BSc in Information Systems
(See Sheet2 for a list of acronyms of courses)

Areas and topics / Courses	Core Courses (Modules, Subjects)																				Elective Courses (Modules, Subjects)										Total
	MA1	IPR	PL	ISB	FIS	DS	SWE	CO	OS	ITM	TIU	ISD	ISW	SCC	BF	ISTP	DB	NT	CG	PMP	MA2	IM	CP	TFT	CS	HCI	RTS	CA	ADS	IS	
MA. Mathematics																															
MA1. Complex numbers and polynomials	5																														5
MA2. Matrices, determinants	5																														5
MA3. Systems of linear algebraic equations	5																														5
MA4. Limits of functions	5																														5
MA5. Differential calculus of a single variable functions	5																														5
MA6. Basic integration methods	5																														5
MA7. Definite integral and applications																					5										5
MA9. Differential equations																					5										5
MA12. Function of complex variables, Fourier series																					5										5
MA13. Operation calculus and application																					5										5
MA14. Numerical methods																					5										5
PF. Programming Fundamentals																															
PF1. Basic data types		5																													5
PF2. Fundamental programming constructs		4	2																												6
PF3. Algorithms and problem solving		2																													2
PF4. Fundamental data structures		4	2																										2		8
PF5. Files			4																												4
PF6. Recursion			2																										2		4
PF7. Non-linear structures			3																										2		5
PF8. Overview of programming languages			2																												2
PF9. Object-oriented programming			5																												5
PF10. Event-driven programming			2																												2
IB. Information System Basics																															
IB1. Work productivity concepts				4									6																		10
IB2. Templates and macros				4																											4
IB3. Reuse of information systems				4																											4
IB4. Organization and management of data				6									6																		12
IB5. Application software				4																											4
IB6. System software				4																											4
IB7. Package software solutions				4																											4
FI. Fundamentals of Information Systems																															
FI1. System concepts					4																										4
FI2. System components and relationships					4																										4
FI3. Quality of information					4																										4
FI4. Value of information					4																										4
FI5. Cost of information					4																										4
FI6. Design of information systems					6																										6
FI7. Specification of information systems					4																										4

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DS. Discrete Structures																															
DS1. Functions, relations and sets						5																									5
DS2. Basic logic						5																									5
DS3. Boolean algebra and functions						5																									5
DS4. Proof techniques						5																									5
DS5. Graphs and trees						5																									5
DS6. Queuing systems						5																									5
DS7. Cryptographic methods																									5						5
SE. Software Engineering																															
SE1. Life cycle of a software product							4																								4
SE2. Software requirements and specifications							5																								5
SE3. Software testing and validation							5																								5
SE4. Software evolution							5																								5
SE5. Software documentation							5																								5
SE6. Software tools and environments							6																								6
SE7. Using APIs			2																							4					6
SE8. Component-based computing			2																							4					6
SE9. Specialised system development							4																								4
SE10. Software project management							5															2									7
CO. Computer Organization																															
CO1. Machine level representation of data								5																							5
CO2. Arithmetic basis								5																							5
CO3. Main signals and logic structure of a processor								4																							4
CO4. Structure of arithmetic and logic unit								5																							5
CO5. Structure of control unit								5																							5
CO6. Structure of interrupt system								3															4					2			9
CO7. Input/output devices								4															6								10
CO8. External storage devices								4															6								10
CO9. Peripheral interfaces								4															5					2			11
OS. Operating Systems																															
OS1. Operating system overview									2																						2
OS2. Operating system principles									4																						4
OS3. Process description and control									4																						4
OS4. Concurrency									5																						5
OS5. Scheduling and dispatch									4																						4
OS6. Memory management									4																						4
OS7. I/O management and disk scheduling									3																						3
OS8. File management									2																						2

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OS9. Security and protection									2																5						7
TM. Information Technologies and Management																															
TM1. Information models and systems										4																					4
TM2. Information storage and retrieval										4																					4
TM3. Information systems management										4																					4
TM4. Project and risk management										4																					4
TM5. Decision theory										4																					4
TM6. General organization theory										4																					4
TM7. Managing the process of change										2																					2
TU. Taking Information Systems in Use																															
TU1. Technical considerations											2																				2
TU2. Methods of accquiring information systems											4																				4
TU3. Organizational considerations											4																				4
TU4. Personnel considerations											4																				4
TU5. Client considerations											4																				4
TU6. Information system installation											4																				4
TU7. Information system upkeep											4																				4
TU8. Information system upgrading											4																				4
ID. Information System Development																															
ID1. Approaches to system development												4																			4
ID2. System development theories												4																			4
ID3. System development concepts and methodologies												5																			5
ID4. System development tools												5																			5
ID5. Application planning												4																			4
ID6. Systems testing and implementation strategies												4																			4
ID7. Specific information systems development												4																			4
SP. Social & Professional Issues																															
SP1. History of computing		2																													2
SP2. Social context of computing		2											3	3																	8
SP3. Methods and tools of analysis														5																	5
SP4. Professional and ethical responsibilities													5	3																	8
SP5. Risks and liabilities of computer-based systems													5	3																	8
SP6. Intellectual property													5	3																	8
SP7. Privacy and civil liberties														4																	4
SP8. Computer crime														4																	4
BF. Business Fundamentals																															
BF1. Information and business analysis															5																5

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BF2. Electronic document management systems															5																5
BF3. Technology of electronic business															5																5
BF4. Economical aspects of software engineering															5																5
BF5. Economic issues in computing															5																5
TP. Information Systems Theory and Practice																															
TP1. Systems theory and concepts																6															6
TP2. Information systems and organization theory																5															5
TP3. Decision support																5															5
TP4. Information systems quality																7															7
TP5. Information systems levels																6															6
TP6. Information systems strategies																6															6
TP7. Systems components and relationships																4															4
TP8. Roles of information in systems																6															6
DB. DBMS																															
DB1. Data modelling										4							5														9
DB2. Architecture of DBMS																	4														4
DB3. Relational databases																	6														6
DB4. Object-oriented databases																	6														6
DB5. Database query languages																	4														4
DB6. Data warehousing and mining																	4														4
DB7. Transaction processing																	4														4
DB8. Life cycle of information systems development																	4														4
DB9. Information storage and retrieval																	4														4
DB10. Data security and integrity																	4								5						9
NT. Networks and Telecommunication																															
NT1. Data communication																		3													3
NT2. Telecommunication configurations																		3													3
NT3. Network and WWW applications																		3													3
NT4. Distributed systems																		3													3
NT5. Wired and wireless applications																		3													3
NT6. Topologies and protocols																		4													4
NT7. Networks and telecommunications hardware																		3													3
NT8. Network management																		5													5
NT9. Network performance																		3													3
CG. Computer Graphics and HCI																															
CG1. Fundamental techniques in graphics																			4												4
CG2. Graphic systems																			4												4
CG3. Geometric modelling																			6												6

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CG4. Basic rendering																			6												6
CG5. Computer animation																			5												5
CG6. Visualization																			5							3					8
CG7. Foundation of human-computer interaction																										4					4
CG8. Building a simple graphical user interface																										5					5
CG9. Graphical user interface design																										5					5
MP. Managing Projects																															
MP1. System life cycle																				4											4
MP2. Determining the requirements																				4											4
MP3. Integration issues																				2											2
MP4. Network management																				4											4
MP5. Project tracking																				4											4
MP6. Metrics for managing projects																				4											4
MP7. System performance evaluation																				4											4
MP8. Managing affiliate groups expectations																				4											4
PM. Principles of Management																															
PM1. Market mechanism																						2									2
PM2. Public sector and tax system																						2									2
PM3. Consumer behaviour																						2									2
PM4. Production, expenses and income of a firm																						2									2
PM5. Price-forming of manufacturing factors																						2									2
PM6. Economic cycle																						2									2
PM7. Company information systems																						4									4
PM8. Marketing systems																						2									2
PM9. Investment and crediting systems																						2									2
PM10. Finance and accountancy systems																						3									3
TF. Testing and fault tolerance																															
TF1. Faults and fault models in digital circuits																								2							2
TF2. Test generation methods																								3							3
TF3. Design for testability							3																	2							5
TF4. Testing non-stuck-at faults																								3							3
TF5. System-level testing and diagnosis								2																2							4
TF6. Reliability and fault tolerance definitions																								3							3
TF7. Error detecting and correcting codes																							4	2							6
TF8. Fault-tolerant system design																								2				2			4
TF9. Software approaches and software fault-tolerance							3																	2							5
ES. Embedded Systems																															
ES1. Fundamentals of embedded systems																											2				2

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ES2. Classification of embedded systems																											2				2
ES3. Language issues			2																								2				4
ES4. Real-time systems overview																											2				2
ES5. Decomposition of real-time systems																											3				3
ES6. Task management of real-time systems																											2				2
ES7. Real-time planning algorithms																											3				3
ES8. Verification methods for real-time systems																								2			2				4
ES9. High integrity software systems																								2			2				4
CA. Computer Architecture																															
CA1. Basic computer architectures																												2			2
CA2. Pipelining																												2			2
CA3. Assembly level machine organisation																												2			2
CA4. Programming in Assembly language																												3			3
CA5. Memory system organisation and architecture																												2			2
CA6. Bus organization of a computer																												2			2
CA7. Interfacing and communication																												2			2
CA8. Functional organization								4																				2			6
CA9. Performance enhancements																												2			2
AC. Algorithms & Complexity																															
AC1. Basic algorithmic analysis		4																											3		7
AC2. Algorithmic strategies																													3		3
AC3. The complexity classes P and NP																													3		3
AC4. Fundamental computing algorithms																													3		3
AC5. Basic computability theory																													3		3
AC6. Algorithms for compression and decompression																													2		2
AC7. Cryptographic algorithms																									5				2		7
IS. Intelligent Systems																															
IS1. Fundamental issues in intelligent systems		2																												3	5
IS2. Architecture of an intelligent system																														4	4
IS3. Knowledge representation and reasoning																														5	5
IS4. Non-procedural programming languages			2																											5	7
IS5. Decision support systems																														5	5
IS6. Knowledge managed systems																														3	3
Total hours	30	25	30	30	30	30	45	45	30	30	30	30	30	25	25	45	45	30	30	30	25	25	25	25	20	25	20	25	25	25	