MSc in Computer Science
(See Sheet2 for a list of acronyms of courses)

Areas and topics / Courses	Modules, Subjects)													Elective Courses							Total
	OSE	SENG	PSYS	DSYS	ADB	INS	KMS	IAT	MST	UID	MSI	LEA	RMT	MA	SWQ	WAN	AISA	AIT	CVI	ANS	
AMA. Advanced Mathematics for CS																					
AMA1. Line and surface integrals														2							2
AMA2. Scalar and vector potentials														2							2
AMA3. Orthogonal curvilinear coordinates														2							2
AMA4. Partial differential equations											2			2							4
AMA5. Recursive relations														2							2
AMA6. Deriving functions														2							2
AMA7. Operation calculus and application														2							2
AMA8. Numerical methods											2			2							4
AMA9. Queuing theory											2			2							4
AMA10. Combinatorics														3							3
AMA11. Probability and statistics														5	5		2				12
AMA12. Coding and Information theory														2			2				4
AMA13. Mathematical models for computer security		2												2							4
AMA14. Cryptographic primitives		2																			2
AMA15. Cryptoanalytic techniques		2																			2
AMA16. Operations research		2																			2
AMA17. Scientific computing								4													4
MSE. Modern Methods in Software Engineering																					
MSE1. Component-based computing	5	2						4													11
MSE2. Formal description techniques		2					3								4						9
MSE3. Prototyping and evolution		3																			3
MSE4. Software reuse	4	3						4													11
MSE5. Software measurement and metrics		3													6						9
MSE6. Software dependability; software process models	2	3													6						11
MSE7. CASE	3	4																			7
MSE8. Security policies		3										2				2		2			9
MSE9. Project management	2	4										2			2						10
MSE10. Document management		2						4				2									8
MSE11. Collaboration technology and groupware	4				4							2			3			2			15
PPR. Parallel Programming																					
PPR1. Parallel computer systems			2																		2
PPR2. Homogeneous computational structures			2																		2
PPR3. Transputers			2																		2
PPR4. Architecture for networks and distributed systems			2	2																	4
PPR5. Multiprocessing and alternative architectures			4																		4
PPR6. Data parallelism			2		2																4

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PPR7. Parallel algorithms			4																		4
PPR8. High-level language constructs for parallel programming			4																		4
PPR9. Decomposition techniques			2	2																	4
PPR10. Parallel computing paradigms			2																		2
PPR11. Concurrency and control			4	2																	6
PPR12. Load balancing and performance monitoring			2																		2
DSS. Distributed Systems																					
DSS1. Distributed algorithms				4																	4
DSS2. Distributed processing				2	2																4
DSS3. Distributed object systems				2	2																4
DSS4. Distributed operating systems				6																	6
DSS5. Client-server model				2												2		2			6
DSS6. Inter-process communication			4	4				2													10
DSS7. Remote procedure calls			3	2														2			7
DSS8. Naming and protection			3	2												2					7
DSS9. Shared data and transactions		2	3		4																9
DSS10. Replication		2		2	2																6
DSS11. Security in computer networks and distributed systems				2	2																4
ADB. Advanced Databases																					
ADB1. Distributed databases				3	4																7
ADB2. Object-oriented databases					4																4
ADB3. Transaction processing and management				2	2																4
ADB4. Advanced relational database design					2																2
ADB5. Physical database design					2																2
ADB6. Data mining		2			3																5
ADB7. Data warehousing		2			2																4
ADB8. Database security				2	2																4
ADB9. Natural language processing					2	4		4		4											14
ADB10. Multimedia information systems					2				4	2											8
ADB11. Digital libraries					2																2
ADB12. Electronic document management systems				2								2						2			6
AIS. Advanced Intelligent Systems																					
AIS1. Knowledge-based systems							8														8
AIS2. Artificial intelligence planning systems						3	3	2												4	12
AIS3. Search and constraint satisfaction						2	2														4
AIS4. Neural networks						3														6	9

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AIS5. Genetic algorithms						**3**														**5**	**8**
AIS6. Game theory						**4**														**5**	**9**
AIS7. Speech recognition						**2**				**2**											**4**
AIS8. Automated reasoning							**2**														**2**
AIS9. Computational linguistics						**6**	**2**													**5**	**13**
AIS10. Agents						**3**	**2**	**6**								**2**				**5**	**18**
MSI. Modelling and Simulation																					
MSI1. Fundamentals of dynamic system theory											**2**										**2**
MSI2. Fundamental concepts of modelling and simulation											**2**										**2**
MSI3. Modelling methods, tools and algorithms											**2**										**2**
MSI4. Object-oriented approach to modelling and simulation											**2**										**2**
MSI5. Simulation languages											**2**										**2**
MSI6. Software tools for modelling and simulation											**2**										**2**
MSI7. Discrete system simulation											**2**										**2**
MSI8. Continuous system simulation											**2**										**2**
MSI9. Simulation environment											**2**										**2**
MSI10. Common applications of modelling and simulation											**2**										**2**
MSI11. Special applications of modelling and simulation											**2**										**2**
MSI12. Advanced topics in simulation											**2**										**2**
AIT. Advanced Internet Technologies																					
AIT1. Markup languages - XML																		**4**			**4**
AIT2. Application protocol suites																**4**					**4**
AIT3. Integrated services																**2**					**2**
AIT4. Mobile computing																**3**					**3**
AIT5. Wired and wireless IP protocol-based technologies																**4**					**4**
AIT6. Computer telephony																**2**					**2**
AIT7. Enterprise systems: intranets & extranets																**3**					**3**
AIT8. The Web as an example of client-server computing																		**2**			**2**
AIT9. Advanced server-side technologies																		**5**			**5**
AIT10. Guidelines for user interfaces										**2**								**2**			**4**
AIT11. Central problems in Web design										**3**											**3**
MST. Multimedia Systems and Technologies																					
MST1. Multimedia applications and content authoring									**2**												**2**
MST2. Multimedia servers and file systems									**2**												**2**
MST3. Networked and distributed multimedia systems				**2**					**2**							**4**	**2**				**10**
MST4. Multimedia systems development									**4**												**4**

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	OSE	SENG	PSYS	DSYS	ADB	INS	KMS	IAT	MST	UID	MSI	LEA	RMT	MA	SWQ	WAN	AISA	AIT	CVI	ANS	
MST5. Interactive systems development									4	2								2			8
MST6. Graphical user interfaces									2	5									2		9
MST7. Interface Managers									2	2											4
MST8. Construction Skills									2	2											4
MST9. HCI Guidelines, Principles and Standards	3								2	2											7
MST10. Interaction Styles, Metaphors and Conceptual Models	4								2	2											8
MST11. User Models	3								2	2					4			2			13
VSI. Vision and Imaging																					
VSI1. Computer vision																			4		4
VSI2. Theoretical problems of image synthesis and analysis																	6		2		8
VSI3. Digital media/hypermedia																		3	4		7
VSI4. 3D modelling																	4		4		8
VSI5. 3D rendering																	4		4		8
VSI6. 3D animation																	4		4		8
VSI7. Virtual reality																	4		4		8
VSI8. Graphic communication																	2		2		4
GOT. General Organization Theory																					
GOT1. Hierarchical and flow models of organization												2									2
GOT2. Organizational work groups							4					2									6
GOT3. Organizational span. Single user. Work group. Team. Enterprise. Global							4					2									6
GOT4. Software sales, licensing and agency												2									2
GOT5. Contract and privacy law												4									4
GOT6. Ethics and protection of intellectual propetry rights												4									4
GOT7. CS society and ethics												4									4
Total hours	30	45	45	45	45	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	

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Type	Acronym	Course (Module, Subject) Name
Core	OSE	Object-oriented software evolution
	SENG	Systems Engineering
	PSYS	Parallel Systems
	DSYS	Distributed Systems
	ADB	Advanced Databases
	INS	Intelligent Systems
	KMS	Knowledge Management Systems
	IAT	Intelligent Agent Technologies
	MST	Multimedia Systems and Technologies
	UID	User Interface and Web Design
	MSI	Modelling and Simulation
	LEA	Legal and Ethical Aspects
	RMT	Research and Master Thesis
Elective	MA	Advanced Mathematics
	SWQ	Software Quality
	WAN	Wide Area Networks
	AISA	Advanced Image Synthesis and Analysis
	AIT	Advanced Internet Technologies
	CVI	Computer Vision
	ANS	Artificial Neural Systems