



Infos on the
Focus Area ("Schwerpunkt")
Visual & Medical Computing (VMC)
in the Computer Science Master's
(Informatik Master)

Structure of Focus Area VMC (Translated)

Sem.	Modules to Take				
1	Core (IMK-VMC) (6)	Elaborations in Practical CS (IMAP-VMC) (6)	Elaborations in Theoretical CS (6)	Project Management & Scientific Working (6)	General Studies (6)
2	Elaborations in CS (IMA-VMC) (6)	Master Project in VMC (24)		Enrichment Theoretical CS / Enrichment Applied CS (IMVT/IMVA-VMC) (6)	General Studies (6)
3	Enrichment Practical CS (IMP-VMC) (6)			Enrichment CS (6)	General Studies (3) Master Seminar (3)
4	Master Thesis in VMC (30)				

Full Details at <https://www.szi.uni-bremen.de> → Lehre → Masterschwerpunkte

Struktur des Schwerpunktes VMC

Sem.	Zu belegende Module				
1	Kern (IMK-VMC) (6)	Aufbau Praktische Inform. (IMAP-VMC) (6)	Aufbau Theoretische Inform. (6)	PM & WK (6)	General Studies (6)
2	Aufbau Informatik (IMA-VMC) (6)	Master-Projekt im Bereich VMC (24)		Vertiefung Theor. Inform. / Vertiefung Angewandte Inform. (IMVT/IMVA-VMC) (6)	General Studies (6)
3	Vertiefung Praktische Inform. (IMP-VMC) (6)			Vertiefung Informatik (6)	General Studies (3) Master-Seminar (3)
4	Master Thesis im Bereich VMC (30)				

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Recommendations if You Plan to Work in Visual Computing Later

- In the Bachelor's program, take at least some of these courses:
 - Computergraphik
 - Sensordatenverarbeitung (Frese, Schultz)
 - Grundlagen des Maschinellen Lernens (Schultz), Deep Learning für Medizinische Bildverarbeitung (Meine)
 - Human Computer Interaction (Malaka), Grundlagen der Medieninformatik 1 (Malaka, Frese)
 - Propädeutikum C/C++ ! Also learn Python
 - Operations Research (Megow)
 - Game Engines (Beetz)
 - Mathe! Numerik, Differentialgeometrie, Differentialgleichungen, ...

Suggestions for Your Master's Studies, if You Want a Job in Visual Computing

Lists are meant as "one out of .." !

- Advanced Computer Graphics
- Virtual Reality and Physically-Based Simulation

- Computational Geometry
- Theorie der Sensorfusion
- Embodied Interaction
- Approximation Algorithms
- Numerik 1 (maths; just take 2/3 for 6 CP)

- Numerik partieller Differentialgleichungen
- Algorithmische Diskrete Mathematik
- Reading Course zur Numerik
- Oberseminar Optimierung & Optimale Steuerung

- Deep Learning für Med. Bildverarbeitung
- Seminar oder Proseminar in der Mathematik

- One of the topics/projects offered by the labs of
- Prof. Frese (Multisensorische interaktive Systeme)
 - Prof. Hahn (Digitale Medizin)
 - Prof. Zachmann (Computergraphik und Virtuelle Realität)

Deep-Learning- und 3D-Bildverarbeitung (Frese)

- Advanced Computer Graphics
- Virtual Reality and Physically-Based Simulation
- Medizinische Bildverarbeitung
- Advanced Machine Learning

- Entertainment Computing
- Massively-Parallel Algorithms
- Semantic 3D-Perception for Robotic Systems
- Software Reengineering
- Rechnernetze / Media Networking

