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Università Vita-Salute
San Raffaele

2nd Level Master in Structural Interventional Cardiology (60 ECTS)

Course Plan

1st YEAR
Coronary Interventional Cardiology (7 ECTS)

Course	ECTS	Hours	SSD
1. Set up in the cath lab: the importance of Radioprotection	0,25	2	MED/11
2. Vascular access in Interventional Cardiology: selection, closure devices, treatment of complications	0,25	2	MED/11
3. Antithrombotic therapies in Interventional Cardiology	0,25	2	MED/11
4. Functional Coronary Evaluation and microvascular evaluation: FFR, IMR; CFR	0,25	2	MED/11
5. Intracoronary Imaging: IVUS and OCT	0,25	2	MED/11
6. Treatment of Coronary Bifurcation and left main stem	0,25	2	MED/11
7. Myocardial Infarction	0,25	2	MED/11
8. Chronic Total Occlusion: wires, microcatheters and techniques	0,25	2	MED/11
9. Calcific lesion and debulking technique	0,25	2	MED/11
10. Drug eluting balloon in the cath lab	0,25	2	MED/11
11. Ventricular assistance Device: IABP, ECMO, Impella	0,25	2	MED/11
12. Statistical analysis applied to interventional cardiology	0,25	2	MED/11
Journal Club Meeting (1 st year)	2	50	MED/11
Research Meeting (1 st year)	2	50	MED/11

2nd YEAR
Structural Interventional Cardiology (7 ECTS)

Course	ECTS	Hours	SSD
1. CT-scan: patient's selection and planning of structural procedures	0,25	2	MED/11
2. Transcatheter Aortic Valve Implantation (TAVI): devices and techniques	0,25	2	MED/11
3. Planning of TAVI procedures based on CT analysis: The importance of proper fluoroscopic projection and cusp overlap technique	0,25	2	MED/11



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4. Bicuspid aortic valve: LIRA plane and different sizing technique	0,25	2	MED/11
5. Aortic Valve in valve procedure: how to deal with residual gradient and risk of coronary occlusion	0,25	2	MED/11
6. Transcatheter treatment of mitral regurgitation: from MitraClip to transcatheter mitral valve replacement and mitral valve in valve	0,25	2	MED/11
7. Transcatheter treatment of tricuspid regurgitation: Triclip, ortho-topic and ethero-topic valve replacement	0,25	2	MED/11
8. Echocardiography in interventional cardiology	0,25	2	MED/11
9. Left atrial appendage occlusion: patient's and device's selection	0,25	2	MED/11
10. Patent foramen Ovale closure: indication, devices and proper patient selection based on PFO anatomy; Atrial septal defect closure	0,25	2	MED/11
11. Transcatheter paravalvular leak closure	0,25	2	MED/11
12. Peripheral Percutaneous Transluminal Angioplasty (PTA) in interventional cardiology: not only bailout technique	0,25	2	MED/11
Journal Club Meeting (2 nd year)	2	50	MED/11
Research Meeting (2 nd year)	2	50	MED/11

Journal Club Meeting

It will be held weekly, with the aim of presenting the most recent scientific findings from the literature on topics of current interest in interventional cardiology. To foster the ability to self-work, the preparation of each topic is entrusted to a student of the master, under supervision.

Research meetings

The research meetings will be held weekly, with the aim of presenting the various studies and research projects in place at the Operational Unit on topics of current interest in interventional cardiology. To foster the ability to work independently, each student will be in charge of one or more specific research protocols and/or projects, which he/she will work on during the master, under supervision of a tutor.

Both activities will be held during the first and second year of the Master Program.

Other teaching activities – Clinical training activities				
<u>1st YEAR</u>				
Catheterization laboratory	16	400	Tutor	MED/11
Clinic and hospital ward activities	18	450	Tutor	MED/36
<u>2nd YEAR</u>				
Catheterization laboratory	18	450	Tutor	MED/11
Clinic and hospital ward activities	16	400	Tutor	MED/36



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Full-time attendance is required for clinical teaching activities, according to instructions shared by the Management of the Master. Each participant will be supported by a tutor who will assist them during each learning phase in the laboratory and hospital ward, reporting to the Course Coordinators and the O.U. Chief of Staff any difficulties in maintaining the predetermined standards in terms of quality and quantity.

Internship				
<u>1st YEAR</u>				
Clinical cases discussions	10	250	Tutor	INT
Staff meetings and complications meetings	5	125	Tutor	
Department meetings	4	100	Tutor	
<u>2nd YEAR</u>				
Clinical cases discussions	5	125	Tutor	INT
Staff meetings and complications meetings	2	50	Tutor	
Department meetings	2	50	Tutor	

Clinical cases discussions

The various cases to be treated on each day are discussed and illustrated. This allows to clarify the specific therapeutic programs to be implemented.

4 hours a week for 40 weeks

Staff meetings and complications meetings

They take place every 2 weeks and have a duration of 1 hour. Topics include: presentation of new interventional techniques; presentation of new controlled clinical trials; review of the cases of interest in the previous days or to be planned, re-evaluating or deciding on the individualized therapeutic approach. On a monthly basis, one of these meetings is dedicated to the discussion of the complications that occurred in the previous month during the ward activities and the operating procedures, in order to avoid their recurrence and treat them more effectively.

Department meetings

They take place monthly, with a duration of 1 hour, before the start of clinical activity, and are organized in rotation by the services of interventional cardiology, clinical cardiology, cardiac surgery, arrhythmology and vascular surgery. The meetings are presented with new diagnostic and therapeutic techniques, reviewing cases with an interdisciplinary approach, and proposing new diagnostic and therapeutic protocols for revision of the guidelines.

The internship will take place over the two-year period of the Master Program.

Final assessment				
Sperimental clinic-related thesis	10	250	Relatore	PROFIN



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Each student will conduct an independent research project that evaluates the application of new devices in interventional cardiology, applied in specific subgroups of patients/injuries, in comparison with other diagnostic or treatment methods. Participants are expected to verify the completeness of the acquired data, to learn specific analysis methods such as quantitative angiography techniques or reconstruction/segmentation of 3D ultrasound or computerized analysis of intracoronary pressure/velocity signals and statistical methods for final analysis. Each participant will be supported by a tutor who will assist them in understanding the structure of the existing database and the methods of exporting and processing the data, guiding them to complete the research and to prepare the abstracts/final manuscript. Students will be required to prepare a presentation of their study, to be illustrated at international congresses in the form of an abstract and the preparation of a report to be sent as an original article in a peer-review journal is expected. In addition, the participants will also be entrusted with other research projects or research protocols in place in the U.O. and, for this purpose, they will discuss not only with their tutor, but also with other trial coordinators. The outcome of the project will consist in its presentation, in front of the Didactic Commission of the Master, in the form of an experimental thesis.

Summary of teaching activities			
<u>Year</u>	<u>Activity</u>	<u>ECTS</u>	<u>Hours</u>
1 st year	Face-to-face teaching activity	7	175
	Clinic and hospital ward activities	34	850
	Internship	19	475
	Total 1 st year	<u>60</u>	<u>1500</u>
2 nd year	Face-to-face teaching activity	7	175
	Clinic and hospital ward activities	34	850
	Internship	9	225
	Thesis	10	250
	Total 2 nd year	<u>60</u>	<u>1500</u>
Total Master		120	3000