

The Virginia Tech Senior Year in Mechanical Engineering at the Technische Universität Darmstadt, Germany

VT-TUD Dual BSME Degree Program

Summary

Based on the Memorandum of Understanding (MOU) and the Implementation Agreement (IA) on student exchanges in effect between Virginia Tech and the Technische Universität Darmstadt, Germany, students in Mechanical Engineering at Virginia Tech can complete their senior year towards their Virginia Tech Bachelor of Science in Mechanical Engineering at the Technische Universität Darmstadt in Germany. Additionally, students in this program have the opportunity, through appropriate course selection, to also earn a Bachelor of Science degree in the field of Mechanical and Process Engineering from the Technische Universität Darmstadt, Germany. This option is referred to as the VT-TUD Dual BSME Degree Program. This document details the application process, student eligibility criteria, and curricular issues.

This document can be found online at <http://www.tud.vt.edu/BS/VTBSME@TUD.pdf>

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1.0 Overview

Based on the Memorandum of Understanding (MOU) and the Implementation Agreement (IA) on student exchanges in effect between Virginia Tech and the Technische Universität Darmstadt, Germany, students in Mechanical Engineering at Virginia Tech can complete their senior year towards their Virginia Tech Bachelor of Science in Mechanical Engineering (BSME) at the Technische Universität Darmstadt in Germany.

Additionally, students in this program have the opportunity, through appropriate course selection, to also earn a Bachelor of Science degree in the field of Mechanical and Process Engineering (B.Sc. (MPE)) from the Technische Universität Darmstadt, Germany. This option is referred to as the VT-TUD Dual BSME Degree Program.

Virginia Tech students interested in participating in this student exchange program must demonstrate proficiency in the German language prior to attending engineering courses at the Technische Universität Darmstadt, because these courses are taught in German. Together, Virginia Tech and Technische Universität Darmstadt offer several sequences of German language courses to enable students, even with no prior German language experience, to attain this proficiency. In addition, Technische Universität Darmstadt offers additional German language courses during the student's senior year to help further polish these language skills. Hence, the student must plan ahead: For a student with no prior German language skills, the German language course sequence must commence no later than their Virginia Tech BSME junior year Spring semester, with a preferred start prior to the junior year to maximize the amount of German language training prior to departing for Germany.

Studying engineering abroad in a foreign language is not trivial. Especially in the beginning, it will be a seriously taxing experience. To reduce the strain of this challenge, students are strongly encouraged to start learning German as soon as possible and to exceed the minimum German language preparation; for instance, by pursuing a Virginia Tech minor in German. Students are also encouraged to complete at least 12 weeks of industry internship prior to their senior year at the Technische Universität Darmstadt, to help put their theoretical engineering coursework thus far into context, and thereby creating a more robust foundation for excelling in subsequent engineering coursework. However, neither a German minor nor industry internship are required for successful participation.

Virginia Tech students interested in participating in this student exchange program must demonstrate academic excellence and stability, and personal maturity. This includes having a Virginia Tech overall GPA of 3.0 or better, and having earned a "C" or better in all engineering (ECE, ENGE, ESM, ISE, ME, MSE) and natural science (CHEM, MATH, PHYS, STAT) courses.

For students that are not already sufficiently proficient in German, it also includes having earned a "B+" or better in GER 2106 or GER 2114, or a "B" or better in GER 3106, prior to departing for Technische Universität Darmstadt to complete their remaining German language training and subsequent engineering courses.

The courses taken at Technische Universität Darmstadt will be counted as transfer credits and will therefore not count towards the student's Virginia Tech grade point average (GPA) at graduation. The students will receive a separate transcript from Technische Universität Darmstadt to document their academic performance at that university.

Finally, the Technische Universität Darmstadt academic year runs from mid-October through mid-August. Students that complete their courses on track in this student exchange program will therefore have to delay their Virginia Tech BSME graduation three months to become August-graduates instead. Virginia Tech permits students that are on track for August-graduation to participate in the May graduation exercises in Blacksburg. Furthermore, this delay should not impact a student's ability to enter graduate school in the fall semester of that year (e.g., the Virginia Tech Graduate School validates completion of the undergraduate degrees in November). It will, however, necessarily delay this student's ability to join the workforce relative to the original May graduation date.

2.0 Application process and financial aid

Admission to this student exchange program is by application only and is on a competitive basis. There is a two-stage application process: For the first stage, the application deadline is at 5:00PM EST on the second Friday of the Spring semester of the junior year to the Virginia Tech Department of Mechanical Engineering. The application form is available on the Department of Mechanical Engineering web site or at <http://www.tud.vt.edu/BS>.

Only those students who can demonstrate German language proficiency (or a plan on how to attain it prior to commencing engineering courses at Technische Universität Darmstadt), that are academically on schedule, and that have attained acceptable grades, will be considered (see Section 2.1). The Virginia Tech Department of Mechanical Engineering will select from this pool of applicants the candidates that it will nominate to the Virginia Tech Global Education Office.

The Virginia Tech Department of Mechanical Engineering, with the assistance from the Virginia Tech Department of Foreign Languages and Literatures, conducts written assessments of the German language proficiency of the nominated students and subsequently issues recommendations for the students' participation in either (A) the VT-TUD Dual BSME Degree Program option, or (B) the regular VT BSME Senior Year at Technische Universität Darmstadt.

In the second stage of the application process, the Virginia Tech Global Education Office will work with the nominated students to complete their formal application materials for Technische Universität Darmstadt and any remaining Virginia Tech documents that must be completed prior to departing for Germany. The Virginia Tech Global Education Office will then forward the students' applications to the Technische Universität Darmstadt, whereupon the Technische Universität Darmstadt will make the final selection of whom it will admit.

The Implementation Agreement (IA) on student exchanges between Virginia Tech and Technische Universität Darmstadt governs the number of students to be exchanged. This number may vary from year to year.

2.1 Nomination criteria

Only Virginia Tech undergraduate mechanical engineering students that satisfy the following criteria will be considered:

1. The student has applied for Virginia Tech BSME graduation, and the application is current (<https://www.registrar.vt.edu/graduation/undergraduate/degree/index.html>);
2. Virginia Tech overall GPA ≥ 3.0 ;
3. Virginia Tech transcript shows a grade of “C” or better in all engineering (ECE, ENGE, ESM, ISE, ME, MSE) and natural science (CHEM, MATH, PHYS, STAT) courses;
4. Virginia Tech transcript shows a grade of “C” or better in at least six semester credit hours of AREA 2, AREA 3, and/or AREA 7 course work;
5. The student is on schedule to complete all of the following courses (or their approved substitutes) prior to commencing the Technische Universität Darmstadt Winter semester:

CHEM 1035 General Chemistry
CHEM 1045 General Chemistry Laboratory
ECE 2054 Applied Electrical Theory
ECE 3254 Industrial Electronics
ENGE 1215 Foundations of Engineering I
ENGE 1216 Foundations of Engineering II
Programming Course:
ME 2004, ENGE 2514, CS 1044, CS 1054, CS 1114, CS 1124,
ECE 1574, ESM 2074, or AP credit for CS 1705
ENGL 1105 Freshman English I
ENGL 1106 Freshman English II
ESM 2104 Statics
ESM 2204 Mechanics of Deformable Bodies
ESM 2304 Dynamics
ISE 2214 Manufacturing Processes Laboratory
MATH 1225 Calculus I
MATH 1226 Calculus II
MATH 2114 Linear Algebra
MATH 2214 Introduction to Differential Equations
MATH 2224 Multivariable Calculus
ME 2024 Introduction to Engineering Design & Economics
ME 2124 Introduction to Thermal & Fluid Engineering
ME 3124 Thermodynamics
ME 3304 Heat & Mass Transfer
ME 3404 Fluid Mechanics
ME 3514 System Dynamics
ME 3614 Mechanical Design I
ME 4005 Mechanical Engineering Laboratory I
MSE 2034 Elements of Materials Engineering

PHYS 2305 Foundations of Physics I
PHYS 2306 Foundations of Physics II
STAT 3704 Statistics for Engineering Applications
AREA 6 elective (1 semester credit hour)

6. The student is on schedule to complete all required AREA 2/3/7 electives — with the exception of at most three semester credit hours — prior to commencing the Technische Universität Darmstadt Winter semester;
7. The student has completed, or is on schedule to complete, all the required German language courses with satisfactory grades as described in Section 3; and
8. The student is **not** scheduled to complete any the following courses prior to commencing the Technische Universität Darmstadt Winter semester:

ME 4006 Mechanical Engineering Lab II
ME 4015 Engineering Design & Project I
ME 4016 Engineering Design & Project II
ME 4124 Fluid Machinery - Heat Transfer Design
ME 4504 Dynamic Systems - Controls Engineering I

2.2 Program costs and financial aid

An important objective of this student exchange program is to remain as close to cost-neutral as possible. The basic principle is that the participating students pay their home-university's tuition and comprehensive fees while abroad, and then exchange seats with a student from the host university. Hence, the Virginia Tech student will be required to pay Virginia Tech tuition and comprehensive fees during the senior year at Technische Universität Darmstadt, but will not pay such expenses to Technische Universität Darmstadt.

Participating Virginia Tech students attending the Technische Universität Darmstadt Winter- and Summer-semesters their senior year, including the “intensive phase” German language course during September-October, will pay Virginia Tech tuition and fees (full-time status) during the Virginia Tech Fall- and Spring-semesters during that year.

Exception: Students that attend the intensive German language course (the “bridge course”) at the Technische Universität Darmstadt during the Virginia Tech Summer II Session prior to their senior year will also pay for Virginia Tech tuition and fees (full-time status) during that session.

Participating students should realize that Virginia Tech and Technische Universität Darmstadt do not have exactly matching fee structures, and hence the students will effectively pay for certain related services multiple times. For instance, while many Virginia Tech students are covered by their family's medical insurance, both Virginia Tech and Technische Universität Darmstadt will require the students to purchase additional medical insurances for their combined complete required coverage. Likewise, Virginia Tech students will pay for a public transportation fee both in Blacksburg and in Darmstadt while at Technische Universität Darmstadt. The Virginia Tech Global Education Office can provide details on these overlapping fees, and other fees that that office charges for their education abroad support services.

Students will be responsible for their own cost of living and travel. Students report that the cost of living in Blacksburg and Darmstadt are similar. The cost of housing is slightly more expensive in Darmstadt, while the cost of food is slightly more expensive in Blacksburg. The transportation fee charged by Technische Universität Darmstadt covers public transportation in and around Darmstadt, and few, if any, Virginia Tech students see a need to purchase an automotive vehicle while in Germany.

The estimated overall cost of completing the VT BSME senior year in Darmstadt is approximately \$4,000 more than in Blacksburg (September through August). This estimate includes two round-trip airline tickets.

Students that cannot complete their German language training during their regular semesters in Blacksburg should add the costs of any additional Virginia Tech summer sessions needed.

An important benefit of paying Virginia Tech tuition and fees while in Darmstadt is that one's Virginia Tech financial aid carries over to Darmstadt. Furthermore, since one's estimated financial need increases slightly while in Darmstadt, the financial aid awarded may be increased; and, in some cases, it may even commence for students that otherwise would not be eligible for financial aid had they remained in Blacksburg. The Virginia Tech Global Education Office will assist students in working with Virginia Tech Financial Aid to update their financial aid package.

Participating students are encouraged to apply for scholarships, grants, and stipends to support their Virginia Tech BSME senior year at Technische Universität Darmstadt. An important source is the DAAD Undergraduate Scholarships. The deadline is typically January 31 for the following academic year in Germany. For the 2016-2017 academic year, these scholarships consist of €6,500 (approximately US\$7,335) plus additional funds towards travel and health insurance. These are competitive scholarships, and recipients often have a GPA above 3.7: <http://www.daad.org/undergrad>

3.0 German language prerequisites prior to senior year

The language of instruction at the Technische Universität Darmstadt is German. However, unlike regularly admitted students, exchange students at the Technische Universität Darmstadt are not required to know any German. Rather, it is the purview of a student's academic host department to set the level of German language skills that is required. In the case of the Virginia Tech BSME students, this is the Faculty of Mechanical Engineering at the Technische Universität Darmstadt: At present they have not set a minimum German language skills entrance requirement for undergraduate exchange students, including for VT BSME students.

The standard level of German language skills expected by exchange students in dual degree programs at Technische Universität Darmstadt is at least at the CEFR Levels A2 (written) and B1 (oral) by the start of the Winter-semester in mid-October:

LEVEL A2: Can understand sentences and frequently used expressions related to areas of most immediate relevance (e.g., very basic personal and family information, shopping, local geography, employment). Can communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar and routine matters. Can describe

in simple terms aspects of his/her background, immediate environment and matters in areas of immediate need.

http://www.tu-darmstadt.de/international/exchangestudents/inbound/europe_inbound/before_1/language_2/language.en.jsp

The Common European Framework of Reference for Languages (CEFR) Level A2 can be achieved in about 9 semester credit hours (approximately 135 lecture hours) of university level German. To put this in context, Purdue University Mechanical Engineering and Virginia Tech Industrial and Systems Engineering send their students to Karlsruhe Institute of Technology with 12 semester credit hours of German (approximately 180 lecture hours), while the University of Rhode Island sends its engineering students to Technische Universität Braunschweig with 18 semester credit hours of German (approximately 270 lecture hours).

The A2 level is generally sufficient for you to cope with the language in everyday life. The B1 level will enable you to communicate within the university, and the B2 level will enable you to follow lectures and seminars in German.

LEVEL B1: Can understand the main points of clear standard input on familiar matters regularly encountered in work, school, leisure, etc. Can deal with most situations likely to arise while travelling in an area where the language is spoken. Can produce simple connected text on topics that are familiar or of personal interest. Can describe experiences and events, dreams, hopes and ambitions and briefly give reasons and explanations for opinions and plans.

LEVEL B2: Can understand the main ideas of complex text on both concrete and abstract topics, including technical discussions in his/her field of specialization. Can interact with a degree of fluency and spontaneity that makes regular interaction with native speakers quite possible without strain for either party. Can produce clear, detailed text on a wide range of subjects and explain a viewpoint on a topical issue giving the advantages and disadvantages of various options.

Virginia Tech Mechanical Engineering students enter the Technische Universität Darmstadt engineering classrooms with 345 lecture hours of German language instruction (not counting an additional 690 hours of out-of-class work), which corresponds to an excess of 21 semester credit hours.

The objective of this increased amount of German language instruction is for the Virginia Tech BSME students to attain sufficient proficiency in the German language for them to competently follow classroom instruction, with the majority of the students attaining the B2 level (UNICert level II) by the time they enter the German engineering classroom in mid-October. This is achieved by completing at least three years of university-level German coursework, followed by a five-week intensive German language course (“intensive phase”) at the Technische Universität Darmstadt just prior to the start of their Winter-semester:

High School:

Students who have studied German in high school should consult the Virginia Tech Foreign Language Placement Guidelines:

<https://www.fl.vt.edu/forms/fl-placement-2015.pdf>

Typically, students with three or more years of high school German will begin their study of German at Virginia Tech at the intermediate (2000) level—if students took German their senior year in high school.

First Year:

- GER 1105 (3 semester credit hours, VT Fall Semester) and GER 1106 (3 semester credit hours, VT Spring Semester); or
- GER 1114 (6 semester credit hours, VT Spring Semester).

Second Year:

- GER 2105 (3 semester credit hours, VT Fall Semester) and GER 2106 (3 semester credit hours, VT Spring Semester); or
- GER 2114 (6 semester credit hours, VT Summer I Session).

Third Year:

- GER 3105 (3 semester credit hours, VT Fall Semester) and GER 3106 (3 semester credit hours, VT Spring Semester); or
- “Bridge” course (6 semester credit hours, VT Summer II Session, in Darmstadt) with emphasis on “Engineering German” and not necessarily duplicating 3105-3106.

Intensive Phase:

- Five-week course (September-October, in Darmstadt)

Minimum Grades: As interim measures of success, the participating Virginia Tech BSME students must earn “B+” or better in GER 2106 or GER 2114, or a “B” or better in GER 3106, prior to departing for Technische Universität Darmstadt to complete their remaining German language training and subsequent engineering courses.

Gaps in German Language Training: The German program of the Virginia Tech Department of Foreign Languages and Literatures strongly advises that students not have a gap of more than one semester once they commence learning German. Hence, a gap of two semesters or more should be avoided when planning one’s German language course sequence. Students who learned German in high school are strongly encouraged to begin their study of the language during their freshman year at Virginia Tech.

Continuing Education: While attending engineering lectures during the Technische Universität Darmstadt Winter- and Summer-semesters (mid-October through mid-July), the participating students are expected to audit or take for a grade a German language course every semester. Experience at the Technische Universität Darmstadt has shown that continuing formal German language training during the academic year significantly improves the student’s ability to follow classroom instruction, and hence significantly increases the likelihood of on-time graduation.

German Minor: The Virginia Tech German Minor requires two courses beyond the GER 3105-3106 sequence. In order to complete the minor, students beginning their study of German with GER 1105 (or 1114) would take a total of 24 semester credit hours of German language training prior to the “Intensive Phase” course at Technische Universität Darmstadt. Participating students are encouraged to complete the minor prior to departing for Germany if their schedule permits. The following is a sample plan of study based on the Virginia Tech 2015-2016 course offerings:

Freshman year: GER 1105-1106 (Fall-Spring) or GER 1114 (Spring);
GER 2114 (Summer I)

Sophomore year: GER 3105 (Fall), GER 3106 (Spring)
Summer internship in the USA (no credit)

Junior year: GER 3204 (Fall), GER 3306 (Spring)
Summer internship in Germany (no credit)

Interested students should contact the German program of the Virginia Tech Department of Foreign Languages and Literatures for details concerning the minor and course availability.

Note that GER 3306 counts as an AREA 2 course.

Bridge Course and Intensive Phase Course: Students may also use the “Bridge” course during the VT Summer II session at Technische Universität Darmstadt in Germany towards their Virginia Tech German minor. The “Bridge” course consists of three modules in parallel: 6 CP ECTS daily intensive German language course, 3 CP ECTS project work, and 3 CP ECTS autonomous language learning course. These course credits transfer as follows:

- The 6 CP ECTS daily intensive German language course work transfers as GER 3105.
- The 3 CP ECTS project work and 3 CP ECTS autonomous language learning course work combine to transfer as GER 3XXX Elective / Special Topic, or GER 3126 Oral Proficiency.
 - Students who wish to earn GER 3XXX credit will need to submit a project paper in German to Virginia Tech Foreign Languages and Literatures for evaluation; and it is anticipated that the report for the project work will serve this purpose.
 - Students who wish to earn GER 3126 credit will need to be tested by Prof. Stefanie Hofer at Virginia Tech Foreign Languages and Literatures: If an adequate level of proficiency has been reached, then the credit will be awarded. This test can be conducted via Skype, WebEx, etc.

Additionally, the “Intensive Phase” course during early-Fall at TUD transfers as GER 3106.

A Virginia Tech German minor can therefore also be earned using the “Bridge” and “Intensive Phase” courses with time for an industry internship in Germany:

Sophomore year: GER 1105-1106 (Fall-Spring) or GER 1114 (Spring);
GER 2114 (Summer I)
“**Bridge**” course (GER 3105; GER 3XXX or 3126)

Junior year: GER 3204 (Fall)
Summer internship in Germany (no credit)

Senior year: “**Intensive Phase**” course (GER 3106)
TUD Winter Semester (engineering courses)
TUD Summer Semester (engineering courses)

Virginia Tech German language course descriptions:

GER 1105-1106 Elementary German
GER 1114 Accelerated Elementary German

Fundamentals of the German language with emphasis on grammar, reading, composition, and conversation. 1105: for students with no prior knowledge of the language; 1106: for students who have completed 1105 or less than three years in high school.

GER 2105-2106 Intermediate German
GER 2114 Accelerated Intermediate German

Review of grammar with increasing emphasis on reading, writing, and oral communication. Pre: 1106 or 1114.

GER 3105-3106 Grammar, Composition & Conversation

Progressive and comprehensive review of German syntax and morphology. Practice in written and oral expression in German on a variety of topics in German culture. Pre: 2106 or 2114.

GER 3204 Culture of the German-Speaking Countries

Study of German, Austrian, and Swiss culture and civilization from the Middle Ages to the present, including literature, art, architecture, film, and music. Pre: 3105.

GER 3305-3306 Survey of German Literature (AREA 2)

3305: Readings in major works of German literature from the late Middle Ages to the end of Classicism. 3306: Readings in major works of German literature from Romanticism to the end of World War II. Pre: 3105.

4.0 Changes to the standard Virginia Tech B.S. in Mechanical Engineering plan of study prior to studying in Germany

This section describes the pre-approved changes to the standard Virginia Tech Bachelor of Science in Mechanical Engineering plan of study for those students that wish to complete their senior year course requirements at Technische Universität Darmstadt instead of at Virginia Tech. This includes students that want to pursue the VT-TUD Dual BSME Degree program.

To facilitate this student exchange program between Virginia Tech and the Technische Universität Darmstadt, the Office of the Associate Dean of Engineering for Academic Affairs has waived the following two requirements:

1. Virginia Tech permits only 18 semester-hour credits to be transferred during the last 45 semester-hour credits prior to graduation.

Virginia Tech Undergraduate Course Catalog and Academic Policies, 2002-2004
Transfer Credits rule 7, page 41.

Virginia Tech Undergraduate Course Catalog and Academic Policies, 2012-2013
Third paragraph, section “Graduation Requirements and Degree Conferrals”
<http://www.undergradcatalog.registrar.vt.edu/1213/acapolicies/index.html>

2. The Virginia Tech College of Engineering requires that the senior year be completed in residence at Virginia Tech.

Virginia Tech Undergraduate Course Catalog and Academic Policies, 2002-2004
Graduation Requirements, page 225.

Virginia Tech Undergraduate Course Catalog and Academic Policies, 2012-2013
Second paragraph, section “Graduation Requirements”
<http://www.undergradcatalog.registrar.vt.edu/1213/eng/index.html>

Hence, the following six changes must be made to a student’s standard plan of study (see Section 4.1) prior to attending Technische Universität Darmstadt during the VT BSME senior year, including for the VT-TUD Dual BSME Degree program:

Junior year, fall semester, 18 semester credit hours:

- Take STS 2054 Engineering Cultures as an AREA 2 and AREA 7 course. This change is made because this is a good preparatory course and because it satisfies two requirements at once and creates a free elective.

Junior year, spring semester, 18 semester credit hours:

- Delay ME 4504 Controls to the senior year in Germany
- Replace the ME technical elective with GER 1114
- Take an AREA 3 elective (3 semester credit hours)

Summer after Junior year:

- Take GER 2114 during the VT Summer I Session in Blacksburg, Virginia
- Take “Bridge” German language course (6 weeks) at Technische Universität Darmstadt during the VT Summer II Session in Darmstadt, Germany

Early-Fall prior to Senior year:

- Take the “Intensive Phase” German language course (5 weeks) at Technische Universität Darmstadt during September-October in Darmstadt, Germany

ALTERNATIVE PREPARATIONS:

Students that are ahead of schedule due to, for instance, advanced placement credits, transfer credits, prior German language skills, course overloads, and/or summer courses, must take care to schedule their remaining courses such that they do not complete the engineering courses listed under Section 2.1, Item 8, prior to departing for Germany: Completing these engineering courses prior to departure for Germany will disqualify the student from being nominated for participation in this VT BSME senior year program.

Instead, students that are ahead of schedule are strongly encouraged to schedule their remaining courses such that they maximize the amount of German language training that they complete prior to departing for Germany. If possible, the students are encouraged to complete a VT German minor prior to departing for Germany.

5.0 Virginia Tech senior year courses to be substituted by Technische Universität Darmstadt courses

With the above preparatory changes to the standard Virginia Tech Bachelor of Science in Mechanical Engineering plan of study, as described in Section 4.1 and illustrated in Figure 1, the following Virginia Tech BSME courses remain for the senior year:

ME 3504 Dynamic Systems – Vibrations; <i>or</i>	
ME 4504 Dynamic Systems – Controls Engineering I.....	3 semester credit hours
ME 4006 Mechanical Engineering Laboratory II.....	3 semester credit hours
ME 4015 Engineering Design and Project I.....	3 semester credit hours
ME 4016 Engineering Design and Project II.....	3 semester credit hours
ME 4124 Fluids-Heat Transfer Design.....	3 semester credit hours
VT ME technical electives (list 1)	9 semester credit hours
AREA 3 elective	3 semester credit hours
TOTAL REMAINING VT BSME CREDITS.....	27 semester credit hours

These courses may be individually taken at Virginia Tech, or they may be completed at Technische Universität Darmstadt in the form of corresponding approved equivalent sets of courses (i.e., not necessarily on a one-to-one course equivalence basis), as detailed in Section 6.0. The following plan of study illustrates how the above remaining courses can be completed at Technische Universität Darmstadt as a whole:

Systemtheorie und Regelungstechnik (Control Engineering).....	6 CP ECTS
Einführung in wissenschaftliches Arbeiten und Schreiben (Introduction into scientific working and writing).....	2 CP ECTS
Product Design Project	4 CP ECTS
Tutorium Pneumatik I (Tutorial Pneumatics I).....	4 CP ECTS
Bachelor-Thesis	12 CP ECTS
Grundlagen der Turbomaschinen und Fluidsysteme (Fundamentals of Turbomachinery and Fluid Systems).....	8 CP ECTS
Aerodynamik I (Aerodynamics I); <i>or</i>	
Grundlagen der Flugantriebe (Flight Propulsion Fundamentals)	6 or 8 CP ECTS
TUD ME technical electives (from approved list).....	6 or 4 CP ECTS
AREA 3 elective (from approved list)	6 CP ECTS
TOTAL REMAINING VT BSME CREDITS.....	54 CP ECTS

5.1 VT-TUD dual BSME degree option

With slightly more effort, and by selecting certain specific courses that count as Virginia Tech BSME technical electives, a Virginia Tech BSME student can also earn the Technische Universität Darmstadt Bachelor of Science degree in the field of Mechanical and Process Engineering.

Systemtheorie und Regelungstechnik (Control Engineering).....	6 CP ECTS
Einführung in wissenschaftliches Arbeiten und Schreiben (Introduction into scientific working and writing).....	2 CP ECTS
Product Design Project	4 CP ECTS
Tutorium Pneumatik I (Tutorial Pneumatics I).....	4 CP ECTS
Bachelor-Thesis	12 CP ECTS
Grundlagen der Turbomaschinen und Fluidsysteme (Fundamentals of Turbomachinery and Fluid Systems).....	8 CP ECTS
Aerodynamik I (Aerodynamics I); <i>or</i>	
Grundlagen der Flugantriebe (Flight Propulsion Fundamentals)	6 or 8 CP ECTS
Numerische Berechnungsverfahren (Numerical Methods)	4 CP ECTS
TUD ME technical electives (from approved list).....	6 or 4 CP ECTS
Free electives	2 CP ECTS
AREA 3 elective (from approved list)	6 CP ECTS
TOTAL REMAINING	60 CP ECTS

That is, the following courses are required when pursuing the Technische Universität Darmstadt Bachelor of Science degree in the field of Mechanical and Process Engineering in addition to the Virginia Tech Bachelor of Science in Mechanical Engineering requirements:

Numerische Berechnungsverfahren (Numerical Methods)	4 CP ECTS
Free electives	2 CP ECTS

These extra courses can be completed entirely within the context of the Virginia Tech BSME technical elective requirement. Hence, within this standard plan of study for the VT-TUD dual BSME degree program, the students will complete the following credits towards the Virginia Tech BSME technical elective requirement:

Product Design Project	1 credit hour
Tutorium Pneumatik I (Tutorial Pneumatics I).....	1 credit hour
Grundlagen der Turbomaschinen und Fluidsysteme (Fundamentals of Turbomachinery and Fluid Systems).....	2 credit hours
Aerodynamik I (Aerodynamics I); <i>or</i>	
Grundlagen der Flugantriebe (Flight Propulsion Fundamentals)	2-3 credit hours
Numerische Berechnungsverfahren (Numerical Methods)	2 credit hours
TUD ME technical electives (from approved list).....	3-2 credit hours
TOTAL VT BSME TECHNICAL ELECTIVES	11 semester credit hours

Hence, students that do not complete any Virginia Tech BSME technical electives in Blacksburg (e.g., GER 2xxx/3xxx) must add another 4 semester credits hours (8 CP ECTS) of TUD ME technical electives to meet the Virginia Tech BSME technical elective minimum of 15 semester credit hours.

Important Requirement: To earn a Bachelor of Science degree at the Technische Universität Darmstadt, at least 60 CP ECTS must be earned at the Technische Universität Darmstadt.

Variation I: There is a limited selection of AREA 2/3/7 approved courses at Technische Universität Darmstadt. Students may redistribute their AREA 2/3/7 courses between the two universities as long as the courses do not overlap when transferred. If all AREA 2/3/7 courses are completed at Virginia Tech, then additional TUD ME technical electives or German language courses must be completed to maintain the 60 CP ECTS minimum.

Variation II: Up to 3 semester credit hours (6 CP ECTS) of certain Virginia Tech BSME technical electives can be transferred to Technische Universität Darmstadt as technical electives. If so, then additional non-duplicating TUD ME technical electives or German language courses must be completed to maintain the 60 CP ECTS minimum. The following courses are approved:

Mechanical Engineering

<u>COURSE NUMBER AND NAME</u>	<u>SEMESTER CREDIT HOURS</u>
4134: Air Conditioning	3
4144: Refrigeration and Cryogenic Engineering	3
4154: Industrial Energy Systems	3
4164: Energy Systems for Buildings	3
4174: Spacecraft Propulsion (same as AOE 4174).....	3
4194: Sustainable Energy Solutions for a Global Society (same as ESM 4194).....	3
4204: Internal Combustion Engines.....	3
4214: Power Generation	3
4224: Aircraft Engines and Gas Turbines.....	3
4234: Aerospace Propulsion Systems (same as AOE 4234)	3
4244: Marine Engineering (same as AOE 4244)	3
4254: Ramjet and Rocket Propulsion	3
4324: Energy Systems: Theory and Applications.....	3
4404: Fluid Mechanics II	3
4424: Thermodynamics of Fluid Flow	3
4434: Fluid Power Systems and Control (same as BSE 4424).....	3
4444: Rotating Machinery	3
4524: Introduction to Robotics and Automation	3
4534: Land Vehicle Dynamics.....	3
4544: Automotive Engineering.....	3
4554: Advanced Technology for Motor Vehicles	3
4604: Mechanisms	3
4614: Mechanical Design II.....	3
4624: Finite Element Practice in Mechanical Design.....	3

4634: Introduction to Computer Aided Design and Manufacturing	3
4644: Introduction to Rapid Prototyping	3
4664: Introduction to Global Collaborative Engineering Design	3
4704: Tribology (same as MSE 4064)	3
4714: Theory and Application of Hydrodynamic Lubrication	3
4724: Engineering Acoustics	3
4734: Mechatronics (same as ECE 4734)	3
4864: Micro/Nano-Robotics	3

Aerospace and Ocean Engineering

<u>COURSE NUMBER AND NAME</u>	<u>SEMESTER CREDIT HOURS</u>
4064: Fluid Flow in Nature	3
4084: Engineering Design Optimization (ESM 4084)	3
4114: Applied Computational Aerodynamics	3
4124: Configuration Aerodynamics	3
4134: Astromechanics	3
4140: Spacecraft Dynamics and Control	3
4144: Aircraft Automatic Flight Control	3
4204: Ocean Acoustics	3
4214: Ocean Wave Mechanics	3
4224: Probabilistic Analysis of Ocean Systems	3
4274: Computer Based Design of Ocean Structures	3
4334: Ship Dynamics	3
4344: Dynamics of High-Speed Marine Craft	3
4434: Introduction to Computational Fluid Dynamics	3

Industrial and Systems Engineering

<u>COURSE NUMBER AND NAME</u>	<u>SEMESTER CREDIT HOURS</u>
4244: Fundamentals of Computer Integrated Manufacturing	3
4264: Industrial Automation	3

Chemical Engineering

<u>COURSE NUMBER AND NAME</u>	<u>SEMESTER CREDIT HOURS</u>
4134: Chemical Process Modeling	2
4214: Introduction to Polymer Materials	3
4224: Introduction to Polymer Processing	3

Materials Science and Engineering

<u>COURSE NUMBER AND NAME</u>	<u>SEMESTER CREDIT HOURS</u>
4554: Polymer Engineering	3
4604: Composite Materials	3

6.0 Course equivalences

This section describes the courses that have been approved for transfer from Technische Universität Darmstadt to Virginia Tech in the context of the Virginia Tech BSME senior year abroad program. This includes, required courses, technical electives, Green Engineering minor courses, and AREA 2/3/7 courses. Updates to these lists can be found at:

<http://www.tud.vt.edu/BS>

6.1 Engineering courses

Required Courses: Figure 2 shows the Technische Universität Darmstadt course equivalences for the following required Virginia Tech courses:

ME 4504 Dynamic Systems – Controls Engineering I
ME 4006 Mechanical Engineering Laboratory II
ME 4015 Engineering Design and Project I
ME 4016 Engineering Design and Project II
ME 4124 Fluids-Heat Transfer Design

For instance, consider Equivalence #3a in Figure 2: By passing the courses *Grundlagen der Turbomaschinen und Fluidsysteme* (Fundamentals of Turbomachinery and Fluid Systems), and *Aerodynamik I* (Aerodynamics I) at the Technische Universität Darmstadt, transfer credit may be awarded by Virginia Tech for the courses *ME 4124 Fluids-Heat Transfer Design* (3 semester credit hours), and *ME 4xxx Technical Elective* (4 semester credit hours). It is important to note that the equivalence for these courses is as a set and not individually. Hence, a student must pass both courses at the Technische Universität Darmstadt in order to be awarded the corresponding transfer credits by Virginia Tech.

Technical Electives: Figure 3 shows the Technische Universität Darmstadt courses that are approved for transfer to Virginia Tech as Virginia Tech BSME technical electives. For instance, the course *Verbrennungskraftmaschinen I* (Combustion Engines I) is offered during the TUD Winter-semester, it is weighted 6 CP ECTS, and it will transfer to Virginia Tech as 3 semester credit hours of *ME 4xxx Technical Elective*.

Course Transfer Equivalences from the Technische Universität Darmstadt (Darmstadt University of Technology) to Virginia Tech:

The Faculty of Mechanical Engineering at Virginia Tech have found the following sets of courses at the Technische Universität Darmstadt (TUD) to be equivalent to the corresponding sets of courses at Virginia Tech.

One-to-one equivalencies (required courses):

Numerische Berechnungsverfahren <i>Numerical Methods</i>	4 CP ECTS	VT BSME technical elective (ME 4XXX) 2 credits
Systemtheorie und Regelungstechnik <i>Control Engineering (ME version, summer semesters)</i>	6 CP ECTS	ME 4504 Dynamic Systems – Controls Engineering I 3 credits
Systemdynamik und Regelungstechnik I <i>Control Engineering (EE version, winter semesters)</i>	6 CP ECTS	ME 4504 Dynamic Systems – Controls Engineering I 3 credits

Equivalence #1 (required course):

	ME 4015 Engineering Design & Project I	ME 4016 Engineering Design & Project II	
Bachelor-Thesis <i>Bachelor-Thesis</i>	6 CP ECTS, 3 cr	6 CP ECTS, 3 cr	12 CP ECTS, 6 cr
	6 CP ECTS, 3 cr	6 CP ECTS, 3 cr	

Equivalence #2 (required course):

	ME 4006 Mechanical Engineering Lab II	VT BSME technical elective (ME 4XXX)	
Einführung in wissenschaftliches Arbeiten und Schreiben <i>Introduction into scientific working and writing</i>	2 CP ECTS, 1 cr		2 CP ECTS, 1 cr
Product Design Project <i>Product Design Project</i>	2 CP ECTS, 1 cr	2 CP ECTS, 1 cr	4 CP ECTS, 2 cr
Tutorium Pneumatik I <i>Tutorial Pneumatics I</i>	2 CP ECTS, 1 cr	2 CP ECTS, 1 cr	4 CP ECTS, 2 cr
	6 CP ECTS, 3 cr	4 CP ECTS, 2 cr	

The students will be required to complete one of the following two combinations:

Equivalence #3a:

	ME 4124 Fluid Machinery - Heat Transfer Design	VT BSME technical elective (ME 4XXX)	
Grundlagen der Turbomaschinen und Fluidsysteme <i>Fundamentals of Turbomachinery and Fluid Systems</i>	4 CP ECTS, 2 cr	4 CP ECTS, 2 cr	8 CP ECTS, 4 cr
Aerodynamik I <i>Aerodynamics I</i>	2 CP ECTS, 1 cr	4 CP ECTS, 2 cr	6 CP ECTS, 3 cr
	6 CP ECTS, 3 cr	8 CP ECTS, 4 cr	

Equivalence #3b:

	ME 4124 Fluid Machinery - Heat Transfer Design	VT BSME technical elective (ME 4XXX)	
Grundlagen der Turbomaschinen und Fluidsysteme <i>Fundamentals of Turbomachinery and Fluid Systems</i>	4 CP ECTS, 2 cr	4 CP ECTS, 2 cr	8 CP ECTS, 4 cr
Grundlagen der Flugantriebe <i>Flight Propulsion Fundamentals</i>	2 CP ECTS, 1 cr	6 CP ECTS, 3 cr	8 CP ECTS, 4 cr
	6 CP ECTS, 3 cr	10 CP ECTS, 5 cr	

Revised: October 6, 2014

VT-TUD TransferEquiv.doc

Figure 2: Technische Universität Darmstadt course equivalences for required Virginia Tech BSME senior year courses.

Original document: http://www.tud.vt.edu/BS/VT-TUD_TransferEquiv2015.pdf

Courses at the Technische Universität Darmstadt (TUD) that are approved for transfer to Virginia Tech as ME 4xxx Technical Elective		TUD credits ECTS (CP)	VT Semester Credit Hours	TUD Semester
German TUD transcript text:	English TUD transcript text:			
Aerodynamik I *	Aerodynamics I *	6	3	WS
Angewandte Produktentwicklung	Applied Product Development	4	2	WS
Einführung in die Druck- und Medientechnik	Introduction to Printing and Media Technology	4	2	WS
Einführung in die Kunststofftechnik	Introduction into Polymer Technology	4	2	WS
Einführung in die Papiertechnik	Introduction into Paper Technology	4	2	WS
Elektrische Maschinen und Antriebe	Electrical Machines and Drive	5	2	WS
Elektronik	Electronics	4	2	WS
Elektrotechnik und Informationstechnik II	Electrical Engineering and Information Technology II	7	3	SS
Energie und Klimaschutz	Energy and Climate Change	4	2	WS
Flugmechanik I: Flugleistungen	Flight Mechanics I: Performance	6	3	WS
Gestaltung von Mensch-Maschine-Schnittstellen	Design of Human-Machine-Interfaces	6	3	SS
Grundlagen der Flugantriebe	Flight Propulsion Fundamentals	8	4	WS
Grundlagen der Turbomaschinen und Fluidsysteme *	Fundamentals of Turbomachinery and Fluid Systems *	8	4	SS
International Research Project (IRP)	International Research Project	Variable		WS / SS
Konstruieren mit Faser-Kunststoff-Verbunden I	Design with Advanced Composite Materials I	8	4	SS
Konstruktionsprinzipien im Druckmaschinenbau	Design Principles in Printing Press Construction	4	2	WS
Kraftfahrzeugtechnik	Motor Vehicles	6	3	WS
Laser in der Fertigung	Lasers in Manufacturing	4	2	WS
Logischer Entwurf	Logic Design	6	3	WS
Mechanische Verfahrenstechnik	Mechanical Process Engineering	4	2	SS
Nachhaltige Verbrennungstechnologien A	Efficient combustion technologies A	8	4	WS
Praktikum Aktoren für mechatronische Systeme	Practical Course with mechatronic actuators	4	2	SS
Praktikum Regelung mechatronischer Systeme	Lab Tutorial Control of Mechatronic Systems	4	2	SS
Praktische Farbmessung	Applied Colorimetry	4	2	SS
Thermische Verfahrenstechnik I – Thermodynamik der Gemische	Chemical Engineering Thermodynamics	4	2	WS
Thermische Verfahrenstechnik II – Verfahrenstechnische Grundoperationen	Equilibrium- and Non-Equilibrium-Stage Separation Processes	4	2	SS
Verbrennungskraftmaschinen I	Combustion Engines I	6	3	WS
Werkstofftechnologie und -anwendung	Materials Technology and Applications	6	3	SS
Werkzeugmaschinen und Industrieroboter	Machine Tools and Industrial Robots	8	4	WS

* Unless used to meet other course requirements "WS" = Winter Semester (October - March) "SS" = Summer Semester (April - August)

Revised: November 13, 2015 TUD ME technical electives.xlsx

Figure 3: Technische Universität Darmstadt mechanical engineering technical electives approved for transfer to Virginia Tech as *ME 4xxx Technical Elective*.
Original document: mailto:http://www.tud.vt.edu/BS/VT-TUD_TransferEquiv2015.pdf

Virginia Tech Green Engineering Minor: Senior capstone design projects (e.g., ME 4015-4016) completed at the Technische Universität Darmstadt (e.g., Bachelor-Thesis) may be eligible for substitution as Engineering Elective courses toward the Virginia Tech Green Engineering Minor (<http://www.eng.vt.edu/green>). Either 3 or 6 semester credit hours may be awarded depending on the scope of the work. Students should contact Dr. Sean McGinnis, director of Virginia Tech Green Engineering (smcginn@vt.edu, TEL: +1-540-231-1446), before projects are completed (and preferably prior to departing for Technische Universität Darmstadt) if they are interested in this option. To count toward the minor, senior capstone design projects must have content that focuses on the environmental impact of engineering practice. It is not sufficient to simply work on a project that is related to green engineering, but environmental impacts must be considered formally as part of the project. Typically, students and their advisor can work with Dr. McGinnis to ensure the project deliverables meet the requirements for consideration for this minor. Such capstone design projects are highly encouraged by the program. Requests for minor substitutions must be approved by Dr. McGinnis and the Virginia Tech College of Engineering Dean of Academic Affairs. (Updated: October 20, 2009)

6.2 AREA 2/3/7 courses

A small number of courses at Technische Universität Darmstadt have been preapproved as Virginia Tech AREA 2/3/7 courses:

AREA 2 (humanities) courses:

- *Philosophie für Maschinenbauer* (Philosophy for Mechanical Engineers) transfers as PHIL 2605 Reason and Revolution in Science, counting as 3 semester credit hours (6 CP ECTS) and satisfying both AREA 2 **and** AREA 7. This course is taught in German. Approved October 7, 2009.
- *Utopian Fiction* transfers as ENGL 2XXX, counting as 3 semester credit hours (6 CP ECTS) and satisfying AREA 2. This course is taught in English. Approved March 22, 2010.

AREA 3 (social science) courses:

- *Theorie: The Liberalism-Communitarianism Debate* satisfies both AREA 3 **and** AREA 7. The **extended version** of this course (6 CP ECTS) transfers as 3 semester credit hours of PSCI 1024 Introduction to Comparative Government and Politics. This course is taught in English. Approved March 15, 2010.
- *Public Policies im Mehrebenensystem* (Public Policies in Multi-Level Systems). The **extended version** of this course (6 CP ECTS) transfers as 3 semester credit hours, either as PSCI 3515 European Political Systems (not an AREA course) or as PSCI 1024 Introduction to Comparative Government and Politics (AREA 3 **and** AREA 7). This course is taught in German. Approved March 19, 2010.
- *Einführung in den Vergleich politischer Systeme* (Introduction to Comparative Political Systems). The **extended version** of this course (6 CP ECTS) transfers as 3 semester credit hours, as PSCI 1024 Introduction to Comparative Government and Politics (AREA 3 **and** AREA 7). This course is taught in German. Approved March 23, 2010.
- *Europäische Urbanisierung und Umwelt 1000 - 2000* (European Urbanization the Surrounding World 1000-2000). The **extended version** of this course (6 CP ECTS) transfers as UAP 3xxx (AREA 3 **and** AREA 7). This course is taught in German. Approved March 24, 2010.
- *Einführung in die Psychologie* (Introduction to Psychology) transfers as PSYC 2004 Introduction to Psychology (AREA 3). This course is taught in German. Approved April 8, 2010.
- *Ingenieurinnen und Ingenieure in der Gesellschaft* (Engineers in Society) transfers as STS 2XXX Elective (AREA 3). This course is taught in German. Approved September 2, 2014.

The tradition of humanities and social science courses at Technische Universität Darmstadt differs from those in mechanical engineering. They tend to have more variable credits, and they tend to have more turnovers in course names and topics:

Variable course credits: Students in the same course may earn different amounts of course credits, depending on the course assignments that they participate in. Virginia Tech BSME students must therefore make sure that they sign up for enough credits to match the three-semester-credit-hour standard at Virginia Tech: **6 CP ECTS equals 3 semester credit hours.**

Turn over in course names: The lifespan of a course may be short before its name and content is modified. When this happens, the new course-name and its new content must be approved by Virginia Tech for transfer. The process for this is the same as for all new courses:

Process for preapproval of course credit transfer: Obtain a detailed course syllabus in English. If possible, include a list of textbooks used in the course, and the name of the professor in charge of the course. Submit your request with this information to Mr. Ryan Wagoner rdw@vt.edu in 100-F2 Randolph Hall. Mr. Wagoner will then coordinate the evaluation with the appropriate department at Virginia Tech that is authorized to approve the transfer.

Virginia Tech BSME students are strongly encouraged to follow this process to seek approval of additional humanities and social science courses at Technische Universität Darmstadt that interest them and that they would like to have approved for AREA 2/3/7 credit at Virginia Tech. As these courses are approved, they will be listed online at <http://www.tud.vt.edu/BS>, and, over time, the availability of preapproved AREA 2/3/7 courses should thus grow significantly.

7.0 Transfer credit process

7.1 Transfer credits from Technische Universität Darmstadt to Virginia Tech

Virginia Tech BSME students taking courses at Technische Universität Darmstadt must follow the following three-step procedure for having their course credits transferred to Virginia Tech and applied towards their Virginia Tech BSME degree:

1. **Complete the Virginia Tech College of Engineering Transfer Credit Request Form.** The instructions for completing this form are given on the form. Follow these instructions. If you have questions regarding this form, please contact Mr. Ryan Wagoner rdw@vt.edu in 100-F2 Randolph Hall. The form is shown in Figure 4a, it is partially completed in Figure 4b, and it can be found online as follows:

Transfer Credit Request form for International/Study Abroad schools:

Read and follow these policies and procedure:

- <http://www.eng.vt.edu/students/transferring-credits>
- <https://www.eng.vt.edu/sites/default/files/pageattachments/international-transfer-credit-evaluation-documentrevised2-4-2016.pdf>

Transfer Credit Request form used for this particular program:

Until further notice—due to the complexity of describing the proposed credit transfer—use the following form:

- http://www.tud.vt.edu/BS/study_abroad_transfer_credit_form_revised_6-2-2011_SAMPLE_2016.pdf
- http://www.tud.vt.edu/BS/study_abroad_transfer_credit_form_revised_6-2-2011_SAMPLE_2016.doc

Make sure that you list the English course names and not the German course names.

Make sure that you sign the form, and that the Virginia Tech Global Education Office signs the form, before you submit it to Mr. Wagoner.

You should submit this form before you depart Virginia Tech. If you need to make changes to your course selection, including after you have departed Virginia Tech, then you need to update your form with Mr. Wagoner as soon as possible.

**Virginia Tech - College of Engineering
Transfer Credit Request Form - EDUCATION / STUDY ABROAD**

Courses must be pre-approved by the College of Engineering Academic Dean's Office/212 Hancock Hall.

Policies Governing Transfer Credit to Virginia Tech:

1. Courses must be taken through either a study abroad program offered by an accredited college or university in the U.S. or an institution recognized by the country's Ministry of Education.
2. Only courses in which the student earned a grade of "C" or better will transfer. Home study, correspondence and Pass/Fail courses will not transfer. Courses taken as credit-by-exam or as advanced standing at another school do not transfer.
3. Only credits earned transfer; grades do not transfer and do not figure into a student's Virginia Tech GPA computation.
4. Where credit hours given at the other school exceeds that for the equivalent Virginia Tech course, only the Virginia Tech credit hours will be granted.
5. A course passed at Virginia Tech takes priority over an equivalent transfer course, regardless of when the transfer course is taken or the grade earned. Courses that duplicate previously studied material will not transfer.
6. A minimum of 1/4 of the credit for the degree must be earned at Virginia Tech.
7. Of the last 45 semester hours before graduation, a maximum of 18 semester hours may be transfer hours.
8. Courses taken elsewhere during periods of academic suspension will not transfer to Virginia Tech.

Completing the Transfer Credit Request Form:

1. Choose a school and courses. Check with the transfer school to ensure the courses you want to take will be offered during your term(s) of attendance. Contact the Study Abroad Advisor at rdw@vt.edu for a list of schools offering engineering programs.
2. If the institution you wish to attend requires a letter of good standing from Virginia Tech, you may request this certification by filling out a form in the Registrar's office, 250 Student Services Building.
3. Meet with academic advisor to discuss taking courses elsewhere and have the advisor or approved departmental representative sign this form.
4. Go to Education/Study Abroad Office (International Affairs - 526 Prices Fork Rd. Room 131) to complete appropriate paperwork and pay fees, if any. Have representative from Study Abroad Office sign this form.
5. For each class you request to take elsewhere you must obtain a detailed syllabus (in English) from the institution. Attach syllabi for each class to this form, and return to 100-F2 Randolph Hall or submit to rdw@vt.edu. Upon completion of the course(s), request that an official transcript (English translated copy) be sent to: Virginia Tech, University Registrar, 250 Student Services Building (0134), Blacksburg, VA 24061. If you have not submitted a transcript showing completion of the course(s) by one calendar year after completing the course(s), you forfeit transfer credit for the course(s).
6. This authorization is based on information you provide and is subject to change if the information changes. Once transfer credit is awarded, students must confirm that it is consistent with the decision reflected on this form. If there are inconsistencies please contact your Academic Dean's office in 212 Hancock Hall. No changes will be made to the transfer credit one year after completion of the transfer course(s).
7. There are many details to the study abroad process. Please allow a minimum of 3 months for final approval. You should begin this process at least 6 months prior to your departure date.
8. Student may submit up to two forms (eight courses) per term, maximum of two institutions, for consideration.

Student's Initials: _____ Student ID#: _____ Date: _____

Major: _____ Current # of Transfer Credits: _____ Local Phone #: _____ VT Email: _____@vt.edu

Name and country of institution you will be attending: _____

Is this a study abroad that is administered through a United States college or university? (will transcript come from a U.S. school?) no yes, please specify: _____

Semester(s) you will be attending this institution: Fall Spring Summer Year: 20__

Other Institution				VT Equivalent					
Dept	Course #	Course Title	#Cr Hrs	Dept	Course #	Course Title	#Cr Hrs	Office use Approved	Place On TED

STUDENT SIGNATURE

Student signature above affirms that the student understands transfer policies and knows if/how this will impact degree requirements.

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ADVISOR/DEPT. REPRESENTATIVE

Dept. signature above affirms that student has discussed his/her plan with academic advisor but does not guarantee transfer credit approval.

EDUCATION/STUDY ABROAD OFFICE SIGNATURE

Signature above affirms that the student has notified the Education Abroad Credit Office of their plans and the Institution meets Policy #1 requirements above.

Approved by: _____ Date: _____

Figure 4a: *Transfer Credit Request Form*

<http://www.tud.vt.edu/BS/>

[study_abroad_transfer_credit_form_revised_6-2-2011_SAMPLE_2016.doc](#)

Student's Initials: _____ Student ID#: _____ Date: _____

Major: **Mechanical Engineering** Current # of Transfer Credits: _____ Local Phone #: _____ VT Email: _____@vt.edu

Name and country of institution you will be attending: **Technische Universität Darmstadt**

Is this a study abroad that is administered through a United States college or university? (will transcript come from a U.S. school?) no yes, please specify: _____

Semester(s) you will be attending this institution: Fall Spring Summer Year: **2017-2018**

Other Institution				VT Equivalent					
Dept	Course #	Course Title	#Cr Hrs	Dept	Course #	Course Title	#Cr Hrs	Office use Approved	Place On TED
		Control Engineering	6 CP ECTS	ME	4504	Controls Engineering I	3		
		Bachelor-Thesis	12 CP ECTS	ME	4015	Engineering Design & Project I	3		
				ME	4016	Engineering Design & Project II	3		
		Introduction into Scientific Working and Writing	2 CP ECTS	ME	4006	Mechanical Engineering Lab II	3		
		Product Design Project	4 CP ECTS	ME	4XXX	ME Technical Elective	2		
		Tutorial Pneumatics I	4 CP ECTS	ME					
		Fund. Turbomachinery and Fluid Systems	8 CP ECTS	ME	4124	Fluid Mach Heat Transfer Design	3		
		Aerodynamics I	6 CP ECTS	ME	4XXX	ME Technical Elective	4		
		Numerical Methods	4 CP ECTS	ME	4XXX	ME Technical Elective	2		
		Motor Vehicles	6 CP ECTS	ME	4XXX	ME Technical Elective	3		
		Engineers in Society	6 CP ECTS	STS	2XXX	Elective (AREA 3)	3		

Figure 4b: Sample entries in the *Transfer Credit Request Form* shown in Figure 4a.

Please reference Figures 2 and 3 and Section 6.2 for details.

<http://www.tud.vt.edu/BS/>

[study_abroad_transfer_credit_form_revised_6-2-2011_SAMPLE_2016.pdf](#)

2. **Complete the approved courses with the equivalent grades of “C” or better.** The Virginia Tech Registrar will not award transfer credit for grades below “C”.

The Technische Universität Darmstadt does not issue letter grades. Instead, it issues numerical grades ranging from “1.0” (best) to “4.0” (passing), with “5.0” denoting failure.

The Virginia Tech Registrar therefore uses the World Education Services (WES) scale for converting numerical grades from Technische Universität Darmstadt to their Virginia Tech letter grade equivalents (Figure 5). Hence, all passing grades from Technische Universität Darmstadt (i.e., 1.0, 1.3, 1.7, 2.0, 2.3, 2.7, 3.0, 3.3, 3.7, and 4.0) are accepted for transfer of coursework. Failing grades (i.e., 5.0) are not accepted for transfer credit.

GERMANY		
Grading Scale		
Scale	Grade Description	U.S. Grade Equiv.
1-1.5	Sehr Gut (Very Good)	A
1.6-2.5	Gut (Good)	A
2.6-3.5	Befriedigend (Satisfactory)	B
3.6-4.0	Ausreichend (Sufficient)	C
4.1-6	Nicht Ausreichend (Insufficient)	F

Figure 5: World Education Services (WES) grading scale conversion between German and US.
Original document: <http://www.wes.org/gradeconversionguide/index.asp>

3. **Submit an official transcript to the VT Registrar.** Once your grades have been posted on the TUCaN online system at Technische Universität Darmstadt, you need to request that Ms. Gabriele von Laufenberg laufenberg@mechcenter.tu-darmstadt.de TEL: +49-6151-16-75647 at the Technische Universität Darmstadt MechCenter send a paper copy of your official Technische Universität Darmstadt transcript to:

Sarah Deisher
Mechanical Engineering (0710)
Randolph Hall, 113-A, Virginia Tech
460 Old Turner Street
Blacksburg, VA 24061
USA

TEL: +1-540-231-8592
E-MAIL: murfvt@vt.edu

Ms. Deisher will then scan the transcript, share it electronically with the Virginia Tech Registrar, and deliver the physical original document to the Virginia Tech Registrar for archiving.

7.2 Date of Virginia Tech BSME graduation

It is important that a paper copy of your official TUD transcript is received by the VT Registrar as soon as possible: As long as this transcript is received by the VT Registrar within 30 days of a Virginia Tech graduation date, then your Virginia Tech degree will be awarded retroactively on that date, once the VT Registrar has determined that you have otherwise completed all your degree requirements.

Example: The August 2017 Virginia Tech graduation date is August 14, 2017. Hence, to earn a Virginia Tech BSME degree effective as of that date, the Virginia Tech Registrar must physically receive a paper copy of your official TUD transcript by September 13, 2017 at the latest. If upon review of this transcript, the VT Registrar determines that you have completed all the requirements for the VT BSME degree (probably some time in October 2017), the VT Registrar will then retroactively award you a VT BSME degree dated August 14, 2017.

7.3 Transfer credits from Virginia Tech to Technische Universität Darmstadt

Virginia Tech BSME students that are participating in the VT-TUD Dual BSME Degree Program must provide Technische Universität Darmstadt with an official paper copy of their Virginia Tech transcript.

Technische Universität Darmstadt will also need official paper copies of transcripts from any and all other colleges and universities that appear on the Virginia Tech transcript as transfer credit that are being used towards the Technische Universität Darmstadt B.Sc. (MPE) degree. For instance, if you have received Virginia Tech transfer credit for a course at Purdue University, then you must provide Technische Universität Darmstadt with an official paper copy of your Purdue University transcript as well.

Technische Universität Darmstadt cannot award transfer credit for your coursework elsewhere, including at Virginia Tech, until they receive the official paper copies of your transcripts.

Official Virginia Tech transcripts can be ordered online from HokieSPA, and should be mailed directly from the Virginia Tech Registrar to:

Dipl. -Geogr. Gabriele von Laufenberg
MechCenter - KIVA Koordinatorin
Fachbereich Maschinenbau
Technische Universität Darmstadt
Otto-Berndt Straße 2
64287 Darmstadt
Germany

Official paper copies of transcripts from other colleges and universities should be mailed directly to the above address as well.

7.4 Credit for German language as VT BSME technical elective (list 2)

Up to 6 semester credit hours of GER 2105, 2106, 2114, 3105, 3106 can be counted as Virginia Tech BSME technical elective (list 2) if at least 9 semester credit hours of engineering courses, that are taught in German, and that count towards the 131-semester-credit-hour requirement for the Virginia Tech BSME degree, are *subsequently* earned at a foreign educational institution. Similar provisions apply to Spanish, French, and Russian.

To receive these Virginia Tech BSME technical elective (list 2) credits, the students must contact Dr. Linda Vick, Ms. Sarah Deisher, and/or Ms. Heather Whedbee in the Virginia Tech Department of Mechanical Engineering Undergraduate Advising Office upon successful completion of the 9+ semester credit hours of engineering courses abroad:

Dr. Linda Vick
Mechanical Engineering (MC 0710)
Randolph Hall, 113, Virginia Tech
460 Old Turner Street
Blacksburg, VA 24061
USA

TEL: +1-540-231-7747
FAX: +1-540-231-9100
E-MAIL: lvick@vt.edu

Ms. Sarah Deisher
Mechanical Engineering (MC 0710)
Randolph Hall, 113-A, Virginia Tech
460 Old Turner Street
Blacksburg, VA 24061
USA

TEL: +1-540-231-8592
FAX: +1-540-231-9100
E-MAIL: mfurvt@vt.edu

Ms. Heather Whedbee
Mechanical Engineering (MC 0710)
Randolph Hall, 112, Virginia Tech
460 Old Turner Street
Blacksburg, VA 24061
USA

TEL: +1-540-231-2555
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8.0 How to succeed at Technische Universität Darmstadt

Studying abroad in a foreign language is not trivial. The academic system and traditions are different from what you are used to, and comprehension of the materials is a challenge. The following will highlight differences and suggest best practices for how to succeed at Technische Universität Darmstadt.

8.1 Taking a course at a German university

Universities in Germany operate with a two-semester academic year: The Winter semester runs from mid-October through early-February, and the Summer semester runs from late-April through mid-July. During the semesters the students attend lectures and laboratories, and complete suggested homework assignments. Generally, there is no attendance taken, there is no homework collected, and there are no exams during the semesters. Approximately midway through the semester, the students sign up for a final exam in the course. The exams are scheduled during the periods between the semesters, and they generally count for 100% of the course grade.

At Technische Universität Darmstadt, a student may attempt an exam for a course at most three times, and an exam is offered twice per year. If a student fails an exam three times, then the student is ejected from the degree program. Exception: If the three failed exams are written, then, for one time only during the student's entire career at Technische Universität Darmstadt, the student may attempt the exam a fourth time, this time as an oral exam, and the best grade obtainable is then 4.0 ("C").

Once a student has attempted an exam, the student must pass that course, and may not take another courses in its place. For instance, if you register for an elective course and fail its first (or second) exam, then you must continue taking this exam until you pass the course or fail out of the degree program.

At the beginning of an exam, the professor will ask if you are ill: If you are ill, you may leave the exam to see a physician to obtain a *Prüfungsunfähigkeitsbescheinigung* ("exam excuse slip"). You must deliver this exam excuse slip to the TUD MechCenter the following day at the latest. You will thus have started (or continued) the exam sequence without causing an exam failure (e.g., if this was your first attempt, you will still have three attempts to go).

The course exam is scheduled early during the exam period immediately following the semester it was taught, and late during exam period following the off-semester. Hence, VT BSME students that pass their courses on schedule should complete their exams on time to transfer their course work to Virginia Tech in time for August graduation. On the other hand, students that fail an exam following the Winter-semester lectures, but then pass the exam following the Summer semester, will most likely not have their course credits transferred to Virginia Tech in time for August graduation but become December graduates instead.

Courses with less than 80 students typically have oral exams. For international students, these exams are generally offered in English so as to avoid misunderstandings; however this is at the prerogative of the professor. The student should request the preferred language ahead of time.

An oral exam typically lasts about 20-60 minutes. The exact exam length for a given course is described in the course module description (see TUCaN online system). Three people will be present during the oral exam: the student, the professor, and an academic staff member (witness) taking notes. Any member of the *Prüfungskommission* also has the right to also attend the exam, though this hardly ever happens. Finally, with the approval of the student being examined, other students that will be taking this oral exam later on, may also attend the exam; though this also hardly ever happens.

For large courses, the professor will typically have a written exam. The default language is German. Increasingly often, the professor will also have an English version of this exam; however, again, this is at the prerogative of the professor. A student desiring an English-language version should request this well ahead of time.

Several weeks after the exam, the tentative results will be posted on the TUCaN online system. For each exam, there will be an appeal day, when you can review your exam answers with the professor or one of his or her assistants. Students are strongly advised to always attend these appeal sessions to improve their grades. The professor will then take any grade appeals under consideration and several days later submit the adjusted grades for recording on your transcript. At this point, you can see your final course grades on the TUCaN online system, and it will appear on subsequent official transcripts that you have sent to the Virginia Tech Registrar (Section 7.1).

8.2 Preparing for an exam

German professors do not replicate homework problems on an exam. Instead they take great pride in presenting problems that are new. Hence, you need to know the course material well enough that you can solve problems, including those from old exams, without the aid of textbooks, lecture notes, answer keys, or sample solutions. Old exams and their answer sheets are generally readily available.

Just like at Virginia Tech, the preparation for an exam starts during the semester: Attend all the lectures. Come prepared to class by completing all the suggested readings ahead of the lecture; then takes notes during the lecture; and finally, review your lecture notes after the lecture, and work all the suggested homework problems until you fully understand the material.

Following the semester, review your notes and assigned readings, and continue to work sample problems leading up to your final exam. You will typically have about one exam per week during the exam period.

Form study teams with your German classmates. This is critical to your success. Your German classmates are there to graduate. They have learned how the German university system works, and, as seniors, have successfully navigated the transition from the tightly supervised high school system. You need to learn from them, since you need to make this same transition during your first semester in Darmstadt. You will also find that the native German mechanical engineering students are excellent instant-translators during your study sessions. This is important so that you can get an instant answer and do not have to wait until the follow day or week to have, say, a trivial language-question answered.

You should avoid socializing too much or exclusively with other international students. This includes your colleagues from Blacksburg. Seek a balance and include German mechanical engineers in your social life. Many international students are not overly concerned about transferring credits back home and will depart Darmstadt before the exams begin. Consider the following: Of the 17,000+ US students that spend a semester or more in France each year, less than 4,000 transfer any academic credit back to their US university. You are not like these other US students. Rather, you are at the Technische Universität Darmstadt to pass engineering courses, to transfer their credits to Virginia Tech, and to graduate in a timely manner.

At Virginia Tech you are used to having to maintain a grade point average (GPA) above a “C” in order to graduate. An occasional low course grade, even a “D-”, is acceptable towards graduating as long as you offset it with enough other higher course grades.

At Technische Universität Darmstadt, every single course grade must be a 4.0 or better, which is equivalent to a “C”. By the time their mechanical engineering students reach their third year, it is typical that 10-25% of the grades in a course, with an average of 15%, are below a “C” and must be retaken. This distribution of grades is similar to Virginia Tech: Looking at all the Virginia Tech mechanical engineering 3000-level sections during the 2011-2012 academic year, 9-32% of the section grades, with an average of 17%, were below a “C”.

The consequence of failing a course differs widely between Virginia Tech and Technische Universität Darmstadt. If you fail a course at Virginia Tech (earning an “F”), you must retake the entire course, including redoing all homework assignments, projects, quizzes, and exams. You are also barred from enrolling in subsequent courses that have the failed course as a prerequisite. While the bar for passing a course is higher at Technische Universität Darmstadt—you need to earn a “C” or better—the consequence of failing a course is less severe: You only need to retake the exam, and you are not barred from continuing with subsequent courses.

8.3 Continued German language training

Comprehending engineering course lectures requires that you pay close attention. When these lectures are in a foreign language, the effort to pay attention and comprehend the material becomes even more taxing. Most likely you will feel drained by the end of a lecture, especially during the first several months. Your comprehension will be slower than what you are used to in Blacksburg, and you will find that you will need to invest more time in preparing for lectures and reviewing your lecture notes than you are used to.

Eventually, you will start to find that the material comes easier to you as your German language skills improve. Students often discover in late-January or early-February that they are starting to transition from mentally translating from German to English, to thinking in German during the lectures and when interacting with Germans.

By June, students generally think in German and will only occasionally fall back temporarily to English for an occasional word or phrase translation. At that point, the effort required to comprehend engineering lectures in German begins to approach the effort required to comprehend engineering lectures in English.

Research at the *Sprachenzentrum* (foreign language department) at Technische Universität Darmstadt continuously shows the importance of comprehending lectures to the success of the student. Likewise, their research also shows the importance on continued formal German language training during the regular academic semester at Technische Universität Darmstadt, even if only auditing the course and not taking it for a grade, as a source of ongoing German language support while enrolled in engineering courses being taught in German. This is particularly the case during the first semester at Technische Universität Darmstadt. Hence the following expectation:

EXPECTATION: While attending engineering lectures during the Technische Universität Darmstadt Winter- and Summer-semesters (mid-October through mid-July), the participating students are expected to audit or take for a grade a German language course every semester.

JUSTIFICATION: Experience at Technische Universität Darmstadt has shown that continuing formal German language training during the academic year significantly improves the student's ability to follow classroom instruction, and hence significantly increases the likelihood of on-time graduation.

8.4 Seeking advice

The Virginia Tech Department of Mechanical Engineering provides information in-person about its senior year abroad program at Technische Universität Darmstadt and the associated dual BSME degree program during various fairs throughout the year (e.g., College of Engineering Open House, VT Study Abroad Fair). Interested students may also contact Dr. Jan Helge Bøhn, bohn@vt.edu, 540-231-3276, 114-H Randolph Hall, for specific information throughout the year.

Club Darmstadt is a registered student organization (RSO) at Virginia Tech, and it is a great place to meet other students that plan to attend Technische Universität Darmstadt or that have studied there in the past. Membership is free to all registered Virginia Tech students:

<http://gobblerconnect.vt.edu/organization/clubdarmstadt>

Orientation Sessions:

There are two important orientation sessions each year for Virginia Tech students attending their BSME senior year at Technische Universität Darmstadt. All participating students are expected to attend both these orientation sessions, and all are expected to be familiar with all the material presented. These sessions are designed to help prepare the students to be successful during the senior year at Technische Universität Darmstadt. In addition to providing the best available advice at that point, they will also contain important information concerning any recent policy and/or procedure updates that may be underway or that have been implemented at either university:

Late Spring Semester during Virginia Tech BSME junior year:

This orientation session is organized by the Virginia Tech Department of Mechanical Engineering, and it is held in Blacksburg.

Early Winter Semester during Virginia Tech BSME senior year:

This orientation session is organized by the Technische Universität Darmstadt Faculty of Mechanical Engineering, and it is held in Darmstadt.

There might be additional seminars organized by Virginia Tech and/or Technische Universität Darmstadt concerning going abroad and living in Germany. For instance, the Virginia Tech Global Education Office offers pre-departure orientation sessions to its outgoing students. Participating students are encouraged and expected to seek out and participate in such seminars to maximize their preparation for living and studying abroad.

Academic Advice:

The Virginia Tech BSME students at Technische Universität Darmstadt have two academic advising offices available to them while abroad:

- (1) For all issues concerning their Virginia Tech BSME degrees and their classes at Virginia Tech, students should work with Dr. Linda Vick, Ms. Sarah Deisher, and/or Ms. Heather Whedbee in the Virginia Tech Department of Mechanical Engineering Undergraduate Advising Office:

Dr. Linda Vick
Mechanical Engineering (MC 0710)
Randolph Hall, 113, Virginia Tech
460 Old Turner Street
Blacksburg, VA 24061
USA

TEL: +1-540-231-7747
FAX: +1-540-231-9100
E-MAIL: lvick@vt.edu

Ms. Sarah Deisher
Mechanical Engineering (MC 0710)
Randolph Hall, 113-A, Virginia Tech
460 Old Turner Street
Blacksburg, VA 24061
USA

TEL: +1-540-231-8592
FAX: +1-540-231-9100
E-MAIL: mfurvt@vt.edu

Ms. Heather Whedbee
Mechanical Engineering (MC 0710)
Randolph Hall, 112, Virginia Tech
460 Old Turner Street
Blacksburg, VA 24061
USA

TEL: +1-540-231-2555
FAX: +1-540-231-9100
E-MAIL: heathaw@vt.edu

- (2) For all issues concerning their Technische Universität Darmstadt B.Sc. (MPE) degrees (in the case of the VT-TUD Dual BSME Degree Program) and their classes at the Technische Universität Darmstadt, students should work with Ms. Gabriele von Laufenberg in the Technische Universität Darmstadt MechCenter:

Dipl. -Geogr. Gabriele von Laufenberg
MechCenter - KIVA Koordinatorin
Fachbereich Maschinenbau
Technische Universität Darmstadt
Otto-Berndt Straße 2
64287 Darmstadt
GERMANY

TEL: +49-6151-16-75647

FAX: +49-6151-16-6090

E-Mail: laufenberg@mechcenter.tu-darmstadt.de

8.5 Progress reports

All Virginia Tech BSME students at the Technische Universität Darmstadt are expected to provide a brief, informal progress report three times per semester while abroad. These progress reports are extremely important to facilitate effective and timely student advising and ongoing program assessment. These brief progress reports should contain the following information:

- **Courses completed and grades earned at Technische Universität Darmstadt;**
-- you will know your results well before we do here at Virginia Tech
- **Courses currently attended, including the German language courses being audited;**
-- are you continuing your German language training as expected?
-- are you actually attending classes on a regular basis?
- **Courses planned for future semesters at Technische Universität Darmstadt;**
-- are you adjusting your plans?
- **Courses planned for future semesters at Virginia Tech, if any;**
-- are you adjusting your plans?
- **Names and nationalities of study partners; and**
-- are you working with German B.Sc. (MPE) students?
- **Thoughts, observations, and concerns.**

Progress report due dates during each semester at Technische Universität Darmstadt:

Semester progress report 1

due by the end of the first week of lectures;

Semester progress report 2

due within a week of registering for that semester's exams; and

Semester progress report 3

due within a week of completing that semester's exams.

These progress reports should be sent to:

Dr. Clinton Dancey
Associate Department Head for Undergraduate Studies
Mechanical Engineering (MC 0710)
Randolph Hall, 118-A, Virginia Tech
460 Old Turner Street
Blacksburg, VA 24061
USA

E-mail: cld@vt.edu

9.0 Summary

9.1 Timeline of events

The following provides a timeline of events for students completing their VT BSME senior year at the Technische Universität Darmstadt, Germany:

Freshman and Sophomore years:

- Take German language courses; pursue a minor in German if possible;
- Become involved in Club Darmstadt;
- Respond to the annual VT Survey (every September) to provide an update on your plans for your VT BSME senior year in Darmstadt; and
- Incorporate 12+ weeks of industry experience as an engineer (e.g., co-op, or summer job)

Junior year:

September

Respond to annual VT Survey of plans for VT BSME senior year in Darmstadt

October

- (1) Order passport if needed and keep a copy of your receipt (passport must be valid for 3+ years at this point); and
- (2) Apply or update your application for VT BSME graduation (must be current when you submit your program application)

November

Program application form becomes available

December

Students planning to apply for a DAAD Undergraduate Scholarship should apply for admission to the program to ensure sufficient time for letters of recommendation (see Section 2.2)

1st Monday of Spring Semester

Last opportunity to register for GER 1114
January 23, 2017; January 22, 2018

January 31

Scholarship application due to DAAD

2nd Friday of Spring Semester

Application due to VT Mechanical Engineering
January 27, 2017; January 26, 2018

3rd Friday of Spring Semester

VT Mechanical Engineering announces its nominations
February 3, 2017; February 2, 2018

4th Friday of Spring Semester

Application due to the VT Global Education Office
February 10, 2017; February 9, 2018

March

Complete VT Department of Mechanical Engineering German language assessment

April

- (1) Attend orientation session for VT BSME seniors going to Darmstadt;
- (2) Attend other relevant orientation sessions offered by the VT Global Education Office; and
- (3) Apply for transfer credit pre-approval (See Section 7.1)

Senior year in Darmstadt, Germany:

Mid-July

Start of six-week German language “bridge course” if needed
July 17 - August 25, 2017; July 9 - August 17, 2018

Early-September

Start of five-week German language “intensive phase”

Mid-October

- (1) Start of TUD Winter Semester;
- (2) Submit *Winter Semester Progress Report 1* (See Section 8.5)

Late-October

- (1) Attend orientation session for VT BSME seniors going to Darmstadt; and
- (2) Attend other relevant orientation sessions offered by TUD

Late-January

Submit *Winter Semester Progress Report 2* (See Section 8.5)

Mid-February

End of TUD Winter Semester; start of exam period

Late-March

- (1) End of exam period;
- (2) Submit *Winter Semester Progress Report 3* (See Section 8.5)

Early-April

- (1) Start of TUD Summer Semester;
- (2) Submit *Summer Semester Progress Report 1* (See Section 8.5)

Late-June

Submit *Summer Semester Progress Report 2* (See Section 8.5)

Mid-July

End of TUD Summer Semester; start of exam period

Mid-August

- (1) Complete on-schedule exams;
- (2) Once your TUD course grades have been recorded in TUCaN, have your official TUD paper transcripts sent to the VT Registrar; and
- (3) Submit *Summer Semester Progress Report 3* (See Section 8.5)

Late-September

End of exam period

October

Upon successfully processing TUD transcripts that were received within 30 days of the VT August graduation date, the VT Registrar awards VT BSME degrees retroactively dated August (see Section 7.2)


DOCUMENT UPDATES:

October 29, 2013: Updated number of credits of German language instruction that other U.S. universities require (Section 3.0).

March 11, 2014: Several clarifications and typographical corrections in Section 3.0.

March 27, 2015: Updates to reflect recent changes to the VT BSME and TUD BSME curricula; changes of VT and TUD addresses; and changes to VT German minor requirements and course transfers.

May 18, 2016: Updated dates, websites, and contact informations.