

# AY2022-23 CURRICULUM FOR COMPUTER ENGINEERING AND ECONOMICS (DOUBLE DEGREE PROGRAMME)

## Option 1: 20-week Professional Internship (PI)

| SUMMARY OF ACADEMIC UNIT REQUIREMENT |           |           |           |           |           |           |          |            |
|--------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|----------|------------|
| Year of Study                        | Core      |           | MPE       |           | ICC       |           | BDE      | Total AU   |
|                                      | CE        | ECON      | CE        | ECON      | C-Core    | F-Core    |          |            |
| 1                                    | 19        | 9         | 0         | 0         | 9         | 3         | 0        | 40         |
| 2                                    | 21        | 6         | 0         | 3         | 8         | 0         | 0        | 38         |
| 3                                    | 19        | 9         | 3         | 3         | 0         | 2         | 0        | 36         |
| 4                                    | 3         | 0         | 6         | 9         | 0         | 10        | 0        | 28         |
| 5                                    | 8         | 0         | 3         | 18        | 0         | 0         | 3        | 32         |
| <b>Total</b>                         | <b>70</b> | <b>24</b> | <b>12</b> | <b>33</b> | <b>17</b> | <b>15</b> | <b>0</b> | <b>174</b> |

## Suggested Study Plan

| YEAR 1 SEMESTER 1 |                                                        |          |           |               |
|-------------------|--------------------------------------------------------|----------|-----------|---------------|
| Course Code       | Course Title                                           | Type     | AU        | Pre-Requisite |
| SC1003            | Introduction to Computational Thinking & Programming   | C (CE)   | 3         | Nil           |
| SC1013            | Physics for Computing                                  | C (CE)   | 2         | Nil           |
| MH1810            | Mathematics I                                          | C (CE)   | 3         | Nil           |
| EG1001            | Engineers in Society                                   | C(CE)    | 2         | Nil           |
| HE1001            | Microeconomics I                                       | C (Econ) | 3         | Nil           |
| HE1002            | Macroeconomics I                                       | C (Econ) | 3         | Nil           |
| CC0003            | Ethics & Civics in a Multi-Cultural World              | C-Core   | 2         | Nil           |
| CC0005            | Healthy Living & Mental Well-being in an Aging Society | C-Core   | 3         | Nil           |
|                   |                                                        |          | <b>21</b> |               |

| YEAR 1 SEMESTER 2 |                                                         |          |           |                       |
|-------------------|---------------------------------------------------------|----------|-----------|-----------------------|
| Course Code       | Course Title                                            | Type     | AU        | Pre-Requisite         |
| SC1005            | Digital Logic                                           | C (CE)   | 3         | Nil                   |
| SC1006            | Computer Organisation and Architecture                  | C (CE)   | 3         | SC1005 (co-requisite) |
| MH1812            | Discrete Mathematics                                    | C (CE)   | 3         | Nil                   |
| HE2001            | Macroeconomics II                                       | C (Econ) | 3         | HE1001                |
| SC1015            | Introduction to Data Science & AI                       | F-Core   | 3         | SC1003                |
| CC0001            | Inquiry and Communication in an Interdisciplinary World | C-Core   | 2         | Nil                   |
| CC0002            | Navigating the Digital World                            | C-Core   | 2         | Nil                   |
|                   |                                                         |          | <b>19</b> |                       |

| YEAR 2 SEMESTER 1 |                                                           |          |           |               |
|-------------------|-----------------------------------------------------------|----------|-----------|---------------|
| Course Code       | Course Title                                              | Type     | AU        | Pre-Requisite |
| SC1004            | Linear Algebra for Computing                              | C (CE)   | 3         | MH1810        |
| SC1007            | Data Structures & Algorithms                              | C (CE)   | 3         | SC1003        |
| SC2000            | Probability and Statistics for Computing                  | C (CE)   | 3         | MH1810        |
| SC2107            | Microprocessor System Design and Development              | C (CE)   | 3         | SC1006        |
| HE3001            | Microeconomics III                                        | C (Econ) | 3         | HE2001        |
| CC0006            | Sustainability: Society, Economy & Environment            | C-Core   | 3         | Nil           |
| ML0004            | Career & Entrepreneurial Development for the Future World | C-Core   | 2         | Nil           |
|                   |                                                           |          | <b>20</b> |               |

| YEAR 2 SEMESTER 2 |                                                     |           |           |                |
|-------------------|-----------------------------------------------------|-----------|-----------|----------------|
| Course Code       | Course Title                                        | Type      | AU        | Pre-Requisite  |
| SC2001            | Algorithm Design and Analysis                       | C (CE)    | 3         | SC1007, MH1812 |
| SC2002            | Object Oriented Design and Programming              | C (CE)    | 3         | SC1003         |
| SC2103            | Digital Systems Design                              | C (CE)    | 3         | SC1005         |
| HE2002            | Macroeconomics II                                   | C (Econ)  | 3         | HE1002         |
| MH1820            | Introduction to Probability and Statistical Methods | MPE(Econ) | 3         | Nil            |
| CC0007            | Science & Technology for Humanity                   | C-Core    | 3         |                |
|                   |                                                     |           | <b>18</b> |                |

| YEAR 3 SEMESTER 1 |                                        |          |           |                |
|-------------------|----------------------------------------|----------|-----------|----------------|
| Course Code       | Course Title                           | Type     | AU        | Pre-Requisite  |
| SC2104            | Sensors, Interfacing & Digital Control | C (CE)   | 3         | SC1006         |
| SC2005            | Operating Systems                      | C (CE)   | 3         | SC1006, SC1007 |
| SC2006            | Software Engineering                   | C (CE)   | 3         | SC2002         |
| SC2008            | Computing Networks                     | C (CE)   | 3         | SC2004, SC2000 |
| HE2003            | Econometrics I                         | C (Econ) | 3         | MH1820         |
| HE3002            | Macroeconomics III                     | C (Econ) | 3         | HE2002         |
|                   |                                        |          | <b>18</b> |                |

| YEAR 3 SEMESTER 2 |                                  |           |           |                 |
|-------------------|----------------------------------|-----------|-----------|-----------------|
| Course Code       | Course Title                     | Type      | AU        | Pre-Requisite   |
| SC2079            | Multidisciplinary Design Project | C (CE)    | 4         | SC2001. SC2104  |
| SC3103            | Embedded Programming             | C (CE)    | 3         | SC2107          |
| SC3xxx/SC4xxx     | Prescribed Elective 1            | MPE (CE)  | 3         | Year 3 standing |
| HE3003            | Econometrics II                  | C (Econ)  | 3         | HE2003          |
| HE3xxx            | Econs PE 1                       | MPE(Econ) | 3         | TBC             |
| HW0288            | Engineering Communication        | F-Core    | 2         | Year 3 standing |
|                   |                                  |           | <b>18</b> |                 |

| YEAR 4 SEMESTER 1 |                              |           |           |                 |
|-------------------|------------------------------|-----------|-----------|-----------------|
| Course Code       | Course Title                 | Type      | AU        | Pre-Requisite   |
| SC3102            | Signal, System and Transform | C (CE)    | 3         |                 |
| SC4xxx            | Prescribed Elective 2        | MPE (CS)  | 3         | Year 3 standing |
| SC4xxx            | Prescribed Elective 3        | MPE (CS)  | 3         | Depends on MPE  |
| HE3xxx            | Econs PE 2                   | MPE(Econ) | 3         | TBC             |
| HE3xxx            | Econs PE 3                   | MPE(Econ) | 3         | TBC             |
| HE3xxx            | Econs PE 4                   | MPE(Econ) | 3         | TBC             |
|                   |                              |           | <b>18</b> |                 |

| YEAR 4 SEMESTER 2 |                         |        |           |                 |
|-------------------|-------------------------|--------|-----------|-----------------|
| Course Code       | Course Title            | Type   | AU        | Pre-Requisite   |
| SC3079            | Professional Internship | F-Core | 10        | Year 3 standing |
|                   |                         |        | <b>10</b> |                 |

| YEAR 5 SEMESTER 1 |                                 |           |           |                 |
|-------------------|---------------------------------|-----------|-----------|-----------------|
| Course Code       | Course Title                    | Type      | AU        | Pre-Requisite   |
| SC4079            | <b>Final Year Project</b>       | C         | 4         | Year 4 standing |
| SC4xxx            | Prescribed Elective 4           | MPE (CS)  | 3         | Depends on MPE  |
| HE3xxx            | Econs PE 5                      | MPE(Econ) | 3         | TBC             |
| HE3xxx            | Econs PE 6                      | MPE(Econ) | 3         | TBC             |
|                   | Broadening & Deepening Elective | BDE       | 3         |                 |
|                   |                                 |           | <b>16</b> |                 |

| YEAR 5 SEMESTER 2 |                           |           |           |                 |
|-------------------|---------------------------|-----------|-----------|-----------------|
| Course Code       | Course Title              | Type      | AU        | Pre-Requisite   |
| SC4079            | <b>Final Year Project</b> | C         | 4         | Year 4 standing |
| HE4xxx            | Econs PE 7                | MPE(Econ) | 4         | Nil             |
| HE4xxx            | Econs PE 8                | MPE(Econ) | 4         | Nil             |
| HE4xxx            | Econs PE 9                | MPE(Econ) | 4         | Nil             |
|                   |                           |           | <b>16</b> |                 |

**AY2022-23 CURRICULUM FOR COMPUTER  
ENGINEERING AND ECONOMICS  
(DOUBLE DEGREE PROGRAMME)**

**Option 2: 10-week Professional Attachment (PA)**

| SUMMARY OF ACADEMIC UNIT REQUIREMENT |           |           |           |           |           |           |          |            |
|--------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|----------|------------|
| Year of Study                        | Core      |           | MPE       |           | ICC       |           | BDE      | Total AU   |
|                                      | CE        | ECON      | CE        | ECON      | C-Core    | F-Core    |          |            |
| 1                                    | 19        | 9         | 0         | 0         | 9         | 3         | 0        | 40         |
| 2                                    | 21        | 6         | 3         | 0         | 8         | 0         | 0        | 38         |
| 3                                    | 19        | 9         | 0         | 0         | 0         | 7         | 0        | 35         |
| 4                                    | 3         | 0         | 12        | 12        | 0         | 0         | 3        | 30         |
| 5                                    | 8         | 0         | 0         | 18        | 0         | 0         | 5        | 31         |
| <b>Total</b>                         | <b>70</b> | <b>24</b> | <b>15</b> | <b>30</b> | <b>17</b> | <b>10</b> | <b>8</b> | <b>174</b> |

**Suggested Study Plan**

| YEAR 1 SEMESTER 1 |                                                        |          |           |               |
|-------------------|--------------------------------------------------------|----------|-----------|---------------|
| Course Code       | Course Title                                           | Type     | AU        | Pre-Requisite |
| SC1003            | Introduction to Computational Thinking & Programming   | C (CE)   | 3         | Nil           |
| SC1013            | Physics for Computing                                  | C (CE)   | 2         | Nil           |
| MH1810            | Mathematics I                                          | C (CE)   | 3         | Nil           |
| EG1001            | Engineers in Society                                   | C(CE)    | 2         | Nil           |
| HE1001            | Microeconomics I                                       | C (Econ) | 3         | Nil           |
| HE1002            | Macroeconomics I                                       | C (Econ) | 3         | Nil           |
| CC0003            | Ethics & Civics in a Multi-Cultural World              | C-Core   | 2         | Nil           |
| CC0005            | Healthy Living & Mental Well-being in an Aging Society | C-Core   | 3         | Nil           |
|                   |                                                        |          | <b>21</b> |               |

| YEAR 1 SEMESTER 2 |                                                         |          |           |                       |
|-------------------|---------------------------------------------------------|----------|-----------|-----------------------|
| Course Code       | Course Title                                            | Type     | AU        | Pre-Requisite         |
| SC1005            | Digital Logic                                           | C (CE)   | 3         | Nil                   |
| SC1006            | Computer Organisation and Architecture                  | C (CE)   | 3         | SC1005 (co-requisite) |
| MH1812            | Discrete Mathematics                                    | C (CE)   | 3         | Nil                   |
| HE2001            | Macroeconomics II                                       | C (Econ) | 3         | HE1001                |
| SC1015            | Introduction to Data Science & AI                       | F-Core   | 3         | SC1003                |
| CC0001            | Inquiry and Communication in an Interdisciplinary World | C-Core   | 2         | Nil                   |
| CC0002            | Navigating the Digital World                            | C-Core   | 2         | Nil                   |
|                   |                                                         |          | <b>19</b> |                       |

| YEAR 2 SEMESTER 1 |                                                                |          |           |               |
|-------------------|----------------------------------------------------------------|----------|-----------|---------------|
| Course Code       | Course Title                                                   | Type     | AU        | Pre-Requisite |
| SC1004            | Linear Algebra for Computing                                   | C (CE)   | 3         | MH1810        |
| SC1007            | Data Structures & Algorithms                                   | C (CE)   | 3         | SC1003        |
| SC2000            | Probability and Statistics for Computing                       | C (CE)   | 3         | MH1810        |
| SC2107            | Microprocessor System Design and Development                   | C (CE)   | 3         | SC1006        |
| HE3001            | Microeconomics III                                             | C (Econ) | 3         | HE2001        |
| CC0006/ CC0007    | Sustainability: Human Society Economic & Environment / Science | C-Core   | 3         | Nil           |
| ML0004            | Career & Entrepreneurial Development for the Future World      | C-Core   | 2         | Nil           |
|                   |                                                                |          | <b>20</b> |               |

| YEAR 2 SEMESTER 2 |                                                     |           |           |                |
|-------------------|-----------------------------------------------------|-----------|-----------|----------------|
| Course Code       | Course Title                                        | Type      | AU        | Pre-Requisite  |
| SC2001            | Algorithm Design and Analysis                       | C (CE)    | 3         | SC1007, MH1812 |
| SC2002            | Object Oriented Design and Programming              | C (CE)    | 3         | SC1003         |
| SC2103            | Digital Systems Design                              | C (CE)    | 3         | SC1005         |
| HE2002            | Macroeconomics II                                   | C (Econ)  | 3         | HE1002         |
| MH1820            | Introduction to Probability and Statistical Methods | MPE(Econ) | 3         | Nil            |
| CC0007/ CC0006    | Science & Technology for Humanity/Sustainability    | C-Core    | 3         |                |
|                   |                                                     |           | <b>18</b> |                |

| YEAR 3 SEMESTER 1 |                                        |          |           |                |
|-------------------|----------------------------------------|----------|-----------|----------------|
| Course Code       | Course Title                           | Type     | AU        | Pre-Requisite  |
| SC2104            | Sensors, Interfacing & Digital Control | C (CE)   | 3         | SC1006         |
| SC2005            | Operating Systems                      | C (CE)   | 3         | SC1006, SC1007 |
| SC2006            | Software Engineering                   | C (CE)   | 3         | SC2002         |
| HE2003            | Econometrics I                         | C (Econ) | 3         | MH1820         |
| HE3002            | Macroeconomics III                     | C (Econ) | 3         | HE2002         |
|                   |                                        |          | <b>15</b> |                |

| YEAR 3 SEMESTER 2 |                                  |          |           |                 |
|-------------------|----------------------------------|----------|-----------|-----------------|
| Course Code       | Course Title                     | Type     | AU        | Pre-Requisite   |
| SC2008            | Computing Networks               | C (CE)   | 3         | SC2004, SC2000  |
| SC2079            | Multidisciplinary Design Project | C (CE)   | 4         | SC2001, SC2104  |
| SC3103            | Embedded Programming             | C (CE)   | 3         | SC2107          |
| HE3003            | Econometrics II                  | C (Econ) | 3         | HE2003          |
| HW0288            | Engineering Communication        | F-Core   | 2         | Year 3 standing |
|                   |                                  |          | <b>15</b> |                 |

| YEAR 3 SPECIAL SEMESTER |                         |        |          |                 |
|-------------------------|-------------------------|--------|----------|-----------------|
| Course Code             | Course Title            | Type   | AU       | Pre-Requisite   |
| SC3026                  | Professional Attachment | F-Core | 5        | Year 3 standing |
|                         |                         |        | <b>5</b> |                 |

| YEAR 4 SEMESTER 1 |                              |           |           |                 |
|-------------------|------------------------------|-----------|-----------|-----------------|
| Course Code       | Course Title                 | Type      | AU        | Pre-Requisite   |
| SC3102            | Signal, System and Transform | C (CE)    | 3         |                 |
| SC4xxx            | Prescribed Elective 1        | MPE (CS)  | 3         | Year 3 standing |
| SC4xxx            | Prescribed Elective 2        | MPE (CS)  | 3         | Depends on MPE  |
| HE3xxx            | Econs PE 1                   | MPE(Econ) | 3         | TBC             |
| HE3xxx            | Econs PE 2                   | MPE(Econ) | 3         | TBC             |
|                   |                              |           | <b>15</b> |                 |

| YEAR 4 SEMESTER 2 |                                 |           |           |                 |
|-------------------|---------------------------------|-----------|-----------|-----------------|
| Course Code       | Course Title                    | Type      | AU        | Pre-Requisite   |
| SC3xxx/SC4xxx     | Prescribed Elective 3           | MPE (CE)  | 3         | Year 3 standing |
| SC3xxx/SC4xxx     | Prescribed Elective 3           | MPE (CE)  | 3         | Year 3 standing |
| HE3xxx            | Econs PE 3                      | MPE(Econ) | 3         | TBC             |
| HE3xxx            | Econs PE 4                      | MPE(Econ) | 3         | TBC             |
|                   | Broadening & Deepening Elective | BDE       | 3         |                 |
|                   |                                 |           | <b>15</b> |                 |

| YEAR 5 SEMESTER 1 |                                 |           |           |                 |
|-------------------|---------------------------------|-----------|-----------|-----------------|
| Course Code       | Course Title                    | Type      | AU        | Pre-Requisite   |
| SC4079            | Final Year Project              | C         | 4         | Year 4 standing |
| HE3xxx            | Econs PE 5                      | MPE(Econ) | 3         | TBC             |
| HE3xxx            | Econs PE 6                      | MPE(Econ) | 3         | TBC             |
| HE4xxx            | Econs PE 7                      | MPE(Econ) | 4         | Nil             |
|                   | Broadening & Deepening Elective | BDE       | 2         |                 |
|                   |                                 |           | <b>16</b> |                 |

| YEAR 5 SEMESTER 2 |                                 |           |           |                 |
|-------------------|---------------------------------|-----------|-----------|-----------------|
| Course Code       | Course Title                    | Type      | AU        | Pre-Requisite   |
| SC4079            | Final Year Project              | C         | 4         | Year 4 standing |
| HE4xxx            | Econs PE 8                      | MPE(Econ) | 4         | Nil             |
| HE4xxx            | Econs PE 9                      | MPE(Econ) | 4         | Nil             |
|                   | Broadening & Deepening Elective | BDE       | 3         |                 |
|                   |                                 |           | <b>15</b> |                 |

| <b>ECON Core</b>       | <b>ECON Core</b>                               | <b>32AUs</b>              | <b>Sem</b> | <b>Pre-requisite</b> |
|------------------------|------------------------------------------------|---------------------------|------------|----------------------|
| HE1001                 | Microeconomics I                               | 3                         | Y1-S1      | Nil                  |
| HE1002                 | Macroeconomics I                               | 3                         | Y1-S2      | Nil                  |
| HE2001                 | Microeconomics II                              | 3                         | Y1-S2      | HE1001               |
| HE2002                 | Macroeconomics II                              | 3                         | Y2-S2      | HE1002               |
| HE2003                 | Econometrics I                                 | 3                         | Y3-S1      | MH1820               |
| HE3001                 | Microeconomics III                             | 3                         | Y2-S1      | HE2001               |
| HE3002                 | Macroeconomics III                             | 3                         | Y3-S1      | HE2002               |
| HE3003                 | Econometrics II                                | 3                         | Y3-S2      | HE2003               |
| FYP                    | Engineering Graduation Project                 | 8                         | Y5         | Year 4 standing      |
|                        |                                                |                           |            |                      |
| <b>ECON PEs</b>        | <b>ECON PEs</b>                                | <b>33AUs</b>              |            |                      |
| MH1820                 | Introduction to Statistical Theory and Methods | 3                         | Y2-S2      | Nil                  |
| Level 3xxx (6 courses) | Level 3xxx (6 courses)                         | 18                        | S1/S2      |                      |
| Level 4xxx (3 courses) | Level 4xxx (3 courses)                         | 12                        | S1/S2      |                      |
|                        |                                                |                           |            |                      |
| <b>ICC</b>             | <b>ICC</b>                                     | <b>32(PI)/ 27(PA) AUs</b> |            |                      |
| ICC-CC                 | ICC-CC                                         | 17                        | Y1         |                      |
| ICC-FC                 | ICC-FC                                         | 15(PI)/10(PA)             |            |                      |