

B.Eng (Hons) in Bioengineering with 2nd Major in Data Analytics

with Professional Internship

AY2026- 2027 Intake (BEDA)

Programme	Year of Study	Number of Academic Units (AU)						
		Major Requirement		Interdisciplinary Collaborative Core			Broadening and Deepening Electives (BDE)	Total
		Core (C)	Major PE (MPE)	Common Core (CC)	Professional Series (PS)	Care, Serve, Learn (CSL)		
Bioengineering with Second Major in Data Analytics	1	21/22* [4]		7		3		31/32* [4]
	2	27 [3]	3 [3]	7	3			40 [6]
	3	13			13		3	29
	4	11	9				19	39
	Total	72/73* [7]	12 [3]	14	16	3	22	139/140* [10]

Category		AU	Total AU
Interdisciplinary Collaborative Core (ICC)	Common Core (CC)		
	CC0001 Inquiry and Communication in the Interdisciplinary World	2	14
	CC0003 Ethics & Civics in a Multi-Cultural World	2	
	CC0006 Sustainability: Society, Economy & Environment	3	
	CC0007 Science & Technology for Humanity	3	
	CC0015 Health & Wellbeing	2	
	ML0004 Career Design & Workplace Readiness in a Dynamic World	2	
	Professional Series (PS)		
	CB0494 Introduction to Data Science and Artificial Intelligence	3	16
	HW0288 Engineering Communication	2	
	MLXXXX Professional Preparation	1	
	BG3920 Professional Internship	10	
	Care, Service, Learn (CSL)		
	Service Learning	3	3
Major Requirement	BIE Core		
	EG1001 Engineers In Society	2	12
	MH1810 Math 1	3	
	PH1011* Physics	3	
	CB1102 Introduction to Chemistry, Chemical Engineering and Biomedical Engineering	1	
	CB1103 Organic Chemistry For Engineers	3	

Major Requirement	CB1117^	Engineering Mathematics	4	60
	BG1141	Cellular & Molecular Biology for Bioengineers	3	
	BG1801	Bioengineering Lab 1A	1	
	BG1802	Bioengineering Lab 1B	1	
	CB2002	Introduction to Chemical and Biological Safety	1	
	BG2103	Biosignal Processing	3	
	BG2104	Electronics for Biomedical Engineering	3	
	BG2110	Bioelectricity	3	
	BG2119	Anatomy and Physiology	3	
	BG2131	Biomaterials	3	
	BG2142	Biological Thermodynamics	3	
	BG2209	Mechanics for Bioengineers	3	
	BG2211^	Introduction to Computational Thinking	3	
	BG2801	Bioengineering Lab 2A	1	
	BG2802	Bioengineering Lab 2B	1	
	BG3102	Control in Biosystems	3	
	BG3104	Biomedical Imaging	3	
	BG3105	Biomedical Instrumentation	3	
	BG3112	Cardiovascular Engineering	3	
	BG3801	Bioengineering Lab 3	1	
	BG4104	Machine Learning and Optimization for Bioengineers	3	
		BG4801 Final Year Project	8	
		OR BG4123 Capstone Project		
	BIE Major Prescribed Electives (MPE)			12
	CH2010^	Engineering Statistics	3	
		BIE PE	9	

2nd Major in Data Analytics (BDEs)	Data Analytics Compulsory Courses		
	1) Linear Algebra: CB1117 Engineering Mathematics	NA	
	2) Computing Skills: BG2211 Introduction to Computational Thinking	NA	
	3) Probability and Statistics: CH2010 Engineering Statistics	NA	13
	4) Algorithms: MH1403 Algorithms & Computing	3	
	5) Database: IE4791 Database Systems	3	
	6) Data Mining: IE4483 Artificial Intelligence & Data Mining	3	
	7) Data Visualisation/Management: BC2406 Analytics I: Visual and Predictive Techniques	4	
2nd Major in Data Analytics (BDEs)	Electives		
	CH4244 Numerical Method and Data Analytics	3	
	CB4246 Optimisation Using Artificial Intelligence	3	
	CB4247 Statistics & Computational Inference to Big Data	3	
	<i>Other Available Electives:</i>		
	IE4414 Machine Learning Design & Application (3AU)		9
	IE4497 Pattern Recognition & Machine Learning (3AU)		
	MA4830 Real Time Software for Mechatronics System (3AU)		
	MA4832 Microprocessor System (3AU)		
	MS4671 Introduction to Materials Simulation (3AU)		
Total			139

140*

**Students without 'A' Level/Senior High School Physics will take 'PH1012 Physics A' (4AU)*

^Counted towards 2nd Major in Data Analytics requirement (total 10AU)

[] AU of courses that could be used to fulfil Core/MPE requirement and 2nd Major requirement concurrently

B.Eng. (Bioengineering) with 2nd Major in Data Analytics

Suggested Study Plan for AY2026-2027 intake (BEDA)

with Professional Internship**Year 1 Semester 1**

Course		Type	AU
CB1102	Introduction to Chemistry, Chemical Engineering and Biomedical Engineering	C	1
BG1141	Cellular & Molecular Biology for Bioengineers	C	3
BG1801	Bioengineering Lab 1A	C	1
MH1810	Math 1	C	3
PH1011	Physics	C	3
	<u>or</u>		
PH1012	Physics A (*For students without 'A' Level Physics)	C	4
CC0001	Inquiry and Communication in the Interdisciplinary World	CC	2
			13

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14**Year 2 Semester 1**

Course		Type	AU
BG2119	Anatomy and Physiology	C	3
BG2131	Biomaterials	C	3
BG2142	Biological Thermodynamics	C	3
^BG2211	Introduction to Computational Thinking	C	3
BG2801	Bioengineering Lab 2A	C	1
CC0003	Ethics & Civics in a Multi-Cultural World	CC	2
^CH2010	Engineering Statistics	MPE	3
			18

Year 3 Semester 1

Course		Type	AU
BG3102	Control in Biosystems	C	3
BG3104	Biomedical Imaging	C	3
BG3105	Biomedical Instrumentation	C	3
BG3112	Cardiovascular Engineering	C	3
BG3801	Bioengineering Lab 3	C	1
HW0288	Engineering Communication	PS	2
MLXXXX	Professional Preparation	PS	1
CH4244	Numerical Method and Data Analytics	BDE	3
			19

Year 4 Semester 1

Course		Type	AU
BG4104	Final Year Project <u>OR</u> Capstone Project	C	4
	Machine Learning and Optimization for Bioengineers	C	3
	BIE PE 2	MPE	3
	BIE PE 3	MPE	3
IE4483	Artificial Intelligence & Data Mining	BDE	3
BC2406	Analytics I: Visual and Predictive Techniques	BDE	4
			20

Year 1 Semester 2

Course		Type	AU
CB1103	Organic Chemistry For Engineers	C	3
^CB1117	Engineering Mathematics	C	4
BG1802	Bioengineering Lab 1B	C	1
EG1001	Engineers in Society	C	2
CC0007	Science & Technology for Humanity	CC	3
ML0004	Career Design & Workplace Readiness in a Dynamic World	CC	2
	Service Learning	CSL	3
			18

Year 2 Semester 2

Course		Type	AU
BG2103	Biosignal Processing	C	3
BG2104	Electronics for Biomedical Engineering	C	3
BG2110	Bioelectricity	C	3
BG2209	Mechanics for Bioengineers	C	3
BG2802	Bioengineering Lab 2B	C	1
CB2002	Introduction to Chemical and Biological Safety	C	1
CC0006	Sustainability: Society, Economy & Environment	CC	3
CC0015	Health & Wellbeing	CC	2
CB0494	Introduction to Data Science and Artificial Intelligence	PS	3
			22

Year 3 Semester 2

Course		Type	AU
BG3920	Professional Internship	PS	10
			10

Year 4 Semester 2

Course		Type	AU
	Final Year Project <u>OR</u> Capstone Project	C	4
	BIE PE 4	MPE	3
MH1403	Algorithms & Computing	BDE	3
IE4791	Database Systems	BDE	3
CB4246	Optimisation Using Artificial Intelligence	BDE	3
CB4247	Statistics & Computational Inference to Big Data	BDE	3
			19

Total (AU)**139****140***

*Students without 'A' Level/Senior High School Physics will take 'PH1012 Physics A' (4AU)

^Counted towards 2nd Major in Data Analytics requirement (total 10AU)