

Course Title: FLUID MECHANICS FOR THE FUNCTIONAL ASSESSMENT OF CARDIOVASCULAR DEVICES

Professor name: Francesca M. Susin

Program: The course is intended to give a survey of research approaches for the assessment of cardiovascular medical devices. Emphasis will be given to methods and techniques adopted for the analysis of hemodynamic performance of prosthetic heart valves. Topics that will be covered: Review of basic fluid mechanics concepts. Definition of hydrodynamic performance of artificial cardiac valves and ventricular assist devices. Local and global approaches in in-vitro and in-silico models. Cardiac overload. Blood particles damage. Pulse duplicator loops and experimental techniques.

References: Course Slides. Literature references will be given during lectures, with particular attention to the most recent publications.

Examination and grading: Homework assignment with final discussion.

Course details: The course will be offered on-line. Schedule: tuesday 12.30-14.30 and thursday 12.30-14.30. First lecture on January, the 11th; final lecture on February, the 8th. A Moodle page of the course will be opened and communicated during the first lecture.