

### QUALIFYING EXAM AGREEMENT FORM

THERMOFLUIDS GROUP

**Student:** \_\_\_\_\_

**Advisor:** \_\_\_\_\_

**Exam Date:** \_\_\_\_\_ **Exam Time:** \_\_\_\_\_

#### QUALIFYING EXAM REQUIREMENTS:

As a rule, thermofluids students are required to take the three courses shown in the table below. In exceptional cases, with the approval of the Thermofluids Committee, one of the two fluids courses (other than MECE 6384: Methods of Applied Mathematics I) can be replaced with a core course from another group (Mechanics, Controls, or Materials). Please indicate in the table the semester in which each course was taken and the final grade; if a substitute course, indicate also its number and title.

Students must have received A- or above in their core courses, to be exempt from taking the course based QE exam, and will have to give a research presentation only. Students who have received less than A- in any of their core courses, must take the QE oral exam on those specific courses/topics, in addition to the research presentation.

COURSE	SEMESTER TAKEN	GRADE
MECE 6384: Methods of Applied Mathematics I <i>*OR APPROVED SUBSTITUTION*</i>		
MECE 6397: Advanced Fluid Dynamics I <i>*OR APPROVED SUBSTITUTION*</i>		
MECE 6334: Convective Heat Transfer <i>*OR APPROVED SUBSTITUTION*</i>		

\* In the transition period (June 2017-Aug 2018), students have the option of replacing one of the core courses by a course already taken. This switch should be approved by his/her advisor. The graduate advisor must approve of all exceptions.

	Initials	Date
<b>Student's Advisor:</b> _____	_____	_____
<b>Chair of Committee:</b> _____	_____	_____
<b>Committee member 2:</b> _____	_____	_____
<b>Committee member 3:</b> _____	_____	_____
<b>Committee member 4:</b> _____	_____	_____
<b>Graduate Director:</b> _____	_____	_____

## Department of Mechanical Engineering

In the discussion on the policies of PhD qualification exam for Thermofluids group, the following agreements have been achieved.

- 1) **Core courses for qualification exam:** By unanimous vote, *Math I*, *Advanced Fluid Dynamics I*, and *Convective Heat Transfer* are chosen as the core courses.
- 2) **Switch of a core course:** Only by an exception, one of the courses *Advanced Fluid Dynamics I* or *Convective Heat Transfer* can be replaced with another *core* course from other groups. In this case, the advisor should provide a rational for this change and the thermofluids committee will decide to accept or decline the switch.
- 3) **Offering frequency of the core courses:** *Math I* will be offered at least once a year by the Thermofluids group and its schedule will be decided by the department. *Advanced Fluid Dynamics* will be offered every Fall semester and *Convective Heat Transfer* every Spring semester.
- 4) **Syllabus of the core courses:** The syllabus of the core courses will be fixed and consistent and may not be changed by the individual instructor. The faculty members in charge of each course should coordinate for a consistent syllabus and textbook.
- 5) **Teaching of the core courses:** Available faculty members for the core courses are  
*Advanced Fluid Dynamics I*: Dr. Prosperetti, Dr. Metcalfe, Dr. Yang, Dr. Araya, Dr. Monico  
*Convective Heat Transfer*: Dr. Prosperetti, Dr. Liu, Dr. Ghasemi, Dr. Yang
- 6) **Transition period policy:** In the transition period (June 2017-Aug 2018), the student has the option of replacing one of the core courses by a course already taken. This switch should be approved by his/her advisor.
- 7) **Teaching of Math course:** The thermofluids group agreed to offer *Math* course for master students once per year. All the faculty members in the group agreed to accept this role if assigned.
- 8) **Graduate curriculum for the ThermoFluids group:** The group approved the changes to the graduate course list (as discussed in the faculty meeting). The new curriculum and offering frequency is tabulated for 2 yrs cycle effective on Fall 2017.

Course title	Fall	Spring	Fall	Spring
Advanced Fluid Dynamics I				
Convective Heat Transfer				
Advanced Fluid Dynamics II				
Heat Transfer with Phase Change				
Computational Fluid Dynamics I				
Computational Fluid Dynamics II				
Turbulent Flow				
Multiphase Flow				
Engineering Heat Transfer				
Conduction and Radiation				
Wetting and Capillarity Phenomena				
Micro-Nano Fluidics				
Micro-Nano Heat Transfer				
Data Analysis Methods				