

	<p style="text-align: center;">ADDENDUM</p> <p style="text-align: center;">ONDERWIJS- EN EXAMENREGELING 2024-2025</p> <p style="text-align: center;">VAN DE MASTEROPLEIDING</p> <p style="text-align: center;">APPLIED PHYSICS</p> <p style="text-align: center;">VOLGENS DE GRADUATE SCHOOL</p>	<p style="text-align: center;">ADDENDUM</p> <p style="text-align: center;">PROGRAM AND EXAMINATION REGULATIONS 2024-2025</p> <p style="text-align: center;">FOR THE MASTER’S PROGRAM IN</p> <p style="text-align: center;">APPLIED PHYSICS</p> <p style="text-align: center;">ACCORDING TO THE GRADUATE SCHOOL</p>
	<p>Het bestuur van de faculteit Applied Physics and Science Education van de Technische Universiteit Eindhoven, TU/e, besluit dit addendum op de Onderwijs- en Examenregeling (hierna OER) van de masteropleiding Applied Physics vast te stellen,</p>	<p>The Board of the Department Applied Physics and Science Education of Eindhoven University of Technology, TU/e, hereby establishes this addendum on the Program and Examination Regulations (hereafter PER) for the Master’s program in Applied Physics.</p>
	<p>gelet op artikel 9.2, eerste lid, van de OER,</p>	<p>in view of Article 9.1. first paragraph, of the PER,</p>
	<p>gelet op de instemming/het advies van de faculteitsraad d.d. 26 september 2024,</p>	<p>in view of the approval/the advice of the Department Council dated September 26, 2024,</p>
	<p>gelet op de instemming/het advies van de opleidingscommissie d.d. 19 september 2024.</p>	<p>in view of the approval/the advice of the Program Committee dated September 19, 2024.</p>
	<p>Dit addendum treedt met terugwerkende kracht op 1 september 2024 in werking – met in achtneming van artikel 9.2, tweede lid, van de OER – en is geldig is tot en met 31 augustus 2025.</p>	<p>This addendum enters into force backdated on September 1, 2024 – taking into account Article 9.2, second paragraph, of the PER – and is valid until August 31, 2025.</p>
	<p>Dit addendum is beschikbaar in het Nederlands en Engels. In het geval van een verschil in tekst of interpretatie tussen beide versies, is de Nederlandse versie leidend.</p>	<p>This addendum is available in Dutch and English. In the event of a difference in text or interpretation between the two versions, the Dutch version is leading.</p>

	Dit addendum heeft betrekking op onderstaande bijlagen van de OER waarbij doorgehaalde tekst komt te vervallen en rode tekst een toevoeging betreft.	This addendum concerns the following appendices of the PER, where crossed-out text is deleted and red text is an addition.
Bijlage 1/ Appendix 1	BIJLAGE 1 SPECIEKE OPLEIDINGSBEPALINGEN (ARTIKEL 3.2, EERSTE LID, OER)	APPENDIX 1 SPECIFIC DEGREE PROGRAM STIPULATIONS (ARTICLE 3.2, PAR 1 PER)
2.	Specifieke opleidingsbepalingen (artikel 3.2)	Specific degree program stipulations (article 3.2)
a.		
	Inhoud van het bi-diplomeringsprogramma MSc Applied Physics / Science Education and Communication De specifieke opleidingsbepalingen van het bi-diplomeringsprogramma van de masteropleidingen Applied Physics / Science Education and Communication zijn in bijlage 7 bijlage 8 opgenomen.	Contents of the double diploma program MSc Applied Physics / Science Education and Communication The specific provisions related to the double diploma Master's program Applied Physics / Science Education and Communication are included in appendix 7 appendix 8 .
Bijlage 3/ Appendix 3	BIJLAGE 3 INHOUD SCHAKELPROGRAMMA (ARTIKEL 3.2, DERDE LID, OER)	APPENDIX 3 CONTENTS OF PRE-MASTER'S DEGREE PROGRAM (ARTICLE 3.2, PAR 3 PER)
	Inhoud schakelprogramma	Contents of pre-master's degree program
	Het schakelprogramma voor studenten met een HBO Bachelor Diploma Technische Natuurkunde wordt hieronder weergegeven. Voor dit programma geldt uitsluitend een instroommogelijkheid in september. Voor studenten die beschikken over een ander Bachelor Diploma (HBO of WO) kan een individueel schakelprogramma worden samengesteld.	The pre-Master's program for students with a Bachelor's degree from a Higher Vocational Education (HBO) Applied Physics is described below. For this program admission is only possible in September. For students with a Bachelor's degree from another Higher Vocational Education (HBO) program an individual pre-Master's program can be composed.

	<p>Het schakelprogramma bevat onderstaande onderwijseenheden:</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Naam</th> <th>Studiepunten</th> </tr> </thead> <tbody> <tr> <td>2DL60</td> <td>Linear Algebra (for pre-master students)</td> <td>2.5</td> </tr> <tr> <td>32IQP</td> <td>Introduction to Quantum Physics</td> <td>5</td> </tr> <tr> <td>32TDY</td> <td>Thermodynamics</td> <td>5</td> </tr> <tr> <td>32PTP</td> <td>Physics of Transport Phenomena</td> <td>5</td> </tr> <tr> <td>31MCA</td> <td>Multivariable Calculus</td> <td>5</td> </tr> <tr> <td>3EEX0</td> <td>Electrodynamics</td> <td>5</td> </tr> </tbody> </table>	Code	Naam	Studiepunten	2DL60	Linear Algebra (for pre-master students)	2.5	32IQP	Introduction to Quantum Physics	5	32TDY	Thermodynamics	5	32PTP	Physics of Transport Phenomena	5	31MCA	Multivariable Calculus	5	3EEX0	Electrodynamics	5	<p>The pre-Master's program contains the following study components:</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Name</th> <th>Credits</th> </tr> </thead> <tbody> <tr> <td>2DL60</td> <td>Linear Algebra (for pre-master students)</td> <td>2.5</td> </tr> <tr> <td>32IQP</td> <td>Introduction to Quantum Physics</td> <td>5</td> </tr> <tr> <td>32TDY</td> <td>Thermodynamics</td> <td>5</td> </tr> <tr> <td>32PTP</td> <td>Physics of Transport Phenomena</td> <td>5</td> </tr> <tr> <td>31MCA</td> <td>Multivariable Calculus</td> <td>5</td> </tr> <tr> <td>3EEX0</td> <td>Electrodynamics</td> <td>5</td> </tr> </tbody> </table>	Code	Name	Credits	2DL60	Linear Algebra (for pre-master students)	2.5	32IQP	Introduction to Quantum Physics	5	32TDY	Thermodynamics	5	32PTP	Physics of Transport Phenomena	5	31MCA	Multivariable Calculus	5	3EEX0	Electrodynamics	5
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	<p>Overige voorwaarden masteropleiding Applied Physics</p> <p>In de masteropleiding Applied Physics kan de student kiezen tussen een externe stage van 15 of 30 studiepunten. Voor studenten met een schakelprogramma toelating die op 1 september 2024 of later starten met het schakelprogramma en na afronding daarvan toelaatbaar zijn tot de masteropleiding Applied Physics geldt het volgende: 15 studiepunten van de externe stage dienen vervangen te worden door onderstaande onderwijseenheden:</p> <ol style="list-style-type: none"> De student dient, afhankelijk van de gekozen track, de twee onderstaande onderwijseenheden succesvol af te ronden (10 studiepunten): <table border="1"> <thead> <tr> <th>Track</th> <th>Homologatie onderwijseenheid</th> <th>Studiepunten</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Fluids, Bio and Soft Matter</td> <td>32SPH Statistical Physics</td> <td>5</td> </tr> <tr> <td>3CGX0 Condensed Matter</td> <td>5</td> </tr> <tr> <td rowspan="2">Nano, Quantum and Photonics</td> <td>32AQP Advanced Quantum Physics</td> <td>5</td> </tr> <tr> <td>3CGX0 Condensed Matter</td> <td>5</td> </tr> <tr> <td rowspan="2">Plasmas and Beams</td> <td>32SPH Statistical Physics</td> <td>5</td> </tr> <tr> <td>32AQP Advanced Quantum Physics</td> <td>5</td> </tr> </tbody> </table> <ol style="list-style-type: none"> De student dient een additioneel 5 studiepunten aan keuze onderwijseenheid onderwijseenheden succesvol af te ronden. 	Track	Homologatie onderwijseenheid	Studiepunten	Fluids, Bio and Soft Matter	32SPH Statistical Physics	5	3CGX0 Condensed Matter	5	Nano, Quantum and Photonics	32AQP Advanced Quantum Physics	5	3CGX0 Condensed Matter	5	Plasmas and Beams	32SPH Statistical Physics	5	32AQP Advanced Quantum Physics	5	<p>Other conditions Master's degree program Applied Physics</p> <p>In the Master's degree program Applied Physics, students may choose between a 15 or 30 credit external internship. For MSc students with a pre-Master's admission who will start their pre-Master's program on or after September 1, 2024 and who are eligible for the Master's program Applied Physics after completion of the pre-Master's program, the following applies: 15 credits of the external internship should be replaced by the study components below:</p> <ol style="list-style-type: none"> Depending on the chosen track, the student must successfully complete two of the following units of study (10 credits): <table border="1"> <thead> <tr> <th>Track</th> <th>Homologation study component</th> <th>Credits</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Fluids, Bio and Soft Matter</td> <td>32SPH Statistical Physics</td> <td>5</td> </tr> <tr> <td>3CGX0 Condensed Matter</td> <td>5</td> </tr> <tr> <td rowspan="2">Nano, Quantum and Photonics</td> <td>32AQP Advanced Quantum Physics</td> <td>5</td> </tr> <tr> <td>3CGX0 Condensed Matter</td> <td>5</td> </tr> <tr> <td rowspan="2">Plasmas and Beams</td> <td>32SPH Statistical Physics</td> <td>5</td> </tr> <tr> <td>32AQP Advanced Quantum Physics</td> <td>5</td> </tr> </tbody> </table> <ol style="list-style-type: none"> The student must successfully complete 5 credits of an additional elective study components. 	Track	Homologation study component	Credits	Fluids, Bio and Soft Matter	32SPH Statistical Physics	5	3CGX0 Condensed Matter	5	Nano, Quantum and Photonics	32AQP Advanced Quantum Physics	5	3CGX0 Condensed Matter	5	Plasmas and Beams	32SPH Statistical Physics	5	32AQP Advanced Quantum Physics	5						
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	<p>Bachelor of Science diploma in de Technische Natuurkunde van een Nederlandse hbo-opleiding.</p>	<p>Bachelor of Science in Applied Physics of a Dutch University of Applied Science (hbo).</p>																																										
	<p>Overgangsregeling schakelprogramma Voor studenten die ingestroomd zijn in februari 2024 zijn gestart met het schakelprogramma geldt het volgende schakelprogramma:</p> <table border="1" data-bbox="387 411 1182 579"> <thead> <tr> <th>Code</th> <th>Naam</th> <th>Studiepunten</th> </tr> </thead> <tbody> <tr> <td>31MCA</td> <td>Multivariable Calculus</td> <td>5</td> </tr> <tr> <td>3BTX0</td> <td>Thermal physics</td> <td>5</td> </tr> <tr> <td>32IQP</td> <td>Introduction to Quantum Physics</td> <td>5</td> </tr> <tr> <td>32VAN</td> <td>Vector Analysis</td> <td>5</td> </tr> <tr> <td>31LAL</td> <td>Linear Algebra</td> <td>5</td> </tr> </tbody> </table>	Code	Naam	Studiepunten	31MCA	Multivariable Calculus	5	3BTX0	Thermal physics	5	32IQP	Introduction to Quantum Physics	5	32VAN	Vector Analysis	5	31LAL	Linear Algebra	5	<p>Transitional regulation pre-Master's program For students that started their pre-Master's program in February 2024 the following pre-Master's program applies:</p> <table border="1" data-bbox="1272 411 2067 579"> <thead> <tr> <th>Code</th> <th>Name</th> <th>Credits</th> </tr> </thead> <tbody> <tr> <td>31MCA</td> <td>Multivariable Calculus</td> <td>5</td> </tr> <tr> <td>3BTX0</td> <td>Thermal physics</td> <td>5</td> </tr> <tr> <td>32IQP</td> <td>Introduction to Quantum Physics</td> <td>5</td> </tr> <tr> <td>32VAN</td> <td>Vector Analysis</td> <td>5</td> </tr> <tr> <td>31LAL</td> <td>Linear Algebra</td> <td>5</td> </tr> </tbody> </table>	Code	Name	Credits	31MCA	Multivariable Calculus	5	3BTX0	Thermal physics	5	32IQP	Introduction to Quantum Physics	5	32VAN	Vector Analysis	5	31LAL	Linear Algebra	5						
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	<p>Inhoud van het bi-diplomeringsprogramma MSc Applied Physics / Science and Technology of Nuclear Fusion</p> <p>Het is mogelijk de masteropleidingen Applied Physics (AP) en Science and Technology of Nuclear Fusion (NF) te combineren. Het bi-diplomeringsprogramma AP-NF omvat in totaal 165 sp en bestaat uit de volgende onderdelen:</p> <table border="1" data-bbox="387 544 1189 922"> <thead> <tr> <th colspan="2"></th> <th>Studiepunten</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Applied Physics (AP):</td> <td>Algemeen verplichte onderwijseenheid</td> <td>5</td> </tr> <tr> <td>Track verplichte onderwijseenheid³</td> <td>5</td> </tr> <tr> <td>Track keuzeonderwijseenheden⁴</td> <td>15</td> </tr> <tr> <td rowspan="2">Science and technology of Nuclear Fusion (NF):</td> <td>Verplichte kern onderwijseenheid</td> <td>20</td> </tr> <tr> <td>Track keuzeonderwijseenheden</td> <td>20</td> </tr> <tr> <td></td> <td>Masterclasses</td> <td>5</td> </tr> <tr> <td></td> <td>Vrije keuzeruimte</td> <td>20</td> </tr> <tr> <td></td> <td>Externe stage Gecombineerde AP-NF stage 3APNF15</td> <td>15</td> </tr> <tr> <td></td> <td>Gecombineerd AP-NF afstudeerproject</td> <td>60</td> </tr> </tbody> </table>			Studiepunten	Applied Physics (AP):	Algemeen verplichte onderwijseenheid	5	Track verplichte onderwijseenheid ³	5	Track keuzeonderwijseenheden ⁴	15	Science and technology of Nuclear Fusion (NF):	Verplichte kern onderwijseenheid	20	Track keuzeonderwijseenheden	20		Masterclasses	5		Vrije keuzeruimte	20		Externe stage Gecombineerde AP-NF stage 3APNF15	15		Gecombineerd AP-NF afstudeerproject	60	<p>Contents of the double diploma program MSc Applied Physics / Science and Technology of Nuclear Fusion</p> <p>It is possible to combine the Master's degree programs in Applied Physics (AP) and Science and Technology of Nuclear Fusion (NF). The double diploma program consists of 165 credits in total and has the following components:</p> <table border="1" data-bbox="1272 544 2074 922"> <thead> <tr> <th colspan="2"></th> <th>Credits</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Applied Physics (AP):</td> <td>General mandatory study component</td> <td>5</td> </tr> <tr> <td>Mandatory track study component³</td> <td>5</td> </tr> <tr> <td>Track electives⁴</td> <td>15</td> </tr> <tr> <td rowspan="2">Science and technology of Nuclear Fusion (NF):</td> <td>Mandatory core study components</td> <td>20</td> </tr> <tr> <td>Track electives</td> <td>20</td> </tr> <tr> <td></td> <td>Masterclasses</td> <td>5</td> </tr> <tr> <td></td> <td>Free elective space</td> <td>20</td> </tr> <tr> <td></td> <td>External internship Combined AP-NF internship 3APNF15</td> <td>15</td> </tr> <tr> <td></td> <td>Combined AP-NF graduation project</td> <td>60</td> </tr> </tbody> </table>			Credits	Applied Physics (AP):	General mandatory study component	5	Mandatory track study component ³	5	Track electives ⁴	15	Science and technology of Nuclear Fusion (NF):	Mandatory core study components	20	Track electives	20		Masterclasses	5		Free elective space	20		External internship Combined AP-NF internship 3APNF15	15		Combined AP-NF graduation project	60
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	<p>Stage Externe stage</p> <p>Studenten die het bi-diplomeringsprogramma AP-NF doen, kiezen tussen de AP externe stage 3MA15, of de NF externe stage 3NFS15.</p> <p>De externe stage biedt studenten de mogelijkheid om academische vaardigheden te ontwikkelen in een bedrijf, universiteit of</p>	<p>Internship External internship</p> <p>Students that are following the double degree diploma program AP-NF choose to do either the AP external internship 3MA15 or the NF external internship 3NFS15.</p> <p>The external internship offers students the possibility to develop their academic skills in a company, university or research institute and will be</p>																																																						

^{3,4} De track FBSM heeft twee track verplichte onderwijseenheden (10 sp), studenten dienen 10 sp ipv 15 sp aan track keuzevakken succesvol af te ronden. / The track FBSM has two compulsory track specific courses, students will have to successfully complete 10 credits of track electives instead of 15 credits.

	<p>onderzoeksinstituut en wordt uitgevoerd buiten de fysieke locatie van de faculteit Applied Physics and Science Education, inclusief andere TU/e faculteiten en TU/e instituten.</p> <p>De externe stage wordt uitgevoerd onder eindverantwoordelijkheid van een examiner.</p> <p>Indien mogelijk wordt de externe stage buiten Nederland uitgevoerd.</p> <p>De procedure omtrent de beoordeling van de externe stage is omschreven in het assessment protocol, onderdeel van het Reglement van de Examencommissie 2022-2023 2024-2025 van de faculteit Applied Physics and Science Education betreffende opleiding.</p>	<p>performed outside of the physical location of the department of Applied Physics and Science Education, including other TU/e departments and TU/e institutes.</p> <p>The external internship will be performed under the final responsibility of an examiner.</p> <p>If possible, the external internship will be executed outside of the Netherlands.</p> <p>The procedure concerning the assessment of the external internship is described in the assessment protocol, part of the Examination Regulations of the Examination Committee of the department Applied Physics and Science Education 2022-2023 2024-2025 of the relevant degree program.</p>
	<p>Gecombineerd AP-NF afstudeerproject</p> <p>Het afstudeerproject biedt studenten de mogelijkheid om hun verworven kennis, competenties en vaardigheden toe te passen. Het afstudeerproject wordt uitgevoerd onder eindverantwoordelijkheid van een examiner/examinatoren die aangewezen wordt/worden door de examencommissies van de masteropleidingen Applied Physics en Science and Technology of Nuclear Fusion. De verantwoordelijke examiner hoeft niet deel uit te maken van de gekozen track binnen masteropleiding Applied Physics. Het is mogelijk dat een enkele examiner voor beide opleidingen de eindverantwoordelijkheid heeft, mits deze daartoe bevoegd is.</p> <p>Het gecombineerde AP-NF afstudeerproject wordt met 2 resultaten afgesloten. Vanuit zowel AP als NF wordt een eindresultaat toegekend.</p>	<p>Combined AP-NF graduation project</p> <p>The graduation project offers students the opportunity to apply their acquired knowledge, competences, and skills. The graduation project is carried out under supervision of an examiner/examiners appointed by the Examination Committees of the Master's programs Applied Physics and Science and Technology of Nuclear Fusion. The responsible examiner does not have to be part of the chosen track within master's program Applied Physics. It is possible that a single examiner is appointed as supervisor by both Examination Committees.</p> <p>The combined AP-NF graduation project is concluded with 2 results. From both AP and NF a final result will be awarded.</p>

	<p>Aan het gecombineerde AP-NF afstudeerproject kan pas worden begonnen als:</p> <ol style="list-style-type: none"> 1. Het algemeen verplichte onderwijseenheid van de masteropleiding Applied Physics (5 sp) is afgerond, en 2. Het verplichte track onderwijseenheden van de masteropleiding Applied Physics (5 sp) is afgerond, en 3. De verplichte kernonderwijseenheden (20 sp) van de masteropleiding Science and Technology of Nuclear Fusion succesvol zijn afgerond, en 4. De track keuze onderwijseenheden (20 sp) van de masteropleiding Science and Technology of Nuclear Fusion succesvol zijn afgerond, en 5. Binnen het totale bi-diplomeringsprogramma MSc Applied Physics / Science and Technology of Nuclear Fusion van de student niet meer dan 10 studiepunten aan (track) keuzeonderwijseenheden openstaan. <p>De procedure omtrent de beoordeling van het afstudeerproject is omschreven in het assessment protocol, onderdeel van het Reglement van de Examencommissie 2022-2023 2024-2025 van de faculteit Applied Physics and Science Education betreffende opleiding.</p>	<p>The combined AP-NF graduation project may be started if:</p> <ol style="list-style-type: none"> 1. The general mandatory course (5 credits) of the master’s program Applied Physics is successfully completed, and 2. The mandatory track study component (5 credits) of the master’s program Applied Physics is successfully completed, and 3. The mandatory core study components (20 credits) of the master’s program Science and Technology of Nuclear Fusion are completed successfully, and 4. The track elective study component (20 credits) the master’s program Science and Technology of Nuclear Fusion are completed successfully, and 5. Within the student’s total double diploma program MSc Applied Physics / Science and Technology of Nuclear Fusion not more than 10 credits of (track) electives are still open. <p>The procedure concerning the assessment of the graduation project is described in the assessment protocol, part of the Examination Regulations of the Examination Committee of the department Applied Physics and Science Education 2022-2023 2024-2025 of the relevant degree program.</p>
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	<p>Overgangsregeling bi-diplomeringsprogramma Applied Physics / Science and Technology of Nuclear Fusion</p> <p>Met ingang van 1 september 2024 is de gecombineerde stage AP-NF 3APNF15 komen te vervallen en dienen studenten te kiezen tussen de AP externe stage 3MA15 of de NF externe stage 3NFS15. Studenten die voor 1 september 2024 zijn gestart met de gecombineerde stage AP-NF 3APNF15 mogen 3APNF15 in plaats van 3MA15 of 3NFS15 opnemen in het examenprogramma, op voorwaarde dat de gecombineerde stage voor 1 september 2025 moet zijn afgerond.</p>	<p>Transitional arrangements for the double diploma program Applied Physics / Science and Technology of Nuclear Fusion</p> <p>As of September 1, 2024, the combined internship AP-NF 3APNF15 will be discontinued and students will have to choose between the AP external internship 3MA15 or the NF external internship 3NFS15. Students who started the combined internship AP-NF 3APNF15 before September 1, 2024 may include 3APNF15 in their examination program instead of the 3MA15 or 3NFS15, provided that the combined internship must be completed before September 1, 2025.</p>																																																						
	<p>Voor studenten die voor 1 september 2020 zijn gestart met het bi-diplomeringsprogramma Applied Physics / Science and Technology of Nuclear Fusion geldt dat het programma 150 sp bevat en als volgt is opgebouwd:</p> <table border="1" data-bbox="387 738 1189 1042"> <thead> <tr> <th colspan="2"></th> <th style="text-align: right;">Studiepunten</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Applied Physics (AP):</td> <td>Algemeen verplichte onderwijseenheid</td> <td style="text-align: right;">5</td> </tr> <tr> <td>Verplicht specialisatie onderwijseenheden</td> <td style="text-align: right;">10</td> </tr> <tr> <td>Specialisatie keuzevakken</td> <td style="text-align: right;">10</td> </tr> <tr> <td rowspan="2">Science and Technology of Nuclear Fusion (NF):</td> <td>Verplichte onderwijseenheden</td> <td style="text-align: right;">30</td> </tr> <tr> <td>Keuze keuzeonderwijseenheden</td> <td style="text-align: right;">10</td> </tr> <tr> <td rowspan="5"></td> <td>Masterclasses</td> <td style="text-align: right;">5</td> </tr> <tr> <td>Vrije keuzeruimte</td> <td style="text-align: right;">5</td> </tr> <tr> <td>Stage</td> <td style="text-align: right;">15</td> </tr> <tr> <td>Gecombineerd AP-NF afstudeerproject</td> <td style="text-align: right;">60</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Studiepunten	Applied Physics (AP):	Algemeen verplichte onderwijseenheid	5	Verplicht specialisatie onderwijseenheden	10	Specialisatie keuzevakken	10	Science and Technology of Nuclear Fusion (NF):	Verplichte onderwijseenheden	30	Keuze keuzeonderwijseenheden	10		Masterclasses	5	Vrije keuzeruimte	5	Stage	15	Gecombineerd AP-NF afstudeerproject	60				<p>For students who started the double diploma program Applied Physics / Science and Technology of Nuclear Fusion before September 1, 2020, the degree program consists of 150 credits in total and consists of the following components:</p> <table border="1" data-bbox="1274 738 2076 1042"> <thead> <tr> <th colspan="2"></th> <th style="text-align: right;">Credits</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Applied Physics (AP):</td> <td>Algemeen verplichte onderwijseenheid</td> <td style="text-align: right;">5</td> </tr> <tr> <td>Verplicht specialisatie onderwijseenheden</td> <td style="text-align: right;">10</td> </tr> <tr> <td>Specialisatie keuzevakken</td> <td style="text-align: right;">10</td> </tr> <tr> <td rowspan="2">Science and technology of Nuclear Fusion (NF):</td> <td>Verplichte onderwijseenheden</td> <td style="text-align: right;">30</td> </tr> <tr> <td>Keuze keuzeonderwijseenheden</td> <td style="text-align: right;">10</td> </tr> <tr> <td rowspan="5"></td> <td>Masterclasses</td> <td style="text-align: right;">5</td> </tr> <tr> <td>Vrije keuzeruimte</td> <td style="text-align: right;">5</td> </tr> <tr> <td>Stage</td> <td style="text-align: right;">15</td> </tr> <tr> <td>Gecombineerd AP-NF afstudeerproject</td> <td style="text-align: right;">60</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Credits	Applied Physics (AP):	Algemeen verplichte onderwijseenheid	5	Verplicht specialisatie onderwijseenheden	10	Specialisatie keuzevakken	10	Science and technology of Nuclear Fusion (NF):	Verplichte onderwijseenheden	30	Keuze keuzeonderwijseenheden	10		Masterclasses	5	Vrije keuzeruimte	5	Stage	15	Gecombineerd AP-NF afstudeerproject	60			
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	<p>Uit de lijst Fusion keuzevakken mogen alleen keuzevakken worden gekozen die niet reeds zijn gekozen bij andere onderdelen van het bi-diplomeringsprogramma.</p> <p>Het afstudeerproject moet een fysisch onderwerp behelzen in een fusion context.</p>	<p>From the list of Fusion electives only courses may be chosen that have not already been chosen elsewhere in the combined program.</p> <p>The graduation project must include a physical subject in a fusion context.</p>																																																						

	<p>Aan het afstudeerproject kan pas worden begonnen als het Algemeen verplicht Applied Physics onderwijseenheid (5 sp), de verplichte Applied Physics specialisatieonderwijseenheden (10 sp) en de externe stage volledig zijn afgerond (d.w.z. het cijfer bekend is) en binnen het totale masterprogramma van de student niet meer dan 10 studiepunten aan (specialisatie) keuzevakken openstaan. In bijzondere gevallen kan de examencommissie van het voorgaande afwijken. De procedure rond de beoordeling van de externe stage en het afstudeerproject is beschreven in het Reglement van de examencommissie.</p> <p>Voor studenten die voor 1 september 2019 zijn gestart met het bi-diplomeringsprogramma Applied Physics / Science and Technology of Nuclear Fusion, gelden geen nadere voorwaarden voor de invulling van vrije keuze vakken op voorwaarde dat de Examencommissie haar goedkeuring geeft (zie ook art. 3.6).</p>	<p>The graduation project may be started only if the General mandatory Applied Physics study component (5 credits), the Mandatory track study components (10 credits), and the external internship are fully completed (i.e. grade is known) and within the student's total Master's program not more than 10 credits of (track) electives are still open. In special cases the Examination Committee may deviate from the former. The procedure for the assessment of the external internship and the graduation project is described in the Regulations for the Examination Committee.</p> <p>For students who started the double diploma program Applied Physics / Science and Technology of Nuclear Fusion before September 1, 2019, no further conditions apply when choosing their elective courses, provided that the Examination Committee gives its approval (see also art. 3.6).</p>
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Bijlage 8/ Appendix 8	BIJLAGE 8 BI-DIPLOMERING APPLIED PHYSICS / SCIENCE EDUCATION	APPENDIX 8 DOUBLE DIPLOMA APPLIED PHYSICS / SCIENCE EDUCATION																																								
	<p>Inhoud van het bi-diplomeringsprogramma MSc Applied Physics / Science Education</p> <p>Het is mogelijk de masteropleidingen Applied Physics (AP) en Science Education (SE) te combineren. In dit traject is er geen sprake van een gecombineerd afstudeerproject. Het bi-diplomeringsprogramma AP-SE omvat in totaal 150 sp en bestaat uit de volgende onderdelen:</p> <table border="1" data-bbox="387 555 1198 911"> <thead> <tr> <th></th> <th>Studiepunten</th> </tr> </thead> <tbody> <tr> <td>Applied Physics (AP): Algemeen verplicht onderwijseenheid</td> <td>5</td> </tr> <tr> <td>Track verplicht onderwijseenheid¹</td> <td>5</td> </tr> <tr> <td>Track keuzeonderwijseenheden²</td> <td>15</td> </tr> <tr> <td>Afstudeerproject</td> <td>45</td> </tr> <tr> <td>Science Education (SE): Algemeen verplicht onderwijseenheden</td> <td>10</td> </tr> <tr> <td>Specialisatie natuurkunde vakdidactiek</td> <td>10</td> </tr> <tr> <td>Werkplekleren</td> <td>25</td> </tr> <tr> <td>Onderzoek en Ontwerpen in onderwijs</td> <td>15</td> </tr> <tr> <td>Vrije keuzeruimte</td> <td>20</td> </tr> </tbody> </table> <p>^{1,2} De track FBSM heeft twee track verplichte onderwijseenheden (10 sp), studenten dienen 10 sp in plaats van 15 sp aan track keuzevakken succesvol af te ronden.</p>		Studiepunten	Applied Physics (AP): Algemeen verplicht onderwijseenheid	5	Track verplicht onderwijseenheid ¹	5	Track keuzeonderwijseenheden ²	15	Afstudeerproject	45	Science Education (SE): Algemeen verplicht onderwijseenheden	10	Specialisatie natuurkunde vakdidactiek	10	Werkplekleren	25	Onderzoek en Ontwerpen in onderwijs	15	Vrije keuzeruimte	20	<p>Contents of the double diploma program MSc Applied Physics / Science Education</p> <p>It is possible to combine the Master’s degree programs in Applied Physics (AP) and Science Education (SE). The double diploma program does not contain a combined graduation project. The double diploma program consist of 150 credits in total and consists of the following components:</p> <table border="1" data-bbox="1272 555 2083 911"> <thead> <tr> <th></th> <th>Credits</th> </tr> </thead> <tbody> <tr> <td>Applied Physics (AP): General mandatory study component</td> <td>5</td> </tr> <tr> <td>Mandatory track study component¹</td> <td>5</td> </tr> <tr> <td>Track electives²</td> <td>15</td> </tr> <tr> <td>Graduation project</td> <td>45</td> </tr> <tr> <td>Science Education (SE): General mandatory study components</td> <td>10</td> </tr> <tr> <td>Specialization physics education</td> <td>10</td> </tr> <tr> <td>School Internships</td> <td>25</td> </tr> <tr> <td>Research and Design in education</td> <td>15</td> </tr> <tr> <td>Free elective space</td> <td>20</td> </tr> </tbody> </table> <p>^{1,2} The track FBSM has two compulsory track specific courses, students will have to successfully complete 10 credits of track electives instead of 15 credits.</p>		Credits	Applied Physics (AP): General mandatory study component	5	Mandatory track study component ¹	5	Track electives ²	15	Graduation project	45	Science Education (SE): General mandatory study components	10	Specialization physics education	10	School Internships	25	Research and Design in education	15	Free elective space	20
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	<p>Ten aanzien van de educatieve pakketten zijn de volgende bepalingen van toepassing:</p> <ul style="list-style-type: none"> - Indien de student SE pakket 1 aankomend tweedegraads lerarenopleiding in de bachelorfase heeft afgerond, dan dienen de overeenkomstige vakken uit de masteropleiding SE te worden vervangen door 15 sp vrije keuzevakken. - Indien de student naast SE pakket 1 aankomend tweedegraads lerarenopleiding ook SE pakket 2 aansluitend tweedegraads lerarenopleiding in de bachelorfase heeft afgerond, dan dienen de 	<p>With regard to the teacher-training packages the following provisions apply:</p> <ul style="list-style-type: none"> - When the student has completed teacher-training package 1 prospective second-degree teacher training in the Bachelor’s phase, then the corresponding courses from the master’s program SE must be replaced by 15 credits free electives. - If the student has completed teacher-training package 1 as well as teacher-training package 2 prospective second-degree teacher training in the Bachelor’s phase, then the corresponding courses from 																																								

	<p>overeenkomstige vakken uit masteropleiding SE te worden vervangen door 15 sp keuzevakken van de masteropleiding SE.</p>	<p>the master's program SE must be replaced with 15 credits electives of the Master's program SE.</p>																																														
	<p>Ten aanzien van bovengenoemde onderdelen zijn de bepalingen zoals omschreven in de OER van de master AP en de master SE van toepassing op het combinatieprogramma AP-SE. In het bijzonder wordt gewezen op de algemene bepalingen met betrekking tot bi-diplomeringsprogramma in bijlage 1 en bijlage 5 van de OER van de master SE.</p>	<p>With regard to the above components the regulations as described in the PER of the Master AP and the Master SE apply to the double diploma program AP-SE. In particular, reference is made to the general regulations regarding double diploma in Appendix 1 and Appendix 5 of the PER of the Master SE.</p>																																														
	<p>Overgangsregeling bi-diplomeringsprogramma Applied Physics / Science Education and Communication</p> <p>Voor studenten die voor 1 september 2022 zijn gestart met het bi-diplomeringsprogramma Applied Physics / Science Education and Communication geldt dat het programma 150 sp bevat en als volgt is opgebouwd:</p> <table border="1" data-bbox="387 754 1227 1137"> <thead> <tr> <th colspan="2"></th> <th style="text-align: right;">Studiepunten</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Applied Physics (AP):</td> <td>Algemeen verplicht onderwijseenheid</td> <td style="text-align: right;">5</td> </tr> <tr> <td>Track verplicht onderwijseenheid¹</td> <td style="text-align: right;">5</td> </tr> <tr> <td>Track keuzeonderwijseenheden²</td> <td style="text-align: right;">15</td> </tr> <tr> <td>Afstudeerproject</td> <td style="text-align: right;">45</td> </tr> <tr> <td rowspan="5">Science Education and Communication (SEC):</td> <td>SEC pakket 1: Oriëntatie</td> <td style="text-align: right;">15</td> </tr> <tr> <td>SEC pakket 2: Verdieping</td> <td style="text-align: right;">15</td> </tr> <tr> <td>SEC afstudeerpakket 3: Modern STEM onderwijs</td> <td style="text-align: right;">15</td> </tr> <tr> <td>SEC afstudeerpakket 4: Professionalisering/onderzoek</td> <td style="text-align: right;">15</td> </tr> <tr> <td>Vrije keuzeruimte</td> <td style="text-align: right;">20</td> </tr> </tbody> </table> <p>^{1,2} De track FBSM heeft twee track verplichte onderwijseenheden (10 sp), studenten dienen 10 sp in plaats van 15 sp aan track keuzevakken succesvol af te ronden.</p> <p>De overgangsregeling voor de Masteropleiding SEC onderwijseenheden staat weergegeven in de OER van de Masteropleiding SE.</p>			Studiepunten	Applied Physics (AP):	Algemeen verplicht onderwijseenheid	5	Track verplicht onderwijseenheid ¹	5	Track keuzeonderwijseenheden ²	15	Afstudeerproject	45	Science Education and Communication (SEC):	SEC pakket 1: Oriëntatie	15	SEC pakket 2: Verdieping	15	SEC afstudeerpakket 3: Modern STEM onderwijs	15	SEC afstudeerpakket 4: Professionalisering/onderzoek	15	Vrije keuzeruimte	20	<p>Transitional arrangements for the double diploma program Applied Physics / Science Education and Communication</p> <p>For students who started the double diploma program Applied Physics / Science Education and Communication before September 1, 2022, the degree program consist of 150 credits in total and consists of the following components:</p> <table border="1" data-bbox="1272 754 2123 1137"> <thead> <tr> <th colspan="2"></th> <th style="text-align: right;">Credits</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Applied Physics (AP):</td> <td>General mandatory study component</td> <td style="text-align: right;">5</td> </tr> <tr> <td>Mandatory track study component¹</td> <td style="text-align: right;">5</td> </tr> <tr> <td>Track electives²</td> <td style="text-align: right;">15</td> </tr> <tr> <td>Graduation project</td> <td style="text-align: right;">45</td> </tr> <tr> <td rowspan="4">Science Education and Communication (SEC):</td> <td>SEC package 1: Orientation</td> <td style="text-align: right;">15</td> </tr> <tr> <td>SEC package 2: Deepening</td> <td style="text-align: right;">15</td> </tr> <tr> <td>SEC graduation pakket 3: Modern STEM education</td> <td style="text-align: right;">15</td> </tr> <tr> <td>SEC graduation pakket 4: Professionalization / research</td> <td style="text-align: right;">15</td> </tr> <tr> <td>Vrije keuzeruimte</td> <td style="text-align: right;">20</td> </tr> </tbody> </table> <p>^{1,2} The track FBSM has two compulsory track specific courses, students will have to successfully complete 10 credits of track electives instead of 15 credits.</p> <p>The transitional arrangements for Master's program SEC study components can be found in the PER of the Master's program SE.</p>			Credits	Applied Physics (AP):	General mandatory study component	5	Mandatory track study component ¹	5	Track electives ²	15	Graduation project	45	Science Education and Communication (SEC):	SEC package 1: Orientation	15	SEC package 2: Deepening	15	SEC graduation pakket 3: Modern STEM education	15	SEC graduation pakket 4: Professionalization / research	15	Vrije keuzeruimte	20
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Addendum OER Master Applied Physics 2024-2025 / Addendum PER Master Applied Physics 2024-2025

	<p>Voor studenten die voor 1 september 2020 zijn gestart met het bi-diplomeringsprogramma Applied Physics / Science Education and Communication geldt dat het programma 150 sp bevat en als volgt is opgebouwd:</p> <table border="1"> <thead> <tr> <th colspan="2"></th> <th style="text-align: right;">Studiepunten</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Applied Physics (AP):</td> <td>Algemeen verplicht onderwijsseenheid</td> <td style="text-align: right;">5</td> </tr> <tr> <td>Track verplichte onderwijsseenheden</td> <td style="text-align: right;">10</td> </tr> <tr> <td>Track keuzevakken</td> <td style="text-align: right;">10</td> </tr> <tr> <td>Afstudeerproject AP</td> <td style="text-align: right;">45</td> </tr> <tr> <td rowspan="5">Science Education and Communication (SEC):</td> <td>SEC pakket 1: Oriëntatie</td> <td style="text-align: right;">15</td> </tr> <tr> <td>SEC pakket 2: Verdieping</td> <td style="text-align: right;">15</td> </tr> <tr> <td>SEC afstudeerpakket 3: Modern STEM onderwijs</td> <td style="text-align: right;">15</td> </tr> <tr> <td>SEC afstudeerpakket 4: Professionalisering/onderzoek</td> <td style="text-align: right;">15</td> </tr> <tr> <td>Vrije keuzeruimte</td> <td style="text-align: right;">20</td> </tr> </tbody> </table>			Studiepunten	Applied Physics (AP):	Algemeen verplicht onderwijsseenheid	5	Track verplichte onderwijsseenheden	10	Track keuzevakken	10	Afstudeerproject AP	45	Science Education and Communication (SEC):	SEC pakket 1: Oriëntatie	15	SEC pakket 2: Verdieping	15	SEC afstudeerpakket 3: Modern STEM onderwijs	15	SEC afstudeerpakket 4: Professionalisering/onderzoek	15	Vrije keuzeruimte	20	<p>For students who started the double diploma program Applied Physics / Science Education and Communication before September 1, 2020, the degree program consist of 150 credits in total and consists of the following components:</p> <table border="1"> <thead> <tr> <th colspan="2"></th> <th style="text-align: right;">Credits</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Applied Physics (AP):</td> <td>General mandatory study component</td> <td style="text-align: right;">5</td> </tr> <tr> <td>Mandatory track study components</td> <td style="text-align: right;">10</td> </tr> <tr> <td>Track electives</td> <td style="text-align: right;">10</td> </tr> <tr> <td>Graduation project AP</td> <td style="text-align: right;">45</td> </tr> <tr> <td rowspan="4">Science Education and Communication (SEC):</td> <td>SEC package 1: Orientation</td> <td style="text-align: right;">15</td> </tr> <tr> <td>SEC package 2: Deepening</td> <td style="text-align: right;">15</td> </tr> <tr> <td>SEC graduation pakket 3: Modern STEM education</td> <td style="text-align: right;">15</td> </tr> <tr> <td>SEC graduation pakket 4: Professionalization / research</td> <td style="text-align: right;">15</td> </tr> <tr> <td></td> <td>Free elective space</td> <td style="text-align: right;">20</td> </tr> </tbody> </table>			Credits	Applied Physics (AP):	General mandatory study component	5	Mandatory track study components	10	Track electives	10	Graduation project AP	45	Science Education and Communication (SEC):	SEC package 1: Orientation	15	SEC package 2: Deepening	15	SEC graduation pakket 3: Modern STEM education	15	SEC graduation pakket 4: Professionalization / research	15		Free elective space	20
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