

Bachelor of Science in Data Science

Programme details:

The programme consists of core (required) and elective modules as indicated below. Some modules may have pre-requisites (i.e., may require students to pass another module or set of modules first). Some modules may be co-requisite (such modules are required to be taken together). The number at the end of the module in parenthesis indicates the credit load of the module. 1 credit is equal to 10 hours of learning (guided, in-class and independent combined); therefore a 10-credit module requires an average of 100 hours of learning from the student.

Core modules:

- E5-PHY-22: Physics (12)
- E5-PCA-22: Pre-Calculus (24)
- C6-CSA-22: Computer Architecture (12)
- D5-WCO-22: Writing and Communication (12)
- C5-PS1-22: Programming Skill 1 (6)
- B5-BEN-22: Business and Entrepreneurship (30)
- C6-OPS-22: Operating Systems (12)
- E6-CAL-22: Calculus (12)
- C6-PS2-22: Programming Skill 2 (12)
- C6-COM-22: Computer Networks (12)
- C7-DBS-22: Databases (12)
- E6-DMC-22: Discrete Mathematics for Computer Science (12)
- C6-DSA-22: Data Structures and Algorithms (12)
- C7-DMI-22: Data Mining (12)
- C7-REM-22: Research Methodology (12)
- E7-PAS-22: Probability and Statistics (12)
- C7-PS3-22: Programming Skill 3 (12)
- C7-DVI-22: Data Visualization (12)
- C7-PMA-22: Project Management (12)
- E7-LAL-22: Linear Algebra (12)
- C7-MLE-22: Machine Learning (24)
- C7-ARI-22: Artificial Intelligence (12)
- C7-DAN-22: Data Analytics (12)
- C7-PPR-22: Industrial Attachment (60)
- E7-MUS-22: Multivariate Statistics (12)
- C7-IPD-22: Individual Project in Data Science (24)
- C7-PIE-22: Professional Issues and Ethics (12)

Elective Modules

- D5-BIO-22: Biology 1 (12)
- E5-CHE-22: Chemistry 1 (12)
- C6-CLC-22: Cloud Computing (9)
- C6-EM1-22: Emerging Technologies 1 (9)
- C6-CRG-20: Cryptography (9)
- C6-MOS-22: Mobile Operating Systems (9)
- C6-CRG-20: Cryptography (9)
- C6-MOS-22: Mobile Operating Systems (9)
- C6-ACN-22: Advanced Computer Networks (9)
- C6-OPT-22: Optimization (9)
- D7-CBI-22: Computational Biology (9)
- B7-CFI-22: Computational Finance (9)
- E7-COS-22: Computational Statistics (9)
- C7-EM2-22: Emerging Technologies (9)
- C7-NLP-22: Nature Language Processing (9)
- C7-BDD-22: Big Data Databases (9)
- C7-AAN-22: Algorithm Analysis (9)
- C7-BDT-22: Big Data Technologies (9)
- C7-AAI-22: Advanced Artificial Intelligence (9)

Recommended full-time study path (4 years):

Semester 1:

- E5-PHY-22, E5-PCA-22, C6-CSA-22, D5-WCO-22

Semester 2:

- C5-PS1-22, B5-BEN-22, C6-OPS-22 Select one (D5-BIO-22, E5-CHE-22)

Semester 3:

- E6-CAL-22, C6-PS2-22, C6-COM-22, C7-DBS-22 Select one (C6-CLC-22, C6-EM1-22)

Semester 4:

- E6-DMC-22, C6-DSA-22, C7-DMI-22, C7-REM-22 Select one (C6-CRG-20, C6-MOS-22) Select one (C6-ACN-22, C6-OPT-22)

FACULTY OF ENGINEERING AND TECHNOLOGY (CONTINUED)

Semester 5:

- E7-PAS-22, C7-PS3-22, C7-DVI-22, C7-PMA-22, E7-LAL-22

Semester 6:

- C7-MLE-22, C7-ARI-22, C7-DAN-22
Select one (D7-CBI-22, B7-CFI-22, E7-COS-2)

Semester 7:

- C7-PPR-22

Semester 8:

- E7-MUS-22, C7-IPD-22, C7-PIE-22
Select one (C7-BDD-22, C7-AAN-22)
Select one (C7-BDT-22, C7-AAI-2)

Admissions Criteria

- 1)** Certificate IV, NCQF level 4 (General Education or TVET) or equivalent.
- 2)** Access through Recognition of Prior Learning (RPL) and Credit Accumulation and Transfer (CAT) will be provided through ETP policies in line with National RPL and CAT Policies
- 3)** For enquiries and more information please visit our website: **www.bothouniversity.com**



Program Version Course List



14-07-2022

<u>Course Code</u>	<u>Course Description</u>	<u>Credits</u>	<u>Elective List</u>	<u>Pre-Requisite List</u>	<u>Co-Requisite List</u>	<u>PreElect</u>	<u>ResourceList</u>
DSC-8BO-22	Bachelor of Science in Data Science			Weeks:192.00 Credits: 495.00			
Core							
B5-BEN-22	Business and Entrepreneurship	30.00					
C5-PS1-22	Programming Skill 1	6.00					
C6-COM-22	Computer Networks	12.00					
C6-CSA-22	Computer Architecture	12.00					
C6-OPS-22	Operating Systems	12.00					
C7-DBS-22	Databases	12.00					
C7-PIE-22	Professional Issues and Ethics	12.00					
C7-PPR-22	Industrial Attachment	60.00					
C7-REM-22	Research Methodology	12.00					
D5-WCO-22	Writing and Communication	12.00					
E5-PCA-22	Pre-Calculus	24.00					
E5-PHY-22	Physics	12.00					
C6-DSA-22	Data Structures and Algorithms	12.00		C5-PS1-22 - Programming Skill 1			
C6-PS2-22	Programming Skill 2	12.00		C5-PS1-22 - Programming Skill 1			
C7-DMI-22	Data Mining	12.00		C5-PS1-22 - Programming Skill 1			
C7-DVI-22	Data Visualization	12.00		C6-DSA-22 - Data Structures and Algorithms			
C7-MLE-22	Machine Learning	24.00		C6-DSA-22 - Data Structures and Algorithms			
C7-PS3-22	Programming Skill 3	12.00		C6-PS2-22 - Programming Skill 2			
C7-DAN-22	Data Analytics	12.00		C7-DBS-22 - Databases			
C7-IPD-22	Individual Project in Data Science	24.00		C7-PMA-22 - Project Management			
C7-PMA-22	Project Management	12.00		C7-REM-22 - Research Methodology			

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E6-CAL-22	Calculus	12.00		E5-PCA-22 - Pre-Calculus			
E6-DMC-22	Discrete Mathematics for Computer Science	12.00		E5-PCA-22 - Pre-Calculus			
E7-LAL-22	Linear Algebra	12.00		E6-CAL-22 - Calculus			
C7-ARI-22	Artificial Intelligence	12.00		E6-DMC-22 - Discrete Mathematics for Computer Science			
E7-PAS-22	Probability and Statistics	12.00		E6-DMC-22 - Discrete Mathematics for Computer Science			
E7-MUS-22	Multivariate Statistics	12.00		E7-PAS-22 - Probability and Statistics			
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27		420.00					
<u>Elective</u>							
ELEC	Semester 2 Electives	12.00	D5-BIO-22 - Biology 1, E5-CHE-22 - Chemistry 1				
ELEC	Semester 3 Electives	9.00	C6-CLC-22 - Cloud Computing, C6-EM1-22 - Emerging Technologies				
ELEC	Semester 4 Elective 1	9.00	C6-CRG-22 - Cryptography, C6-MOS-22 - Mobile Operating Systems			C5-PS1-22 - Programming Skill 1, C6-OPS-22 - Operating Systems	
ELEC	Semester 4 Elective 2	9.00	C6-ACN-22 - Advanced Computer Networks, E6-OPT-22 - Optimization			C6-COM-22 - Computer Networks, E6-DMC-22 - Discrete Mathematics for Computer Science	
ELEC	Semester 6 Elective 1	9.00	D7-CBI-22 - Computational Biology, B7-CFI-22 - Computational Finance, E7-COS-22 - Computational Statistics				

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ELEC	Semester 6 Elective 2	9.00	C7-EM2-22 - Emerging Technologies 2, C7-NLP-22 - Nature Language Processing			C6-PS2-22 - Programming Skill 2	
ELEC	Semester 8 Elective 1	9.00	C7-BDD-22 - Big Data Databases, C7-AAN-22 - Algorithm Analysis			C6-DSA-22 - Data Structures and Algorithms	
ELEC	Semester 8 Elective 2	9.00	C7-BDT-22 - Big Data Technologies, C7-AAI-22 - Advanced Artificial Intelligence			C7-ARI-22 - Artificial Intelligence	
8		75.00					
35		495.00					