Metropolia UAS
Information and Communication Technology
COMMON CORE REQUIREMENT

		extent of credits	Mathematics and natural sciences skills	Hardware skills	Network engineering skills	Software skills	ICT business skills	ICT application skills	Communication skills	Learning competence	Ethical competence	Working community competence	Innovation competence	Multicultural competence	Technological competence
1st year of study	Mobile Health Applications	15	x	x		x	x	x	x	x		x	x		x
	Game Development	15	x	x		x	x	x	x	x		x	x		x
	Web Technologies and Digital Media	15	x	x	x	x		x	x	x		x	x		x
	Smart IoT Devices	15	x	x	x	x		x	x	x		x	x		x
3rd year of study	Engineering Swedish	5							x			x		x	
	Finnish as a Second Language: Finnish at Work	5							x			x		x	
4th year of study	Multidisciplinary Innovation Project	10	x	x	x	x	x	x	x	x	x	x	x	x	x
	Methodological Studies	5					x		x	x		x	x		
	Work Placement 1	15	x	x	x	x	x	x	x	x	x	x	x	x	x
	Work Placement 2	15	x	x	x	x	x	x	x	x	x	x	x	x	x
	Bachelor's Thesis	15	x	x	x	x	x	x	x	x	x	x	x	x	x

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MAJOR: HEALTH TECHNOLOGY

		extent of credits	Mathematics and natural sciences skills	Hardware skills	Network engineering skills	Software skills	ICT business skills	ICT application skills	Communication skills	Learning competence	Ethical competence	Working community competence	Innovation competence	Multicultural competence	Technological competence
2nd year of study	Intelligent Environments and Applications	5	x	x	x			x	x	x		x	x		x
	Applied Anatomy and Physiology	5						x	x	x	x	x	x		x
	Biomechanics and Motion Measurement	5	x	x				x	x	x	x	x	x		x
	Physiological Measurements and Sensors	5	x	x				x	x	x		x	x		x
	Data Collection and Processing	5		x	x	x		x	x	x		x	x		x
	Health Technology Project 1	5		x			x	x	x	x		x	x	x	x
	eHealth Business and Solutions	5		x			x	x	x	x		x	x		x
	Customers and Users of eHealth Services	5					x	x	x	x	x	x	x		x
	Web Application Development 1	5		x	x	x		x	x	x		x	x		x
	Web Application Development 2	5		x	x	x		x	x	x		x	x		x
	User Oriented Development and User Study	5	x					x	x	x		x	x		x
	Health Technology Project 2	5		x	x	x	x	x	x	x		x	x	x	x
3rd year of study	Digital Self Care Applications and Opportunities	5		x			x	x	x	x		x	x		x
	Patient Monitoring Methods and Devices	5		x				x	x	x		x	x		x
	Health Robotics	5		x		x		x	x	x	x	x	x		x
	Telehealth and Telemedicine Applications	5		x				x	x	x		x	x		x
	Medical Imaging	5	x	x				x	x	x		x	x		x
	Health Technology Project 3	5		x			x	x	x	x		x	x	x	x

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MAJOR: MEDIA TECHNOLOGY

		extent of credits	Mathematics and natural sciences skills	Hardware skills	Network engineering skills	Software skills	ICT business skills	ICT application skills	Communication skills	Learning competence	Ethical competence	Working community competence	Innovation competence	Multicultural competence	Technological competence
2nd year of study	Fundamentals of Digital Media	15	x	x		x				x	x	x			x
	Fundamentals of Web Development	15	x			x		x		x		x			x
	Web Technologies and Media Platforms	15		x	x	x	x			x		x	x		x
	Media Services and User Experience	15				x		x	x	x		x	x		x
3rd year of study	Media Distribution and Data Streams	15	x	x	x	x	x			x		x		x	x
	Media Services Project	15			x	x	x	x	x		x	x	x	x	x

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MAJOR: MOBILE SOLUTIONS

		extent of credits	Mathematics and natural sciences skills	Hardware skills	Network engineering skills	Software skills	ICT business skills	ICT application skills	Communication skills	Learning competence	Ethical competence	Working community competence	Innovation competence	Multicultural competence	Technological competence
2nd year of study	Object-Oriented Programming and Datacommunication	15	x			x				x		x		x	x
	Basic Concepts of Web Technology	15	x		x	x				x		x		x	x
	Web Based Mobile Applications	15	x		x	x				x		x		x	x
	Mobile Application Development	15				x				x		x		x	x
3rd year of study	Sensor Based Mobile Applications	15	x	x		x			x			x	x	x	x
	Mobile Project	15			x	x	x	x			x	x	x	x	x

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MAJOR: SOFTWARE ENGINEERING

		extent of credits	Mathematics and natural sciences skills	Hardware skills	Network engineering skills	Software skills	ICT business skills	ICT application skills	Communication skills	Learning competence	Ethical competence	Working community competence	Innovation competence	Multicultural competence	Technological competence
2nd year of study	Object-oriented Applications and Databases	5				x		x		x					x
	Programming Project	5		x		x		x	x	x		x			x
	Physics of Sensors and Actuators	5	x	x		x		x		x					x
	Web Application Development 1	5			x	x		x		x					x
	Web Project	5			x	x		x	x	x		x			x
	Discrete Mathematics	5	x					x							
	Data Structures and Algorithms	5				x		x							
	Description and Modelling Techniques	5				x		x	x						x
	Software Engineering Project 1	5				x	x	x		x		x	x		x
	User-centered Design	5				x		x	x		x			x	x
	Design Patterns	5				x		x							
	Software Engineering Project 2	5				x	x	x	x	x		x	x	x	x
3rd year of study	Web Application Development 2	5			x	x		x							x
	Data Handling and Machine Learning	5	x			x		x							x
	Probalility Calculus and Statistics	5	x					x							
	Software Quality	5				x	x	x	x						x
	Development of Safe and Secure Software	5				x		x			x				x
	Data Encryption and Cryptomathematics	5	x					x							x

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MAJOR: GAME APPLICATIONS

		extent of credits	Mathematics and natural sciences skills	Hardware skills	Network engineering skills	Software skills	ICT business skills	ICT application skills	Communication skills	Learning competence	Ethical competence	Working community competence	Innovation competence	Multicultural competence	Technological competence
2nd year of study	Game Design	5					x	x	x	x	x		x	x	x
	Game Engines	5				x					x				x
	Game Mathematics	5	x			x									x
	Databases in Game Development	5			x	x				x					x
	Object-oriented Programming (C++)	5		x		x									x
	Game Physics	5	x			x									x
	Data Structures and Algorithms	5	x			x									x
	C++ Project	5				x			x		x	x			x
	VR/AR and Console Programming	5		x		x		x			x	x	x		x
	Game Project	15				x		x	x	x	x	x	x	x	x
3rd year of study	Game Programming and AI	5				x									x
	Game Server Programming	5		x	x	x					x				x
	Graphics Programming	5	x			x		x			x		x		x
	Multiplayer Game Project	15				x	x	x	x	x	x	x	x	x	x

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MAJOR: SMART IOT SYSTEMS

		extent of credits	Mathematics and natural sciences skills	Hardware skills	Network engineering skills	Software skills	ICT business skills	ICT application skills	Communication skills	Learning competence	Ethical competence	Working community competence	Innovation competence	Multicultural competence	Technological competence
2nd year of study	Internetworks	5		x	x			x		x		x		x	x
	Virtual Area Networks	5		x	x			x		x		x		x	x
	C Programming in IoT Devices	5		x		x		x		x		x		x	x
	Object-Oriented Programming in IoT Devices	5		x		x		x		x		x		x	x
	Engineering Mathematics	5	x							x		x		x	x
	Probability, Statistics and Discrete Mathematics with Python	5	x					x		x		x		x	x
	IoT Connecting Things	5		x	x			x		x		x		x	x
	Modern Computer Architecture	5		x		x		x		x		x		x	x
	Mathematics and Physics for IoT	5	x							x		x		x	x
	Linux Servers and Databases	5		x	x	x		x		x		x		x	x
	IoT Devices and Wireless Communication	5		x	x	x		x		x		x		x	x
	Sensor Physics	5	x							x		x		x	x
3rd year of study	*Embedded IoT Devices*														
	Internet of Things	5		x		x		x		x		x	x	x	x
	Embedded Systems Programming	5		x		x		x		x		x		x	x
	Digital Signal Processing	5	x	x		x		x		x		x		x	x
	Internet of Things (IoT) Project	5		x		x		x		x		x	x	x	x
	ARM-Processors and Embedded Operating Systems	5		x		x		x		x		x		x	x
	Managing Linux Systems with Embedded Perspective	5		x	x	x		x		x		x		x	x
	IoT and Networks														
	Advanced Routing	5		x	x			x		x		x		x	x
	IoT Security	5		x				x		x		x		x	x
	Windows Servers	5		x				x		x		x		x	x
	Internet of Things (IoT) Project	5		x		x		x		x		x		x	x
	Virtualization and Cloud Computing	5		x				x		x		x		x	x
	Multilayer Switching	5		x	x			x		x		x		x	x