

## Bachelor of Engineering (Computer Engineering) and 2<sup>nd</sup> Major in Business Curriculum

For students matriculated in 2018 onwards

### 4-year BEng (CE) Programme and 2<sup>nd</sup> Major in Business (ITP)

### Overview of AUs requirement

#### Option I: 10-week Professional Attachment(PA)

Year of Study	Core (CE)	Major Prescribed Elective (MPE) (CE)	General Education Requirement (GER)	Unrestricted Elective (UE)	Unrestricted Elective (UE) (2 <sup>nd</sup> Major)	Total
			Core			
1	11		3		7	21
	12		3		7	22
2	15		1		2	18
	12			3	2	17
3	13		2		4	19
	8	3	5	2		18
4		9			2	11
	8	6			6	20
<b>Total</b>	79	18	14	5	30	146

#### Option II: 20-week Professional Internship(PI)

Year of Study	Core (CE)	Major Prescribed Elective (MPE) (CE)	General Education Requirement (GER)	Unrestricted Elective (UE) (2 <sup>nd</sup> Major)	Total
			Core		
1	11		3	7	21
	12		3	7	22
2	15		1	2	18
	12		3	2	17
3	10	3	4	4	20
	10				10
4	6	6		2	14
	8	9		6	23
<b>Total</b>	84	18	14	30	146

**Option 1: 10-week Professional Attachment (PA)**

Course Code and Title	Type (i.e. Core/ MPE/ GER core/ GER PE/ Unrestricted elective)	No of Hours Per Week				AU	Pre-requisite / Remarks
		Lec / TEL*	Tut	Lab/ Example class <sup>+</sup>	Total		
<b>YEAR 1 SEMESTER 1</b>							
CE1011 Engineering Mathematics I	Core	2	1	1 <sup>+</sup>	4	3	-
CE1012 Engineering Mathematics II	Core	2	1	1 <sup>+</sup>	4	3	CE1011 (can be taken concurrently)
CE1003 Introduction to Computational Thinking	Core	2*	0	2 <sup>+</sup>	4	3	-
CE1013 Physics for Computing	Core	2	0	2	3	2	-
HW0188^ Effective Communication	GER core	2	-	-	2	2	
HW0001 English Proficiency	GER core					0	
AD1101 Financial Accounting	Unrestricted elective (2 <sup>nd</sup> major)	3	1	-	4	4	-
AB1201 Financial Management	Unrestricted elective (2 <sup>nd</sup> major)	2	1	-	3	3	-
GC0001 Sustainability: Seeing Through The Haze	GER core					1	Online course
<b>TOTAL</b>		<b>13+2*</b>	<b>4</b>	<b>2+4<sup>+</sup></b>	<b>24</b>	<b>21</b>	
<b>YEAR 1 SEMESTER 2</b>							
CE1005 Digital Logic	Core	2	1	1	4	3	-
CE1006 Computer Organisation and Architecture	Core	2	1	1	4	3	CE1005 (can be taken concurrently)
CE1007 Data Structures	Core	2	1	1	4	3	CE1003
MH1812 Discrete Mathematics	Core	2	1	1 <sup>+</sup>	3	3	-
AB1501 Marketing	Unrestricted elective (2 <sup>nd</sup> major)	2	1	-	3	3	-
BE1401 Business Operations and Processes	Unrestricted elective (2 <sup>nd</sup> major)	3	1	-	4	4	-
CE1015 Introduction to Data Science and Artificial Intelligence	GER Core	2*	0	2	4	3	
<b>TOTAL</b>		<b>13+2*</b>	<b>6</b>	<b>5+1<sup>+</sup></b>	<b>26</b>	<b>22</b>	

^Should there be insufficient vacancies, students will take Eng Comm I & II in the following semester.

Course Code and Title	Type ( i.e. Core/ MPE/ GER core/ GER PE/ Unrestricted elective)	No of Hours Per Week					AU	Pre-requisite / Remarks
<b>YEAR 2 SEMESTER 1</b>								
CE2001 Algorithms	Core	2	1	1 <sup>+</sup>	4	3	CE1007, CE1012, MH1812	
CE2002 Object Oriented Design & Programming	Core	2	1	1	4	3	CE1007	
CE2004 Circuits and Signal Analysis	Core	2	1	1	4	3	CE1012	
CE2005 Operating Systems	Core	2	1	1	4	3	CE1006, CE1007	
CE2007 Microprocessor-based Systems Design	Core	2	1	1	4	3	CE1006, CE2004 (can be taken concurrently)	
Enterprise Risk Management	Unrestricted Elective (2 <sup>nd</sup> major)	3	1	-	4	2	TBD	
HY0001 Ethics & Moral Reasoning	GER core					1	Online course	
<b>TOTAL</b>		<b>13</b>	<b>6</b>	<b>4+1<sup>+</sup></b>	<b>24</b>	<b>18</b>		
<b>YEAR 2 SEMESTER 2</b>								
CE2003 Digital Systems Design	Core	2	1	1	4	3	CE1005	
CE2006 Software Engineering	Core	2	1	1	4	3	CE2002 (can be taken concurrently)	
CE3001 Advanced Computer Architecture	Core	2	1	1	4	3	CE1006	
CE3003 Microcontroller Programming	Core	2	1	1	4	3	CE2005	
Unrestricted Elective	Unrestricted elective	3	-	-	3	3		
Commodities Finance	Unrestricted Elective (2 <sup>nd</sup> major)	3	1	-	4	2	TBD	
<b>TOTAL</b>		<b>14</b>	<b>5</b>	<b>4</b>	<b>23</b>	<b>17</b>		

Course Code and Title	Type ( i.e. Core/ MPE/ GER core/ GER PE/ Unrestricted elective)	No of Hours Per Week				AU	Pre-requisite / Remarks
		Lec	Tut	Lab	Total		
<b>YEAR 3 SEMESTER 1</b>							
CE3002 Sensors, Interfacing and Control	Core	2	1	1	4	3	CE2004
CE3004 Multidisciplinary Design Project	Core	1	-	3	4	4	Year standing 3
CE3005 Computer Networks	Core	2	1	1	4	3	CE1011, CE1012
CE3006 Digital Communications	Core	2	1	1	4	3	CE1011, CE2004
Introduction to Ship Chartering and Trade Practice	Unrestricted Elective (2 <sup>nd</sup> major)	3	1	-	4	4	TBD
ET0001 Enterprise & Innovation	GER core					1	
ML0003 Kickstart your Career Success	GER core					1	online course
<b>TOTAL</b>		<b>10</b>	<b>4</b>	<b>5</b>	<b>20</b>	<b>19</b>	
<b>YEAR 3 SEMESTER 2</b>							
CE3007 Digital Signal Processing	Core	2	1	1	4	3	CE2004
Technical Elective 1 (CZ200x or CZ300x)	MPE	2	1	1	4	3	
CE0001 Engineers & Society <sup>#</sup>	GER core	2	1	-	3	3	
HW0288 Engineering Communication II	GER core	2	-	-	2	2	HW0188, Year 3 standing
Unrestricted Elective	Unrestricted elective	2	-	-	2	2	
CE3126 Professional Attachment	Core	-	-	-	-	5	
<b>TOTAL</b>		<b>10</b>	<b>3</b>	<b>2</b>	<b>15</b>	<b>18</b>	

<sup>#</sup> Available only in semester 2. Should there be insufficient vacancies, students will take Engrs and Society in the next semester 2.

Course Code and Title	Type (i.e. Core/ MPE/ GER core/GER PE/ Unrestricted elective)	No of Hours Per Week				AU	Pre-requisite / Remarks
		Lec	Tut	Lab	Total		
<b>YEAR 4 SEMESTER 1</b>							
CE4079 Final Year Project	Core	-	-	-	-	-	Final year standing
CE4xxx Technical Elective 2	MPE	2	1	1	4	3	
CE4xxx Technical Elective 3	MPE	2	1	1	4	3	
CE4xxx Technical Elective 4	MPE	2	1	1	4	3	
BF2302 International Tax And Trading Law	Unrestricted Elective (2 <sup>nd</sup> major)	2	1	-	3	2	
<b>TOTAL</b>		<b>8</b>	<b>4</b>	<b>3</b>	<b>15</b>	<b>17</b>	
<b>YEAR 4 SEMESTER 2</b>							
CE4079 Final Year Project	Core	-	-	-	-	8	
CE4xxx Technical Elective 5	MPE	2	1	1	4	3	
CE4xxx Technical Elective 6	MPE	2	1	1	4	3	
BF2301 International Tax and Trading Law	Unrestricted Elective (2 <sup>nd</sup> major)	2	1	-	3	2	
MS4670 Commodities' Geology and Metallurgy	Unrestricted Elective (2 <sup>nd</sup> major)	2	1	-	3	3	
BF4001 Industry Seminar	Unrestricted Elective (2 <sup>nd</sup> major)					1	
BF3212 Trade, Structured & Supply Chain Finance	Unrestricted Elective (2 <sup>nd</sup> major)					2	
<b>TOTAL</b>		<b>8</b>	<b>4</b>	<b>2</b>	<b>14</b>	<b>23</b>	
<b>GRAND TOTAL (Years 1 to 4)</b>						<b>146</b>	

\*Instead of normal tutorial/laboratory classes, Faculty can use Example Class for their pedagogical needs such as group discussion team based learning (TBL), seminar to review and reinforce concepts, provide additional coaching, give more worked examples, allow students to do practice exercises or do research or work on the computers etc.

OR AB1401 Information Technology (3AU) AND AB1402 Foundational Excel (1AU)

**Option 2: 20-week Professional Internship (PI)**

Course Code and Title	Type (i.e. Core/ MPE/ GER core/ GER PE/ Unrestricted elective)	No of Hours Per Week				AU	Pre-requisite / Remarks
		Lec / TEL*	Tut	Lab/ Example class <sup>+</sup>	Total		
<b>YEAR 1 SEMESTER 1</b>							
CE1011 Engineering Mathematics I	Core	2	1	1 <sup>+</sup>	4	3	-
CE1012 Engineering Mathematics II	Core	2	1	1 <sup>+</sup>	4	3	CE1011 (can be taken concurrently)
CE1003 Introduction to Computational Thinking	Core	2*	1	1	4	3	-
CE1013 Physics for Computing	Core	2	0	2	3	2	-
HW0188^ Effective Communication	GER core	2	-	-	2	2	
HW0001 English Proficiency	GER core					0	
AD1101 Financial Accounting	Unrestricted elective (2 <sup>nd</sup> major)	3	1	-	4	4	-
AB1201 Financial Management	Unrestricted elective (2 <sup>nd</sup> major)	2	1	-	3	3	-
GC0001 Sustainability: Seeing Through The Haze	GER core					1	Online course
<b>TOTAL</b>		<b>13+2*</b>	<b>5</b>	<b>3+2<sup>+</sup></b>	<b>24</b>	<b>21</b>	
<b>YEAR 1 SEMESTER 2</b>							
CE1005 Digital Logic	Core	2	1	1	4	3	-
CE1006 Computer Organisation and Architecture	Core	2	1	1	4	3	CE1005 (can be taken concurrently)
CE1007 Data Structures	Core	2	1	1	4	3	CE1003
MH1812 Discrete Mathematics	Core	2	1	1 <sup>+</sup>	3	3	-
AB1501 Marketing	Unrestricted elective (2 <sup>nd</sup> major)	2	1	-	3	3	-
BE1401 Business Operations and Processes	Unrestricted elective (2 <sup>nd</sup> major)	3	1	-	4	4	-
CE1015 Introduction to Data Science and Artificial Intelligence	GER Core	2*	0	2	4	3	
<b>TOTAL</b>		<b>13+2*</b>	<b>6</b>	<b>5+1<sup>+</sup></b>	<b>26</b>	<b>22</b>	

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CE2005 Operating Systems	Core	2	1	1	4	3	CE1006, CE1007	
CE2007 Microprocessor-based Systems Design	Core	2	1	1	4	3	CE1006, CE2004 (can be taken concurrently)	
Enterprise Risk Management	Unrestricted Elective (2 <sup>nd</sup> major)	3	1	-	4	2	TBD	
HY0001 Ethics & Moral Reasoning	GER core					1	Online course	
<b>TOTAL</b>		<b>13</b>	<b>6</b>	<b>4+1<sup>+</sup></b>	<b>24</b>	<b>18</b>		
<b>YEAR 2 SEMESTER 2</b>								
CE2003 Digital Systems Design	Core	2	1	1	4	3	CE1005	
CE2006 Software Engineering	Core	2	1	1	4	3	CE2002 (can be taken concurrently)	
CE3001 Advanced Computer Architecture	Core	2	1	1	4	3	CE1006	
CE3003 Microcontroller Programming	Core	2	1	1	4	3	CE2005	
CE0001 Engineers & Society <sup>#</sup>	GER core	2	1	-	3	3		
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Technical Elective 1 (CZ200x or CZ300x)	MPE	2	1	1	4	3	
Introduction to Ship Chartering and Trade Practice	Unrestricted Elective (2 <sup>nd</sup> major)	3	1	-	4	4	TBD
ET0001 Enterprise & Innovation	GER core					1	
HW0288 Engineering Communication II	GER core	2	-	-	2	2	HW0188, Year 3 standing
ML0003 Kickstart your Career Success	GER core					1	online course
BF2216 Trade Incoterms & Ship Chartering	Unrestricted Elective (2 <sup>nd</sup> major)	2	1	-	3	2	
<b>TOTAL</b>		<b>13</b>	<b>4</b>	<b>5</b>	<b>22</b>	<b>23</b>	
<b>YEAR 3 SEMESTER 2</b>							
CE3179 Professional Internship	Core	-	-	-	-	10	Year 3 standing
<b>TOTAL</b>		<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>10</b>	



Course Code and Title	Type (i.e. Core/ MPE/ GER core/ GER PE/ Unrestricted elective)	No of Hours Per Week				AU	Pre-requisite / Remarks
		Lec	Tut	Lab	Total		
<b>YEAR 4 SEMESTER 1</b>							
CE4079 Final Year Project	Core	-	-	-	-		Final year standing
CE3007 Digital Signal Processing	Core	2	1	1	4	3	CE2004
CE3006 Digital Communications	Core	2	1	1	4	3	CE1011, CE2004
CE4xxx Technical Elective 2	MPE	2	1	1	4	3	
CE4xxx Technical Elective 3	MPE	2	1	1	4	3	
BF2302 International Tax And Trading Law	Unrestricted Elective (2 <sup>nd</sup> major)	2	1	-	3	2	
<b>TOTAL</b>		<b>10</b>	<b>5</b>	<b>4</b>	<b>19</b>	<b>14</b>	
<b>YEAR 4 SEMESTER 2</b>							
CE4079 Final Year Project	Core	-	-	-	-	8	
CE4xxx Technical Elective 4	MPE	2	1	1	4	3	
CE4xxx Technical Elective 5	MPE	2	1	1	4	3	
CE4xxx Technical Elective 6	MPE	2	1	1	4	3	
MS4670 Commodities' Geology and Metallurgy	Unrestricted Elective (2 <sup>nd</sup> major)	2	1	-	3	3	
BF3212 Trade, Structured & Supply Chain Finance	Unrestricted Elective (2 <sup>nd</sup> major)					2	
BF3213 Enterprise Risk Management in Commodity Markets	Unrestricted Elective (2 <sup>nd</sup> major)					2	
<b>TOTAL</b>		<b>10</b>	<b>5</b>	<b>3</b>	<b>18</b>	<b>22</b>	
<b>GRAND TOTAL (Years 1 to 4)</b>							<b>146</b>

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