Konetekniikan koulutusohjelman opintojaksomuutokset 2016-2017

UUDET OPINTOJAKSOT:

BK10A3800	Principles of Industrial Manufacturing Processes	5 ECTS cr
BK10A3900	Reliability Based Machine Element Design	5 ECTS cr
BK10A4000	Design of Advanced Plate and Shell Structures	5 ECTS cr
BK10A4100	Management and Leadership Skills in Mechanical Engineering	5 ECTS cr
BK10A4200	Tuotesuunnittelu ja -mallinnus	5 op
BK10A4400	Teräsrakenteiden suunnittelu JEDI	5 op
BK20A2400	Materials and Welding Metallurgy	5 ECTS cr
BK20A2500	Sustainable Welding Production	5 ECTS cr
BK20A2600	Modelling and Simulation in Welding	5 ECTS cr
BK30A1200	Laser Based Processes for Materials Processing	5 ECTS cr
BK30A1300	Laser Based Manufacturing for Design	5 ECTS cr
BK30A1400	Individual Project Work of Laser Technology	5 ECTS cr
BK50A3500	Development of Sustainable Materials and Machinery for Packaging Technology	5 ECTS cr
BK50A3600	Manufacturing Processes for Recyclable Products	5 ECTS cr
BK50A3700	Productivity and Sustainability of Sheet Metal Production	5 ECTS cr
BK50A3800	Productivity and Sustainability of Metal Cutting	5 ECTS cr
BK50A3900	Integration of Product's Design, Sustainable Production and Material Selection	5 ECTS cr
BK50A4000	Production Processes in Modern Job Shops	5 ECTS cr
BK50A4100	Manufacturing Systems and Scheduling	5 ECTS cr
BK50A4200	Product Flow in Job Shops	5 ECTS cr
BK50A4300	Managing Job Shops*	5 ECTS cr
BK50A4400	Fabrication Laboratory	5 ECTS cr
BK60A1500	Practical Laboratory Course in Motion Control and Mechatronics	5 ECTS cr
BK80A3000	Integrated Design and Fabrication of Welded Structures	5 ECTS cr
BK80A3100	Scientific Research of Welding and Structures	5 ECTS cr
BK90C1900	Introduction to Materials Engineering	4 ECTS cr
BK90C2000	Hybrid Materials	3 ECTS cr
BK90C2100	Functional Properties of Nanomaterials	3 ECTS cr
BK90C2200	Sustainable Manufacturing of Advanced Materials	5 ECTS cr
BK90C2300	High Performance Products	5 ECTS cr
BK90C2400	Project Course in Material Engineering	5 ECTS cr

** Luennoidaan ensimmäisen kerran 2017-2018*

MUUTTUVAT OPINTOJAKSOT:

Uusi opintojakso			Korvaa opintojakson	
BK10A0402	Kandidaatintyö	10 op	BK10A0401	Kandidaatintyö ja seminaari 10 op
BK10A4300	Kandidaatintyöseminaari	2 op		
BK10A1101	Laboratory Work Course in Mechanical Engineering*	2-30 ECTS cr	BK10A1100	Laboratory Work Course in Mechanical Engineering 10-30 ECTS cr
BK10A1501	Master's Thesis and Seminar	30 ECTS cr	BK10A0900	Diplomityö ja seminaari 30 op
			BK10A1500	Master's Thesis and Seminar 30 ECTS cr
BK10A1801	Individual Project Work JEDI	7 ECTS cr	BK10A1800	Individual Project Work JEDI 6 ECTS cr

BK10A3101	Simulation of a Mechatronic Machine JEDI	5 ECTS cr	BK10A3100	Simulation of a Mechatronic Machine JEDI 6 ECTS cr
BK20A0403	Modern Welding Processes	5 ECTS cr	BK20A0402	Modern Welding Technology 6 ECTS cr
BK30A0802	Laboratory Course of Laser Based Manufacturing	5 ECTS cr	BK30A0801	Laboratory Course of Laser Processing Technology 4 ECTS cr
BK50A2701	Selection Criteria of Structural Materials	5 ECTS cr	BK50A2700	Selection Criteria of Structural Materials 6 ECTS cr
BK60A1001	Control of Mechatronic Machine	5 ECTS cr	BK60A1000	Control of Mechatronic Machines 6 ECTS cr
BK70A0001	Simulation of a Mechatronic Machine	5 ECTS cr	BK70A0000	Simulation of a Mechatronic Machine 6 ECTS cr
BK70A0102	Simulation, Laboratory Course	5 ECTS cr	BK70A0101	Simulation, Laboratory Course 6 ECTS cr
BK70A0501	Machine Dynamics	5 ECTS cr	BK70A0500	Machine Dynamics 6 ECTS cr
BK80A1301	FE-analysis, Advanced Course	5 ECTS cr	BK80A1200	FE-analysis Course 5 ECTS cr
			BK80A1300	FE-analyysin jatkokurssi 5 op
BK80A1402	Fatigue Design	5 ECTS cr	BK80A1401	Väsymiskestävyys 6 op
BK80A2303	Steel Structures II	5 ECTS cr	BK80A2302	Teräsrakenteet II 6 op

** KOV hyväksynyt muutoksen 19.5.2016*

POISTUVAT OPINTOJAKSOT:

BK10A0100	Individual Project Work 6 ECTS cr
BK20A0500	Hitsausmetallurgia 5 op
BK20A1000	Virtuaalihitsaus 3 op
BK20A2300	Hitsaustuotannon työkurssi 5 op
BK30A0600	Laser Based Products and Production Technology 5 ECTS cr
BK30A0700	Laser Materials Processing 5 ECTS cr
BK50A0501	Tuotantotekniikan erityisopintojakso 6 op
BK50A0601	Tuotantotekniikan laboratoriotyöt 6 op
BK50A0701	Advanced Production Engineering 6 ECTS cr
BK50A1300	Converting and Forming of Fibre Based Packaging 5 ECTS cr
BK50A1401	Packaging Lines and Machinery 7 ECTS cr
BK50A2001	Package Performance and Sustainability 5 ECTS cr
BK50A2100	Printing and Package Design 6 ECTS cr
BK50A2200	Design Methodologies and Applications of Machine Element Design 5 ECTS cr
BK50A2400	Packaging Materials 5 ECTS cr
BK50A2500	Coating and Lamination of Fibre Based Packaging Materials 5 ECTS cr
BK50A2600	Principles of Chemistry, Paper Technology and Food Technology 5 ECTS cr
BK50A3100	Lastuavan työstön prosessit 4 op
BK50A3200	Levytuotteiden tuotanto 4 op
BK60A0501	Mekatroniikan projektikurssi 6 op
BK60A1200	Programming in Control and Mechatronics 6 ECTS cr
BK60A1300	Industrial Robotics 6 ECTS cr (siirtyy jatko-opintokurssiksi)
BK65A0800	Koneensuunnittelun projektipäällikkökurssi 6 op
BK70A0202	Koneen simuloinnin erityisopintojakso 6 op
BK80A0300	Lujuusoppi I 6 op
BK80A0401	Lujuusopin perusteet 3 op (tilalle voi suorittaa BK80A2900 Lujuustekniikan perusteet 3 op)
BK80A2402	Teräsrakenteiden suunnitteluharjoitustyö 6 op
BK90C0702	Metsäteollisuus 6 op
BK90C1101	Puurakenteiden perusteet 4 op
BK90C1601	Kuitutuotteiden työstötekniikka 6 op
BK90C1800	Green Fiber Materials 5 ECTS cr

Kurssinumero	Opintojakson nimi	Tilalle suoritettava opintojakso
BK10A0100	Individual Project Work 6 ECTS cr	*poistuu, ei korvaavaa. Jos tutkintorakenteessa, voi edelleen suorittaa, ota yhteyttä Harri Eskeliseen.*
BK10A0300	Introduction to M.Sc. Studies 1 ECTS cr	*säilyy*
BK10A0900	Diplomityö ja seminaari 30 op	*säilyy*
BK10A1101	Laboratory Work Course in Mechanical Engineering 2-30 ECTS cr	*säilyy*
BK10A1200	Research Methods and Methodologies 4 ECTS cr	*säilyy*
BK10A1400	DI-tutkinnon työharjoittelu 2-10	*säilyy*
BK10A1500	Master's Thesis and Seminar 30 ECTS cr	*säilyy*
BK20A0402	Modern Welding Technology 6 ECTS cr	BK20A0403 Modern Welding Processes 5 ECTS cr
BK20A0500	Hitsausmetallurgia 5 op	BK20A2400 Materials and Welding Metallurgy 5 ECTS cr
BK20A1000	Virtuaalihitsaus 4 op	BK20A2400 Modelling and Simulation in Welding 5 ECTS cr
BK20A2300	Hitsaustuotannon työkurssi 5 op	BK20A2500 Sustainable Welding Production 5 ECTS cr
BK30A0600	Laser Based Products and Production Technology 5 ECTS cr	BK30A1300 Laser Based Manufacturing for Design 5 ECTS cr
BK30A0700	Laser Materials Processing 5 ECTS cr*	BK30A1200 Laser Based Processes for Materials Processing 5 ECTS cr*
BK30A0801	Laboratory Course of Laser Processing Technology 4 ECTS cr	BK30A0802 Laboratory Course of Laser Processing Manufacturing 5 ECTS cr
BK30A0901	Additive Manufacturing - 3D Printing 5 ECTS cr	*säilyy*
BK30A1000	Additive Manufacturing - 3D Printing, LUT Summer School Course 3 ECTS cr	*säilyy*
BK50A0501	Tuotantotekniikan erityisopintojakso 6 op**	BK10A3800 Principles of Industrial Manufacturing Processes 5 ECTS cr tai BK50A3900 Integration of Product's Design, Sustainable Production and Material Selection 5 ECTS cr**
BK50A0601	Tuotantotekniikan laboratoriotyöt 6 op	BK10A4100 Management and Leadership Skills in Mechanical Engineering 5 ECTS cr
BK50A0701	Advanced Production Engineering 6 ECTS cr	BK50A4000 Production Processes in Modern Job Shops 5 ECTS cr

BK50A1300	Converting and Forming of Fibre Based Packaging 5 ECTS cr	BK50A3600 Manufacturing Processes for Recyclable Products 5 ECTS cr
BK50A1401	Packaging Lines and Machinery 7 ECTS cr	BK50A3500 Development of Sustainable Materials and Machinery for Packaging Technology 5 ECTS cr
BK50A2001	Package Performance and Sustainability 5 ECTS cr	BK50A3500 Development of Sustainable Materials and Machinery for Packaging Technology 5 ECTS cr
BK50A2100	Printing and Package Design 6 ECTS cr	BK50A3600 Manufacturing Processes for Recyclable Products 5 ECTS cr
BK50A2200	Design Methodologies and Applications of Machine Element Design 5 ECTS cr	BK10A3900 Reliability Based Machine Element Design 5 ECTS cr
BK50A2400	Packaging Materials 5 ECTS cr	BK90C2400 Project Course in Material Science 5 ECTS cr
BK50A2500	Coating and Lamination of Fibre Based Packaging Materials 5 ECTS cr	BK90C2400 Project Course in Material Science 5 ECTS cr (Jos tutkinnosta puuttuvat sekä BK50A2400 että BK50A2500 suoritetaan jälkimmäisen tilalle BK90C2100 Functional Properties of Nanomaterials 3 ECTS cr)
BK50A2600	Principles of Chemistry, Paper Technology and Food Technology 5 ECTS cr	BK90C2300 High Performance Products 5 ECTS cr
BK50A2700	Selection Criteria of Structural Materials 6 ECTS cr	BK50A2701 Selection Criteria of Structural Materials 5 ECTS cr
BK50A3100	Lastuavan työstön prosessit 4 op	BK50A3800 Productivity and Sustainability of Metal Cutting 5 ECTS cr
BK50A3200	Levytuotteiden tuotanto 4 op	BK50A4200 Product Flow in Job Shops 5 ECTS cr
BK50A3300	Material Selection and Manufacturability Aspects of Energy Technology Applications 3 ECTS cr	*säilyy*
BK60A0501	Mekatroniikan projektikurssi 6 op	*poistuu, ei korvaavaa. Tilalle voi suorittaa BK10A1101, ota yhteyttä Harri Eskeliseen.*
BK60A0800	Fluid Power 5 ECTS cr	*säilyy*
BK60A1000	Control of Mechatronic Machines 6 ECTS cr	BK60A1001 Control of Mechatronic Machine 5 ECTS cr
BK60A1200	Programming in Control and Mechatronics 6 ECTS cr	BK60A1500 Practical Laboratory Course in Motion Control and Mechatronics 5 ECTS cr
BK60A1300	Industrial Robotics 6 ECTS cr	*Jatko-opintojakso Industrial Robotics*
BK65A0800	Koneensuunnittelun projektipäällikkökurssi 6 op	BK10A4100 Management and Leadership Skills in Mechanical Engineering 5 ECTS cr

BK70A0000	Simulation of a Mechatronic Machine 6 ECTS cr	BK70A0001 Simulation of a Mechatronic Machine 5 ECTS cr
BK70A0101	Simulation, Laboratory Course 6 ECTS cr	BK70A0102 Simulation, Laboratory Course 5 ECTS cr
BK70A0202	Koneen simuloinnin erityisopintojakso 6 op	*Jatko-opintojakso Computational Mechanics*
BK70A0500	Machine Dynamics 6 ECTS cr	BK70A0501 Machine Dynamics 5 ECTS cr
BK80A1200	FE-analysis Course 5 ECTS cr	BK80A1301 FE-analysis, advanced course 5 ECTS cr
BK80A1300	FE-analyysin jatkokurssi 5 op	BK80A1301 FE-analysis, advanced course 5 ECTS cr
BK80A1401	Väsymiskestävyys 6 op	BK80A1402 Fatigue Design 5 ECTS cr
BK80A2302	Teräsrakenteet II 6 op	BK80A2303 Steel Structures II 5 ECTS cr
BK80A2402	Teräsrakenteiden suunnitteluharjoitustyö 6 op	BK80A3000 Integrated Design and Fabrication of Welded Structures 5 ECTS cr
BK90C0702	Metsäteollisuus 6 op	*poistuu, ei korvaavaa. Tilalle voi suorittaa BK10A1101, ota yhteyttä Harri Eskeliseen.*
BK90C1101	Puurakenteiden perusteet 4 op	BK50A3600 Manufacturing Processes for Recyclable Products 5 ECTS cr
BK90C1601	Kuitutuotteiden työstötekniikka 6 op	BK90C2000 Functional Properties of Nanomaterials 3 ECTS cr tai BK90C2200 Sustainable Manufacturing of Advanced Materials 5 ECTS cr tai BK90C2300 High Performance Products 5 ECTS cr tai BK90C2400 Project Course in Material Science 5 ECTS cr
BK90C1800	Green Fiber Materials 5 ECTS cr	BK50A3600 Manufacturing Processes for Recyclable Products 5 ECTS cr

** molempia ei voi sisällyttää tutkintoon*

*** molempia ei voi sisällyttää tutkintoon*

Major in Packaging Technology min. 70 ECTS cr

Min. 40 ECTS cr and Master's Thesis and Seminar should be selected		*year*	*per.*	*ECTS cr*
BK10A1500(*	Master's Thesis and Seminar	M.Sc. (Tech.) 2	1-4	30
BK10A1101	Laboratory Work Course in Mechanical Engineering			2-30
~~BK50A1300~~	~~Converting and Forming of Fibre Based Packaging~~	~~M.Sc. (Tech.) 2~~	~~1-2~~	~~5~~
	Manufacturing Processes for Recyclable Products 5 ECTS cr			
~~BK50A1401~~	~~Packaging Lines and Machinery~~	~~M.Sc. (Tech.) 2~~	~~3-4~~	~~7~~
	Development of Sustainable Materials and Machinery for Packaging Technology 5 ECTS cr			
~~BK50A2001~~	~~Package Performance and Sustainability~~	~~M.Sc. (Tech.) 1~~	~~3~~	~~5~~
~~BK50A2100~~	~~Printing and Package Design~~	~~M.Sc. (Tech.) 2~~	~~1-2~~	~~6~~
	Manufacturing Processes for Recyclable Products 5 ECTS cr			
~~BK50A2400~~	~~Packaging Materials~~	~~M.Sc. (Tech.) 1~~	~~1~~	~~5~~
	Project Course in Material Science 5 ECTS cr			
~~BK50A2500~~	~~Coating and Lamination of Fibre Based Packaging Materials~~	~~M.Sc. (Tech.) 1~~	~~1-2~~	~~5~~
	Functional Properties of Nanomaterials 3 ECTS			
	Hybrid Materials 3 ECTS cr			
	Yht. 56 ECTS cr + Laboratory Work Course			

*) Obligatory for all

Major in Design and Manufacturing (for Double Degree Students) 64 ECTS cr

Min. 34 ECTS cr + Master's Thesis and Seminar 30 ECTS cr should be selected		*year*	*per.*	*ECTS cr*
BK10A1500(*	Master's Thesis and Seminar	M.Sc. (Tech.) 2	1-4	30
~~BK20A0402~~	~~Modern Welding Technology~~	~~M.Sc. (Tech.) 1~~	~~1-2~~	~~6~~
	Modern Welding Processes 5 ECTS cr			
~~BK30A0600~~	~~Laser Based Products and Production Technology~~	~~M.Sc. (Tech.) 1~~	~~3-4~~	~~5~~
	Laser Based Manufacturing for Design 5 ECTS cr			
~~BK30A0700~~	~~Laser Materials Processing~~	~~M.Sc. (Tech.) 2~~	~~1-2~~	~~5~~
	Laser Based Processes for Materials Processing 5 ECTS cr			
~~BK30A0801~~	~~Laboratory Course of Laser Processing Technology~~	~~M.Sc. (Tech.) 1~~	~~1-2~~	~~4~~
	Laboratory Course of Laser Processing Manufacturing 5 ECTS cr			
~~BK50A0701~~	~~Advanced Production Engineering~~	~~M.Sc. (Tech.) 1~~	~~1-2~~	~~6~~

	Production Processes in Modern Job Shops 5 ECTS cr			
~~BK50A2200~~	~~Design Methodologies and Applications of Machine Element Design~~	~~M.Sc. (Tech.) 1~~	~~1-2~~	~~5~~
	Reliability Based Machine Element Design 5 ECTS cr			
BK50A2700	~~Selection Criteria of Structural Materials~~	~~M.Sc. (Tech.) 1~~	~~3-4~~	~~6~~
	Selection Criteria of Structural Materials 5 ECTS cr			
BK70A0000	~~Simulation of a Mechatronic Machine~~	~~M.Sc. (Tech.) 1~~	~~1-2~~	~~6~~
	Simulation of a Mechatronic Machine 5 ECTS cr			
	Yht. 65 ECTS cr			

*) Obligatory for all