



Bern University
of Applied Sciences

BSc Data Engineering curriculum

Part-time / PiBS***

Status in July 2026

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)

1 st semester	2 nd semester	3 rd semester	4 th semester	5 th semester	6 th semester	7 th semester	8 th semester
Project and Training 1 BTI3001 – 6 ECTS	Programming 2 with Java BT1011 – 4 ECTS or Kotlin BT1012 – 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
BB – 2 ECTS*	Databases BTI1311 – 4 ECTS	BB – 2 ECTS*	BB – 2 ECTS*		Specialisation 1.2 BTI4x02 – 4 ECTS		
Programming 1 with Java BT1001 – 4 ECTS or Kotlin BT1002 – 4 ECTS		Machine Learning Foundations 2 BTI1042 – 4 ECTS	Software Engineering BTI1121 – 4 ECTS	Machine Learning Foundations 3 BTI1043 – 4 ECTS		Specialisation 2.1 BTI4x03 – 4 ECTS	
Computing Infrastructure BTI1022 – 2 ECTS	Programming with Python BTI1013 – 4 ECTS	Requirements Engineering BTI1111 – 2 ECTS	Web Programming with Python BTI1302 – 4 ECTS	Interaction Design BTI1101 – 2 ECTS	Specialist optional module 1 2 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 2 2 ECTS	Specialisation 2.2 BTI4x04 – 4 ECTS	
			Connected Computing: Dev-Ops and Cloud BTI1004 – 4 ECTS	Information Technology Law BTI1211 – 2 ECTS	Specialist optional module 3 2 ECTS		Specialisation 3.1 BTI4x05 – 4 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 4 2 ECTS	Specialist optional module 6 2 ECTS	
			English 2 BZG34x2 – 2 ECTS		Specialist optional module 5 2 ECTS	Specialist optional module 7 2 ECTS	Specialisation 3.2 BTI4x06 – 4 ECTS
Communications 1 BZG3110 – 2 ECTS	Probability BZG1169 – 2 ECTS	English 1 BZG34x1 – 2 ECTS		Special Week 3 BTI5208 – 2 ECTS	Compulsory-elective module 1 2 ECTS**	Specialist optional module 8 2 ECTS	
Special Week 1 BTI5204 – 2 ECTS	Communications 2 BZG3111 – 2 ECTS	Special Week 2 BTI5207 – 2 ECTS			Compulsory-elective module 2 2 ECTS**	Compulsory-elective module 3 2 ECTS**	Compulsory-elective module 4 2 ECTS**

*** Work-study Bachelor's degree programme

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

Subject to change.