

**B.Eng. (Chemical & Biomolecular Engineering)**  
**Suggested Study Plan for AY2014-2015 intake ONWARDS**  
**with Professional Internship (NEW)**

Year 1 Semester 1			Year 1 Semester 2		
Course		AU	Course		AU
CH1102	Introduction to Chemical Engineering in New Era	1	CH1108	Thermodynamics	4
CH1104	Materials & Energy Balances	4	CH1117	Engineering Mathematics	4
CH1105	Materials Science	3	CH1802	Lab 2	1
CH1131	Biomolecular Engineering	4	CH2102	Organic Chemistry and Spectrophotometry	4
CH1801	Lab 1	1	HW0188	Engineering Communication I	2
GC0001	Introduction to Sustainability	1	ML0001	Absolute Basics for Career	1
HW0001	English Proficiency*			GER elective 2	3
MH1810	Math 1	3			
	GER elective 1	3			
<b>20</b>			<b>19</b>		

\*For students who have not passed or been exempted from the Qualifying English Test at the time of admission.

Year 2 Semester1			Year 2 Semester 2		
Course		AU	Course		AU
CH2103	Fluid Systems	4	CH2104	Heat & Mass Transfer in Chemical and Biological Systems	4
CH2106	Introduction to Multidisciplinary Engineering	2	CH2109	Decision Tools for Business & Engineering	3
CH2107	Computational Methods in Chemical Engineering	3	CH2140	Unit Operation	4
CH2801	Lab 3	2	CH2802	Lab 4	2
CH3103	Chemical Thermodynamics	3	CH3102	Chemical Reaction Engineering	4
HY0001	Ethics & Moral Reasoning	1		Free elective 2	3
	GER elective 3	3			
	Free elective 1	3			
<b>21</b>			<b>20</b>		

Year 3 Semester 1			Year 3 Semester 2		
Course		AU	Course		AU
CH0491	Engineers & Society	3	CH3820	Professional Internship	8
CH3101	Process Control and Dynamics	4	ML0002	Career Power Up	1
CH3141	Advanced Unit Operations	3			
CH3802	Lab 5	3			
CH4101	Chemical, Biological & Plant Safety	2			
ET0001	Entrepreneurship & Innovation	1			
HW0288	Engineering Communication II	2			
<b>18</b>			<b>9</b>		

Year 4 Semester 1			Year 4 Semester 2		
Course		AU	Course		AU
CH4801	Final Year Design Project	4	CH3104	Biochemical Engineering	3
	CBE elective 1	3	CH4801	Final Year Design Project	4
	CBE elective 2	3		CBE elective 3	3
	Free elective 3	3		Free elective 5	3
	Free elective 4	3			
<b>16</b>			<b>13</b>		

**Total (AU) 136**

**B.Eng. (Chemical & Biomolecular Engineering)**  
**Suggested Study Plan for AY2014-2015 intake ONWARDS (ABP)**  
**with Professional Internship (NEW)**

**Year 1 Semester 1**

Course		AU
CH1102	Introduction to Chemical Engineering in New Era	1
CH1104	Mass & Energy Balances	4
CH1105	Materials Science	3
CH1131	Biomolecular Engineering	4
CH1801	Lab 1	1
GC0001	Introduction to Sustainability	1
HW001	English Proficiency*	
MH1810	Math 1	3
	GER elective 1	3
		<b>20</b>

**Year 2 Semester 2**

Course		AU
CH1108	Thermodynamics	4
CH1117	Engineering Mathematics	4
CH1802	Lab 2	1
CH2102	Organic Chemistry	4
HW0188	Engineering Communication I	2
ML0001	Absolute Basics for Career	1
	GER elective 2	3
	Free elective 1	3
		<b>22</b>

\* For students who have not passed or been exempted from the Qualifying English Test at the time of admission.

**Year 2 Semester1**

Course		AU
CH2103	Fluid Systems	4
CH2106	Introduction to Multidisciplinary Engineering	2
CH2107	Computational Methods in Chemical Engineering	3
CH2801	Lab 2A	2
CH3103	Chemical Thermodynamics	3
HY0001	Ethics & Moral Reasoning	1
	GER elective 3	3
	Free elective 2	3
	CBE elective 1	3
		<b>24</b>

**Year 2 Semester 2**

Course		AU
CH2104	Heat & Mass Transfer	4
CH2109	Decision Tools for Business & Engineering	3
CH2140	Principles of Separation Processes	4
CH2802	Lab 2B	2
CH3102	Reaction Engineering	4
	Free elective 3	3
	Free elective 4	3
		<b>23</b>

**Year 3 Semester 1**

Course		AU
CH0491	Engineers & Society	3
CH3101	Process Control and Dynamics	4
CH3141	Advanced Unit Operations	3
CH3802	Lab 3	3
CH4101	Chemical, Biological & Plant Safety	2
CH4801	Final Year Design Project	4
ET0001	Entrepreneurship & Innovation	1
HW0288	Engineering Communication II	2
		<b>22</b>

**Year 3 Semester 2**

Course		AU
CH3104	Biochemical Engineering	3
CH4801	Final Year Design Project	4
ML0002	Career Power Up	1
	CBE elective 2	3
	CBE elective 3	3
	Free elective 5	3
		<b>17</b>

**Year 4 Semester1**

Course		AU
CH3820	Professional Internship	8
		<b>8</b>

**Total (AU)**

**136**

**B.Eng. (Chemical & Biomolecular Engineering)**  
**Suggested Study Plan for AY2015-2016 intake (Direct entry)**  
**with Professional Internship (NEW)**

<b>Year 2 Semester 1</b>			<b>Year 2 Semester 2</b>		
<b>Course</b>		<b>AU</b>	<b>Course</b>		<b>AU</b>
MH1810	Math 1	3	CH1117	Engineering Mathematics	4
CH1102	Introduction to Chemical Engineering in New Era	1	CH1108	Thermodynamics	4
CH1131	Biomolecular Engineering	4	CH2104	Heat & Mass Transfer	4
CH2103	Fluid Systems	4	CH2140	Unit Operation	4
CH2106	Introduction to Multidisciplinary Engineering	2	CH3102	Reaction Engineering	4
CH2107	Computational Methods	3	CH2802	Lab 2B	2
CH2801	Lab 2A	2	ML0001	Absolute Basics for Career	1
GC0001	Introduction to Sustainability	1			
HW0188	Engineering Communication I	2			
		<b>22</b>			<b>23</b>
<b>Year 3 Semester 1</b>			<b>Year 3 Semester 2</b>		
<b>Course</b>		<b>AU</b>	<b>Course</b>		<b>AU</b>
CH3101	Process Control and Dynamics	4	CH3104	Biochemical Engineering	3
CH3103	Chemical Thermodynamics	3	CH2102	Organic Chemistry	4
CH3141	Advanced Unit Operations	3	CH2109	Decision Tools for Business & Engineering	3
CH3802	Lab 3	3	CH4801	Final Year Design Project	4
CH4101	Chemical, Biological & Plant Safety	2		CBE elective 1	3
CH0491	Engineers & Society (from yr3 S1)	3		GER elective (Any)	3
HW0288	Engineering Communication II	2	ET0001	Entrepreneurship & Innovation	1
HY0001	Ethics & Moral Reasoning	1			
		<b>21</b>			<b>21</b>
<b>Year 4 Semester 1</b>			<b>Year 4 Semester 2</b>		
<b>Course</b>		<b>AU</b>	<b>Course</b>		<b>AU</b>
CH3820	Professional Internship	8	CH4801	Final Year Design Project	4
ML0002	Career Power UP	1		CBE elective 2	3
				Free elective	3
				CBE elective 3	3
		<b>9</b>			<b>13</b>
<b>Total (AU)</b>					<b>109</b>

**2<sup>nd</sup> Major Business (PI Option)**

		Academic Units (AU)
<b>University Requirement</b>	<b>General Education Requirement Core (GER-Core)</b>	12
	English Communication I (2 AU)	
	English Communication II (2 AU)	
	Absolute Basics for Career (1 AU)	
	Career Power Up (1 AU)	
	Engineers & Society (3 AU)	
	Introduction to Sustainability; Multidisciplinary Approaches and Solutions (1 AU)	
	Entrepreneurship & Innovation (1 AU)	
	Ethics and Moral Reasoning (1 AU)	
	<b>General Education Requirement Elective (GER-Elective)</b>	
	GER-Elective in Science, Technology & Society (3 AU)	
GER-Elective in Liberal Studies (3 AU)		
<b>Major Requirement</b>	<b>CBE Core</b>	91
	<b>BIE Core</b>	91/92*
	<b>Core Elective</b>	9
<b>2<sup>nd</sup> Major in Business</b>	<b>Business Foundation Courses</b>	27
	<b>Track Courses</b>	12
<b>Total AU requirement</b>		151/152*

**B.Eng. (Chemical & Biomolecular Engineering)**  
**Suggested Study Plan for AY2014-2015 intake (BM)**

**with Professional Internship (NEW)**

**Year 1 Semester 1**

<b>Course</b>	<b>AU</b>	
CH1102	Introduction to Chemical Engineering in New Era	1
CH1104	Mass & Energy Balance	4
CH1105	Materials Science	3
CH1131	Biomolecular Engineering	4
CH1801	Lab	1
MH1810	Math 1	3
HW001	English Proficiency*	
AD1101	Financial Accounting	4
AB1201	Financial Management	3
GC0001	Introduction to Sustainability	1
<b>24</b>		

**Year 1 Semester 2**

<b>Course</b>	<b>AU</b>	
CH1117	Engineering Mathematics	4
CH2102	Organic Chemistry	4
CH1108	Thermodynamics	4
CH1802	Lab	1
HW0188	Engineering Communication I	2
AB1501	Marketing	3
BE1401	Business Operations and Processes	4
ML0001	Absolute Basics for Career	1
<b>23</b>		

\* For students who have not passed or been exempted from the Qualifying English Test at the time of admission.

**Year 2 Semester 1**

<b>Course</b>	<b>AU</b>	
CH2103	Fluid Systems	4
CH2106	Introduction to Multidisciplinary Engineering	2
CH2107	Computational Methods	3
CH3103	Chemical Thermodynamics	3
CH2801	Lab	2
AD2101	Management Accounting	4
HY0001	Ethics & Moral Reasoning	1
<b>19</b>		

**Year 2 Semester 2**

<b>Course</b>	<b>AU</b>	
CH2104	Heat & Mass Transfer	4
CH2140	Unit Operation	4
CH3102	Chemical Reaction Engineering	4
CH2802	Lab	2
CH2109	Decision Tools for Business & Engineering	3
AB0901	Principles of Economics: A Singapore Perspective	3
AB1601	Organisational Behaviour and Design	3
<b>23</b>		

**Year 3 Semester 1**

<b>Course</b>	<b>AU</b>	
CH3101	Process Control and Dynamics	4
CH3141	Advanced Unit Operations	3
CH3802	Lab	3
CH4101	Chemical, Biological & Plant Safety	2
CH0491	Engineers & Society	3
AB1301	Business Law	3
ET0001	Entrepreneurship & Innovation	1
HW0288	Engineering Communication II	2
<b>21</b>		

**Year 3 Semester 2\***

<b>Course</b>	<b>AU</b>	
CH3820	Professional Internship	8
ML0002	Career Power UP	1
<b>9</b>		

**Year 4 Semester 1**

<b>Course</b>	<b>AU</b>	
CH4801	Final Year Design Project	4
	CBE elective 1	3
	CBE elective 2	3
	Track Course 1	4
	Track Course 2	4
<b>18</b>		

**Year 4 Semester 2**

<b>Course</b>	<b>AU</b>	
CH3104	Biochemical Engineering	3
CH4801	Final Year Design Project	4
	CBE elective 3	3
	Track Course 3	4
<b>14</b>		

**Total (AU)**

**151**

## **2<sup>nd</sup> Major Business (PA Option)**

		Academic Units (AU)
<b>University Requirement</b>	<b>General Education Requirement Core (GER-Core)</b>	12
	English Communication I (2 AU)	
	English Communication II (2 AU)	
	Absolute Basics for Career (1 AU)	
	Career Power Up (1 AU)	
	Engineers & Society (3 AU)	
	Introduction to Sustainability; Multidisciplinary Approaches and Solutions (1 AU)	
	Entrepreneurship & Innovation (1 AU)	
	Ethics and Moral Reasoning (1 AU)	
	<b>General Education Requirement Elective (GER-Elective)</b>	0
GER-Elective in Science, Technology & Society (3 AU)		
GER-Elective in Liberal Studies (3 AU)		
<b>Major Requirement</b>	<b>CBE Core</b>	87
	<b>BIE Core</b>	87/88*
	<b>Core Elective</b>	9
<b>2<sup>nd</sup> Major in Business</b>	<b>Business Foundation Courses</b>	27
	<b>Track Courses</b>	12
<b>Unrestricted Electives</b>	<b>Unrestricted Electives</b>	4
<b>Total AU requirement</b>		<b>151/152*</b>

**B.Eng. (Chemical & Biomolecular Engineering)**  
**Suggested Study Plan for AY2014-2015 intake (BM)**  
*with Professional Attachment (NEW)*

**Year 1 Semester 1**

Course		AU
CH1102	Introduction to Chemical Engineering in New Era	1
CH1104	Mass & Energy Balance	4
CH1105	Materials Science	3
CH1131	Biomolecular Engineering	4
CH1801	Lab	1
MH1810	Math 1	3
HW001	English Proficiency*	
AD1101	Financial Accounting	4
AB1201	Financial Management	3
GC0001	Introduction to Sustainability	1
		<b>24</b>

**Year 1 Semester 2**

Course		AU
CH1117	Engineering Mathematics	4
CH2102	Organic Chemistry	4
CH1108	Thermodynamics	4
CH1802	Lab	1
HW0188	Engineering Communication I	2
AB1501	Marketing	3
BE1401	Business Operations and Processes	4
ML0001	Absolute Basics for Career	1
		<b>23</b>

\* For students who have not passed or been exempted from the Qualifying English Test at the time of admission.

**Year 2 Semester 1**

Course		AU
CH2103	Fluid Systems	4
CH2106	Introduction to Multidisciplinary Engineering	2
CH2107	Computational Methods	3
CH3103	Chemical Thermodynamics	3
CH2801	Lab	2
AD2101	Management Accounting	4
HY0001	Ethics & Moral Reasoning	1
		<b>19</b>

**Year 2 Semester 2**

Course		AU
CH2104	Heat & Mass Transfer	4
CH2140	Unit Operation	4
CH3102	Chemical Reaction Engineering	4
CH2802	Lab	2
CH2109	Decision Tools for Business & Engineering	3
AB0901	Principles of Economics: A Singapore Perspective	3
		<b>20</b>

**Year 3 Semester 1**

Course		AU
CH3101	Process Control and Dynamics	4
CH3141	Advanced Unit Operations	3
CH3802	Lab	3
CH4101	Chemical, Biological & Plant Safety	2
CH0491	Engineers & Society	3
AB1301	Business Law	3
ET0001	Entrepreneurship & Innovation	1
HW0288	Engineering Communication II	2
		<b>19</b>

**Year 3 Semester 2\***

Course		AU
AB1601	Organisational Behaviour and Design	3
	CBE elective 1	3
	CBE elective 2	3
ML0002	Career Power UP	1
	Free elective 1	2
	Free elective 2	2

**Year 3 Special Semester**

Course		AU
CH3820	Professional Attachment	4
		<b>18</b>

**Year 4 Semester 1**

Course		AU
CH4801	Final Year Design Project	4
	CBE elective 3	3
	Track Course 1	4
	Track Course 2	4
		<b>15</b>

**Year 4 Semester 2**

Course		AU
CH3104	Biochemical Engineering	3
CH4801	Final Year Design Project	4
	Track Course 2	4
		<b>11</b>

**Total (AU)**

**151**

**2<sup>nd</sup> Major Business ITP Track (PA by Default)**

		Academic Units (AU)
<b>University Requirement</b>	<b>General Education Requirement Core (GER-Core)</b>	12
	English Communication I (2 AU)	
	English Communication II (2 AU)	
	Absolute Basics for Career (1 AU)	
	Career Power Up (1 AU)	
	Engineers & Society (3 AU)	
	Introduction to Sustainability; Multidisciplinary Approaches and Solutions (1 AU)	
	Entrepreneurship & Innovation (1 AU)	
	Ethics and Moral Reasoning (1 AU)	
	<b>General Education Requirement Elective (GER-Elective)</b>	0
GER-Elective in Science, Technology & Society (3 AU)		
GER-Elective in Liberal Studies (3 AU)		
<b>Major Requirement</b>	<b>CBE Core</b>	87
	<b>BIE Core</b>	87/88*
	<b>Core Elective</b>	9
<b>2<sup>nd</sup> Major in Business</b>	<b>Business Foundation Courses</b>	17
	<b>Track Courses</b>	25
<b>Total AU requirement</b>		150/151*



**B.Eng. (Chemical & Biomolecular Engineering)**  
**Suggested Study Plan for AY2014-2015 intake (BM ITP Track)**  
**with Professional Attachment (NEW)**

**Year 1 Semester 1**

<b>Course</b>	<b>AU</b>
CH1102 Introduction to Chemical Engineering in New Era	1
CH1104 Mass & Energy Balance	4
CH1105 Materials Science	3
CH1131 Biomolecular Engineering	4
CH1801 Lab	1
MH1810 Math 1	3
HW001 English Proficiency*	
AD1101 Financial Accounting	4
AB1201 Financial Management	3
GC0001 Introduction to Sustainability	1
	<b>24</b>

**Year 1 Semester 2**

<b>Course</b>	<b>AU</b>
CH1117 Engineering Mathematics	4
CH2102 Organic Chemistry	4
CH1108 Thermodynamics	4
CH1802 Lab	1
HW0188 Engineering Communication I	2
AB1301/ AB1501 Business Law/ Marketing	3
BE1401 Business Operations and Processes	4
ML0001 Absolute Basics for Career	1
	<b>23</b>

\* For students who have not passed or been exempted from the Qualifying English Test at the time of admission.

**Year 2 Semester1**

<b>Course</b>	<b>AU</b>
CH2103 Fluid Systems	4
CH2106 Introduction to Multidisciplinary Engineering	2
CH2107 Computational Methods	3
CH3103 Chemical Thermodynamics	3
CH2801 Lab	2
BF2201 Investments	4
HY0001 Ethics & Moral Reasoning	1
	<b>19</b>

**Year 2 Semester 2**

<b>Course</b>	<b>AU</b>
CH2104 Heat & Mass Transfer	4
CH2140 Unit Operation	4
CH3102 Chemical Reaction Engineering	4
CH2802 Lab	2
CH2109 Decision Tools for Business & Engineering	3
BF2209 Derivative Securities	4
AB0901 Principles of Economics: A Singapore Perspective	3
	<b>24</b>

**Year 3 Semester 1**

<b>Course</b>	<b>AU</b>
CH3101 Process Control and Dynamics	4
CH3141 Advanced Unit Operations	3
CH3802 Lab	3
CH4101 Chemical, Biological & Plant Safety	2
CH0491 Engineers & Society	3
BF2207 International Finance	4
ET0001 Entrepreneurship & Innovation	1
HW0288 Engineering Communication II	2
	<b>22</b>

**Year 3 Semester 2\***

<b>Course</b>	<b>AU</b>
MS8026 Commodities' Geology and Metallurgy	4
CBE elective 1	3
CBE elective 2	3
Track Course 1	3
ML0002 Career Power UP	1

**Year 3 Special Semester**

CH3820 Professional Attachment	4
	<b>18</b>

**Year 4 Semester 1**

<b>Course</b>	<b>AU</b>
CH4801 Final Year Design Project	4
CBE elective 3	3
BF3211 Commodities Trading and Risk Management	3
	<b>10</b>

**Year 4 Semester 2**

<b>Course</b>	<b>AU</b>
CH3104 Biochemical Engineering	3
CH4801 Final Year Design Project	4
BF2301 International Tax and Trading Law	3
	<b>10</b>

**Total (AU)**

**150**

**2<sup>nd</sup> Major Business (PI Option)**

		Academic Units (AU)
<b>University Requirement</b>	<b>General Education Requirement Core (GER-Core)</b>	12
	English Communication I (2 AU)	
	English Communication II (2 AU)	
	Absolute Basics for Career (1 AU)	
	Career Power Up (1 AU)	
	Engineers & Society (3 AU)	
	Introduction to Sustainability; Multidisciplinary Approaches and Solutions (1 AU)	
	Entrepreneurship & Innovation (1 AU)	
	Ethics and Moral Reasoning (1 AU)	
	<b>General Education Requirement Elective (GER-Elective)</b>	0
	GER-Elective in Science, Technology & Society (3 AU)	
GER-Elective in Liberal Studies (3 AU)		
<b>Major Requirement</b>	<b>CBE Core</b>	91
	<b>BIE Core</b>	91/92*
	<b>Core Elective</b>	9
<b>2<sup>nd</sup> Major in Business</b>	<b>Business Foundation Courses</b>	17
	<b>Track Courses</b>	25
<b>Total AU requirement</b>		154/155*

**B.Eng. (Chemical & Biomolecular Engineering)**  
**Suggested Study Plan for AY2014-2015 intake (BM ITP Track)**

**with Professional Internship (NEW)**

<b>Year 1 Semester 1</b>			<b>Year 1 Semester 2</b>		
<b>Course</b>		<b>AU</b>	<b>Course</b>		<b>AU</b>
CH1102	Introduction to Chemical Engineering in New Era	1	CH1117	Engineering Mathematics	4
CH1104	Mass & Energy Balance	4	CH2102	Organic Chemistry	4
CH1105	Materials Science	3	CH1108	Thermodynamics	4
CH1131	Biomolecular Engineering	4	CH1802	Lab	1
CH1801	Lab	1	HW0188	Engineering Communication I	2
MH1810	Math 1	3	AB1301/ AB1501	Business Law/ Marketing	3
HW001	English Proficiency*		BE1401	Business Operations and Processes	4
AD1101	Financial Accounting	4	ML0001	Absolute Basics for Career	1
AB1201	Financial Management	3			
GC0001	Introduction to Sustainability	1			
		<b>24</b>			<b>23</b>
* For students who have not passed or been exempted from the Qualifying English Test at the time of admission.					
<b>Year 2 Semester 1</b>			<b>Year 2 Semester 2</b>		
<b>Course</b>		<b>AU</b>	<b>Course</b>		<b>AU</b>
CH2103	Fluid Systems	4	CH2104	Heat & Mass Transfer	4
CH2106	Introduction to Multidisciplinary Engineering	2	CH2140	Unit Operation	4
CH2107	Computational Methods	3	CH3102	Chemical Reaction Engineering	4
CH3103	Chemical Thermodynamics	3	CH2802	Lab	2
CH2801	Lab	2	CH2109	Decision Tools for Business & Engineering	3
BF2201	Investments	4	BF2209	Derivative Securities	4
	CBE elective 1	3	AB0901	Principles of Economics: A Singapore Perspective	3
HY0001	Ethics & Moral Reasoning	1			
		<b>22</b>			<b>24</b>
<b>Year 3 Semester 1</b>			<b>Year 3 Semester 2*</b>		
<b>Course</b>		<b>AU</b>	<b>Course</b>		<b>AU</b>
CH3101	Process Control and Dynamics	4	CH3820	Professional Internship	8
CH3141	Advanced Unit Operations	3	ML0002	Career Power UP	1
CH3802	Lab	3			
CH4101	Chemical, Biological & Plant Safety	2			
CH0491	Engineers & Society	3			
BF2207	International Finance	4			
ET0001	Entrepreneurship & Innovation	1			
HW0288	Engineering Communication II	2			
		<b>22</b>			<b>9</b>
<b>Year 4 Semester 1</b>			<b>Year 4 Semester 2</b>		
<b>Course</b>		<b>AU</b>	<b>Course</b>		<b>AU</b>
CH4801	Final Year Design Project	4	CH3104	Biochemical Engineering	3
	CBE elective 2	3	CH4801	Final Year Design Project	4
	CBE elective 3	3	MS8026	Commodities' Geology and Metallurgy	4
BF3211	Commodities Trading and Risk Management	3	BF2301	International Tax and Trading Law	3
	Track Course 1	3			
		<b>16</b>			<b>14</b>
			<b>Total (AU)</b>		<b>154</b>

**FST (PI Option)**

Curriculum Structure			Academic Unit (AU) Requirement	
			BEng Hons with 2 <sup>nd</sup> Major in Food Science and Technology	BEng Hons
Core			91	91
Major Prescribed Elective (Major PE)			9	9
General Education Requirement (GER)	Core		12	12
	Prescribed Elective (PE)	Art, Humanities & Social Sciences (AHSS)	0	0
		Business & Management (BM)	0	3
		Any Category (AHSS,LS,BM or STS)	Exempted	0
		Liberal Studies (LS)	0	3
		Science, Technology & Society (STS)	0	3
	Unrestricted Electives (UE)	UE	6	15
		Food Science and Technology (Core)	18	NA
Food Science and Technology (PE)		15	NA	
<b>Total AUs</b>			<b>151</b>	<b>136</b>

**FST (PA Option)**

Curriculum Structure			Academic Unit (AU) Requirement	
			BEng Hons with 2 <sup>nd</sup> Major in Food Science and Technology	BEng Hons
Core			87	91
Major Prescribed Elective (Major PE)			9	9
General Education Requirement (GER)	Core		12	12
	Prescribed Elective (PE)	Art, Humanities & Social Sciences (AHSS)	0	0
		Business & Management (BM)	0	3
		Any Category (AHSS,LS,BM or STS)	Exempted	0
		Liberal Studies (LS)	0	3
		Science, Technology & Society (STS)	0	3
	Unrestricted Electives (UE)	UE	10	15
		Food Science and Technology (Core)	18	NA
Food Science and Technology (PE)		15	NA	
<b>Total AUs</b>			<b>151</b>	<b>136</b>

**B.Eng. (Chemical & Biomolecular Engineering)**  
**Suggested Study Plan for AY2014-2015 intake (FST)**  
*with Professional Internship (NEW)*

**Year 1 Semester 1**

Course		AU
CH1102	Introduction to Chemical Engineering in New Era	1
CH1104	Mass & Energy Balance	4
CH1105	Materials Science	3
CH1131	Biomolecular Engineering	4
CH1801	Lab	1
MH1810	Math 1	3
HW001	English Proficiency*	
GC0001	Introduction to Sustainability	1

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**Year 1 Semester 2**

Course		AU
CH1117	Engineering Mathematics	4
CH2102	Organic Chemistry	4
CH1108	Thermodynamics	4
CH1802	Lab	1
HW0188	Engineering Communication I	2
ML0001	Absolute Basics for Career	1

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\* For students who have not passed or been exempted from the Qualifying English Test at the time of admission.

**Year 2 Semester 1**

Course		AU
CH2103	Fluid Systems	4
CH2106	Introduction to Multidisciplinary Engineering	2
CH2107	Computational Methods	3
CH3103	Chemical Thermodynamics	3
CH2801	Lab	2
	CBE elective 1	3
CH9201	Food Chemistry	5
	GER-UE (PE-NTU)	3
HY0001	Ethics & Moral Reasoning	1

**26**

**Year 2 Semester 2**

Course		AU
CH2104	Heat & Mass Transfer	4
CH2140	Unit Operation	4
CH3102	Chemical Reaction Engineering	4
CH2802	Lab	2
CH2109	Decision Tools for Business & Engineering	3
CH9200	Food Microbiology	3
	GER-UE (PE-NTU)	3
	GER-UE (PE-NTU)	3

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**Year 3 Semester 1**

Course		AU
CH3101	Process Control and Dynamics	4
CH3141	Advanced Unit Operations	3
CH3802	Lab	3
CH4101	Chemical, Biological & Plant Safety	2
CH0491	Engineers & Society	3
CH9203	Food Process Engineering	5
ET0001	Entrepreneurship & Innovation	1
HW0288	Engineering Communication II	2

**23**

**Year 3 Semester 2\***

Course		AU
CH3820	Professional Internship	8
ML0002	Career Power UP	1

**9**

**Year 4 Semester 1**

Course		AU
CH4801	Final Year Design Project	4
	CBE elective 2	3
	CBE elective 3	3
	Free elective 1	3
	GER-UE (PE-NTU)	3
	GER-UE (PE-NTU)	3

**19**

**Year 4 Semester 2**

Course		AU
CH3104	Biochemical Engineering	3
CH4801	Final Year Design Project	4
CH9202	Food Physics	3
CH9204	Quality Systems Operations	2
	Free elective 2	3

**15**

**Total (AU)**

**151**

**B.Eng. (Chemical & Biomolecular Engineering)**  
**Suggested Study Plan for AY2014-2015 intake (FST)**  
***with Professional Attachment (NEW)***

**Year 1 Semester 1**

Course		AU
CH1102	Introduction to Chemical Engineering in New Era	1
CH1104	Mass & Energy Balance	4
CH1105	Materials Science	3
CH1131	Biomolecular Engineering	4
CH1801	Lab	1
MH1810	Math 1	3
HW001	English Proficiency*	
GC0001	Introduction to Sustainability	1

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\* For students who have not passed or been exempted from the Qualifying English Test at the time of admission.

**Year 1 Semester 2**

Course		AU
CH1117	Engineering Mathematics	4
CH2102	Organic Chemistry	4
CH1108	Thermodynamics	4
CH1802	Lab	1
HW0188	Engineering Communication I	2
ML0001	Absolute Basics for Career	1

**16**

**Year 2 Semester 1**

Course		AU
CH2103	Fluid Systems	4
CH2106	Introduction to Multidisciplinary Engineering	2
CH2107	Computational Methods	3
CH3103	Chemical Thermodynamics	3
CH2801	Lab	2
CH9201	Food Chemistry	5
	GER-UE (PE-NTU)	3
HY0001	Ethics & Moral Reasoning	1

**23**

**Year 2 Semester 2**

Course		AU
CH2104	Heat & Mass Transfer	4
CH2140	Unit Operation	4
CH3102	Chemical Reaction Engineering	4
CH2802	Lab	2
CH2109	Decision Tools for Business & Engineering	3
CH9200	Food Microbiology	3
	GER-UE (PE-NTU)	3
	GER-UE (PE-NTU)	3

**26**

**Year 3 Semester 1**

Course		AU
CH3101	Process Control and Dynamics	4
CH3141	Advanced Unit Operations	3
CH3802	Lab	3
CH4101	Chemical, Biological & Plant Safety	2
CH0491	Engineers & Society	3
CH9203	Food Process Engineering	5
ET0001	Entrepreneurship & Innovation	1
HW0288	Engineering Communication II	2

**23**

**Year 3 Semester 2\***

Course		AU
CH9202	Food Physics	3
CH9204	Quality Systems Operations	2
ML0002	Career Power UP	1
	CBE elective 1	3
	CBE elective 2	3
	CBE elective 3	3

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**Year 3 Special Semester**

CH3820	Professional Attachment	4
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**Year 4 Semester 1**

Course		AU
CH4801	Final Year Design Project	4
	GER-UE (PE-NTU)	3
	GER-UE (PE-NTU)	3
	Free elective 1	3
	Free elective 2	3

**16**

**Year 4 Semester 2**

Course		AU
CH3104	Biochemical Engineering	3
CH4801	Final Year Design Project	4
	Free elective 3	2
	Free elective 4	2

**11**

**Total (AU)**

**151**

**CBEC (PI Option)**

Category		AU	
Core		91	139
Core Elective	CBE	9	
	Economics	39	
GER Core		12	12
GER Elective		0	
Free Elective (Economics <Core>)		25	
Total		176	

**CBEC (PA Option)**

Category		AU	
Core		87	139
Core Elective	CBE	9	
	Economics	39	
GER Core		12	12
GER Elective		0	
Free Elective (Economics <Core>)		29	
Total		176	

**Double Degree in Engineering and Economics**  
**B.Eng. (Chemical & Biomolecular Engineering) and Economics**  
**Suggested Study Plan for AY2014-2015 intake**  
*with Professional Internship (NEW)*

<b>Year 1 Semester 1</b>			<b>Year 1 Semester 2</b>		
<b>Course</b>		<b>AU</b>	<b>Course</b>		<b>AU</b>
MH1810	Math 1	3	CH1117	Engineering Mathematics	4
CH1102	Introduction to Chemical Engineering in New Era	1	CH2102	Organic Chemistry and Spectrophotometry	4
CH1104	Materials & Energy Balance	4	CH1108	Thermodynamics	4
CH1105	Materials Science	3	CH1802	Lab 2	1
CH1131	Biomolecular Engineering	4	HW0188	Engineering Communication I	2
CH1801	Lab 1	1		Intro to Probability & Statistical Inference	3
HE1001	Microeconomics Principles	3	HE2001	Intermediate Microeconomics	3
HE1002	Macroeconomics Principles	3	HE2002	Intermediate Macroeconomics	3
GC0001	Introduction to Sustainability	1	ML0001	Absolute Basics for Career	1
		<b>23</b>			<b>25</b>
<b>Year 2 Semester1</b>			<b>Year 2 Semester 2</b>		
<b>Course</b>		<b>AU</b>	<b>Course</b>		<b>AU</b>
CH2103	Fluid Systems	4	CH2104	Heat & Mass Transfer	4
CH2106	Introduction to Multidisciplinary Engineering	2	CH2109	Decision Tools for Business & Engineering	3
CH2107	Computational Methods	3	CH2140	Unit Operation	4
CH3103	Chemical Thermodynamics	3	CH3102	Chemical Reaction Engineering	4
CH2801	Lab 2A	2	CH2802	Lab 2B	2
HE2005	Principles of Econometrics	3	HE3021	Intermediate Econometrics	3
HY0001	Ethics & Moral Reasoning	1			
		<b>18</b>			<b>20</b>
<b>Year 3 Semester 1</b>			<b>Year 3 Semester 2</b>		
<b>Course</b>		<b>AU</b>	<b>Course</b>		<b>AU</b>
CH3101	Process Control and Dynamics	4	CH3820	Professional Internship	8
CH3141	Advanced Unit Operations	3	ML0002	Career Power UP	1
CH3802	Lab 3	3			
CH4101	Chemical, Biological & Plant Safety	2			
CH0491	Engineers & Society	3			
HE4010	Singapore Economy in A Globalized World	4			
ET0001	Entrepreneurship & Innovation	1			
HW0288	Engineering Communication II	2			
		<b>22</b>			<b>9</b>
<b>Year 4 Semester 1</b>			<b>Year 4 Semester 2</b>		
<b>Course</b>		<b>AU</b>	<b>Course</b>		<b>AU</b>
CH4801	Final Year Design Project	4	CH3104	Biochemical Engineering	3
	CBE elective 1	3	CH4801	Final Year Design Project	4
	CBE elective 2	3		CBE elective 3	3
	Econs elective 1	3		Econs elective 3	3
	Econs elective 2	3		Econs elective 4	3
		<b>16</b>			<b>16</b>



**Year 5 Semester 1**

<b>Course</b>	<b>AU</b>
Econs elective 5	3
Econs elective 6	3
Econs elective 7	3
Econs elective 8	3
Econs elective 9	3
<hr/>	
	<b>15</b>

**Year 5 Semester 2**

<b>Course</b>	<b>AU</b>
Econs elective 10	4
Econs elective 11	4
Econs elective 12	4
<hr/>	
	<b>12</b>

**Total (AU)****176**

**Double Degree in Engineering and Economics**  
**B.Eng. (Chemical & Biomolecular Engineering) and Economics**  
**Suggested Study Plan for AY2014-2015 intake**  
**with Professional Attachment (NEW)**

**Year 1 Semester 1**

<b>Course</b>	<b>AU</b>
MH1810 Math 1	3
CH1102 Introduction to Chemical Engineering in New Era	1
CH1104 Materials & Energy Balance	4
CH1105 Materials Science	3
CH1131 Biomolecular Engineering	4
CH1801 Lab 1	1
HE1001 Microeconomics Principles	3
HE1002 Macroeconomics Principles	3
GC0001 Introduction to Sustainability	1
	<b>23</b>

**Year 1 Semester 2**

<b>Course</b>	<b>AU</b>
CH1117 Engineering Mathematics	4
CH2102 Organic Chemistry	4
CH1108 Thermodynamics	4
CH1802 Lab 2	1
HW0188 Engineering Communication I Intro to Probability & Statistical	2
HE1005 Inference	3
HE2001 Intermediate Economics	3
HE2002 Intermediate Economics	3
ML0001 Absolute Basics for Career	1
	<b>25</b>

**Year 2 Semester1**

<b>Course</b>	<b>AU</b>
CH2103 Fluid Systems	4
CH2106 Introduction to Multidisciplinary Engineering	2
CH2107 Computational Methods	3
CH3103 Chemical Thermodynamics	3
CH2801 Lab 2A	2
HE2005 Principles of Econometrics	3
HY0001 Ethics & Moral Reasoning	1
	<b>18</b>

**Year 2 Semester 2**

<b>Course</b>	<b>AU</b>
CH2104 Heat & Mass Transfer Decision Tools for Business & Engineering	4
CH2109 Unit Operation	3
CH2140 Unit Operation	4
CH3102 Chemical Reaction Engineering	4
CH2802 Lab 2B	2
	<b>19</b>

**Year 3 Semester 1**

<b>Course</b>	<b>AU</b>
CH3101 Process Control and Dynamics	4
CH3141 Advanced Unit Operations	3
CH3802 Lab 3	3
CH4101 Chemical, Biological & Plant Safety	2
CH0491 Engineers & Society	3
HE4010 Singapore Economy In A Globalized World	4
ET0001 Entrepreneurship & Innovation	1
HW0288 Engineering Communication II	2
	<b>22</b>

**Year 3 Semester 2**

<b>Course</b>	<b>AU</b>
HE3021 Intermediate Econometrics	3
ML0002 Career Power UP	1
Econs Elective 1	3
Econs Elective 2	3
Econs Elective 3	3
Econs Elective 4	3
Free elective 1	2
<b>Year 3 Special Semester</b>	
CH3820 Professional Attachment	4
	<b>22</b>

**Year 4 Semester 1**

<b>Course</b>	<b>AU</b>
CH4801 Final Year Design Project	4
CBE elective 1	3
CBE elective 2	3
Econs Elective 5	3
	<b>13</b>

**Year 4 Semester 2**

<b>Course</b>	<b>AU</b>
CH3104 Biochemical Engineering	3
CH4801 Final Year Design Project	4
CBE elective 3	3
Free elective 2	2
	<b>12</b>

**Year 5 Semester 1**

<b>Course</b>	<b>AU</b>
Econs Elective 6	3
Econs Elective 7	3
Econs Elective 8	3
Econs Elective 9	3
	<b>12</b>

**Year 5 Semester 2**

<b>Course</b>	<b>AU</b>
Econs Elective 10	4
Econs Elective 11	4
Econs Elective 12	4
	<b>12</b>

**Total (AU)****176**

**B.Eng. (Chemical & Biomolecular Engineering)**  
**Suggested Study Plan for AY2014-2015 intake (CN Yang)**  
***with Professional Internship (NEW)***

<b>Year 1 Semester 1</b>		<b>Year 1 Semester 2</b>	
<b>Course</b>	<b>AU</b>	<b>Course</b>	<b>AU</b>
CY1001 Introduction to Biology	4	CY1202 Calculus of Several Variables	4
CY1101 Principles of Modern Chemistry	4	CY1306 Electricity and Magnetism	3
CY1102 Experimental Chemistry & Biological Chemistry	3	PE CY1307 Relativity and Quantum Physics CN Yang Scholars Programme Undergraduate	3
CY1201 Calculus of One Variable	4	CY1400 Research Experience	3
CY1305 Mechanics	3	CY1500 Introductory Research Methodology	3
GC0001 Introduction to Sustainability	1	CH2102 Organic Chemistry	4
GER elective 1 (STS)	3	CH1108 Thermodynamics	4
HW0188 Engineering Communication I	2	ML0001 Absolute Basics for Career	1
<b>24</b>		<b>25</b>	
* For students who have not passed or been exempted from the Qualifying English Test at the time of admission.			
<b>Year 2 Semester 1</b>		<b>Year 2 Semester 2</b>	
<b>Course</b>	<b>AU</b>	<b>Course</b>	<b>AU</b>
CY1203 Linear Algebra & Differential Equations	4	CH2104 Heat & Mass Transfer	4
CH1104 Materials & Energy Balance	4	CH2109 Decision Tools for Business & Engineering	3
CH1131 Biomolecular Engineering	4	CH2140 Unit Operation	4
CH2103 Fluids Systems	4	CH3102 Chemical Reaction Engineering	4
CH3103 Chemical Thermodynamics	3	CH2802 Lab 2B	2
GER elective 2 (BM)	3	GER elective 3 (LA)	3
HY0001 Ethics & Moral Reasoning	1		
<b>23</b>		<b>20</b>	
<b>Year 3 Semester 1</b>		<b>Year 3 Semester 2</b>	
<b>Course</b>	<b>AU</b>	<b>Course</b>	<b>AU</b>
CH2107 Computational Methods	3	CH3820 Professional Internship	8
CH3101 Process Control and Dynamics	4	ML0002 Career Power UP	1
CH3141 Advanced Unit Operations	3		
CH3802 Lab 3	3		
CH0491 Engineers & Society	3		
ET0001 Entrepreneurship & Innovation	1		
HW0288 Engineering Communication II	2		
<b>19</b>		<b>9</b>	
<b>Year 4 Semester 1</b>		<b>Year 4 Semester 2</b>	
<b>Course</b>	<b>AU</b>	<b>Course</b>	<b>AU</b>
CH4101 Chemical, Biological & Plant Safety	2	CH3104 Biochemical Engineering	3
CH4801 Final Year Design Project	4	CH4801 Final Year Design Project	4
CBE elective 1	3	CBE elective 3	3
CBE elective 2	3	Free elective 1	3
<b>12</b>		<b>13</b>	
<b>Total (AU)</b>			<b>145</b>