

# Information Technology

Providing the Industrial Perspective on IT

## Joint International Programme Master of Science (M.Sc.)

### Curriculum (Valid as of September 2009; CR: ECTS credits)

Students have to choose at least 2 different universities during the first 3 semesters.

#### 1st Semester

Halmstad (September - January)		Wroclaw (September - January)	
Course	CR	Course	CR
Algorithms and Data Structures for Problem Solving	7.5	Advanced Algorithms and Data Structures	6
Signal Analysis and Representation	7.5	Theory of Information and Signals	6
Applied Mathematics for Computer Science and Engineering	7.5	System Modeling and Analysis	6
		Advanced Data Bases <sup>3</sup>	6
Embedded Systems Programming <sup>1</sup>	7.5	Advanced Topics in Artificial Intelligence <sup>3</sup>	6
Image Analysis <sup>1</sup>	7.5	Digital Image Processing <sup>3</sup>	6
Optics, Vision, and Cameras <sup>1</sup>	7.5	Expert Systems <sup>3</sup>	6
Computer Vision in 3D <sup>1</sup>	7.5	Multimedia Information Systems <sup>3</sup>	6
		Operations Research in Computer Science <sup>3</sup>	6
		Parallel Computer Architecture <sup>3</sup>	6

<sup>1</sup> One of these courses must be taken

<sup>3</sup> Two of these courses must be taken

#### 2nd Semester

Halmstad (February - June)		Lemgo (March- July)	
Course	CR	Course	CR
<b>Communication Systems</b> (Channel Coding and Digital Communications, Modern Communication Systems and Networks, Real-Time Networking, Wireless Communication Systems) <sup>4</sup>	30	Communication for Distributed Systems (CDS) <sup>5</sup>	6
		Information Fusion (IFU) <sup>5</sup>	6
		Intelligent Sensors (INS) <sup>5</sup>	6
		Network Security (NWS) <sup>5</sup>	6
<b>Embedded Systems</b> (Cyber-Physical Systems, Distributed Real-Time Systems, Embedded Parallel Computing, Real-Time Networking) <sup>4</sup>	30	Signal Processing Algorithms (SPA) <sup>5</sup>	6
		Software Engineering for Web Services (SWE) <sup>5</sup>	6
		System Modeling and Simulation (SYM) <sup>5</sup>	6
<b>Intelligent Systems</b> (Intelligent Vehicles, Digital Control, Learning Systems, Autonomous Mechatronical Systems) <sup>4</sup>	30	Wireless Communications (WLC) <sup>5</sup>	6
		Innovation and Development Strategies (IDS)	6

<sup>4</sup> One course package must be taken

<sup>5</sup> Four of these courses must be taken

... please turn to the next side for semester 3 and 4

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### 3rd Semester

Esbjerg (Sep. - Jan.)		Lemgo (Sep. - Feb.)		Wroclaw (Sep. - Jan.)	
Course	CR	Course	CR	Course	CR
<b>Project Work</b> incl. project unit courses	24	<b>Project Work (PIT)</b>	18	<b>Project Work</b>	12
Software Technology	3	Seminar on Industrial Information Technologies (SEM)	3	Information System Modelling and Analysis <sup>7</sup>	6
Computer Vision <sup>6</sup>	3	Management Skills and Business Administration (MBA)	6	Software System Development <sup>7</sup>	6
Control Theory <sup>6</sup>	3			Advanced Data Bases <sup>8</sup>	6
Database Systems <sup>6</sup>	3			Advanced Topics in Artificial Intelligence <sup>8</sup>	6
Fuzzy Logic <sup>6</sup>	3	Scientific Methods and Writing (SMW)	3	Digital Image Processing <sup>8</sup>	6
				Expert Systems <sup>8</sup>	6
				Multimedia Information Systems <sup>8</sup>	6
				Operations Research in Computer Science <sup>8</sup>	6
				Parallel Computer Architecture <sup>8</sup>	6

<sup>6</sup> One of these courses must be taken

<sup>7</sup> One of these courses must be taken

<sup>8</sup> Two of these courses must be taken (different from semester 1)

### 4th Semester

Master thesis at one of the universities selected in semester 1 to 3, 30 credits
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