

Doctor of Philosophy in Computational Design (PhD-CD)

Description

Computational Design (CD) is the discipline for developing computational approaches to problems that originate in design – whether these relate to creation, presentation, analysis, evaluation, interaction, or aesthetic expression, albeit for real or imagined application, both perceived and conceived.

Curriculum

		Fall (36 units min)	Spring (36 units min)	Years 2+... §
Pre-requisites: See the Master of Science in Computational Design (MSCD) curriculum		Research Methods 18 units	48-711 Paradigms of Research in Architecture (9)	48-711 † Research Methods in Computational Design (9)
Programming experience equivalent to the following courses:		Computational Design Core 45 units	Core Selectives (18) see page 2 for options	Core Selectives (18) see page 2 for options
15-112 Fundamentals of Programming (12)	→	Selective 9 units	<i>Advanced Selective ¶</i>	
15-122 Principles of Imperative Computation (10)		Programming 12 units	One (1) of the following: 15-150 Principles of Functional Programming (12) 15-213 Fundamentals of Programming (12) 15-214 Principles of Software Systems Construction (12)	
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> <p>Game Plan</p> <p>↓</p> <p>Qualification</p> <p>↓</p> <p>Proposal</p> <p>↓</p> <p>Dissertation</p> </div> </div>				

Courses shaded in GREY are non-negotiable requirements. **Absolutely NO waivers will be granted.**

† *Research Methods* *Research Methods in Computational Design* is a pro-seminar type course in the student's intended area of doctoral research, usually chose in consultation with (and requiring the approval of) the student's Academic Advisor.

¶ *Advanced Selective* The *Advanced Selective* course is presumed to be a continuation of the Core courses selected by the student. It is expected to relate to the student's intended doctoral research, chosen in consultation with (and requiring the approval of) the student's Academic Advisor. This may be a course offered by any Department or School.

Residency The minimum required full-time residency for all PhD programs in the School of Architecture is two (2) years. Students who have graduated from the School of Architecture's Master of Science in Computational Design (MSCD) or Master of Tangible Interaction Design (MTID) can count one (1) year of the time spent in that program towards the minimum residency period.

Full-time status (minimum 36 units per semester) is required up to and including the Thesis Proposal phase.

Certain students are legally required to maintain Full-time status for the entire duration of the program (e.g. international students on a visa).

See Graduate Student Handbook (available online) for additional rules and regulations.

§ *Game Plan, Qualification, Proposal, & Dissertation* For details and regulations about the Game Plan, Qualification, Proposal and Dissertation processes please see the Graduate Student Handbook (available online).

All course numbers, titles and their schedules may be subject to change. For additional and up-to-date information on these and other course offerings (course descriptions, schedules, instructors, etc.) please visit the University's Schedule of Classes (SOC) web page at: <www.cmu.edu/hub/courses/soc.html>.

**Core Selective
Options**

Fall	Spring
48-531 Fabricating Customization: Robotic Fabrication (9)	48-624 Parametric Modeling (6)
48-710 Tangible Interaction Design Studio (4-18)	48-710 Tangible Interaction Design Studio (4-18)
48-739 Making Things Interactive (9)	48-714 Parametric Fabrication (6)
48-747 Shape Grammars (9)	48-724 Parametric Design (6)
48-789 Shape & Computation (9)	48-739 Making Things Interactive (9)
	48-781 Knowledge Management in Architecture & Planning (12)
	48-789 Shape & Computation (9)
	62-726 Interactive Art & Computational Design (12)

The courses listed here are pre-approved as meeting the criteria for CD Core Selectives. Please be advised that changes to these curricular offerings take place periodically. Students may elect to take courses not listed here, pending approval from the CD Track Chair.

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