



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

Status in June 2023

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 BT13001 – 6 ECTS	Programming 2 with Java or Kotlin BT1011 – 4 ECTS BT1012 – 4 ECTS	Project and Training 2 BT13011 – 6 ECTS	Project and Training 3 BT13021 – 6 ECTS	Project 1 BT13031 – 6 ECTS	Specialisation 1.1 BT14x01 – 4 ECTS	Project 2 BT13041 – 6 ECTS	Bachelor-Thesis BT13051 – 12 ECTS
BB – 2 ECTS*	Databases BT11311 – 4 ECTS	BB – 2 ECTS*	BB – 2 ECTS*		Specialisation 1.2 BT14x02 – 4 ECTS		
Programming 1 with Java or Kotlin BT1001 – 4 ECTS BT1002 – 4 ECTS	Programming with Python BT11013 – 4 ECTS	Machine Learning Foundations 2 BT11042 – 4 ECTS	Software Engineering BT11121 – 4 ECTS	Machine Learning Foundations 3 BT1043 – 4 ECTS	Specialist optional module 1 2 ECTS	Specialisation 2.1 BT14x03 – 4 ECTS	
Computing Infrastructure BT11022 – 2 ECTS		Requirements Engineering BT11111 – 2 ECTS	Web Programming with Python BT11302 – 4 ECTS	Interaction Design BT11101 – 2 ECTS	Specialist optional module 2 2 ECTS	Specialisation 2.2 BT14x04 – 4 ECTS	
Machine Learning Foundations 1 BT11041 – 4 ECTS	Data Engineering Fundamentals 1 BT11031 – 4 ECTS	Data Engineering Fundamentals 2 BT11032 – 4 ECTS		Introduction to IT-Security BT11321 – 2 ECTS	Specialist optional module 3 2 ECTS		Specialisation 3.1 BT14x05 – 4 ECTS
Linear Algebra for Data Engineering BZG1167 – 4 ECTS	Analysis for Data Engineering BZG1168 – 4 ECTS	Applied Statistics BZG1168 – 4 ECTS	Probability BZG1169 – 4 ECTS	Information Technology Law BT11211 – 2 ECTS	Specialist optional module 4 2 ECTS	Specialist optional module 6 2 ECTS	
Communications 1 BZG3110 – 2 ECTS	Communications 2 BZG3111 – 2 ECTS	English 1 BZG34x1 – 2 ECTS	English 2 BZG34x2 – 2 ECTS	Discrete Mathematics BZG1165 – 4 ECTS	Specialist optional module 5 2 ECTS	Specialist optional module 7 2 ECTS	Specialisation 3.2 BT14x06 – 4 ECTS
Special Week 1 BT15204 – 2 ECTS		Special Week 2 BT15207 – 2 ECTS			Compulsory-elective module 1 2 ECTS**	Specialist optional module 8 2 ECTS	
				Special Week 3 BT15208 – 2 ECTS	Compulsory-elective module 2 2 ECTS**	Compulsory-elective module 3 2 ECTS**	Compulsory-elective module 4 2 ECTS**

Module subjects

Project / Internship

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

* Work-study modules (BB modules) for professionals in relevant jobs, with certificate. BT130*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)

** Work-study modules (for professionals in relevant jobs, with certificate).

*** Work-study Bachelor's degree programme

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

Subject to change.



BSc Data Engineering curriculum Full-time

Status in June 2023

1 st semester	2 nd semester	3 rd semester	4 th semester	5 th semester	6 th semester
Project and Training 1 BT13001 – 6 ECTS	Project and Training 2 BT13011 – 6 ECTS	Project and Training 3 BT13023 – 6 ECTS	Project 1 BT13031 – 6 ECTS	Project 2 BT13041 – 6 ECTS	Bachelor-Thesis BT13051 – 12 ECTS
Programming 1 with Java BT1001 – 4 ECTS or Kotlin BT1002 – 4 ECTS	Programming 2 with Java BT1011 – 4 ECTS or Kotlin BT1012 – 4 ECTS	Introduction to IT-Security BT11321 – 2 ECTS	Specialisation 1.1 BT14x01 – 4 ECTS	Specialisation 2.1 BT14x03 – 4 ECTS	
Computing Infrastructure BT11022 – 2 ECTS	Programming with Python BT11013 – 4 ECTS	Software Engineering BT11121 – 4 ECTS	Specialisation 1.2 BT14x02 – 4 ECTS	Specialisation 2.2 BT14x04 – 4 ECTS	
Compulsory-elective module BT11111 – 2 ECTS		Data Engineering Fundamentals 2 BT11032 – 4 ECTS			Specialisation 3.1 BT14x05 – 4 ECTS
Databases BT11311 – 4 ECTS	Data Engineering Fundamentals 1 BT11031 – 4 ECTS		Connected Computing: Dev-Ops and Cloud BT11004 – 4 ECTS	Interaction Design BT11101 – 2 ECTS	
		Machine Learning Foundations 3 BT11043 – 4 ECTS		Information Technology Law BT11211 – 2 ECTS	Specialisation 3.2 BT14x06 – 4 ECTS
Machine Learning Foundations 1 BT11041 – 4 ECTS	Machine Learning Foundations 2 BT11042 – 4 ECTS		Web Programming with Python BT11302 – 4 ECTS	Specialist optional module 3 2 ECTS	
		Discrete Mathematics 2 BZG1165 – 4 ECTS		Specialist optional module 4 2 ECTS	Specialist optional module 6 2 ECTS
Linear Algebra BZG1167 – 4 ECTS	Analysis for Data Engineering BZG1168 – 4 ECTS		Specialist optional module 1 2 ECTS	Specialist optional module 5 2 ECTS	Specialist optional module 7 2 ECTS
		Applied Statistics BZG1166 – 4 ECTS	Specialist optional module 2 2 ECTS	Compulsory-elective module 2 2 ECTS	Specialist optional module 8 2 ECTS
Communications 1 BZG3110 – 2 ECTS	Probability BZG1169 – 2 ECTS		Compulsory-elective module 1 2 ECTS	Special Week 3 BT15208 – 2 ECTS	Compulsory-elective module 3 2 ECTS
Special Week 1 BT15204 – 2 ECTS	Communications 2 BZG3111 – 2 ECTS	Special Week 2 BT15207 – 2 ECTS	English 1 BZG34x1 – 2 ECTS	English 2 BZG34x2 – 2 ECTS	Compulsory-elective module 4 2 ECTS

Module subjects

- Project / Internship (42 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 or in French/English.

Subject to change.