



University of Applied Sciences: Campus Wien

Department: Health

Section: Radiological Technology

Institutional Erasmus Code: A WIEN63

Institution Website: www.fh-campuswien.ac.at

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For general information regarding studying at the FH Campus Wien and living in Vienna, please consult the “Welcome Guide for Exchange Students”.

Additional Information for Radiological Technology Exchanges:

Radiation monitoring

TLD dosimeters will be provided.

Health Insurance

Health insurance is free for all EU citizens with a European health insurance card. This should be arranged prior to your arrival to Austria.

Medical examination

There is no need for extra medical examination but please bring a card with a record which proves evidence of immunity to: hepatitis B.

Uniforms

Students **must** have a white uniform (trousers/skirt + tunic) and shoes (for indoor use only). You will have to launder your uniform yourself.

Personal name badge are required in the hospitals – it should be brought by the students.

Meals

Foreign students have the possibility for food at the university or at most of the hospitals where their practical courses are, but they will have to pay for themselves.

More information can be found on the following sites:

www.fh-campuswien.ac.at

Data on International Office:

Address: Favoritenstrasse 226

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Information about Studying in Vienna

http://www.fh-campuswien.ac.at/en/studying_in_vienna/

Information about Austria:

<http://www.austria.org/>

<http://www.bmeia.gv.at/en/foreign-ministry/austria/culture.html>

We wish you a pleasant stay in Vienna, Austria.

Willkommen!

EXCHANGE MODULE – MEDICAL IMAGE GENERATION AND PROCESSING / POST PROCESSING (ANGIO and CT) – 7 ECTS

Lectures for all Erasmus students will be provided in English, separately from the Austrian students. The Erasmus exchange module is composed of MEDICAL IMAGE GENERATION AND PROCESSING / POST PROCESSING (ANGIO and CT)

Credits theory:	Practice:			Other credits: (German language)
	Credits	Weeks with patients	Total hours of practice,	
7	10	8	220	3

Module		A		B	C	
	Language Course	Post Processing Angiography	Practical Course Angiography	Image generation and processing	Post Processing CT	Practical Course CT
Weeks	1	1	4	1	1	4
ECTS	3	2	5	3	2	5
Lecturer	Int. Office	Iris Cordula Slingsby		Godoberto Guevara R.	Sylvia Unterhumer	
Where	UAS	UAS Campus	in Hospital	UAS Campus	UAS Campus	in Hospital

Assessment

An exam will be held after finishing Module B: Image generation and processing. A written report of 300 words will be required after both Modules A: Post Processing Angiography and Module C: CT.

Practical placement – 10 ECTS (95% attendance is required)

1. Practical Course in Angiography:

Duration: 4 Weeks

Course content

Preparation and carrying out of examinations, scoring and analysis of the results in relation to qualitative guidelines in angiography, interventional radiology and cardiological angiography.

Special focus is laid in post processing in Angiography to apply the knowledge and skills which were gained at the Workstations and in the week of theory at the FH-Campus Wien.

Clinical placements in angiography are offered in these Viennese hospitals:

AKH: <http://www.akhwien.at/default.aspx?pid=80>

KFJ: <http://www.wienkav.at/kav/kfj/>

Hanusch: www.hanusch-krankenhaus.at

Hietzing: <http://www.wienkav.at/kav/khl/>

2. Practical Course in Computer Tomography:

Duration: 4 Weeks

Course content

Preparation and execution of examinations / evaluation and analysis of the results in terms of quality guidelines in the computed tomography.

Special focus is laid in post processing in CT to apply the knowledge and skills which were gained at the Workstations and in the week of theory at the FH-Campus Wien.

Clinical placements in CT are offered in various Viennese hospitals.

Students are expected to work from 8 am – 2 pm.
(Half an hour lunch break is included in this time)

LANGUAGE COURSE

This course is run by the International Office, and each student will take part in a two week German language course at the beginning of the exchange period.

INTRODUCTION TO MODULES A, B and C

For these courses, the level may be set individually to suit each student depending on their skills and previous experience. We may also be able to consider each student's specific wishes. We expect that students will learn basic skills first and thereafter build up knowledge on additional learning goals. For students particularly interested in certain topics, we offer the possibility to support completion of a Bachelor project within a specific module, as well as development of further specialised skills, within the framework of an approved Learning Agreement.

MODULE A: POST PROCESSING IN ANGIOGRAPHY

Students will be able to learn post processing techniques and be able to apply them to real-life case studies in angiography. Hands-on training on Workstation in FH Campus Wien will be offered to practise these skills, before students will use them during practical courses. The Workstations at FH Campus Wien are Siemens Syngo MultiModality Workplaces and alternatively Philips I-SITE Training systems.

Course contents

- Imaging and image analysis (Post processing): Anatomical Background, Pixelshift, Zoom, OPAC, Window Center
- Calibration methods
- Quantitative Coronary Analysis
- Quantitative Vessel Analysis
- Analysis of acquired image and technical assessment in relation to qualitative guidelines.
- Left Ventricle Analysis

At the end of the course the students will be able to:

- perform the picture-post processing of selected cases independently
- identify correct image quality
- document the investigation and treatment data and analyze the results

MODULE B: MEDICAL IMAGE GENERATION AND PROCESSING

This course has two parts to it. The first part is in the Area of Data Acquisition and the second part has image processing as the content.

Course contents Data Acquisition,

Data acquisition and digital imaging

Technology of radiological imaging systems (film, memory screens and flat-detectors); resolution.

Course contents Medical Image Processing

Terms and definitions;/ technical bases; / Methods for single and multiple image processing; / image processing functions; / mathematical bases of image processing (types and principle of filter and reconstruction algorithm); / Multi-modality image fusion (e.g. SPECT and CT); / possibilities and limits of image processing and reconstruction (2D, 3D, 4D); / Presentation of innovative technologies (e.g. Virtual surgery, Navigation, Computer Aided Surgery)

At the end of the course the students will be able to:

- explain the process of the data acquisition and digital imaging
- understand image quality of digital systems
- to describe the process of analog and digital picture emergence
- to describe the process of analog and digital picture emergence
- to explain the principles of image processing, image fusion and reconstruction

References:

SUETENS Paul: Fundamentals of Medical Imaging.- Cambridge University Press
2002

MODULE C: POST PROCESSING IN CT

Students will be able to learn post processing techniques and be able to apply them to real-life case studies in CT. Hands-on training on Workstation in FH Campus Wien will be offered to practise these skills, before students will use them during practical courses. The Workstations at FH Campus Wien are Siemens Syngo MultiModality Workplaces and alternatively Philips I-SITE Training systems.

Course contents

- Imaging and image analysis (Post processing): thickness, increment, kernel, Window Center, viewing levels
- 2D (MPR, thin-MIP, CPR)
- 3D (MIP, SSD, VRT)

At the end of the course the students will be able to:

- perform the picture-post processing independently,
- analyse the test results with regard to qualitative assessment of errors and their causes
- identify correct product quality
- document the investigation- and treatment-data and analyze the results

References:

-) PROKOP, M./GALANSKI, M.: Computed Tomography of the Body.- Thieme; Stuttgart 2003