Form number
1

Form name
ES Program of Examinations

Fill in moment
At the end of the 3rd quartile of your studies

Name:

ID-Number:

Intended graduation cluster*:

Name representative graudation cluster*:

*This form needs approval (within SCOP/e - 2IMR10) from the representative of the research cluster where you intend to graduate.

Instructions

Please try to fill in the form digitally. In the case you want to change your program and you require permission from the examination committee in advance (e.g. when following courses at another university), note the changes on page five. When you want to change the program for other reasons, please hand in a revised form at the start of your preparation phase with form 2. For more information on the ES program check the TU/e online education guide.

1. On the first page you find the mandatory courses of the ES program.
2. On the second and third page, you can pick the stream you are following (Systems on Chip, Embedded Software, Embedded Networking or Cyber-Physical Systems). Under your chosen stream, you can find the stream mandatory courses. Underneath, please select the stream electives you intend to take. If you wish to follow more stream electives than required, you can select them in this table as well. They will count as free electives. Please fill in the subtotal of credits under the stream elective table.
3. On the fourth page you need to fill in your homologation courses (if applicable) and free electives. Please fill in the total number of credits of your study program at the bottom of the page.
4. On the fifth page you can list changes to a previously approved program. Are you following courses at another university? Please provide links to the course description of these courses (f.e. a link to a course catalogue).
5. If you need to make changes to a previously approved program, please indicate the changes made in the textbox on page five as well.

ES Mandatory courses

Course code	Course title	Credits
2IMF30	System Validation	5
5SIA0	Embedded Computer Architecture	5
2IMN25	Quantitative Evaluation of Cyber Physical Systems	5
2IMN20	Real-Time Systems	5
5LIB0	Embedded systems laboratory	5
2IMC05 or 5T514	Preparation graduation project	10
2IMC00 or 5T746	Master Project	30
	Subtotal Credits	**65**

Form number	Form name	Enrollment year	Fill in moment
1	ES Individual Study Program	2021-2022 or later	At the end of the 3rd quartile of your studies

Stream courses

☐ **Systems on Chip**

Stream mandatory courses

Course code	Course title	Credits
2IMF25	Automated Reasoning	5
5LIH0	Digital Integrated Circuit Design	5
5LID0	Systems on Silicon	5
	Subtotal Credits	**15**

Stream electives (at least 15 credits from this list)

	Course code	Course title	Credits
☐	2IMNT1	Embedded Computer Architectures 2	5
☐	5LIG0	Applied Combinatorial Algorithms	5
☐	5LIF0	Advanced Digital Circuit Design	5
☐	5LIA0	Embedded Visual Control	5
☐	5LIL0	Intelligent Architectures	5
☐	5LIE0	Multiprocessors	5
☐	5LIM0	Parallelization, Compilers and Platforms	5
☐	5SIB0	Electronic Design Automation	5
☐	5LIJ0	Embedded Control Systems	5
☐	5CCA0	Semiconductor Physics and Materials	5
☐	2IMF00	Seminar Formal System Analysis	5
		Subtotal Credits	

☐ **Embedded Software**

Stream mandatory courses

Course code	Course title	Credits
2IMF25	Automated Reasoning	5
5LIM0	Parallelization, Compilers and Platforms	5
2IMP30	System Design Engineering	5
	Subtotal Credits	**5**

Stream electives (at least 15 credits from this list)

	Course code	Course title	Credits
☐	2IMN10	Architecture of Distributed Systems	5
☐	5LIN0	Video Processing	5
☐	2DMI20	Software Security	5
☐	2IMP10	Program Verification Techniques	5
☐	2IMF35	Algorithms for Model Checking	5
☐	5LIG0	Applied Combinatorial Algorithms	5
☐	2IMP25	Software Evolution	5
☐	5LIE0	Multiprocessors	5
☐	5LIL0	Intelligent Architectures	5
☐	5LIJ0	Embedded Control Systems	5
☐	5LIK0	Embedded Signal Processing Systems	5
☐	2IMP20	Domain Specific Language Design	5
☐	2IMP00	Seminar Software Engineering and Technology	5
☐	2IMF00	Seminar Formal System Analysis	5
☐	2IMN00	Seminar IRIS	5
		Subtotal Credits	

Stream courses

☐ **Embedded Networking**

Stream mandatory courses

Course code	Course title	Credits
2IMN10	Architecture of Distributed Systems	5
5LIC0	Networked Embedded Systems	5
2IMN15	Internet of Things	5
	Subtotal Credits	**15**

Stream electives (at least 15 Credits from this list)

	Course code	Course title	Credits
☐	2IMF25	Automated Reasoning	5
☐	5LIH0	Digital Integrated Circuit Design	5
☐	5LIF0	Advanced Digital Circuit Design	5
☐	5SIB0	Electronic Design Automation	5
☐	2IMP30	System Design Engineering	5
☐	5LIA0	Embedded Visual Control	5
☐	5LID0	Systems on Silicon	5
☐	5LIK0	Embedded Signal Processing Systems	5
☐	2IMS20	Cyberattacks Crime and Defenses	5
☐	2IMS15	Verification of Security Protocols	5
☐	2IMS30	Advanced Network Security	5
☐	2IMF00	Seminar Formal System Analysis	5
☐	2IMN00	Seminar IRIS	5
		Subtotal Credits	

Stream courses

☐ **Cyber-Physical Systems**

Stream mandatory courses

Course code	Course title	Credits
2IMN15	Internet of Things	5
5LIJ0	Embedded Control Systems	5
5LIK0	Embedded Signal Processing Systems	5
	Subtotal Credits	**15**

Stream electives (at least 15 Credits from this list)

	Course code	Course title	Credits
☐	2IMN10	Architecture of Distributed Systems	5
☐	5CSA0	Modelling Dynamics	5
☐	5LIG0	Applied Combinatorial Algorithms	5
☐	5LIF0	Advanced Digital Circuit Design	5
☐	5LIL0	Intelligent Architectures	5
☐	5LIC0	Networked Embedded Systems	5
☐	5LIV0	Video Health Monitoring	5
☐	5LIM0	Parallelization, Compilers and Platforms	5
☐	5SIB0	Electronic Design Automation	5
☐	2IMP30	System Design Engineering	5
☐	5LIA0	Embedded Visual Control	5
☐	5LIE0	Multiprocessors	5
☐	2IMP20	Domain Specific Language Design	5
☐	2IMP25	Software Evolution	5
		Subtotal Credits	

Homologation courses (if applicable)*

(homologation courses count towards the 15 credits in free elective courses)

Course code	Course title	Credits
	Subtotal Credits	

*Homologation courses are bachelor courses assigned during the admission process to make up deficiencies in previous knowledge. Please check your admission letter to see if you have homologation courses. It is also possible to pick a maximum of three bachelor courses yourself to compensate deficiencies, if you think it is necessary. If you do that, a motivation for including the self-chosen homologation courses must be attached to this form.

Free elective courses

(these may be chosen from other programs, departments, or universities as well)

	Course code	Course title	Credits
☐	2IMC10/ 5L990	Internship**	15
		Subtotal Credits	

Internship supervisor (if known):

**An internship is optional. Keep in mind, when you do an external internship (e.g. at a company), your graduation project needs to be executed internally (within TU/e), when you do an internal internship you cannot graduate with the same supervisor.

Total number of Credits (at least 120 credits)	

Changes to the previously approved program, link to course descriptions of courses followed at another university and/or motivation for self-chosen homologation courses (if applicable):

This section is to be completed by the Examination Committee

Approval Examination Committee: Date: