

FEATURES AND FACTS

Postgraduate distance learning programs delivered in English, accredited by the accreditation institute ACQUIN and terminating with a Master of Science degree (MSc) or Postgraduate study certificates (PG Certs).

Flexible online and on-site programs of study including workshops and internships at the leading-edge medical facilities DKFZ, HIT, the world's prototype ion beam facility, and Heidelberg University Hospital.

Meet pioneering experts with longstanding experience in IMRT, ion beam scanning and treatment planning as well as radiobiological modeling.

Promising new career prospects for APMR graduates in teaching, research or care services in medical centers, national laboratories, academic institutions, governmental regulatory agencies as well as in medical and nuclear industrial facilities.

Program duration
MSc study track: 4 semesters
PG short study track: 3 Modules (approx. 1 year)
PG full study track: 6 Modules (approx. 1,5 years)
MO: 4 Modules (approx. 1 year)
MO-M5 can also be studied separately on demand.

Reduction of tuition fees for winter term 2014/15
(will be officially released in May/June 2014!)
MSc track: per semester € 2,375
PG short track: € 1,400 per module, in total € 4,200
PG full track: € 1,400 per module, in total € 8,400
MO: € 1,200 per module, in total € 4,800

Program start
MSc study track: September of every academic year
PG study tracks: any time of the year
MO: October of every academic year

MSc and MO application deadline
July 15, 2014 (later applications may be accepted depending on number of participants)



PROGRAM LEADERS

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dkfz.



Accredited by
ACQUIN



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POSTGRADUATE STUDIES



UNIVERSITÄT
HEIDELBERG
ZUKUNFT
SEIT 1386



MASTER ONLINE
ADVANCED PHYSICAL METHODS IN RADIOTHERAPY

DISTANCE LEARNING
PROGRAMS IN
MEDICAL PHYSICS

PROGRAM DESCRIPTION

Introduction
The Master Online and the Postgraduate (PG) study tracks in “Advanced Physical Methods in Radiotherapy” (APMR) at top-ranking Heidelberg University are unique postgraduate distance learning programs delivered in English in the field of medical physics. Designed to keep up with new innovations and developments, these programs are the result of a new long-term collaboration between the widely acclaimed German Cancer Research Center (DKFZ), the distinguished Heidelberg University Hospital and the new state of the art heavy ion facility, the Heidelberg Ion-Beam Therapy Center (HIT).

What else makes our programs so unique?
Advanced technology in clinical practice plays an increasing role in the optimum care and treatment of cancer patients. Unlike any other programs, APMR offers students advanced practical training at cutting-edge radiotherapy facilities in Heidelberg reinforced by rigorous, theoretical online instruction from 70+ internationally based teaching staff and prominent experts in the disciplines of radiology, radiooncology, radiation safety and medical physics. Graduates of APMR will be equipped with the specialized technical skills underpinned by a solid theoretical grounding in advanced cancer treatment

techniques such as intensity modulated and image guided radiotherapy (IMRT, IGRT) and proton and heavy ion therapy. A shortage of specialists world-wide is already reality and this is where APMR can contribute to filling the widening gap.

Mode of study
The APMR distance learning programs are tailored to fit the adult learner’s busy schedule. They are delivered predominantly online (80%) with periodic workshops and internships in Heidelberg at modern radiotherapy units and the HIT facility (20%). By making effective use of online technology students have access to a flexible and supportive virtual learning and teaching environment. Web discussion activities and online seminars foster collegiate communication and collaboration with teaching experts and peers at times that suit students’ individual needs.

New basic course in Medical Physics
Starting October 2014 we offer an elective basic course in Medical Physics the “M0” to best prepare students to the APMR study programs. The M0 comprises 4 modules which can be studied on an individual basis. Interested? Please contact us at apmr@uni-hd.de.

MODULES OF STUDY



Elective Module: M0 Medical Physics Basics
Radiotherapy, Nuclear Medicine, Imaging for Radiooncology, Basics (Anatomy & Physiology, Biomathematics & Informatics, Medical Technology, Risk Management)

Module M1 Anatomy and Imaging for Radiotherapy
Introduction, Anatomy for Physicists, Imaging, Virtual Anatomy, Diagnostic Radiology, Workshop

Module M2 Intensity Modulated Radiotherapy
Introduction IMRT, IMRT in Clinical Routine, Advanced Application Techniques, Workshop

Module M3 Ion Therapy
Introduction, Physical Principles, Beam Generation and Application, Radiation Biology Treatment Planning, Clinical Application of Ion Therapy, Seminar

Module M4 Image Guided Radiotherapy and Adaptive Radiotherapy
Introduction, IGRT Techniques (Physics), Clinical Application IGRT (Medicine), Moving Target Volumes and Adaptive Radiotherapy, Workshop

Module M5 Advanced Dosimetry and Quality Assurance
Introduction, Dosimetric Principles, Dosimetry for Advanced Radiotherapy Techniques, Quality Assurance, Workshop

Module MI Internships
Treatment Planning, IMRT, ART, Ion Therapy, Dosimetry and Quality Assurance

Module MT Master’s Thesis
Topic to be selected from modules 1-5

COURSE STRUCTURE

SEMESTER 1 (Start September Year 1)		ECTS Credits
Welcome Day (1 day – optional)		15
Module M1	Module M2	
Anatomy and Imaging for Radiotherapy	Intensity Modulated Radiotherapy (IMRT)	
	Attendance Phase M1, M2 (4 days)	
SEMESTER 2 (Start March / April Year 2)		
Module M3	Module M4	15
Ion Therapy	Image Guided Radiotherapy (IGRT) and Adaptive Radiotherapy (ART)	
	Attendance Phase M3, M4 (4 days)	
SEMESTER 3 (Start October / November Year 2)		
Module M5	Module MI	15
Advanced Dosimetry and Quality Assurance (QA)	4 Internships	
Attendance Phase M5 + MI (14-18 days)		
SEMESTER 4 (Start March / April Year 3)		
Module MT		30
Master's Thesis		
		Σ 75
MSc Prerequisites	– Relevant Degree of higher or further education institute (Bachelor, Diploma, Master)	45
	– Proof of at least one year of professional experience following the first degree and at least two years of professional work experience in medical radiation physics upon application for admission to the Master's examination	
	– Competency in medical physics subject to scrutiny by submission panel	
	– English language proficiency	
PG Certs Prerequisites	– Relevant degree of higher or further education institute (Bachelor, Diploma, Master)	
	– English language proficiency	
		Σ 120