo desse modo para a criação de conhecimento.
- (c) Capacidade de realizar pesquisa no domínio da historia da computação no contexto Portugues.
- (d) Adquirir capacidade critica e teorica para analisar obras de arquitectura criadas a partir das novas plataformas tecnológicas relacionadas com a computação.

Bibliografia Principal limite 3000 caracteres

- Neves, Isabel, Rocha, João; Duarte, José. Computational Design Research in Architecture: The Legacy of the Hochschule für Gestaltung, Ulm. International Journal of Architectural Computing. Issue 1, volume 12, pp.1-26, 2014.
- Mason, Catherine. A Computer in the Art Room. The Origins of British Computer in the Arts 1950-80. Norfolk: JYG Publishing, 2008.
- Mitchell, William J. Computer-Aided Architectural Design. New York: Van Nostrand Reinhold, 1977.
- Henderson, Linda Dalrymple. The fourth dimension and non-Euclidean geometry in modern art. London, England ; Cambridge, Massachusetts: The MIT Press, 2013.

Bibliografia Complementar limite 3000 caracteres

- Bernal, Desmond. "Science and research in Building". The Architect's Journal. November 28, 1946.
- Cohen, Jean Louis. Architecture in Uniform. Designing and Building for the Second World. Montreal: Canadian Centre for Architecture, Paris: Editions Hazan, 2011.
- Thompson, D'Arcy. On Growth and Form. Cambridge University Press, 1961.
- Mason, Catherine. A Computer in the Art Room. The origins of British Computer arts 1950-80. Norfolk: JYG Publishing, 2008.
- Terzidis, Kostas. Algorithmic Architecture. Burlington: Architectural Press, 2006.
- Picon, Antoine. Digital Culture in Architecture. Basel: Birkhauser, 2010.
- Simon, Herbert A. The Sciences of the Artificial. Cambridge: MIT Press, 1968.
- Flowers, H. Thomas. "D-Day at Bletchley Park". In, Colossus, (Edited by B. Jack Copeland). Oxford University Press. 78-83, 2006.
- Gabo, Naum and Pevsner, Antoine. "The Realistic Manifesto", 1921.
- Gero, John. Australia, in N. Negroponte (ed.), Computer Aids to Design and Architecture. Petrocelli/Charter, New York, pp: 201-206, 1975.
- Negroponte, Nicholas. The Architecture Machine; Towards a more Human Environment. Cambridge: MIT Press, 1970.
- Neves, Isa; Rocha, João; Duarte, José. The Legacy of the Hochschule für Gestaltung of Ulm for Computational Design Research In Architecture. R. Stouffs, (eds.) Open Systems: Proceedings of the 18th International Conference on Computer-Aided Architectural Design Research in Asia (CAADRIA), Singapore, pp:293-302, 2013.
- March, Lionel. The Architecture of Form. New York: Cambridge University Press, 1976.
- J.L. Martin, Ben Nicholson, N. Gabo. Circle. International Survey of Constructive Art. London, Faber, 1937.
- March, Lionel. The Architecture of Form. New York: Cambridge University Press, 1976.
- Mitchell, William J. Computer-Aided Architectural Design. New York: Van Nostrand Reinhold, 1977.
- Alexander, Christopher. Notes on the Synthesis of Form. Cambridge: Harvard Univ. Press, 1964.
- Henderson, Linda Dalrymple. "The Fourth Dimension and Non-Euclidean Geometry in Modern Art: Conclusion." Leonardo, Vol. 17, No. 3. (1984), pp. 205-210.
- Stiny, G. and Mitchell, W. J. (1978), The Palladian grammar. Environment and Planning B: Planning and Design, 5, pp.5-18.
- Stiny, G. (1980), Introduction to shape and shape grammars. Environment and Planning B: Planning and Design, 7(3), pp.343-351.
- Turing, A. (1936), On Computable Numbers, With an Application to the Entscheidungsproblem, Proceedings of the London Mathematical Society, 42 (2).
- Rocha, João. Architecture and Computation. A Historical Reading. In Arredamento Mimarlik, Istanbul: 2012, pp: 73-76.
- Rocha, João. Digital Dialectics. In Contemporaray Architectural Challenges. Conception and Production, (Povoas, Rui, eds). FAUP Editions, 2012.

Avaliação (elementos e critérios) limite 900 caracteres

1. Leituras (50% da nota final): O primeiro trabalho é uma coletânea de mini textos (1/2 a 1 página) com o comentário crítico a cada uma dos temas/textos que vão sendo lidos semanalmente.
2. Trabalho final, paper, (50% da nota final): tema a escolher pelo aluno com o acordo do docente.

Data de actualização

Última actualização em: quarta-feira, 30 de Julho de 2014

Code: 201340000	Architecture Computing: A historical reading	Curricular Unit Type Elective
Academic Year 2014-2015	Degree: Several CDA-HT, CEA-CAUD	Cycle of Studies: 1° <input type="checkbox"/> 2° <input type="checkbox"/> 3° <input checked="" type="checkbox"/>
Unit Credits: 5,0 ECTS	Lecture Language <input checked="" type="checkbox"/> Portuguese <input checked="" type="checkbox"/> English <input type="checkbox"/> Specify Other language	Curricular Year: 1° <input checked="" type="checkbox"/> 2° <input type="checkbox"/> 3° <input type="checkbox"/> 4° <input type="checkbox"/> 5° <input type="checkbox"/>
Scientific Area: <input type="checkbox"/> Archit. <input type="checkbox"/> Urban. Pl <input type="checkbox"/> Design <input type="checkbox"/> DCV <input type="checkbox"/> CST <input type="checkbox"/> TAUD <input checked="" type="checkbox"/> HTAUD		Annual: <input type="checkbox"/> Semester: 1° <input checked="" type="checkbox"/> 2° <input type="checkbox"/>
Prerequisites: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	There are no prerequisites for this curricular unit	Trimester: 1° <input type="checkbox"/> 2° <input type="checkbox"/> 3° <input type="checkbox"/>

Responsible Professor(s)

João Rocha		
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Lecture(s)

João Rocha		
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Rank:	Email:	URL:
Rank:	Email:	URL:
Rank:	Email:	URL:

Contact Hours:

Lectures:	Practical:	Lectures-Practical:	Laboratory:	Seminary:	Tutorials:	Others:	Total Contact Hours:
21,0 H	0,0 H	0,0 H	0,0 H	0,0H	0,0 H	0,0 H	21,0 Hours

Estimated Workload

Includes the total contact hours plus overtime devoted to the course unit

Total Workload: 140,0 Hours

Goals (topics) limit 900 characters

This seminar aims to explore how applied research emerged in the domain of architecture leading to the field of architecture computing. It presents a new historical framework that illustrates the interweave path of scientific, theoretical, artistic and social connections that occurred in the UK at the dawn of the Second World War. It puts into historical context the formation of five research centres, tracing their origins, philosophical influences and scope of work in the domain off applied computation in architecture .The issues and problems to be critically reconsidered are:

Which were the conditions that fostered the appearance of those Centres?
Which were their epistemological similarities and differences?
How influential was their work to the development of the field?

Students along the semester are invited to class discussion and to one full-presentation and paper.

Programmatic contents / Programme limit 1500 characters

1. Crystallography and the Realistic Manifesto.
2. British Avant-Garde: Between Hampstead and Carbis Bay.
3. The London Art Scene: Roland Penrose, Peggy Guggenheim and Circle.
4. Guernica and the rise of World War II: Air Raid Plans and the first Research Bureaus.
5. London new Modernism: Walter Gropius, Berthold Lubetkin, Wells Coates and Over Arup.
6. Alan Turing and Bletchley Park: Analogical and Digital computation.
7. Post-War Reconstruction: Desmond Bernal, Leslie Martin and the Festival of Britain.
8. Computers in Design: Serge Chermayeff, Christopher Alexander and Lionel March.
9. From Maths to Silicon: The birth of Architecture Computing.
10. The Computational Diaspora: The first applied Research Centres, LUBFS and the Architecture Machine Group.
11. From Code to Programming : Algorithmic and parametric architecture.

Competencies to be acquired by students (topics) *limit 3000 characters*

- (a) Ability to understand a multidisciplinary perspective in which the field of computing in architecture arose.
- (b) Ability to conduct research in any of the course topics, thereby contributing to the creation of new knowledge.
- (c) Ability to conduct research in the field of the history of computing also in the Portuguese context.
- (d) Acquire capacity to critical theoretical analyze works of architecture designed within these new platforms related to architecture computing.

Main Bibliography *limit 3000 characters*

- Neves, Isabel, Rocha, João; Duarte, José. Computational Design Research in Architecture: The Legacy of the Hochschule für Gestaltung, Ulm. International Journal of Architectural Computing. Issue 1, volume 12, pp.1-26, 2014.
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Additional Bibliography *limit 3000 characters*

- Bernal, Desmond. "Science and research in Building". The Architect's Journal. November 28, 1946.
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Assessment *limit 900 characters*

1. Readings (50% of final grade): The first work is a collection of mini texts (1/2 to 1 page) with a critical commentary on each of the texts read weekly.



2. Final work (50% of final grade): paper with a theme chosen by the student with the faculty agreement.

Last updated

Last updated on: Wednesday, 30 July 2014