

30 EC packages - Additional Specialisations for Engineering Students									
An additional specialisation gives you the chance to personalise your study programme. One of the below mentioned packages, compiling 30EC, can be registered on your diploma supplement after completion. If you are interested and have any questions please contact the programme coordinator (n.vanderveen@utwente.nl).									
<ul style="list-style-type: none"><li>• Choose the package and courses you want to take and check the required prior knowledge. Obligatory courses of your IEM specialisation and orientation are not allowed as package courses;</li><li>• Add the chosen courses to your study programme (forms are available on the IEM-programme Canvas site). Make sure your Additional Specialisation adds up to a <b>30EC</b> package;</li><li>• Add other electives so your study programme adds up to 120 EC;</li></ul>									
Please pay attention to the required prior knowledge. Check the Osiris Course Catalogue for more information per course.									
Programme	Specialisation	Packages only for IEM students				Programme	Specialisation	Packages for all students	
Business & IT (BIT)	Information Systems and Management	201400277	Enterprise Architecture	1	IEM	Financial Engineering	Mandatory courses		
		192376500	Business Process Integration Lab	2			191506103	Statistics & Probability	1
		192320501	Electronic commerce	2			201300060	Mathematical Finance	2
				Elective courses					
		202000027	Enterprise Security	2			191860651	Micro Economics	1
		201100051	Information Services	3			191521800	Game Theory	1
		192340101	Implementation of IT in organizations	3			201400244	Cost Management and Engineering	2
		192360021	ICT Management	3			201200138	Special Topics in Financial Engineering	2
		192376000	Business Case Development for IT Projects	4			191515101	Introduction to Risk Theory	2
202000028	Smart Industry Systems	4	191860181	Risk Management			3		
Business Administration	Technology Venturing and Innovation Management	201500083	Change Management and Consultancy in a Global Context*	1			201300062	Structured Products	3
		201600012	Management and Governance of Innovation and Creativity*	1			201000202	Management Control for Financial Institutions	4
		201600011	International Entrepreneurship*	1			201100162	Applied Financial Engineering	4
		201600002	Entrepreneurial Leadership & Responsible Organizational Design*	1			Mandatory courses		
		192320501	Electronic Commerce (BIT)	2			201800003	OR 1: Deterministic Optimization and Heuristics	1+3
		201600155	Global Strategy and Business Development*	3			202300064	Simulation	1
		201000087	Entrepreneurial Finance*	3			Elective courses		
		201600015	Strategic Technology Management and Innovation	3			201800005	Applied Statistical Learning	1
		* These courses are only permitted as part of a 30EC package					191506103	Statistics & Probability	1
Civil Engineering and Management	Transport Engineering	201800064	Traffic Operations	1		Health Care Engineering	202400647	Warehousing	1
		201800045	Construction Supply Chain and Digitization	1			201600032	Quality Management in Healthcare (HS)	2
		202400701	Public Transport Modeling	2			194121020	Optimization of Healthcare Processes	2
		201800060	Sustainable Transport	2			201700196	Advanced Discrete Event Simulation	3
		201800068	Network Modelling and Forecasting	3			201700089	Circular Sustainable Business Development	3
		201800065	Traffic Management	3			201600015	Strategic Technology Mngmt & Inn	3
		201800010	Transportation and logistics Management (IEM)	3			201700197	Decision Making in HC	4
		202001463	Mathematical Optimization in Transport	4			202300332	OR 2: Stochastic Optimization and Learning	4
							Mandatory courses		
	Water Management	201800017	Water Footprint Assessment	1			201800003	OR 1: Deterministic Optimization and Heuristics	1+3
		201800018	Hydrology *	1			202300064	Simulation	1
		201800019	Hydrological Modelling and Forecasting	2			Elective courses		
		202100125	Sustainable Engineering	3			191506103	Statistics & Probability	1
		202200043	Circular Systems Engineering	3			202400647	Warehousing	1
		201900034	Urban Resilience in a changing climate	3			201800008	After-Sales Service Logistics	2
		202400752	Integrated Water Management	3			201800009	Advanced Inventory Management	2
		201800039	Building with Nature	4			194121020	Optimization of Healthcare Processes	2
		201800033	Water and Climate	4			201700089	Circular Sustainable Business Development	3
Industrial Design Engineering	Management and Design	192850910	Packaging Design and Management 1	1			Logistics Management Engineering	201800010	Transportation and logistics Management
		192850840	Sources of Innovation	1		191852630		Reliability Engineering & Maintenance Mngt	3
		201700019	Brand Management	1		202300332		OR 2: Stochastic Optimization and Learning	4
		192850740	Product Life Cycle	2		202400670		Planning & scheduling	4
		202100156	Conceptual Design Methods*	3		Mandatory courses			
		201200137	Design Histories	3		201700089		Circular Sustainable Business Development	3
		192850750	Product Life Cycle Management	3		Elective courses			
		201700008	Design and Behaviour Change	4		202200057		Sustainable Transportation Infrastructure (CEM) *	1
		* Prior Knowledge for Design and Behaviour Change				202200263		Introduction to Humanitarian Engineering (ME)	1
Mechanical Engineering	Maintenance	201200146	Maintenance Engineering and Management	1		Sustainability in IEM		201800126	Optimisation of Sustainable Energy Systems
		201300038	Failure Mechanisms & Life Prediction	2	201800060			Distributed Energy Management for Smart Grids (EMSYS)	2
		201800008	After-Sales Service Logistics (IEM)	2	202100125			Sustainable Transport (CEM)	2
		201800009	Advanced Inventory Management (IEM)	2	202001505			Sustainable Engineering (CEM)	3
		191852630	Reliability Engineering & Maintenance Management (IEM)	3	202300338			Energy Conversion: People, Planet, Prosperity (EE)	4
		201500235	Design for Maintenance Operations (IDE)	3	191102010			Life-cycle Strategy (ME) *	4
		201300039	Structural Health & Condition Monitoring	3	* Due to partial overlap the student can choose only 1 of these courses				
		191155730	Tribology	3					
		191102010	Life-cycle Strategy	4					
		201800034	Infrastructure Asset Management (CEM)	4					