B.Eng (Hons) in Chemical and Biomolecular Engineering with 2nd Major in Future Foods

Track 1 (Global Immersion in WUR)

<u>with Professional Internship</u>

AY2025 - 2026 Intake onwards (CBFF)

		Number of Academic Unit (AU)								
	Year of	Major Re	quirement		erdisciplina aborative (-	Broadening and			
Programme	Study	Core (C)	Major PE (MPE)	Common Core (CC)	Professio nal Series (PS)	Care, Serve, Learn (CSL)	Deepening Electives (BDE)	Total		
Chemical &	1	24		6				30		
Biomolecular Engineering with	2	30	3 [3]	8	1		3	45		
Second Major in	3				10		12	22		
FF_ Track 1 (Global	4	23	3 [3]		5	3	9	43		
Immersion in WUR)	Total	77	6 [6]	14	16	3	24	140		

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		Number of Academic Unit (AU)							
		Major Requirement		Inte	erdisciplina	ary	Broadening		
Programme	Year of Study	Core (C)	Major PE (MPE)	Common Core (CC)	Professio nal Series (PS)	Care, Serve, Learn (CSL)	and Deepening Electives (BDE)	Total	
	1	24		6				30	
Chemical & Biomolecular	2	28	3 [3]	8			3	42	
Engineering with Second Major in	3	17			13			30	
FF_ Track 2 (NTU Based)	4	8	3 [3]		3	3	21	38	
(ivi o baseu)	Total	77	6 [6]	14	16	3	24	140	

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Category			AU	Total AU
	Commor	Core (CC)		
	CC0001	Inquiry and Communication in the Interdisciplinary World	2	
	CC0003 Ethics & Civics in a Multi-Cultural World		2	
	CC0006	CC0006 Sustainability: Society, Economy & Environment		14
	CC0007	Science & Technology for Humanity	3	
	CC0015 Health & Wellbeing		2	
Interdisciplinary Collaborative	ML0004	Career Design & Workplace Readiness in the V.U.C.A World	2	

OUIE (100)	Profession	onal Series (PS)		
	CB0494	Introduction to Data Science and Artificial Intelligence	3	
	HW0288	Engineering Communication	2	16
	MLXXXX	Professional Preparation	1	
	CH3920	Professional Internship	10	
	Care, Sei	rvice, Learn (CSL)		
		Service Learning	3	3
	CBE Core	e		
		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	
	CB1117	Engineering Mathematics	4	
	CB1131	Introduction to Biomolecular Engineering	3	
	CH1104	Materials & Energy Balance	3	
	CH1801	Chemical & Biomolecular Engineering Laboratory 1A	1	
	CH1802	Chemical & Biomolecular Engineering Laboratory 2	1	
		Engineering Statistics	3	
		Fluid Systems	3	
		Introduction to Computational Thinking Thermodynamics	3 3	77
		Chemical Reaction Engineering	3	77
Major Requirement	CH2114	Heat & Mass Transfer in Chemical and	3	
rtoquiroment	CH2123	Biological Systems Chemical Thermodynamics	3	
	CH2151	Unit Operations: Fluid-Solid Seperation	3	
	CH2801	Chemical & Biomolecular Engineering Laboratory 2A	2	
	CH2802	Chemical & Biomolecular Engineering Laboratory 2B	2	
	CH3104	Biochemical Engineering	3	
	CH3109	Decision Tools for Business & Engineering	3	
	CH3111	Process Control and Dynamics	3	
	CH3121 CH3140	Chemical, Biological & Plant Safety Unit Operations: Fluid-Fluid Separation	2 3	
		Chemical & Biomolecular Engineering		
	CH3802	Laboratory 5	3	
	CH4801	Final Year Design Project	8	
	CBF Maid	or Prescribed Electives (MPE)		
	1	Food Standard Food Safety & Dick	0.4	•
	CH5220^	Assessment	3^	6
	CH5222^	Future Foods - Introduction to Advanced Meat	3^	

CH5210 Food Process Technologies and New Production Systems CH5211 Data Analytics in Food Systems CH5220^ Food Standard - Food Safety & Risk Assessment CH5222^ Future Foods - Introduction to Advanced Meat CM5101 Food Chemistry & Nutrition Electives Track 1 - Global Immersion in WUR: #5 WUR Electives + 1 NTU Elective OR Track 2 - NTU Based: 5 NTU Electives	F	FF Core Courses		
CH5220^ Food Standard - Food Safety & Risk — Assessment — CH5222^ Future Foods - Introduction to Advanced Meat — CM5101 Food Chemistry & Nutrition — 3 Electives Track 1 - Global Immersion in WUR: #5 WUR Electives + 1 NTU Elective — 07 OR	C	1H5711)	3	
2nd Major in Future Foods (BDEs) CH5222^ Future Foods - Introduction to Advanced Meat CM5101 Food Chemistry & Nutrition Electives Track 1 - Global Immersion in WUR: #5 WUR Electives + 1 NTU Elective OR	C	CH5211 Data Analytics in Food Systems	3	
Future Foods (BDEs) CM5101 Food Chemistry & Nutrition Electives Track 1 - Global Immersion in WUR: #5 WUR Electives + 1 NTU Elective OR	C	1H522011	_	
Future Foods (BDEs) CM5101 Food Chemistry & Nutrition 3 Electives Track 1 - Global Immersion in WUR: #5 WUR Electives + 1 NTU Elective 000000000000000000000000000000000000	Major in	CH5222 [^] Future Foods - Introduction to Advanced Meat	_	
Track 1 - Global Immersion in WUR: #5 WUR Electives + 1 NTU Elective OR	· 16	CM5101 Food Chemistry & Nutrition	3	24
Elective OR		Electives		
			15	
	7			
otal	·			140

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

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

[#]Track 1 students are required to read 5 WUR electives but only 4 will be credit transferred to NTU [] AU of courses that could be used to fulfil Core/MPE requirment and 2nd Major requirment concurrently

1 1016	essional Internship							
ear 1 Se Course	emester 1	Туре	Year 1 Semester 2 Type AU Course					Al
B1102	Introduction to Chemical and Biomedical Engineering	С	1		CB1103	Organic Chemistry For Engineers	Type C	3
:B1131	Introduction to Biomolecular Engineering	С	3		CB1117	Engineering Mathematics	С	4
H1801	Chemical & Biomolecular Engineering	С	1		CH1104	Materials & Energy Balance	С	3
	Laboratory 1A					Chemical & Biomolecular Engineering		
ИН1810 РН1011	Math 1	C C	3		CH1802 EG1001	Laboratory 2 Engineers in Society	C C	2
ПОП	Physics <u>or</u>	C	3		CC0003	Ethics & Civics in a Multi-Cultural World	CC	2
PH1012	Physics A (* For students without 'A' Level Physics)	С	4		CC0015	Healthy Living & Wellbeing	CC	2
CC0001	Inquiry and Communication in the Interdisciplinary World	CC	2					
			13	* 14				17
rear 2 Se	emester 1				Year 2 Se	mester 2		
Course CH2103	Fluid Systems	Type C	AU 3		Course CH2112	Chemical Reaction Engineering	Type C	A l
CH2107	Introduction to Computational Thinking	С	3		CH2112	Heat & Mass Transfer in Chemical and	С	3
CH2108	Thermodynamics	С	3		CH2123	Biological Systems Chemical Thermodynamics	С	;
CH2010	Engineering Statistics	Č	3		CH2151	Unit Operations: Fluid-Solid Seperation	Ċ	3
CH2801	Chemical & Biomolecular Engineering Laboratory 2A	С	2		CH2802	Chemical & Biomolecular Engineering Laboratory 2B	С	2
H3121	Chemical, Biological & Plant Safety	С	2		CC0007	Science & Technology for Humanity	СС	3
C0006	Sustainability: Society, Economy & Environment	CC	3		CH5220^	Food Standard - Food Safety and Risk Assessment	MPE	3
/L0004	Career Design & Workplace Readiness in the V.U.C.A World	СС	2					
ИLXXXX	Professional Preparation	PS	1					
CM5101	Food Chemistry & Nutrition	BDE	3					
			25					2
ear 3 Se	emester 1 (Exchange in WUR)				Year 3 Sei	mester 2		
Course	FST WUR Elective 1	Type BDE	AU 3		Course CH3920	Professional Internship	Type PS	A
	FST WUR Elective 2	BDE	3		05020		. 5	
	FST WUR Elective 3 FST WUR Elective 4	BDE BDE	3 3					
	FST WUR Elective 5	BDE	-					
			12					1
	emester 1	T			Year 4 Sei	mester 2	T.	
		Type C	AU 3		Course CH4801	Final Year Design Project	Type C	A
ourse	Biochemical Engineering	J	3		CB0494	Introduction to Data Science and Artificial Intelligence	PS	3
CH3104	Biochemical Engineering Decision Tools for Business & Engineering	С	3		1114/0000	Engineering Communication	PS	2
H3104 H3109		C C	3		HW0288			
H3104 H3109 H3111	Decision Tools for Business & Engineering				CH5211	Data Analytics in Food Systems	BDE	;
CH3104 CH3109 CH3111 CH3140	Decision Tools for Business & Engineering Process Control and Dynamics	С	3			Data Analytics in Food Systems Future Foods - Introduction to Advanced Meet Alternative	BDE MPE	
CH3104 CH3109 CH3111 CH3140 CH3802	Decision Tools for Business & Engineering Process Control and Dynamics Unit Operations: Fluid-Fluid Separation Chemical & Biomolecular Engineering	C C	3		CH5211	Future Foods - Introduction to Advanced Meet		3
CH3104 CH3109 CH3111 CH3140 CH3802	Decision Tools for Business & Engineering Process Control and Dynamics Unit Operations: Fluid-Fluid Separation Chemical & Biomolecular Engineering Laboratory 5	с с с	3 3		CH5211	Future Foods - Introduction to Advanced Meet Alternative	MPE	;
Course CH3104 CH3109 CH3111 CH3140 CH3802 CH4801	Decision Tools for Business & Engineering Process Control and Dynamics Unit Operations: Fluid-Fluid Separation Chemical & Biomolecular Engineering Laboratory 5 Final Year Design Project	c c c	3 3 3 4		CH5211	Future Foods - Introduction to Advanced Meet Alternative	MPE	3
CH3104 CH3104 CH3109 CH3111 CH3140 CH3802 CH4801	Decision Tools for Business & Engineering Process Control and Dynamics Unit Operations: Fluid-Fluid Separation Chemical & Biomolecular Engineering Laboratory 5 Final Year Design Project Service Learning Food Process Technologies and New Production	C C C C CSL	3 3 3 4 3		CH5211	Future Foods - Introduction to Advanced Meet Alternative	MPE	3 3

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

	hemical & Biomolecular Engineering) with 2nd M	lajor Futur	e Foods	·				
	ITU Based) d Study Plan for AY2025-2026 intake (CBFF)							
00	ssional Internship							
Year 1 Se	mester 1				Year 1 Se	mester 2		
Course		Туре	AU	_	Course	<u>-</u>	Туре	AU
CB1102	Introduction to Chemical and Biomedical Engineering	С	1	_	CB1103	Organic Chemistry For Engineers	С	3
CB1131	Introduction to Biomolecular Engineering	С	3		CB1117	Engineering Mathematics	С	4
CH1801	Chemical & Biomolecular Engineering Laboratory 1A	С	1		CH1104	Materials & Energy Balance	С	3
MH1810	Math 1	С	3		CH1802	Chemical & Biomolecular Engineering Laboratory 2	С	1
PH1011	Physics <u>or</u>	С	3		EG1001 CC0003	Engineers in Society Ethics & Civics in a Multi-Cultural World	C CC	2 2
PH1012	Physics A (* For students without 'A' Level Physics)	С	4		CC0015	Healthy Living & Wellbeing	CC	2
CC0001	Inquiry and Communication in the Interdisciplinary World	CC	2					
			13	_* 14				17
Year 2 Se	mester 1				Year 2 Se	mester 2		
Tear 2 Se Course	illestel (Туре	AU		Course	mester 2	Туре	AU
CH2103	Fluid Systems	C	3	_	CH2112	Chemical Reaction Engineering	C	3
CH2107	Introduction to Computational Thinking	С	3		CH2114	Heat & Mass Transfer in Chemical and Biological Systems	С	3
CH2108	Thermodynamics	С	3		CH2123	Chemical Thermodynamics	С	3
CH2010	Engineering Statistics	С	3		CH2151	Unit Operations: Fluid-Solid Seperation	С	3
CH2801	Chemical & Biomolecular Engineering Laboratory 2A	С	2		CH2802	Chemical & Biomolecular Engineering Laboratory 2B Food Standard - Food Safety and Risk	С	2
CC0006	Sustainability: Society, Economy & Environment	CC	3		CH5220^	Assessment	MPE	3
ML0004	Career Design & Workplace Readiness in the V.U.C.A World	CC	2		CC0007	Science & Technology for Humanity	CC	3
CM5101	Food Chemistry & Nutrition	BDE	3					
			22	_				20
Year 3 Se	mester 1				Year 3 Se	mester 2		
Course		Type	AU	_	Course		Туре	AU
CH3104	Biochemical Engineering	С	3		CH3920	Professional Internship	PS	10
CH3109 CH3111	Decision Tools for Business & Engineering Process Control and Dynamics	C C	3 3					
CH3121	Chemical, Biological & Plant Safety	C	2					
CH3140	Unit Operations: Fluid-Fluid Separation	С	3					
CH3802	Chemical & Biomolecular Engineering	С	3					
MLXXXX	Laboratory 5 Professional Preparation	PS	1					
HW0288	Engineering Communication	PS	2					
			20	_				10
Year 4 Se	mester 1	T			Year 4 Se	mester 2	T	
Course		Туре	AU	_	Course		Туре	AU
CH4801	Final Year Design Project	С	4		CH4801	Final Year Design Project Introduction to Data Science and Artificial	С	4
	Service Learning	CSL	3		CB0494	Intelligence	PS	3
CH5210	Food Process Technologies and New Production System	BDE	3		CH5222^	Future Foods - Introduction to Advanced Meet Alternative	MPE	3
	FF NTU Elective 1	BDE	3		CH5211	Data Analytics in Food Systems	BDE	3
	FF NTU Elective 2	BDE	3			FF NTU Elective 4	BDE	3
	FF NTU Elective 3	BDE	3			FF NTU Elective 5	BDE	3
			19	_				19
			-			Total (AU)		140
								141*

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