B.Eng (Hons) in Chemical and Biomolecular Engineering CNYang Scholars Programme with 2nd Major in Data Analytics

AY2025 - 2026 Intake onwards (CBDA CNYSP)

					Number of Academic Units (AU) Interdisciplinary Collaborative Broadening				
Programme	Year of	Majo	r Require	ement	Interdis	sciplinary Coll Core	aborative	Broadening and	
	Study	School Core (C)	CNYang Core (C)	Major PE (MPE)	Common Core (CC)	Professional Series (PS)	Care, Serve, Learn (CSL)	Deepening Electives (BDE)	Total
	1	16 [4]	23		2				41
Chemical &	2	26 [6]	10		8		3		47
Biomolecular	3	25				6		3	34
Engineering	4	8		6		3		19	36
(CNYang)	Total	75 [10]	33	6	10	9	3	22	158

Category			AU	Total AU				
	Common	Core (CC)						
	CC0006 Sustainability: Society, Economy & Environment							
	CC0015		2					
		Career Design & Workplace Readiness in the V.U.C.A World	2	10				
	SP0061	Science & Technology for Humanity	3					
Interdisciplinary Collaborative	Professional Series (PS)							
	CB0494	3						
Core (ICC)		Professional Preparation	1	9				
		Professional Attachment	5					
	Care, Ser							
	ĺ	Tech-For-Good (T4G)	3	3				
	CBE Core							
	EG1001	Engineers In Society	2					
		Introduction to Chemical and Biomedical	_					
	CB1102	Engineering	1					
		Engineering Mathematics	4					
		Organic Chemistry For Engineers	3					
		Introduction to Biomolecular Engineering	3					
Major		Materials & Energy Balance	3					
Major Requirement		Engineering Statistics	3	40				
Requirement		Fluid Systems	3					
		Introduction to Computational Thinking	3					
	CH2108	Thermodynamics	3					
	CH2112	Chemical Reaction Engineering	3					
		Heat & Mass Transfer in Chemical and Biological						
	CH2114	Systems	3					
	CH2123	Chemical Thermodynamics	3					

2nd Major in Data Analytics (BDEs)	1) Linear (2) Comput (3) Probable (4) Algorith (5) Databate (6) Data M (7) Data Visible (7) Data Visible (7) Data Visible (8) Choose from EE4414 M EE4497 Patabate (8) MA4830 F MA4830 F MA4830 F MA4832 F	Algebra: CB1117 Engineering ting Skills: CH2107 Introduction to sility and Statistics: CH2010 Engineering Statistics hms: MH1403 Algorithms & Computing se: EE4791 Database Systems (3AU) lining: IE4483 Artificial Intelligence & Data Mining sualisation/Management: BC2406 Numerical Method and Data Analytics Optimisation Using Artificial Intelligence om the following: lachine Learning Design & Application (3AU) attern Recognition & Machine Learning (3AU) Machine Intelligence (3AU) Real Time Software for Mechatronics System (3AU) Microprocessor System (3AU) Introduction to Materials Simulation (3AU)	NA NA NA 3 3 4	19
Data Analytics	1) Linear (2) Comput (3) Probable (4) Algorith (5) Databate (6) Data M (7) Data Visible (7) Data Visible (7) Data Visible (8) Choose from EE4414 M EE4497 Patabate (8) MA4830 F MA4830 F MA4830 F MA4832 F	Algebra: CB1117 Engineering ting Skills: CH2107 Introduction to ility and Statistics: CH2010 Engineering Statistics hms: MH1403 Algorithms & Computing se: EE4791 Database Systems (3AU) lining: IE4483 Artificial Intelligence & Data Mining sualisation/Management: BC2406 Numerical Method and Data Analytics Optimisation Using Artificial Intelligence om the following: lachine Learning Design & Application (3AU) attern Recognition & Machine Learning (3AU) Machine Intelligence (3AU) Real Time Software for Mechatronics System (3AU) Microprocessor System (3AU)	NA NA 3 3 4	
Data Analytics	1) Linear (2) Comput (3) Probable (4) Algorith (5) Databate (6) Data M (7) Data Visible (7) Data Visible (7) Data Visible (8) Choose from EE4414 M EE4497 Patabate (8) MA4830 F MA4830 F MA4830 F MA4832 F	Algebra: CB1117 Engineering ting Skills: CH2107 Introduction to ility and Statistics: CH2010 Engineering Statistics hms: MH1403 Algorithms & Computing se: EE4791 Database Systems (3AU) lining: IE4483 Artificial Intelligence & Data Mining sualisation/Management: BC2406 Numerical Method and Data Analytics Optimisation Using Artificial Intelligence om the following: lachine Learning Design & Application (3AU) attern Recognition & Machine Learning (3AU) Machine Intelligence (3AU) Real Time Software for Mechatronics System (3AU) Microprocessor System (3AU)	NA NA 3 3 4	
Data Analytics	1) Linear (2) Comput (3) Probable (4) Algorith (5) Databate (6) Data M (7) Data Visible (7) Data Visible (7) Data Visible (8) Choose from EE4414 M (8) EE4497 Parameters (8) MA4830 MA48	Algebra: CB1117 Engineering ting Skills: CH2107 Introduction to illity and Statistics: CH2010 Engineering Statistics hms: MH1403 Algorithms & Computing se: EE4791 Database Systems (3AU) lining: IE4483 Artificial Intelligence & Data Mining sualisation/Management: BC2406 Numerical Method and Data Analytics Optimisation Using Artificial Intelligence om the following: lachine Learning Design & Application (3AU) attern Recognition & Machine Learning (3AU) Machine Intelligence (3AU) Real Time Software for Mechatronics System (3AU)	NA NA 3 3 4	
Data Analytics	1) Linear A 2) Compu 3) Probab 4) Algoriti 5) Databa 6) Data M 7) Data Vi Electives CH4244 CB4246 Choose from EE4414 M EE4497 Pa MA4829 I	Algebra: CB1117 Engineering ting Skills: CH2107 Introduction to illity and Statistics: CH2010 Engineering Statistics hms: MH1403 Algorithms & Computing se: EE4791 Database Systems (3AU) lining: IE4483 Artificial Intelligence & Data Mining sualisation/Management: BC2406 Numerical Method and Data Analytics Optimisation Using Artificial Intelligence om the following: lachine Learning Design & Application (3AU) attern Recognition & Machine Learning (3AU) Machine Intelligence (3AU)	NA NA 3 3 4	
Data Analytics	1) Linear (2) Comput (3) Probable (4) Algorith (5) Databate (6) Data M (7) Data Visible (CH4244 CB4246 CB4246 Choose from EE4414 M EE4497 Page (1) EE4497 Page (1) EE4497 Page (1) Choose from EE4497	Algebra: CB1117 Engineering ting Skills: CH2107 Introduction to ility and Statistics: CH2010 Engineering Statistics hms: MH1403 Algorithms & Computing se: EE4791 Database Systems (3AU) lining: IE4483 Artificial Intelligence & Data Mining sualisation/Management: BC2406 Numerical Method and Data Analytics Optimisation Using Artificial Intelligence om the following: lachine Learning Design & Application (3AU) attern Recognition & Machine Learning (3AU)	NA NA 3 3 3 4	19
Data Analytics	1) Linear (2) Comput (3) Probable (4) Algorith (5) Databate (6) Data M (7) Data Visible (Choose from the computation of the com	Algebra: CB1117 Engineering ting Skills: CH2107 Introduction to illity and Statistics: CH2010 Engineering Statistics hms: MH1403 Algorithms & Computing se: EE4791 Database Systems (3AU) lining: IE4483 Artificial Intelligence & Data Mining sualisation/Management: BC2406 Numerical Method and Data Analytics Optimisation Using Artificial Intelligence	NA NA 3 3 3 4	19
Data Analytics	1) Linear A 2) Compu 3) Probab 4) Algorith 5) Databa 6) Data M 7) Data Vi Electives CH4244 CB4246	Algebra: CB1117 Engineering ting Skills: CH2107 Introduction to illity and Statistics: CH2010 Engineering Statistics hms: MH1403 Algorithms & Computing se: EE4791 Database Systems (3AU) lining: IE4483 Artificial Intelligence & Data Mining sualisation/Management: BC2406 Numerical Method and Data Analytics Optimisation Using Artificial Intelligence	NA NA 3 3 3 4	19
Data Analytics	1) Linear (2) Compu 3) Probab 4) Algoriti 5) Databa 6) Data M 7) Data Vi Electives CH4244	Algebra: CB1117 Engineering ting Skills: CH2107 Introduction to ility and Statistics: CH2010 Engineering Statistics hms: MH1403 Algorithms & Computing se: EE4791 Database Systems (3AU) lining: IE4483 Artificial Intelligence & Data Mining sualisation/Management: BC2406 Numerical Method and Data Analytics	NA NA 3 3 3 4	19
Data Analytics	1) Linear (2) Compu 3) Probab 4) Algoriti 5) Databa 6) Data M 7) Data Vi Electives CH4244	Algebra: CB1117 Engineering ting Skills: CH2107 Introduction to ility and Statistics: CH2010 Engineering Statistics hms: MH1403 Algorithms & Computing se: EE4791 Database Systems (3AU) lining: IE4483 Artificial Intelligence & Data Mining sualisation/Management: BC2406 Numerical Method and Data Analytics	NA NA 3 3 3 4	19
Data Analytics	1) Linear A 2) Compu 3) Probab 4) Algoriti 5) Databa 6) Data M 7) Data Vi	Algebra: CB1117 Engineering ting Skills: CH2107 Introduction to illity and Statistics: CH2010 Engineering Statistics hms: MH1403 Algorithms & Computing se: EE4791 Database Systems (3AU) lining: IE4483 Artificial Intelligence & Data Mining sualisation/Management: BC2406	NA NA 3 3 3 4	19
Data Analytics	1) Linear A 2) Compu 3) Probab 4) Algoritl 5) Databa 6) Data M 7) Data Vi	Algebra: CB1117 Engineering ting Skills: CH2107 Introduction to illity and Statistics: CH2010 Engineering Statistics hms: MH1403 Algorithms & Computing se: EE4791 Database Systems (3AU) lining: IE4483 Artificial Intelligence & Data Mining	NA NA 3 3	19
Data Analytics	1) Linear A 2) Compu 3) Probab 4) Algoriti 5) Databa 6) Data M	Algebra: CB1117 Engineering ting Skills: CH2107 Introduction to illity and Statistics: CH2010 Engineering Statistics hms: MH1403 Algorithms & Computing se: EE4791 Database Systems (3AU) lining: IE4483 Artificial Intelligence & Data Mining	NA NA 3 3	19
Data Analytics	1) Linear A 2) Compu 3) Probab 4) Algoriti 5) Databa 6) Data M	Algebra: CB1117 Engineering ting Skills: CH2107 Introduction to illity and Statistics: CH2010 Engineering Statistics hms: MH1403 Algorithms & Computing se: EE4791 Database Systems (3AU) lining: IE4483 Artificial Intelligence & Data Mining	NA NA 3 3	19
-	1) Linear A 2) Compu 3) Probab 4) Algorith 5) Databa	Algebra: CB1117 Engineering ting Skills: CH2107 Introduction to illity and Statistics: CH2010 Engineering Statistics hms: MH1403 Algorithms & Computing se: EE4791 Database Systems (3AU)	NA NA 3	19
2nd Major in	1) Linear (2) Compu 3) Probab	Algebra: CB1117 Engineering ting Skills: CH2107 Introduction to ility and Statistics: CH2010 Engineering Statistics	NA NA	
	1) Linear a	Algebra: CB1117 Engineering ting Skills: CH2107 Introduction to	NA	
	1) Linear	Algebra: CB1117 Engineering		
			NA	
	Data Ana	lytics Compulsory Courses		
	CBE Majo	or Prescribed Electives (MPE)		6
	05511	D 11 151 11 (2.55)		
	CY2003	Research Attachment 3	4	
	CY2001	Research Attachment 1	4	
	CY1601	Mathematics I	4	
	CY1500	Introduction to Research	2	
	CY1308	Physics	3) 33
	CY1101	Molecule	4	33
Requirement	CY1007	Climate Change	3	
	CY1001	Cell	3	
	CY0002	Ethics	3	
Major	CY0001	Writing Across the Disciplines	3	
Maior	CNYSP C	ore		
	CH4801	Final Year Design Project	8	
	CH4211	,	8	
	CH3802	·	3	
	CH3140	Unit Operations: Fluid-Fluid Separation	3	
	CH3121	,	2	35
	CH3111		3	
	CH3109	Decision Tools for Business & Engineering	3	
	10110104	Biochemical Engineering	3	ļ
	CH3104	Chemical & Biomolecular Engineering Laboratory	2	,

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

Vaar 1 Ca							
Year 1 Semester 1 Course		Туре	AU	Year 1 Se Course	Туре	Αl	
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
CY1001	Cell	С	3	CH1104	Materials & Energy Balance	С	3
CY1101	Molecule	С	4	EG1001	Engineers in Society	С	2
CY1308 CY1500	Physics Introduction to Research	C C	3 2	CY1007 CC0015	Climate Change Health & Wellbeing	CC	3
CY1601	Mathematics 1	C	4	000013	riediti & Weibeing	00	
				Year 1 Sp	pecial Term		
				CY2003	Research Attachment 3 (Making and Tinkering) Overseas Learning Trip	_	4
			20				21
	emester 1	_			emester 2	_	
Course CH2103	Fluid Systems	Type C	<u>AU</u> 3	Course CH2112	Chemical Reaction Engineering	Type C	AL 3
	·	С	3		Heat & Mass Transfer in Chemical	С	
CH2107^	Introduction to Computational Thinking			CH2114	and Biological Systems		3
CH2108	Thermodynamics	С	3	CH2123	Chemical Thermodynamics	С	3
CH2010^	Engineering Statistics	С	3	CH2151	Unit Operations: Fluid-Solid Separation	С	3
CY0001	Writing Across The Disciplines	С	3	CH2802	Chemical & Biomolecular Engineering Laboratory 2B	С	2
ML0004	Career Design & Workplace Readiness in the V.U.C.A World	CC	2	CY0002	Ethics	С	3
CC0006	Sustainability: Society, Economy & Environment	CC	3	CY2001	Research Attachment 1	С	4
	Tech-For-Good (T4G)	CSL	3	SP0061	Science & Technology for Humanity	CC	3
			23				24
Year 3 Semester 1 Course		Туре	AU		Year 3 Semester 2 Course		AL
CH3104	Biochemical Engineering	C	3	CH4211	CNYSP Overseas Final Year	Type C	8
	Decision Tools for Business & Engineering	С	3		Project		
CH3109	Liigiiieeiiiig	С	3	Year 3 Sr	pecial Term		
	Process Control and Dynamics				Professional Attachment	PS	5
CH3111	Process Control and Dynamics Chemical, Biological & Plant Safety	С	2	CH3910		10	
CH3111 CH3121	Chemical, Biological & Plant Safety Unit Operations: Fluid-Fluid	C C	2 3	CH3910		10	
CH3111 CH3121 CH3140	Chemical, Biological & Plant Safety Unit Operations: Fluid-Fluid Separation	С	3	CH3910		10	
CH3111 CH3121 CH3140	Chemical, Biological & Plant Safety Unit Operations: Fluid-Fluid			СН3910		10	
CH3111 CH3121 CH3140 CH3802	Chemical, Biological & Plant Safety Unit Operations: Fluid-Fluid Separation Chemical & Biomolecular Engineering Laboratory 5 Professional Preparation	C C PS	3 3 1	СН3910		10	
CH3111 CH3121 CH3140 CH3802	Chemical, Biological & Plant Safety Unit Operations: Fluid-Fluid Separation Chemical & Biomolecular Engineering Laboratory 5	C C	3 3 1 3	СН3910			40
CH3109 CH3111 CH3121 CH3140 CH3802 MLXXXX	Chemical, Biological & Plant Safety Unit Operations: Fluid-Fluid Separation Chemical & Biomolecular Engineering Laboratory 5 Professional Preparation	C C PS	3 3 1				13
CH3111 CH3121 CH3140 CH3802 MLXXXX	Chemical, Biological & Plant Safety Unit Operations: Fluid-Fluid Separation Chemical & Biomolecular Engineering Laboratory 5 Professional Preparation	C C PS BDE	3 3 1 3	Year 4 Se	emester 2		
CH3111 CH3121 CH3140 CH3802 MLXXXX	Chemical, Biological & Plant Safety Unit Operations: Fluid-Fluid Separation Chemical & Biomolecular Engineering Laboratory 5 Professional Preparation DA Elective 1	C C PS BDE	3 3 1 3 21	Year 4 Se Course		Туре	AL
CH3111 CH3121 CH3140 CH3802 MLXXXX Year 4 Se Course	Chemical, Biological & Plant Safety Unit Operations: Fluid-Fluid Separation Chemical & Biomolecular Engineering Laboratory 5 Professional Preparation DA Elective 1 Final Year Design Project	C C PS BDE Type C	3 3 1 3 21 AU 4	Year 4 Se Course CH4801	Final Year Design Project	Type C	A L
CH3111 CH3121 CH3140 CH3802 MLXXXX Year 4 Se Course CH4801	Chemical, Biological & Plant Safety Unit Operations: Fluid-Fluid Separation Chemical & Biomolecular Engineering Laboratory 5 Professional Preparation DA Elective 1 Final Year Design Project CBE PE1	C C PS BDE Type C MPE	3 3 1 3 21 AU 4 3	Year 4 Se Course	Final Year Design Project Introduction to Data Science and Artificial Intelligence	Type C PS	Al 4
CH3111 CH3121 CH3140 CH3802 MLXXXX Year 4 Se Course CH4801	Chemical, Biological & Plant Safety Unit Operations: Fluid-Fluid Separation Chemical & Biomolecular Engineering Laboratory 5 Professional Preparation DA Elective 1 Final Year Design Project	C C PS BDE Type C	3 3 1 3 21 AU 4	Year 4 Se Course CH4801	Final Year Design Project Introduction to Data Science and	Type C	Al 4
CH3111 CH3121 CH3140 CH3802 MLXXXX /ear 4 Se Course CH4801	Chemical, Biological & Plant Safety Unit Operations: Fluid-Fluid Separation Chemical & Biomolecular Engineering Laboratory 5 Professional Preparation DA Elective 1 Final Year Design Project CBE PE1 Numerical Methods and Data Analytics Artificial Intelligence & Data Mining	C C PS BDE Type C MPE	3 3 1 3 21 AU 4 3	Year 4 Se Course CH4801	Final Year Design Project Introduction to Data Science and Artificial Intelligence	Type C PS	4 3 3
CH3111 CH3121 CH3140 CH3802 MLXXXX Year 4 Se Course CH4801 CH4244 EE4483	Chemical, Biological & Plant Safety Unit Operations: Fluid-Fluid Separation Chemical & Biomolecular Engineering Laboratory 5 Professional Preparation DA Elective 1 Final Year Design Project CBE PE1 Numerical Methods and Data Analytics	C C PS BDE Type C MPE BDE	3 3 1 3 21 AU 4 3 3	Year 4 Se Course CH4801 CB0494	Final Year Design Project Introduction to Data Science and Artificial Intelligence CBE PE2	Type C PS MPE	4 3 3
CH3111 CH3121 CH3140 CH3802 MLXXXX Year 4 Se Course CH4801 CH4244 E4483	Chemical, Biological & Plant Safety Unit Operations: Fluid-Fluid Separation Chemical & Biomolecular Engineering Laboratory 5 Professional Preparation DA Elective 1 Final Year Design Project CBE PE1 Numerical Methods and Data Analytics Artificial Intelligence & Data Mining Analytics I: Visual and Predictive	C C PS BDE Type C MPE BDE BDE	3 3 1 3 21 AU 4 3 3 3 3 3	Year 4 Se Course CH4801 CB0494	Final Year Design Project Introduction to Data Science and Artificial Intelligence CBE PE2 Algorithms & Computing	Type C PS MPE BDE	133 AU 4 3 3 3 3 3 3
CH3111 CH3121 CH3140 CH3802 MLXXXX	Chemical, Biological & Plant Safety Unit Operations: Fluid-Fluid Separation Chemical & Biomolecular Engineering Laboratory 5 Professional Preparation DA Elective 1 Final Year Design Project CBE PE1 Numerical Methods and Data Analytics Artificial Intelligence & Data Mining Analytics I: Visual and Predictive	C C PS BDE Type C MPE BDE BDE	3 3 1 3 21 AU 4 3 3 3 3 3	Year 4 Se Course CH4801 CB0494 MH1403 EE4791	Final Year Design Project Introduction to Data Science and Artificial Intelligence CBE PE2 Algorithms & Computing Database Systems Optimisation Using Artificial	Type C PS MPE BDE BDE	4 3 3 3

[^] These courses are double-counted towards both CBE as well as the Second Major in Data Analytics.