Bern University
of Applied Sciences

BSc Data Engineering curriculum
Part-time / PiBS***

Status in July 2026

1st semester	2nd semester	3rd semester	4th semester	5th semester	6th semester	7th semester	8th semester
Project and Training 1 BTI3001 – 6 ECTS	**Programming 2 with Java** BTI1011 – 4 ECTS **or Kotlin** BTI1012 – 4 ECTS	**Project and Training 2** BTI3011 – 6 ECTS	**Project and Training 3** BTI3021 – 6 ECTS	**Project 1** BTI3031 – 6 ECTS	**Specialisation 1.1** BTI4x01 – 4 ECTS	**Project 2** BTI3041 – 6 ECTS	**Bachelor-Thesis** BTI3051 – 12 ECTS
	Databases BTI1311 – 4 ECTS	BB – 2 ECTS*	BB – 2 ECTS*		**Specialisation 1.2** BTI4x02 – 4 ECTS		
Programming 1 with Java BTI1001– 4 ECTS **or Kotlin** BTI1002– 4 ECTS	**Programming with Python** BTI1013 – 4 ECTS	**Machine Learning Foundations 2** BTI1042 – 4 ECTS	**Software Engineering** BTI1121 – 4 ECTS	**Machine Learning Foundations 3** BI1043 – 4 ECTS	**Specialist optional module 1** 2 ECTS	**Specialisation 2.1** BTI4x03 – 4 ECTS	
Computing Infrastructure BTI1022 – 2 ECTS		**Requirements Engineering** BTI1111 – 2 ECTS	**Web Programming with Python** BTI1302 – 4 ECTS	**Interaction Design** BTI1101 – 2 ECTS	**Specialist optional module 2** 2 ECTS	**Specialisation 2.2** BTI4x04 – 4 ECTS	**Specialisation 3.1** BTI4x05 – 4 ECTS
Machine Learning Foundations 1 BTI1041 – 4 ECTS	**Data Engineering Fundamentals 1** BTI1031 – 4 ECTS	**Data Engineering Fundamentals 2** BTI1032 – 4 ECTS		**Introduction to IT-Security** BTI1321 – 2 ECTS	**Specialist optional module 3** 2 ECTS		
			Connected Computing: Dev-Ops and Cloud BTI1004 – 4 ECTS	**Information Technology Law** BTI1211 – 2 ECTS	**Specialist optional module 4** 2 ECTS	**Specialist optional module 6** 2 ECTS	
Linear Algebra for Data Engineering BZG1167 – 4 ECTS	**Analysis for Data Engineering** BZG1168 – 4 ECTS	**Applied Statistics** BZG1168 – 4 ECTS		**Discrete Mathematics** BZG1165 – 4 ECTS	**Specialist optional module 5** 2 ECTS	**Specialist optional module 7** 2 ECTS	**Specialisation 3.2** BTI4x06 – 4 ECTS
			English 2 BZG34x2 – 2 ECTS		**Compulsory-elective module 1** 2 ECTS **	**Specialist optional module 8** 2 ECTS	
Communications 1 BZG3110 – 2 ECTS	**Probability** BZG1169 – 2 ECTS	**English 1** BZG34x1 – 2 ECTS		**Special Week 3** BTI5208 – 2 ECTS	**Compulsory-elective module 2** 2 ECTS **	**Compulsory-elective module 3** 2 ECTS **	**Compulsory-elective module 4** 2 ECTS **
Special Week 1 BTI5204 – 2 ECTS	**Communications 2** BZG3111 – 2 ECTS	**Special Week 2** BTI5207 – 2 ECTS					

*** Work-study Bachelor's degree programme

Module subjects

- Project / Internship

(part-time: 42 ECTS, work-study: 32 ECTS)

* Work-study modules (BB modules) for professionals in relevant jobs, with certificate. BTI30*1 will be reduced to a total of 4 ECTS.

- Specialist modules (52 ECTS)
- Specialist optional modules (18 ECTS)
- Specialisation modules (24 ECTS)
  – Applied Data Analytics
  – Machine Learning Engineering
- Mathematics modules (20 ECTS)
- Communication (8 ECTS)
- Special Weeks / interdisciplinary modules (16 ECTS)

The studies take place in Biel.
The programme can be undertaken in German/English.

Subject to change.