

Dual BSME Degree Program

Virginia Tech students have the opportunity to complete their BSME senior year at the Technische Universität Darmstadt (TUD) in Germany. At the completion of this program, a student that selects the appropriate electives will also simultaneously earn a **Bachelor of Science in Mechanical & Process Engineering** from TUD.

Just imagine how marketable you would be, in this global economy, with an engineering degree from both a US and German university!

The engineering courses at TUD are taught in German. Hence, to participate in this program, a student must earn a "B+" in GER 2106 prior to leaving for TUD. GER 1105-1106 and 2105-2106 can be completed during the academic year; or 2114 (2105-2106) during the Summer I session prior to the senior year. Once at TUD, the VT students enroll in a 12-week intensive German course to bring their German skills up to the required proficiency level.

VT students at TUD pay VT tuition and fees, and VT financial aid carries over to TUD. In addition, the German government (DAAD) provides approximate \$7,100 scholarships based on academic merit.

APPLICATION DEADLINES:

DAAD scholarship: January 31, 2017
for 2017-2018 senior year.

Program admission: January 27, 2017
for 2017-2018 senior year.

Factoids:

- Germany has the 3rd largest export economy, most of which is high-tech engineering products.
- Germany is the USA's #5 trading partner.
- 19,800 Virginians are employed by companies from German-speaking countries.
- The TUD BSME program is ranked #1 in Germany, Switzerland, and Austria.



Senior Year Abroad Program

The entrance requirements and application process are the same as for the dual BSME degree program, but there are less course requirements at TUD since you are only transferring course credits back to VT towards your VT BSME degree: You will not be earning a TUD degree. Hence, if you cannot keep up with the VT-TUD dual BSME degree requirements, or if you want to pursue other elective courses, then you automatically are considered to be in the VT BSME senior year abroad program.

Ultimate Global Engineer Program

The VT-TUD dual BSME degree program is fully compatible with the *Ultimate Global Engineer Program*: Sophomore fall semester abroad at one partner university (e.g., Australia), followed by rising junior summer abroad at a second partner university (e.g., China), followed by the dual BSME degree program at TUD in Germany.



Technische Universität Darmstadt

TUD graduates approximately 300 B.Sc., 250 M.Sc., and 100 Dr.-Ing. in ME per year.

Darmstadt is a city of about 150,000, and it is located about 20 minutes south of Frankfurt airport.

TUD student achievements:
2010 RoboCup champions
2009 Decathlon champions

Other student activities:
Formula SAE team (DART)



The BSME dual degree program was developed with partial support from a \$672,600 grant from the Fund for the Improvement of Postsecondary Education (FIPSE) in the US Dept of Education (P116J06-0015).



Websites of Interest

Joint programs between Virginia Tech and the Technische Universität Darmstadt:

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

Technische Universität Darmstadt:

<http://www.tu-darmstadt.de/>

Points of Contact:

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Germany

VT BSME Senior Year Abroad
Dual BSME Degree Program
Ultimate Global Engineer



TECHNISCHE
UNIVERSITÄT
DARMSTADT

VT → TUD Dual BSME degree program

Virginia Tech Bachelor of Science in Mechanical Engineering

Technische Universität Darmstadt Bachelor of Science in Mechanical & Process Engineering

Virginia Tech (VT) and the Technische Universität Darmstadt (TUD) in Germany offer a dual degree program in which a student can earn both these degrees in four years, including learning German well enough so the student can complete his or her senior year engineering courses at TUD in German. The following course schedule outlines the standard course sequence for a student that has no prior German language skills or AP credit.

Students must have a VT overall GPA ≥ 3.0 and have earned a “C” or better in all VT engineering (ECE, ENGE, ESM, ISE, ME, MSE) and natural science (CHEM, MATH, PHYS, STAT) courses.



The VT BSME program is the largest in the USA and it is ranked 13 (top 5%) in the US by USN&WR.

Freshman year, fall semester (2014):

- ENGL 1105 Freshman English I
- MATH 1225 Calculus I
- MATH 2114 Linear Algebra
- ENGE 1215 Foundations of Engineering I
- CHEM 1045 General Chemistry Laboratory
- CHEM 1035 General Chemistry
- **AREA 6 elective (1 credit)**

Freshman year, spring semester (2015):

- PHYS 2305 Foundations of Physics I
- ENGL 1106 Freshman English II
- MATH 1226 Calculus II
- ENGE 1216 Foundations of Engineering II
- **AREA 2 elective (3 credits)**

Summer (2015):

Available for courses, internships, employment, etc.

Sophomore year, fall semester (2015):

- PHYS 2306 Foundations of Physics II
- MATH 2204 Multivariable Calculus
- ESM 2104 Statics
- ENGE 2314 Engineering Problem Solving with C++
- ISE 2214 Manufacturing Processes Laboratory
- ME 2024 Introduction to Engineering Design & Economics

Sophomore year, spring semester (2016):

- ECE 2054 Applied Electrical Theory
- STAT 3704 Statistics for Engineering Applications
- ESM 2304 Dynamics
- ESM 2204 Mechanics of Deformable Bodies
- ME 2124 Introduction to Thermal & Fluid Engineering
- MATH 2214 Introduction to Differential Equations

Summer (2016):

Available for courses, internships, employment, etc.

Junior year, fall semester (2016):

- ECE 3254 Industrial Electronics
- ME 3514 System Dynamics
- ME 3614 Mechanical Design I
- ME 3404 Fluid Mechanics
- ME 3124 Thermodynamics
- STS 2054 Engineering Cultures — **AREA 2, 7**

Junior year, spring semester (2017):

- ME 4005 Mechanical Engineering Laboratory I
- ME 3304 Heat & Mass Transfer
- MSE 2034 Elements of Materials Engineering
- **AREA 3 elective (3 credits)**
- GER 1114 Accelerated Elementary German (6 credits, Equivalent to GER 1105-1106)

Summer I session at VT (May 22 – Jul 1, 2017):

- GER 2114 Accelerated Intermediate German (6 credits, Equivalent to GER 2105-2106)
- Students must earn a “B+” or better to continue at TUD.**



The TUD BSME program is ranked #1 in Germany, Switzerland, and Austria by DAAD / CHE / Die Zeit.

VT Summer II session at TUD

(July 17 – August 25, 2017):

German as a Second Language bridge-course designed for Virginia Tech students going to TUD. These 12 CP ECTS transfer as 6 semester credit hours: GER 3105, and GER 3126 or 3XXX, and counts towards a VT German minor or major.

Prerequisite: “B+” or better in GER 2106 or 2114

Early-Fall session at TUD

(September 4 – October 13, 2017):

German as a Second Language; the intensive phase.

Prerequisite: Above bridge-course, or “B” or better in GER 3106

Senior year, winter semester (2017-2018) 28-30 CP:

1. Einführung in wissenschaftliches Arbeiten und Schreiben (2 CP) (ME 4006 ME Lab II; ViEWS)
2. Product Design Project (4 CP) (ME 4006 ME Lab II (2CP); VT BSME technical elective (2CP))
3. Ingenieurinnen und Ingenieure in der Gesellschaft (6 CP) (AREA 3; 3 semester credit hours)
4. Systemtheorie und Regelungstechnik (6 CP) (ME 4504 Controls)
5. Tutorium Pneumatik I (4 CP) (ME 4006 ME Lab II (2CP); VT BSME technical elective (2CP))
6. Aerodynamik I (6CP) *or* Grundlagen der Flugantriebe (8CP) (ME 4124 Fluid Heat Transfer Design (2CP); VT BSME technical elective (4-6CP))

Senior year, summer semester (2018) 32-30 CP:

1. Bachelor-Thesis (12 CP) (ME 4015-4016 Engineering Design & Project I, II; ViEWS)
2. Numerische Berechnungsverfahren (4 CP)
3. Grundlagen der Turbomaschinen und Fluidsysteme (8 CP) (ME 4124 Fluid Heat Transfer Design (4CP); VT BSME technical elective (4CP))
4. **VT/TUD BSME technical electives (2-0 CP)**
5. **VT/TUD BSME technical electives (4 CP) – Dual BSME addition**
6. **Free electives (2 CP) – Dual BSME addition**

Anticipated VT graduation date: August 2018

TUD requirements:

- Must earn at least 60 CP at TUD (any department)
- The “VT/TUD BSME technical electives” is a list of electives that are approved both at VT and TUD

Special notes:

- Electives are shown in **yellow highlight**.
- Students that do not take GER 2xxx/3xxx at VT or TUD must add 6 semester credit hours (12 CP) of VT technical electives.
- Students may drop out of the dual BSME program at any time prior to the Fall semester of their Senior year and stay on at VT without delaying their VT BSME graduation.

For more information:

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