B.Eng (Hons) in Bioengineering with 2nd Major in Future Foods

with Professional Internship

AY2024 - 2025 Intake onwards (BEFF)

		Number of Academic Units (AU)									
Programme	Year of	Major Red	quirement		ciplinary ative Core	Broadening and					
	Study	Core (C)	Major PE (MPE)	Common Core (CC)	Foundational Core (FC)	Dooponing	Total				
	1	21		9			30				
Bioengineering with Second	2	29	3 [3]	8	3	3	46				
Major in FF_	3	0			10	12	22				
Track 1 (Global Immersion in	4	27	3 [3]		2	9	41				
WUR)	Total	77	6 [6]	17	15	24	139				

140*

		Number of Academic Units (AU)								
Programme	Year of Study	Major Red	quirement	Interdisc	ciplinary	Broadening	Total			
		Core (C)	Major PE (MPE)	Common Core (CC)	Foundation al Core (FC)	and Deepening Electives (BDE)				
	1	21		9			30			
Bioengineering	2	28	3 [3]	8	3	3	43			
with Second Major in	3	13			12	6	31			
FF_Track 2 (NTU Based)	4	17	3 [3]			15	35			
(NTO Dased)	Total	79	6 [6]	17	15	24	139			

140*

B.Eng (Hons) in Bioengineering with 2nd Major in Future Foods

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AY2024 - 2025 Intake onwards (BEFF)

Category			AU	Total AU
	Common	Core (University-level)		
	CC0001 Ir World	nquiry and Communication in the Interdisciplinary	2	
	CC0002 N	lavigating the Digital World	2	
	CC0003 E	thics & Civics in a Multi-Cultural World	2	
	CC0005 H	lealthy Living & Wellbeing	3	17
Interdisciplinary	CC0006 S	ustainability: Society, Economy & Environment	3	
Collaborative	CC0007 S	cience & Technology for Humanity	3	
Core (ICC)	ML0004 C Future Wo	areer and Entrepreneurial Development for the orld	2	
		onal Core (College-level) Engineering Communication	2	
	1	ntroduction to Data Science and Artificial		15
	Intelligenc		3	15
	BG3920 P	rofessional Internship	10	
	DIE O			
	BIE Core EG1001	Engineers In Society	2	
	MH1810	Math 1	3	
	PH1011*	Physics	3	
	CB1102	Introduction to Chemical and Biomedical Engineering	1	
	CB1103	Organic Chemistry For Engineers	3	
Major	CB1117	Engineering Mathematics Cellular & Molecular Biology for Bioengineers	4 3	
Major Requirement	BG1141 BG1801	Bioengineering Lab 1A	1	36
	BG1802	Bioengineering Lab 1B	1	
	BG2103	Signal Processing in Biosystems	3	
	BG2104	Electronics for Biomedical Engineering	3	
	BG2110	Bioelectricity	3	
	BG2119	Anatomy and Physiology Biomaterials	3	
	BG2131	Diumateriais	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	41
 Major	BG3105	Biomedical Instrumentation	3	
Requirement	BG3112	Cardiovascular Engineering	3	
	BG3801	Bioengineering Lab 3	1	
	BG4104	Machine Learning and Optimization for Bioengineers	3	
	BG4122	Medical Device Design	6	
	BG4801	Final Year Project	8	
	BIE Major	Prescribed Electives (MPE)		
	CH5220^	Food Standard - Food Safety & Risk Assessment	3^	6
	CH5222^	Future Foods - Introduction to Advanced Meat	3^	Ü
	FF Core C	Courses		
	CH5210	Food Process Technologies and New Production Systems	3	
	CH5211	Data Analytics in Food Systems	3	
2nd Major in	CH5220^	Food Standard - Food Safety & Risk Assessment	_	
Future Foods	CH5222^	Future Foods - Introduction to Advanced Meat	_	24
(BDEs)	CM5101	Food Chemistry & Nutrition	3	
	Electives			
	4 WUR EI	12		
	1 NTU Ele	ective	3	
Total	1			139
IJIAI				140*

140*

^{*}Students without 'A' Level Physics will take 'PH1012 Physics A' (4AU).

[^]Counted towards 2nd Major in FF requirement (total 6AU)

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

	Bioengineering) with 2nd Major in Future Foods							
Track 1 (0	d Study Plan for AY2024-2025 intake (BEFS) Global Immersion in WUR) essional Internship							
	emester 1	Tuno	AU		Year 1 Se Course	emester 2	Type	AU
CB1102	Introduction to Chemical and Biomedical	Type C	1	_	CB1103	Organic Chemistry For Engineers	Type C	3
BG1141	Engineering Cellular & Molecular Biology for Bioengineers	С	3		CB1117	Engineering Mathematics	С	4
BG1801	Bioengineering Lab 1A	С	1		BG1802	Bioengineering Lab 1B	С	1
		С	3				С	
MH1810 PH1011	Math 1 Physics	С	3		EG1001 CC0003	Engineers in Society Ethics & Civics in a Multi-Cultural World	CC	2
FHIOTI	<u>or</u>	C	3		CC0005	Healthy Living & Wellbeing	CC	3
PH1012	Physics A (* For students without 'A' Level Physics)	С	4					
CC0001	Inquiry and Communication in the Interdisciplinary World	СС	2					
CC0002	Navigating the Digital World	СС	2					
			15	_ ₁₆				15
Year 2 Se	emester 1				Year 2 Se	emester 2		
Course BC2110	Anatomy and Physiology	Type C	AU 3	_	Course BG2103	Signal Processing in Biosystems	Type C	AU 3
BG2119 BG2131	Biomaterials	С	3		BG2103 BG2104		С	3
BG2142		С	3		BG2104 BG2110	Electronics for Biomedical Engineering	С	3
BG2142 BG2211	Biological Thermodynamics Introduction to Computational Thinking	C	3		BG2110 BG2209	Bioelectricity Mechanics for Bioengineers	C	3
BG2801	Bioengineering Lab 2A	С	1		BG2802	Bioengineering Lab 2B	С	1
BG3104	Biomedical Imaging	С	3		CC0007	Science & Technology for Humanity	CC	3
CC0006	Sustainability: Society, Economy & Environment	СС	3		CB0494	Introduction to Data Science and Artificial Intelligence	FC	3
ML0004	Career and Entrepreneurial Development for the Future World	СС	2		^CH5220	Food Standard - Food Safety and Risk Assessment	MPE	3
CM5101	Food Chemistry & Nutrition	BDE	3			Assessment		
			24	_				22
Year 3 Se	emester 1				Year 3 Se	emester 2		
Course		Туре	AU	_	Course		Туре	AU
	FF WUR Elective 1 FF WUR Elective 2	BDE BDE	3 3		BG3920	Professional Internship	FC	10
	FF WUR Elective 3	BDE	3					
	FF WUR Elective 4	BDE	3					
			12					10
	emester 1				Year 4 Se	emester 2		
Course BG3102	Control in Biosystems	Type C	AU 3	_	Course BG4122	Medical Device Design	Type C	AU 3
	Biomedical Instrumentation	С	3		BG4801	Final Year Project	С	4
BG3105		С	3		HW0288	Engineering Communication	FC	2
BG3105 BG3112								
BG3105 BG3112		С	1		CH5211	Data Analytics in Food Systems	BDE	3
BG3105 BG3112 BG3801	Cardiovascular Engineering Bioengineering Lab 3 Machine Learning and Optimization for				CH5211 ^CH5222	Future Foods Introduction to Advanced	BDE MPE	3
BG3105 BG3112 BG3801 BG4104	Cardiovascular Engineering Bioengineering Lab 3	С	1			Future Foods - Introduction to Advanced		
BG3102 BG3105 BG3112 BG3801 BG4104 BG4122 BG4801	Cardiovascular Engineering Bioengineering Lab 3 Machine Learning and Optimization for Bioengineers	C C	1			Future Foods - Introduction to Advanced Meet Alternative	MPE	3
BG3105 BG3112 BG3801 BG4104 BG4122 BG4801	Cardiovascular Engineering Bioengineering Lab 3 Machine Learning and Optimization for Bioengineers Medical Device Design	C C C	1 3 3			Future Foods - Introduction to Advanced Meet Alternative	MPE	3
BG3105 BG3112 BG3801 BG4104 BG4122	Cardiovascular Engineering Bioengineering Lab 3 Machine Learning and Optimization for Bioengineers Medical Device Design Final Year Project Food Process Technologies and New	C C C	1 3 3 4			Future Foods - Introduction to Advanced Meet Alternative	MPE	3

^{*}Students without 'A' Level Physics will take 'PH1012 Physics A' (4AU). ^Counted towards 2nd Major in FF requirement (total 6U)

Suggeste Track 2 (N	Bioengineering) with 2nd Major in Future Foods d Study Plan for AY2024-2025 intake (BEFF) NTU Based) essional Internship							
Year 1 Se	emester 1	Туре	AU		Year 1 Se	emester 2	Туре	AU
CB1102	Introduction to Chemical and Biomedical Engineering	С	1	_	CB1103	Organic Chemistry For Engineers	С	3
BG1141	Cellular & Molecular Biology for Bioengineers	С	3		CB1117	Engineering Mathematics	С	4
BG1801	Bioengineering Lab 1A	С	1		BG1802	Bioengineering Lab 1B	С	1
MH1810	Math 1	С	3		EG1001	Engineers in Society	С	2
PH1011	Physics	С	3		CC0003	Ethics & Civics in a Multi-Cultural World	CC	2
PH1012	or Physics A (* For students without 'A' Level Physics)	С	4		CC0005	Healthy Living & Wellbeing	CC	3
CC0001	Inquiry and Communication in the	СС	2					
CC0002	Interdisciplinary World Navigating the Digital World	СС	2					
			15	_* 16				15
Year 2 Se	emester 1				Year 2 Se	emester 2		
Course		Туре	AU	_	Course		Туре	AU
BG2119	Anatomy and Physiology	С	3		BG2103	Signal Processing in Biosystems	С	3
BG2131	Biomaterials	С	3		BG2104	Electronics for Biomedical Engineering	С	3
BG2142 BG2211	Biological Thermodynamics Introduction to Computational Thinking	C C	3 3		BG2110 BG2209	Bioelectricity Mechanics for Bioengineers	C C	3 3
BG2801	Bioengineering Lab 2A	С	1		BG2802	Bioengineering Lab 2B	С	1
CC0006	Sustainability: Society, Economy & Environment	СС	3		CC0007	Science & Technology for Humanity	CC	3
ML0004	Career and Entrepreneurial Development for the Future World	СС	2		CB0494	Introduction to Data Science and Artificial Intelligence	FC	3
CM5101	Food Chemistry & Nutrition	BDE	3		CH5220^	Food Standard - Food Safety and Risk Assessment	MPE	3
			21	_				22
Year 3 Se Course	emester 1	Type	AU		Year 3 Se	emester 2	Туре	AU
BG3102	-	С	3	_	BG3920	Professional Internship	FC	10
BG3104 BG3105	Biomedical Imaging Biomedical Instrumentation	C C	3 3					
BG3112	Cardiovascular Engineering	C	3					
BG3801	Bioengineering Lab 3	С	1					
HW0288	Engineering Communication	FC	2					
	FF NTU Elective 1 FF NTU Elective 2	BDE BDE	3 3					
			21	_				10
Year 4 Se Course	emester 1	Туре	AU		Year 4 Se Course	emester 2	Type	AU
BG4104	Machine Learning and Optimization for	C	3		BG4122	Medical Device Design	C	3
BG4122	Bioengineers Medical Device Design	С	3		BG4801	Final Year Project	С	4
BG4801	Final Year Project	С	4		CH5211	Data Analytics in Food Systems	BDE	3
	Food Process Technologies and New	DDE	2			Future Foods Introduction to Advanced		
CH5210	Production System	BDE	3		CH5222^	Meet Alternative FF NTU Elective 5	MPE BDE	3 3
	FF NTU Elective 3 FF NTU Elective 4	BDE BDE	3 3					
			19	_	-			16
			-			Total (AU)		139
								140*

^{*}Students without 'A' Level Physics will take 'PH1012 Physics A' (4AU). ^Counted towards 2nd Major in FST requirement (total 6U)