

Master thesis proposals 2019-2020

#	Title	Supervisor	Co-supervisor	#student	Civil	Arch	English	French	Dutch
1	Ultrasonic dispersion characterization of fresh cementitious material with admixtures	AGGELIS D.	VAN HEMELRIJCK D.	1	1	1	1	0	0
2	Experimental assessment of textile reinforced cement retrofitting layer-masonry layer using Acoustic Emission monitoring technique	AGGELIS D.	TSANGOURI E.	1	1	1	1	0	0
3	Continuous monitoring of concrete hydration with combination of NDT techniques	AGGELIS D.		1	1	1	1	0	0
4	Lean Construction for projects in Belgium: Why? How? By whom and with whom?	BEN RAJEB S.		2	0	1	0	1	0
5	New tools used for collaborative design: adequacy, utility and uses?	BEN RAJEB S.		1	0	1	0	1	0
6	Co-design: participative Approach in the service of design	BEN RAJEB S.		1	0	1	0	1	0
7	Study of BIM implementation in companies	BEN RAJEB S.		1	0	1	0	1	0
8	Computational investigation of the deployment methods for bistable scissor structures	BERKE P.		1	1	1	1	0	0
9	Computational structural analysis of transformable scissor structures in the deployed configuration	BERKE P.		1	1	1	1	0	0
10	Computational assessment of the robustness of reinforced concrete frames using 3D finite element models	BERKE P.		1	1	0	1	1	0
11	Design, 3D printing and application of joint models for bistable transformable scissor structures	BERKE P.		1	1	1	1	1	0
12	Computational investigation of the mechanical behaviour of metallic foams using a massively parallel finite element solver	BERKE P.	MASSART T.J.	1	1	0	1	1	0
13	Characterization of the mechanical behaviour of metallic lattice structures manufactured by 3D printing through finite element modeling	BERKE P.	MASSART T.J.	1	1	0	1	1	0
14	Comparison of monthly morphological changes of beaches along the Northern French and Belgian coasts	CHEN M.	MONTREUIL A.	1	1	1	1	1	0

15	Historical and contemporary changes of the Belgian coast under climate change and sea-level rise	CHEN M.	MONTREUIL A.	1	1	1	1	1	0
16	Distinction between wave and wind impact on the Belgian coast	CHEN M.		1	1	1	1	0	0
17	Evolution of the hydrodynamic conditions during a beach nourishment experiment	CHEN M.		1	1	1	1	0	0
18	From sediment concentration to beach dynamics - a Belgian case	CHEN M.		1	1	1	1	0	0
19	3D printing and robotic fabrication of biological materials	DE LAET L.		1	1	1	1	1	1
20	Mechanical characterization of biological materials	DE LAET L.		1	1	1	1	1	1
21	Computational design, digital fabrication and experimental validation of 3D nodes for complex wooden and bamboo truss structures	DE LAET L.	VERBEECK K.	1	1	1	1	0	1
22	Biocomposite pedestrian bridges: structural design and feasibility study	DE LAET L.	VERBEECK K.	1	1	1	1	0	1
23	Bending-active formwork for curved elements - integrated manufacturing and design method	DE LAET L.	TYSMANS T.	1	1	1	1	0	1
24	Design and optimization of complex façades using the COMPAS framework	DE LAET L.	ROOVERS K.	1	1	1	1	0	1
25	Robotic winding of structurally efficient structures and components	DE LAET L.		1	1	1	1	0	1
26	Exploring the potential of Virtual Reality in architectural engineering	DE LAET L.	VAN CRAENENBROECK M.	1	1	1	1	0	1
27	Investigating the impact of fabric structure design parameters on Fluid-Structure Interaction results	DE LAET L.	VAN CRAENENBROECK M.	1	1	1	1	0	1
28	Form follows material: exploring programmable systems in architecture and structural design	DE LAET L. / DE TEMMERMAN N.	BRANCART S.	1	1	1	1	0	1
29	Development of a protocol to manage quantitative and qualitative information about connections between building elements in Building Information Modelling	DE TEMMERMAN N.	GALLE W.	2	1	1	1	1	1
30	Review and lessons of the Circular Retrofit Lab's design and construction process	DE TEMMERMAN N.	GALLE W.	2	0	1	1	0	1
31	Development of a digital platform for supply chain management of transformable façades	DE TEMMERMAN N.	VANDENBERGH T.	2	1	1	1	0	1
32	Sustainable design, development and assessment of transformable façades	DE TEMMERMAN N.	GALLE W.	1	0	1	1	0	1
33	Flanders' and Brussels' forerunners: emerging businesses and products for a circular construction economy	DE TEMMERMAN N.	GALLE W.	2	0	1	1	0	1

34	Development of a design tool to evaluate sustainable material use in architectural and civil works	DE TEMMERMAN N.	GALLE W.	2	1	1	1	1	1
35	Measurement of shear wave velocity in concrete using embedded piezoelectric transducers	DERAEMAEKER A.		1	1	0	1	1	0
36	Non-linear ultrasonic testing of concrete using embedded piezoelectric transducers	DERAEMAEKER A.		1	1	0	1	1	0
37	Development and validation of absorbing boundary layer elements for wave propagation simulations	DERAEMAEKER A.		1	1	0	1	1	0
38	Optimization of pendulum and mass-spring tuned mass dampers on complex structures considering uncertainties	DERAEMAEKER A.		1	1	0	1	1	0
39	Collaboration patterns in building in Belgium: interwar and post-war periods (various topics)	DEVOS R.		4	0	1	1	1	1
40	One office, two profiles: a monographic study of the office Cols & De Roeck (1912-1965)	DEVOS R.		1	0	1	1	0	1
41	The professionalisation of architectural criticism in Belgium 1945-1983	DEVOS R.		1	0	1	1	0	1
42	The collaborative efforts of René Greisch, designer and advisor	DEVOS R.		1	0	1	1	0	1
43	Open call for topics in the history of construction, the history of architecture and theory of architecture	DEVOS R.		1	0	1	1	1	1
44	General contractors in Belgium, 19th and 20th century	DOBBELS J.	DEVOS R.	1	0	1	1	0	1
45	The iconography of Belgian construction engineering history	ESPION B.	DEVOS R.	1	0	1	1	0	1
46	Belgian periodicals in construction engineering 1835-2000	ESPION B.	DEVOS R.	1	0	1	1	1	1
47	Numerical modelling of partially saturated granular materials with Discrete Element Method (DEM)	FRANCOIS B.		1	1	0	1	1	0
48	Tensile strength of lime-treated compacted soils evaluated from different laboratory tests	FRANCOIS B.		1	1	0	1	1	0
49	Numerical modelling of the PRACLAY experiment, to simulate underground nuclear waste repository	GERARD P.	FRANCOIS B.	1	1	0	1	1	0
50	Influence of wetting-drying cycles on the mechanical properties of a clayey soil	GERARD P.		1	1	0	1	1	0
51	Impact of groundwater flows on the efficiency of ground heat exchangers	GERARD P.	FRANCOIS B.	1	1	0	1	1	0
52	Prediction of fluid transport properties of porous media from the morphological characteristics of their microstructures	GERARD P.	MASSART T.J.	1	1	0	1	1	0

53	Effect of drought of 2018 on groundwater levels in Flanders	HUYSMANS M.		1	1	0	1	0	1
54	Biomimicry and Biomimetic Design	KHAN A.		1	0	1	1	0	0
55	Towards Circular Economy based Construction: Assessing the potential and feasibility of Urban Mining of materials stock in Brussels	KHAN A.		1	0	1	1	0	0
56	Co-Housing projects in Brussels: Mapping design innovations and constructing a typological classification	KHAN A.		1	0	1	1	0	0
57	Carbon Neutral Design for Sustainable Architecture: Developing an evaluation framework and carbon reduction and offset strategies	KHAN A.		1	0	1	1	0	0
58	Exploring Design Ecologies: Constructing Theories of Sustainable Architecture(s)	KHAN A.	DEVOS R.	1	0	1	1	0	0
59	Comparative analysis of Sustainability assessment and rating systems	KHAN A.		1	0	1	1	0	0
60	Urban Environmental Quality: Exploring and Analysing Nature-based Urban Design strategies and solutions for sustainable cities	KHAN A.		1	0	1	1	0	0
61	Mapping glass flows: A spatial analysis of the interaction between the urban metabolism of Brussels and the glass industry	KHAN A.	SOUVIRON J.	1	0	1	1	0	0
62	Managing Glass Waste in a Circular Economy: Architectural, environmental and social issues regarding the reuse of glazing in the Brussels region	KHAN A.	SOUVIRON J.	1	0	1	1	0	0
63	Implementation of Lagrange multiplier-based cohesive laws for damage-permeability coupling in geomaterials	MASSART T.J.		1	1	0	1	1	0
64	Fast Fourier Transform Homogenization in complex heterogeneous geomaterials	MASSART T.J.		1	1	0	1	1	0
65	Implementation of a coupled cohesive zone element for modelling faults in geoenvironmental applications	MASSART T.J.		1	1	0	1	0	0
66	Modelling of thermal shock in heterogeneous refractory materials	MASSART T.J.		1	1	0	1	1	0
67	Effect of particle shapes on optimal packings of inclusions	MASSART T.J.		1	1	0	1	1	0
68	Computational evaluation of stress distributions in dry stacked masonry	MASSART T.J.		1	1	0	1	1	0
69	Computational program for torsional properties of composite tubes	MOUSSIAUX E.	VAN HEMELRIJCK D.	1	1	1	1	1	1

70	Comparison of a manual and an automatic calibration approach for a hydrological model	NOSSENT J.	WILLEMS P.	1	1	0	1	0	1
71	Regionalization of model parameters by incorporating uncertainty	NOSSENT J.		1	1	0	1	0	1
72	Investigating the hydrological effect of the weather forecast ensembles of RMI	NOSSENT J.		1	1	0	1	0	1
73	Fatigue testing of stainless steel parts manufactured on the MICLAD VUB laser based metallic 3D printer	PYL L.	ERTVELDT J.	1	1	0	1	1	1
74	Material testing to find the best printing strategy for stainless steel 3D printed parts on the MICLAD VUB laser based metallic 3D printer	PYL L.	ERTVELDT J.	1	1	0	1	1	1
75	Reliability based analysis of existing membrane structures: validation of the framework	PYL L.	MOLLAERT M.	1	1	1	1	0	0
76	Delamination behaviour in Mode 1, Mode 2 and Mixed Mode of conventionally manufactured composites and 3D printed composites	PYL L.	VAN HEMELRIJCK D.	1	1	0	1	0	0
77	Effect of use of alkali-activated materials as a binder on the early-age properties and mechanical strength of concrete	S. STAQUET		2	1	0	1	1	0
78	Integration of the degree of restraint in the experimental determination of the strain-induced stresses in early age concrete - investigation of decisive parameters	S. STAQUET		1	1	0	1	1	0
79	Damage monitoring and quality inspection of TRC by combined micro-wave and elastic wave techniques	STIENS J.	AGGELIS D.	1	1	1	1	0	0
80	Sun, rain or wind? Building a cloud-based, open-source software to quantify the potential of, and synergies between solar, wind and hydropower in Africa under present and future climates	THIERY W.	STERL S.	1	1	0	1	1	1
81	Dry soils in Africa: analysing soil moisture observations in Uganda	THIERY W.	STERL S.	1	1	0	1	1	1
82	Will future deforestation in Congo lead to Ethiopian drying? Assessing the effects of land use changes on atmospheric circulation and remote precipitation	THIERY W.	VANDERKELEN I.	1	1	0	1	1	1
83	Exploring tile-level output as a new tool for downscaling Earth System Model output	THIERY W.	VANDERKELEN I.	1	1	0	1	1	1
84	Is irrigation leading to growing glaciers in the Himalaya?	THIERY W.	ZEKOLLARI H.	1	1	0	1	1	1

85	The perfect storm? Studying compound hydrological extremes global impact simulations	THIERY W.	STERL S.	1	1	0	1	1	1
86	Extending an early warning system for hazardous thunderstorms	THIERY W.	STERL S.	1	1	0	1	1	1
87	Palm trees in Hasselt? Analysing the first results from the ecotron experiment	THIERY W.	STERL S.	1	1	0	1	1	1
88	Improving the representation of lakes in climate models: implementing a water balance scheme in Flake	THIERY W.	STERL S.	1	1	0	1	1	1
89	Modelling of the thermo-mechanical properties of Textile Reinforced Cements (TRC)	TYSMANS T.		1	1	1	1	0	0
90	3D Textiles as reinforcement for concrete shells: development of a manufacturing methodology and structural investigation	TYSMANS T.		1	1	1	1	0	1
91	Towards modular Textile Reinforced Concrete (TRC) shells: a combined geometrical - structural study	TYSMANS T.		1	1	1	1	0	1
92	Ensemble flood forecasting of pluvial flooding for Brussels	VERBEIREN B.	SEYOUM S.	1	1	0	1	0	1
93	The making of the Brussels inter-war kitchen: from construction techniques to lay-out	VERDONCK A.		1	0	1	1	0	1
94	The art-nouveau complex of architect Geo Henderick along the Terneuzenlaan in Ghent: historical, architectural and social assessment	VERDONCK A.		1	0	1	1	0	1
95	Expert's advice on wall decoration in the interwar period: to obey or to avoid?	VERDONCK A.		1	0	1	1	0	1
96	Architects' houses (and ateliers) in the Brussels Capital Region	WOUTERS I.	VAN DE VOORDE S.	2	0	1	1	0	1
97	Building Brussels. On the embedment of small and medium construction enterprises in Brussels Capital Region's urban fabric (1965-2020)	WOUTERS I.		1	0	1	1	0	1
98	Construction of roof trusses in Belgian churches (1830s-1940s)	WOUTERS I.		1	0	1	1	1	1
99	Ateliers de construction: a first exploration	WOUTERS I.	ESPION B.	1	1	1	1	1	1
100	The origin and variety of Belgian I sections	WOUTERS I.		1	0	1	1	0	1