

Faculty of Aerospace Engineering
Delft University of Technology

Transition Regulations BSc per September 2011 for
students who started in the old BSc programme
(starting year 2008 and before)

June, 2011

1. Introduction

The new BSc programme was introduced in 2009-2010 (first year) and 2010-2011 (second and third year). For the first year programme a strict transition was made: either the student had to switch to the new BSc programme or the student could complete the old BSc programme. The transition to the new second and third year thus was aimed at those students who started in the old programme (starting year 2008 or before) and could complete the old programme or had to complete their BSc programme by courses from the new BSc programme.

For those students extensive Transition regulations were issued in March 2010. A supplement to these regulations was issued in December 2010, due to programme changes in the third period of 2010-2011.

After careful evaluation of the new BSc programme it was decided that the programme was in some places overloaded or courses did not fit the curriculum. Therefore, the 2011-2012 programme will slightly differ from the 2010-2011 programme.

The new programme yields consequences for the transition regulations. The present document is based on the 2011-2012 programme and replaces the former documents. The main changes are:

- All tables (course codes and EC) are based on the 2011-2012 programme.
- The list of additional courses third year contains third year courses only.
- There is no longer a fixed order in the additional courses.
- No more references to resits of all courses, (are not offered anymore).

We start in defining the target group for this document (section 2). Though most students will have completed the first year, in section 3 we give some specific regulations for the first year. The pass/fail regulation for the first year is the subject of section 4. The regulations for the second and third year major are discussed in section 5. Section 6 is dedicated to the minors. The pass/fail regulations for the second and third year are the subject of section 7. An extensive example is discussed in section 8. The administration of all changes is laid down in section 9.

2. Target group

The regulations in this document apply to the students

- who started their studies between 2003 and 2008, and
- who had their first year completed by June 2009 or who received permission from the Board of Examiners to stay in the old BSc programme

Students who started their studies before 2003 will be assessed individually.

Note: Students who started between 2003 and 2008 but had to change to the new BSc programme are referred to the transition document for starting year 2009 and after.

3. First year

Students who have already completed their first year (P-exam passed) can ignore this section.

For students who have not completed the old first year, the following replacement table applies:

Old course	Replaced by	Remark
AE1-914 I Statics	AE1103 Statics	
AE1-914 II Dynamics	AE1203 Dynamics	
WI1276LR Calculus D1	WI1401LR Calculus I	
WI1276LR Calculus D2	WI1402LR Calculus II	Codes are equivalent, despite the fact that WI1402LR is one EC less than WI1276LR D2
WI1277LR Linear Algebra	WI1403LR Linear Algebra	Codes are equivalent, despite the fact that WI1403LR is one EC less than WI1277LR

3.1. Details per course

3.1.1. AE1914 Delft Applied Mechanics

This course consisted of three parts. A weighted average is calculated once for each part the minimum grade 5.0 is obtained. A weighted average of 5.5 will be rounded to 6.0.

Old course	Is equivalent to
AE1914	NA
AE1914 I	AE1103
AE1914 II	AE1203
AE1914 III	NA

Thus, if there's a minimum grade 5.0 for AE1914 III, the averaging regulations still apply, for AE1914 I can be replaced by AE1103 and AE1914 II by AE1203.

If there is no minimum grade 5.0 for AE1914 III, an additional course must be done. In this case there will be no final grade for AE1914 but the subcourses will be listed separately under the new course codes: AE1103 (AE1914 I), AE1203 (AE1914 II) and the additional course.

3.1.2. WI1276LR Calculus

This course consisted of two parts. A weighted average is calculated once for each part the minimum grade 5.0 is obtained. A weighted average of 5.5 will be rounded to 6.0.

Old course	Is equivalent to
WI1276LR I	WI1401LR
WI1276LR II	WI1402LR

WI1402LR is 5 EC whereas WI1276LR II was 6 EC. However, the two courses are considered equivalent. It is thus possible to pass the propaedeutic exam with 59 EC, this will bear no further consequences.

3.1.3. WI1277 Linear Algebra

WI1277 has an equivalent course in the new programme: WI1403LR. WI1403LR is 5 EC, whereas WI1277LR in the old programme was a 6 EC course. However, the two courses are considered equivalent. It is thus possible to pass the propaedeutic exam with 59 EC, this will bear no further consequences.

3.1.4. Additional courses

In case the first year courses do not add up to 60 EC (and this is not due to the mathematics courses, see above) a course from the new programme has to be done. Courses to choose from are:

Code	Course Name	EC	Period	Note
AE1201	Aerospace Design and System Engineering Elements I	4	Period 3 - 4	
AE1104	Physics I	2	Period 1	
AE1204	Physics II	3	Period 4	
AE1202-11	Materials and Structures for Aircraft and Spacecraft	6	Period 3	only if one has not passed AE1701 AND AE1914 III

There is no particular order in this list of additional courses.

4. Pass/fail regulations first year

The pass/fail regulation is that a student has passed his propaedeutic exam if all subjects are passed or if the student has obtained a maximum of two grades 5.0, provided that the total number of EC for which a grade 5.0 is obtained, does not exceed 6 EC.

5. Programme 2011-2012 second and third year (major)

5.1. Programme

After a careful evaluation of the 2010-2011 programme, it was concluded that for some courses the workload exceeded the number of EC allotted and that some courses did not fit in the curriculum. Therefore, in 2011-2012 the programme will slightly differ from the one in 2010-2011.

The discontinued courses are:

- AE2103 Space Missions and Applications I
- AE2104P Flight Mechanics Flight Test
- AE3202P Flight Dynamics and Simulation Test Flight
- Furthermore, AE2107 Probability and Statistics is replaced by a similar course offered by the Mathematics department (WI2107LR.) The courses AE2206 and AE2208 will per 2011-2012 be merged into one course: AE2212 (6 EC).

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Courses of which the number of EC is changed:

Old course code	EC	New course code	EC
AE2101	2	AE2101-11	3
AE2104	3	AE2104-11	4
AE2106	2	AE2106-11	3
AE2211	3	AE2211-11	4
AE2203	3	AE2203-11	4
AE2205	3	AE2205-11	2
AE3202	4	AE3202-11	5
AE3204	2	AE3204-11	3

Programme 2011-2012

Second year		
Code	Course Name	EC
AE2100	System Design	5
AE2101-11	Aerospace Design and Systems Engineering Elements II	3
AE2102	Aerodynamics I	3
AE2104-11	Flight and Orbital Mechanics	4
AE2105	Instrumentation and Signals	3
AE2106-11	Vibrations	3
WI2107LR	Probability and Statistics	4
WI2029LR	Differential Equations	4
AE2200	Test, Analysis and Validation	5
AE2211-11	Structural Analysis and Design	4
AE2210	Aerodynamics II	3
AE2203-11	Propulsion and Power	4
AE2204	Aerospace Systems and Control Theory	3
AE2205-11	Experimental Research and Data Analysis	2
AE2207	Production of Aerospace Systems	3
AE2209	Low-Speed Wind Tunnel Test	1
AE2212	Applied Numerical Analysis and Computational Modelling	6
Third-year Major		
AE3200	Design Synthesis	15
AE3201	Systems Engineering	3
AE3202-11	Aerospace Flight Dynamics And Simulation, incl. Test Flight	5
AE3204-11	Introduction to Business Economics	3
AE3205-11	Simulation, Verification and Validation	4

5.2. Transition Regulations core programme: second year and third-year major

5.2.1. Replacement courses

For most courses in the old programme a replacement course exists in the new programme. If there is a replacement course, the student must do this as replacement for the discontinued old course (see page 6).

AE2125 Thermodynamics and Compressible Aerodynamics

The courses AE2125 and AE2210 are considered to be equivalent, regardless the difference in EC. This means that for students who do AE2210 as a replacement for AE2125, AE2210 is counted for 5 EC. See section 9 Administration for details.

AE3303P Exercise Flight Dynamics and Simulation

- In 2010-2011 AE3303P (2 EC) had to be replaced by AE3202P (1 EC). These courses were considered to be equivalent, regardless the number of EC. This meant that for students who did AE3202P as a replacement for AE3303P, AE3202P was counted for 2 EC. See "Administration" for details.
- In 2011-2012 AE3202P will not be offered anymore. The flight itself will be incorporated in AE3202-11, whereas the practical itself (the analysis of the flight data) will be incorporated in AE3205-11. So, from 2011-2012 on, AE3303P has to be replaced by AE3205-11. If AE3205 is already completed in 2010-2011, no other replacement course has to be done.

5.2.2. Old courses without a replacement course

The table below lists the second year courses without a replacement course:

Second-Year Old Programme			Second-Year New Programme
Code	Course Name	EC	
AE2192P	Supersonic Wind Tunnel Exercise	1	Pass (VR)(1EC) for AE2192P if AE2125 has been completed and AE2192P has not
AE2521N	Aircraft Stress Analysis and Structural Design	4	X
AE2E02	Introduction to Earth Observation	4	X
AE2S02	Space Engineering and Technology II	6	X
AE2702P	Practical Materials Science	1	X
AE2208P/ AE2104P	Flight Mechanics Flight Test	1	VR will be awarded

The table below lists the third year courses without a replacement course:

Third-year Major Old Programme			Third-year Major New Programme
Code	Course Name	EC	
AE3193P	Low Wind Tunnel Test 3	1	X
AE3914	Dynamics and Stability	3	X
AE3T11	Sustainable Development	3	X

The table below lists which new second-year courses replaces the old second-year courses.

Courses Old Programme			Replacement Courses		
Code	Course Name	EC	Code	Course Name	EC
AE2110	Aerodynamics B	3	AE2102	Aerodynamics I	3
AE2191P	Low Speed Wind Tunnel Practical	1	AE2209	Low-speed Wind Tunnel Test	1
AE2125	Thermodynamics and Compressible Aerodynamics	5	AE2210	Aerodynamics II	3+2 bonus
AE2202 I	Airplane Performance II	3	AE2104-11	Flight and Orbital Mechanics	4
AE2522 I	Aircraft Structural Analysis I	3	AE2211-11	Structural Analysis and Design	4
AE2600	Aerospace Materials and Manufacturing II	5	AE2207	Production of Aerospace Systems	3
AE2914	Vibrations of Aerospace Structures	3	AE2106-11	Vibrations	3
AE2E01	Probability and Observation Theory	5	WI2107LR	Probability and Statistics	4
AE2011	Second-year Project Part I	6	AE2100	System Design	5
AE2002	Second-year Project Part II	5	AE2200	Test, Analysis and Validation	5
WM0201LR	Report Writing	0			

The table below lists which new third-year courses replaces the old third-year courses.

Courses Old Programme			Replacement Courses		
Code	Course Name	EC	Code	Course Name	EC
AE3001	Design Synthesis Exercise	14	AE3200	Systems Design Synthesis	15
WM0203LR	Oral Presentation	0			
AE3235	Thermodynamics and Gas Turbines	3	AE2203-11	Propulsion and Power	4
AE3302	Flight Dynamics I	4	AE3202-11	AE Flight Dynamics and Simulation	5
AE3303P	Exercise Flight Dynamics and Simulation	2	AE3202P or AE3205-11	Simulation, Verification and Validation	4

5.3. Additional courses

If the number of EC in the second year is less than 60 (because a replacement course has less EC, or no replacement course is listed), the student has to do additional new second-year courses in order to complete the 60 EC. If the number of EC in the third year major is less than 30 (because a replacement course has less EC, or no replacement course is listed), the student has to do additional new third year major courses in order to complete the 30 EC. Some of these additional courses used to be part of a minor. If a student already completed a course as part of his minor, this course cannot be chosen as part of the second year or third year major.

In earlier Transitions Regulations it was stated that the additional courses had to be done in a fixed order. This is no longer the case. The student can choose the additional courses he wants to do, taking into account for example the number of EC he needs to complete his BSc or the education period in which the course is offered.

The table below lists the second-year additional courses:

Code	Course Name	EC	Period	Do not choose this course if
AE2204	AE System and Control Theory	3	Period 4	AE3359 is completed
AE2206	Applied Numerical Analysis (only in 2011-2012)	4	Period 3	WI3097TU is completed
AE2101-11	AE Design and Systems Engineering Elements II	3	Period 1	AE3021 is completed
AE2208	Computational Modelling (only in 2011-2012)	3	Period 4	AE3031 is completed
AE2212	Applied Numerical Analysis and Computational Modelling	6	Period 3 - 4	Either AE2206 or AE2208 is already completed
AE2205-11	Experimental Research Data Analysis	2	Period 3	
AE2105	Instrumentations and Signals	3	Period 2	

The table below lists the third-year additional courses:

Code	Course Name	EC	Period	Do not choose this course if:
AE3201	Systems Engineering And Aerospace Design	3	Period 3	AE3S01 is completed
AE3205-11	Simulation, Verification And Validation	4	Period 3	
AE3204-11	Introduction Business Economics	3	Period 3	WM0609LR is completed

5.4. Course details

AE2206/AE2208/AE2212

Note that in 2011-2012, AE2206 Applied Numerical Analysis and AE2208, Computational Modelling will be combined into one course AE2212, Applied Numerical Analysis and Computational Modelling. In 2011-2012 it will be possible to do only the AE2206 part or only the AE2208 part. After this year AE2206 and AE2208 will no longer be additional courses. Students who want to do both AE2206 and AE2208 will have to do the combined course AE2212 for 6 EC.

AE2103

AE2103 Space Missions and Applications I will not be offered anymore in 2011-2012 and therefore is not in the table of additional courses. If AE2103 was already completed in 2010-2011 it will of course remain valid.

AE3205-11 and AE3302P (or AE3202P)

If a student has already passed AE3302P (or AE3202P), but still has to do AE3205-11, Simulation, Verification and Validation, the following will apply: AE3205-11 consists of three parts: structures, test flight data and a synthesis. Since the test flight part is essentially the same as the former test flight practical (AE3303P/AE3202P) the student will be exempted from this part in AE3205-11, but will have to do the structures part and the synthesis assignment.

In exceptional cases it is possible that a student has done all additional courses for the third year, but still does not have 30 EC. In that case he does not have to do other courses but the third year major is regarded as complete. See "Administration" for further details

6. Minors

In 2011-2012 the Faculty of Aerospace Engineering offers one minor:

- The Airport of the Future (new)

If the student has started another minor offered by Aerospace Engineering:

- Aerospace Analysis and Development
- Aerospace Operation and Exploitation
- Aerospace System Design and Technology
- Space
- Wind Energy and Sustainability

And this minor is not yet completed, the following applies:

If one did not succeed in completing the minor in 2010-2011, alternative courses must be chosen to complete 30 EC. Conditions for these alternative courses are:

- They must be part of a Delft University of Technology minor. Other courses (e.g. MSc courses) are not accepted.
- The minor must consist of at least 30 EC.
- The alternative courses preferably belong to one minor. Thus, if one has to complete 12 EC, it is strongly advised to choose courses for 12 EC from one specific minor, instead of four 3 EC courses from four different minors.

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The minors 'Aerospace System Design and Technology' and 'Wind Energy and Sustainability' can also be completed in 2011-2012 by doing resits of discontinued courses (see table below):

Aerospace System Design and Technology 2010/2011			
Code	Course Name	EC	In 2011-2012 only
AE3021	Aircraft Design	7	tailored arrangement
AE3031	Computational Fluid and Solid Mechanics	9	tailored arrangement
AE3803	Space Engineering and Technology III	3	Resit exam in period 1 and 2
AE3803P	Exercise Space Engineering and Technology III	2	tailored arrangement
AE3T75	Aircraft Systems	3	Resit exam in period 2 and 3
ET3604LR	Electronic Circuits	3	Continues
AE3235	Gasturbines	3	Resit exam in period 2 and 3

Wind Energy and Sustainability 2010/2011			
Code	Course Name	EC	In 2011-2012 only
AE3E09	Satellite Earth Observation	3	Resit exam in period 2 and 3
AE3T03	Present Interest in Sustainable Engineering	3	Continues
AE3T50	Case study / Mini Project	6	Continues
ET4365SET	Electrical Power Engineering	5	Continues
AE3W02	Introduction to Wind Energy	4	Continues
AE3235	Gasturbines	3	Resit exam in period 2 and 3
ET3034TU	Solar Cells	3	Continues
ET3035TU	Electrical Sustainable Power Engineering	3	Continues

7. Pass/fail regulations second and third year

From September 1, 2011 all courses from the second and third year must be passed in order to obtain the BSc degree. One obtained grade five per year (as allowed under the current pass/fail regulation) can be upgraded to a pass result. See section 9 for the procedure.

8. Example

Below is student Willems gradelist for the second year and third year major. Willem started his studies in 2008, completed his first year and completed the minor Aerospace System Design and Technology in 2010-2011.

Bold/blue: Courses passed (old and new courses)

Normal: Courses not passed (old programme)

Italics/orange: Course for which a grade 5 is obtained (old programme)

Second year

Code	Name	Grade	EC	Code	Name	EC
AE2110	Aerodynamics B	3	3			
AE2102	Aerodynamics I	6	3			
AE2191P	Low Speed Wind Tunnel Practical	V	1			
AE2125	Thermodynamics and Compressible Aerodynamics	2	5			
<i>AE2210</i>	<i>Aerodynamics II</i>	<i>5</i>	<i>3 + 2</i>			
AE2192P	Supersonic Wind Tunnel Exercise	V	1			
AE2202 I	Airplane Performance II	6	3			
AE2208P	Test Flight	V	1			
AE2521N	Aircraft Stress Analysis and Structural Design	6	4			
AE2522 I	Aircraft Structural Analysis I		3	AE2211-11	Structural Analysis & Design	4
AE2600	Aerospace Materials and Manufact. II	8	5			
AE2914	Vibrations of Aerospace Structures	7	3			
AE2E01	Probability and Observation Theory	6	5			
<i>AE2E02</i>	<i>Introduction to Earth Observation</i>	<i>5</i>	<i>4</i>			
AE2S02	Space Engineering and Technology II	4	6	X	X	X
WI2029LR	Differential Equations	7	4			
AE2011	Second-year Project Part I	7	6			
AE2002	Second-year Project Part II	V	5			
WM0201LR	Report Writing	7	0			
AE2702P	Practical Materials Science	V	1			

Third year

Code	Name	Grade	EC	Code	Name	EC
AE3200	Design Synthesis		15	AE3200	Design Synthesis	15
AE3202	Flight Dynamics and Simulation	4	4	AE3202-11	Flight Dynamics and Simulation	5
AE3202P	Flight Dynamics Flight Test		1	X	X	X
AE3204	Business Economics	6	2			
AE3205	Simulation, Verification and Validation	6	4			

How can Willem complete his second year?

Missing courses in the second year:

AE2210	Aerodynamics I	5	5 EC
AE522 I	Aircraft Structural Analysis	x	3 EC
AE2E02	Introduction to Earth Observation	5	4 EC
AE2S02	Space Engineering and Technology II	x	6 EC

Following the pass/fail regulation, one grade 5 is allowed, so there are two scenario's:

Scenario 1

Willem decides to keep the grade 5 for A2210, then

- He has to do the replacement course AE2211-11 (4 EC) for AE522 I.
- There are no replacement courses for AE2E02 and AE2S02, so Willem has to do additional second year courses for 9 EC (10 EC minus 1 EC from AE2211).
- Since he has completed the minor Aerospace System Design and Technology in 2010-2011 he cannot do the additional courses (see table in section 5.2.3):
AE2101-11 (because he already completed AE3021)
AE2208 (because he already completed AE3031)

So Willem has to choose at least 9 EC from:

AE2204	AE System and Control Theory	3 EC
AE2206	Applied Numerical Analysis (only 2011-2012)	4 EC
AE2205-11	Experimental Research Data Analysis	2 EC
AE2105	Instrumentations and Signals	3 EC

Scenario 2

Willem decides to keep the grade 5 for AE2E02, then

- He has to do the replacement course AE2211-11 (4 EC) for AE522 I
- He has to do AE2210 (3+2 EC)
- There is no replacement course for AE2S02, so Willem has to do additional second year courses for 5 EC (6 EC minus 1 EC from AE2211).
- Since he has completed the minor Aerospace System Design and Technology in 2010-2011 he cannot do the additional courses:
AE2101-11 (because he already completed AE3021)
AE2208 (because he already completed AE3031)

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So Willem has to choose at least 5 EC from:

AE2204	AE System and Control Theory	3 EC
AE2206	Applied Numerical Analysis (only 2011-2012)	4 EC
AE2205-11	Experimental Research Data Analysis	2 EC
AE2105	Instrumentations and Signals	3 EC

How can Willem complete his third year?

Missing courses in the third year

AE3200	Design Synthesis	15 EC
AE3202	Aerospace Flight Dynamics and Simulation	4 EC
AE3202P	Exercise Flight Dynamics and Simulation	1 EC

- For AE3200 he has to do the replacement course AE3200 (15 EC)
- For AE3202 he has to do AE3202-11 (5 EC)
- For AE3202P he has to AE3205, but he already passed this course.

These courses add up to 26 EC. Therefore, Willem still has to do additional courses. The only additional course left is AE3201 (3 EC). His third year major then consists of 29 EC. Because there are no additional courses left this is considered enough EC to pass the third year major.

9. Administration of the individual programmes

As can be seen in the example above, it depends on which grade 5 the student wants to keep, what his programme will be. Therefore, this will have to be registered first:

- End of September 2011: all grades 2010-2011 are published
- September/October 2011: students can indicate which minor replacement course(s) they will take in their minor programme (forms can be downloaded from Studentportal and/or Blackboard).
- October 2011: students can tell which grade 5 they want to keep (forms can be downloaded from Studentportal and/or Blackboard).
- November 2011: the indicated grade five will be updated to a pass grade
- December 2011: all students receive a formal letter stating their study programme, based on the transition regulations. The list of additional courses from which one can choose to complete the programme will be listed as well. If the programme does not add up to 60 (second year) or 30 (third year major) EC, due to the transition regulations, an extra course code will be added with the number of EC missing. This can be the case when:
 - AE2210 replaces AE2125
 - AE3202P replaces AE3303P
 - All additional courses for the third year major are done, but the student has still less than 30 EC.
- January/February 2012: Programmes will be registered in Osiris

10. Information and questions

June: general Information session

Start of September: specific information sessions in which Transition Navigator (webbased tool to calculate programme) is explained.