

**AY2020-21 CURRICULUM FOR COMPUTER ENGINEERING  
POLYTECHNIC STUDENTS WITH EXEMPTIONS**

Last Updated : 29-May-21

**3-year Programme including Professional Internship**

| SUMMARY OF ACADEMIC UNIT REQUIREMENT |           |           |                                     |                          |    |     |           |                   |
|--------------------------------------|-----------|-----------|-------------------------------------|--------------------------|----|-----|-----------|-------------------|
| Year of Study                        | Core      | MPE       | General Education Requirement (GER) |                          |    | UE  | Total AU  |                   |
|                                      |           |           | Core                                | Prescribed Elective (PE) |    |     |           |                   |
|                                      |           |           |                                     | BM                       | LA |     |           | STS               |
| Exemption°                           | 0         | 6°        | 0                                   | 6°                       |    | 15° | 27°       |                   |
| 1                                    | 26        | 0         | 12                                  | 0                        | 0  | 3   | 0         | 41                |
| 2                                    | 28        | 0         | 0                                   | 0                        | 0  | 0   | 0         | 28                |
| 3                                    | 27        | 12        | 2                                   | 0                        | 0  | 0   | 0         | 41                |
| <b>Total</b>                         | <b>81</b> | <b>18</b> | <b>14</b>                           | <b>9</b>                 |    |     | <b>15</b> | <b>140 (113*)</b> |

\*With exemption of 27AU

**Option 1: 3-year Programme including Professional Internship**

| YEAR 1 SEMESTER 1 |  |          |           |                                    |
|-------------------|--|----------|-----------|------------------------------------|
| Course Code       | Course Title   | Type     | AU        | Pre-Requisite                      |
| MH1810            | Mathematics I  | C        | 3         |                                    |
| CE1103            | Introduction to Computational Thinking & Programming | C        | 3         |                                    |
| CE1105            | Digital Logic (Engineering Fundamentals 1)           | C        | 3         |                                    |
| CE1106            | Computer Organisation and Architecture               | C        | 3         | CE1105 (co)                        |
| CE1113            | Physics for Computing                                | C        | 2         |                                    |
| EG0001            | Engineers and Society                                | GER-Core | 3         |                                    |
| HW0111            | Communication: A Journey of Inquiry through Writing  | GER-Core | 2         | HW0001 (can be taken concurrently) |
| GC0001            | Sustainability: Seeing Through the Haze              | GER-Core | 1         | online course                      |
| HY0001            | Ethics & Moral Reasoning                             | GER-Core | 1         | online course                      |
|                   |  |          | <b>21</b> |                                    |

| YEAR 1 SEMESTER 2 |  |          |           |               |
|-------------------|--|----------|-----------|---------------|
| Course Code       | Course Title   | Type     | AU        | Pre-Requisite |
| MH1812            | Discrete Mathematics                                     | C        | 3         |               |
| CE1104            | Linear Algebra for Computing                             | C        | 3         | MH1810        |
| CE1107            | Data Structures and Algorithms                           | C        | 3         | CE1103        |
|                   | Engineering Fundamentals 2                               | C        | 3         |               |
| CE1115            | Introduction to Data Science and Artificial Intelligence | GER-Core | 3         | CE1103        |
|                   | Science & Technology                                     | GER-PE   | 3         |               |
| ET0001            | Enterprise & Innovation                                  | GER-Core | 1         | online course |
| ML0003            | Kickstart your Career Success                            | GER-Core | 1         | online course |
|                   |  |          | <b>20</b> |               |

| YEAR 2 SEMESTER 1 |  |      |           |                |
|-------------------|--|------|-----------|----------------|
| Course Code       | Course Title                                 | Type | AU        | Pre-Requisite  |
| CE2100            | Probability and Statistics for Computing     | C    | 3         | MH1810         |
| CE2101            | Algorithm Design and Analysis                | C    | 3         | CE1107, MH1812 |
| CE2002            | Object Oriented Design & Programming         | C    | 3         | CE1103         |
| CE2005            | Operating Systems                            | C    | 3         | CE1106, CE1107 |
| CE2006            | Software Engineering                         | C    | 3         | CE2002 (co)    |
| CE2107            | Microprocessor System Design and Development | C    | 3         | CE1106         |
| CE3002            | Sensors, Interfacing & Control               | C    | 3         | CE1106         |
|                   |  |      | <b>18</b> |                |

| YEAR 2 SEMESTER 2 |                         |      |           |                         |
|-------------------|-------------------------|------|-----------|-------------------------|
| Course Code       | Course Title            | Type | AU        | Pre-Requisite           |
| CE3179            | Professional Internship | C    | 10        | ML0003, Year 3 standing |
|                   |                         |      | <b>10</b> |                         |

| YEAR 3 SEMESTER 1 |                                  |          |           |                         |
|-------------------|----------------------------------|----------|-----------|-------------------------|
| Course Code       | Course Title                     | Type     | AU        | Pre-Requisite           |
| CE3004            | Multidisciplinary Design Project | C        | 4         | Year 3 standing         |
| CE3102            | Signal, Systems and Transform    | C        | 3         |                         |
| CE3005            | Computing Networks               | C        | 3         | CE1104, CE2100          |
| CE/CZ4XXX         | Prescribed Elective 1            | MPE      | 3         | Depends on MPE          |
| CE/CZ4XXX         | Prescribed Elective 2            | MPE      | 3         | Depends on MPE          |
| HW0288            | Engineering Communication        | GER-Core | 2         | HW0111, Year 3 standing |
| CE4079            | Final Year Project               | C        | 4         | Final year standing     |
|                   |                                  |          | <b>22</b> |                         |

| YEAR 3 SEMESTER 2         |                                |      |            |                     |
|---------------------------|--------------------------------|------|------------|---------------------|
| Course Code               | Course Title                   | Type | AU         | Pre-Requisite       |
| CE4079                    | Final Year Project (cont)      | C    | 4          | Final year standing |
| CE2003                    | Digital Systems Design         | C    | 3          | CE1105              |
| CE3001                    | Advanced Computer Architecture | C    | 3          | CE1106              |
| CE3103                    | Embedded Programming           | C    | 3          | CE2107              |
| CE/CZ4XXX                 | Prescribed Elective 3          | MPE  | 3          | Depends on MPE      |
| CE/CZ4XXX                 | Prescribed Elective 4          | MPE  | 3          | Depends on MPE      |
|                           |                                |      | <b>19</b>  |                     |
| Total AU for Graduation : |                                |      | <b>110</b> |                     |

### Option 2: 3.5-year Programme including Professional Internship

| SUMMARY OF ACADEMIC UNIT REQUIREMENT |           |                |                                     |                          |    |                 |                 |
|--------------------------------------|-----------|----------------|-------------------------------------|--------------------------|----|-----------------|-----------------|
| Year of Study                        | Core      | MPE            | General Education Requirement (GER) |                          |    | UE              | Total AU        |
|                                      |           |                | Core                                | Prescribed Elective (PE) |    |                 |                 |
|                                      |           |                |                                     | BM                       | LA |                 |                 |
| Exemption <sup>o</sup>               | 0         | 6 <sup>o</sup> | 0                                   | 6 <sup>o</sup>           |    | 15 <sup>o</sup> | 27 <sup>o</sup> |
| 1                                    | 26        | 0              | 11                                  | 0                        | 0  | 3               | 40              |
| 2                                    | 34        | 0              | 1                                   | 0                        | 0  | 0               | 35              |
| 3                                    | 17        | 6              | 2                                   | 0                        | 0  | 0               | 25              |
| 4                                    | 7         | 6              | 0                                   | 0                        | 0  | 0               | 13              |
| <b>Total</b>                         | <b>84</b> | <b>18</b>      | <b>14</b>                           | <b>9</b>                 |    | <b>15</b>       | <b>140</b>      |

### Option 2: 3.5-year Programme including Professional Internship

| YEAR 1 SEMESTER 1 |  |          |    |                                    |
|-------------------|--|----------|----|------------------------------------|
| Course Code       | Course Title   | Type     | AU | Pre-Requisite                      |
| MH1810            | Mathematics I  | C        | 3  |                                    |
| CE1103            | Introduction to Computational Thinking & Programming | C        | 3  |                                    |
| CE1105            | Digital Logic (Engineering Fundamentals 1)           | C        | 3  |                                    |
| CE1106            | Computer Organisation and Architecture               | C        | 3  | CE1105 (co)                        |
| CE1113            | Physics for Computing                                | C        | 2  |                                    |
| EG0001            | Engineers and Society                                | GER-Core | 3  |                                    |
| HW0111            | Communication: A Journey of Inquiry through Writing  | GER-Core | 2  | HW0001 (can be taken concurrently) |
| GC0001            | Sustainability: Seeing Through the Haze              | GER-Core | 1  | online course                      |
| HY0001            | Ethics & Moral Reasoning                             | GER-Core | 1  | online course                      |

|  |  |  |           |
|--|--|--|-----------|
|  |  |  | <b>21</b> |
|--|--|--|-----------|

| <b>YEAR 1 SEMESTER 2</b> |  |             |           |                      |
|--------------------------|--|-------------|-----------|----------------------|
| <b>Course Code</b>       | <b>Course Title</b>                                      | <b>Type</b> | <b>AU</b> | <b>Pre-Requisite</b> |
| MH1812                   | Discrete Mathematics                                     | C           | 3         |                      |
| CE1104                   | Linear Algebra for Computing                             | C           | 3         | MH1810               |
| CE1107                   | Data Structures and Algorithms                           | C           | 3         | CE1103               |
|                          | Engineering Fundamentals 2                               | C           | 3         |                      |
| CE1115                   | Introduction to Data Science and Artificial Intelligence | GER-Core    | 3         | CE1103               |
| ET0001                   | Enterprise & Innovation                                  | GER-Core    | 1         | online course        |
|                          | Science & Technology                                     | GER-PE      | 3         |                      |
|                          |  |             | <b>19</b> |                      |

| <b>YEAR 2 SEMESTER 1</b> |  |             |           |                      |
|--------------------------|--|-------------|-----------|----------------------|
| <b>Course Code</b>       | <b>Course Title</b>                          | <b>Type</b> | <b>AU</b> | <b>Pre-Requisite</b> |
| CE2100                   | Probability and Statistics for Computing     | C           | 3         | MH1810               |
| CE2101                   | Algorithm Design and Analysis                | C           | 3         | CE1107, MH1812       |
| CE2002                   | Object Oriented Design & Programming         | C           | 3         | CE1103               |
| CE2005                   | Operating Systems                            | C           | 3         | CE1106, CE1107       |
| CE2107                   | Microprocessor System Design and Development | C           | 3         | CE1106               |
| CE3002                   | Sensors, Interfacing & Control               | C           | 3         | CE1106               |
| ML0003                   | Kickstart your Career Success                | GER-Core    | 1         | online course        |
|                          |  |             | <b>19</b> |                      |

| <b>YEAR 2 SEMESTER 2</b> |                                  |             |           |                                |
|--------------------------|----------------------------------|-------------|-----------|--------------------------------|
| <b>Course Code</b>       | <b>Course Title</b>              | <b>Type</b> | <b>AU</b> | <b>Pre-Requisite</b>           |
| CE3004                   | Multidisciplinary Design Project | C           | 4         | CE2101, CE2004, CE2107 (can be |
| CE2003                   | Digital Systems Design           | C           | 3         | CE1105                         |
| CE2006                   | Software Engineering             | C           | 3         | CE2002 (co)                    |
| CE3005                   | Computing Networks               | C           | 3         | CE1104, CE2100                 |
| CE3103                   | Embedded Programming             | C           | 3         | CE2107                         |
|                          |                                  |             | <b>16</b> |                                |

| <b>YEAR 3 SEMESTER 1</b> |                         |             |           |                         |
|--------------------------|-------------------------|-------------|-----------|-------------------------|
| <b>Course Code</b>       | <b>Course Title</b>     | <b>Type</b> | <b>AU</b> | <b>Pre-Requisite</b>    |
| CE3079                   | Professional Internship | C           | 10        | ML0003, Year 3 standing |
|                          |                         |             | <b>10</b> |                         |

| <b>YEAR 3 SEMESTER 2</b> |                                |             |           |                         |
|--------------------------|--------------------------------|-------------|-----------|-------------------------|
| <b>Course Code</b>       | <b>Course Title</b>            | <b>Type</b> | <b>AU</b> | <b>Pre-Requisite</b>    |
| CE4079                   | Final Year Project             | C           | 4         | Final year standing     |
| CE3001                   | Advanced Computer Architecture | C           | 3         | CE1106                  |
| CE/CZ4XXX                | Prescribed Elective 1          | MPE         | 3         | Depends on MPE          |
| CE/CZ4XXX                | Prescribed Elective 2          | MPE         | 3         | Depends on MPE          |
| HW0288                   | Engineering Communication      | GER-Core    | 2         | HW0111, Year 3 standing |
|                          |                                |             | <b>15</b> |                         |

| <b>YEAR 4 SEMESTER 1</b> |                               |             |           |                      |
|--------------------------|-------------------------------|-------------|-----------|----------------------|
| <b>Course Code</b>       | <b>Course Title</b>           | <b>Type</b> | <b>AU</b> | <b>Pre-Requisite</b> |
| CE4079                   | Final Year Project (cont)     | C           | 4         | Final year standing  |
| CE3102                   | Signal, Systems and Transform | C           | 3         | CE1106               |
| CE/CZ4XXX                | Prescribed Elective 3         | MPE         | 3         | Depends on MPE       |

|           |                       |     |           |                |
|-----------|-----------------------|-----|-----------|----------------|
| CE/CZ4XXX | Prescribed Elective 4 | MPE | 3         | Depends on MPE |
|           |                       |     | <b>13</b> |                |

Total AU for Graduation : **113**