MATHEMATICS AND ENGINEERING, B.A.SC. (CLASS OF 2022)

### Second Year Core 2019/2020

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
</tr>
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<tbody>
<tr>
<td>APSC 200</td>
<td>Engineering Design &amp; Practice II</td>
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<tr>
<td>APSC 293</td>
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<tr>
<td>MTHE 212</td>
<td>Linear Algebra</td>
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<tr>
<td>MTHE 217</td>
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<tr>
<td>MTHE 237</td>
<td>Differential Equations for Engineering Science</td>
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<tr>
<td>MTHE 280</td>
<td>Advanced Calculus</td>
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<tr>
<td>MTHE 281</td>
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### Applied Mechanics Sub-Plan (M6)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
</tr>
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<tbody>
<tr>
<td>Second Year Core</td>
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<td><strong>22.25</strong></td>
</tr>
<tr>
<td>ENPH 252</td>
<td>Mangmt Of Experimental Data</td>
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<tr>
<td>MECH 210</td>
<td>Electronic Circuits and Motors for Mechatronics</td>
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<tr>
<td>MECH 221</td>
<td>Solid Mechanics I</td>
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<tr>
<td>MECH 228</td>
<td>Kinematics And Dynamics</td>
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<tr>
<td>MECH 230</td>
<td>Applied Thermodynamics I</td>
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<tr>
<td>MECH 241</td>
<td>Fluid Mechanics I</td>
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### Computing and Communications Sub-Plan (M9)

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>Second Year Core</td>
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</tr>
<tr>
<td>CMPE 212</td>
<td>Introduction to Computing Science II</td>
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<tr>
<td>ELEC 271</td>
<td>Digital Systems</td>
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<tr>
<td>ELEC 274</td>
<td>Computer Architecture</td>
<td>4.00</td>
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<tr>
<td>ELEC 278</td>
<td>Fundamentals Of Information Structures</td>
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<td>ENPH 239</td>
<td>Eng. Electricity &amp; Magnetism</td>
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<td><strong>Total Units</strong></td>
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### Systems and Robotics Sub-Plan (M11)

<table>
<thead>
<tr>
<th>Code</th>
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<th>Units</th>
</tr>
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<td>Second Year Core</td>
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<tr>
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<td>Electric Circuits</td>
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<td>ELEC 252</td>
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<td>ELEC 271</td>
<td>Digital Systems</td>
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<td>ELEC 274</td>
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<td><strong>Total Units</strong></td>
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### Third Year Core 2020/2021

<table>
<thead>
<tr>
<th>Code</th>
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<th>Units</th>
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<tr>
<td>APSC 221</td>
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<td>MTHE 326</td>
<td>Functions of a Complex Variable</td>
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<td>Introduction To Control</td>
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<tr>
<td>MTHE 334</td>
<td>Math Methods For Engrg &amp; Phys</td>
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<td>MTHE 335</td>
<td>Math Of Engineering Systems</td>
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<tr>
<td>MTHE 393</td>
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### Applied Mechanics Sub-Plan (M6)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>Third Year Core</td>
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<td><strong>21.50</strong></td>
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<tr>
<td>MECH 321</td>
<td>Solid Mechanics II</td>
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<tr>
<td>MECH 323</td>
<td>Machine Design I</td>
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<tr>
<td>MECH 328</td>
<td>Dynamics And Vibration</td>
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<td>MECH 330</td>
<td>Applied Thermo II</td>
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<td>MECH 341</td>
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<td>MECH 399</td>
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### Computing and Communications Sub-Plan (M9)

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>Third Year Core</td>
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<tr>
<td>ELEC 371</td>
<td>Microprocessor Interfacing and Embedded Systems</td>
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<tr>
<td>MTHE 351</td>
<td>Probability I</td>
<td>3.50</td>
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<tr>
<td>MTHE 353</td>
<td>Probability II</td>
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<tr>
<td>CMPE 365</td>
<td>Algorithms I</td>
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<tr>
<td>CMPE 332</td>
<td>Database Management Systems</td>
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<td></td>
<td><strong>Total Units</strong></td>
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### Systems and Robotics Sub-Plan (M11)

<table>
<thead>
<tr>
<th>Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Third Year Core</td>
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<td><strong>21.50</strong></td>
</tr>
<tr>
<td>ELEC 278</td>
<td>Fundamentals Of Information Structures</td>
<td>4.00</td>
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</tbody>
</table>
### ELEC 371
Microprocessor Interfacing and Embedded Systems

### ENPH 239
Eng. Electricity & Magnetism 3.50

### MTHE 351
Probability I 3.50

### MTHE 353
Probability II 3.00

### Complementary Studies, List A, F or W 3.00

**Total Units** 4.00

### ENPH 239
Eng. Electricity & Magnetism 3.50

### MTHE 351
Probability I 3.50

### MTHE 353
Probability II 3.00

### Complementary Studies, List A, F or W 3.00

**Total Units** 42.50

### Fourth Year Core 2021/2022

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<th>Units</th>
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<tbody>
<tr>
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<tr>
<td>MTHE 494</td>
<td>Mathematics and Engineering Seminar</td>
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**Total Units** 10.50

### Applied Mechanics Sub-Plan (M6)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>Fourth Year Core 10.50</td>
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<tr>
<td>MTHE 351</td>
<td>Probability I</td>
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<tr>
<td>MTHE 430</td>
<td>Modern Control Theory</td>
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<tr>
<td>MTHE 439</td>
<td>Lagrangian Mechanics, Dynamics Control 0.50</td>
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<tr>
<td>Complementary Studies, List A, F or W 3.00</td>
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**Total Units** 30.50

### Electives

M6 students must choose 4 technical electives: a minimum of one (1) technical elective must be taken from List I, and the remaining from List II, subject to the requirement that the elective selection satisfies the following two criteria:

1. the selection exceeds the minimum of 40 Accreditation Units (AUs) in Engineering Design (ED) and
2. the selection exceeds the minimum of 120 AUs in Engineering Design + Engineering Science (ES+ED).

**Please Note:** the term in which a course is offered can change from one academic year to the next. This can occur due to instructor availability or a change to departmental resources. Please refer to the on-line Course Timetable to determine the terms in which the courses in this Technical Elective section will be offered.


**Minimum Total Credits: 42.5**

### Computing and Communications Sub-Plan (M9)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fourth Year Core 10.50</td>
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<td>MTHE 455</td>
<td>Stochastic Processes &amp; Applications</td>
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<tr>
<td>MTHE 474</td>
<td>Information Theory</td>
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<tr>
<td>MTHE 477</td>
<td>Data Compression &amp; Source Coding</td>
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<tr>
<td>Complementary Studies, List A, F or W 3.00</td>
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</table>

**Total Units** 29.00

### Electives

M9 students must choose 4 technical electives: a minimum of one (1) technical elective must be taken from List I, and the remaining from List II, subject to the requirement that the elective selection satisfies the following two criteria:

1. the selection exceeds the minimum of 40 Accreditation Units (AUs) in Engineering Design (ED) and
2. the selection exceeds the minimum of 100 AUs in Engineering Design + Engineering Science (ES+ED).

**Please Note:** the term in which a course is offered can change from one academic year to the next. This can occur due to instructor availability or a change to departmental resources. Please refer to the on-line Course Timetable to determine the terms in which the courses in this Technical Elective section will be offered.


**Minimum Total Credits: 41**

### Systems and Robotics Sub-Plan (M11)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fourth Year Core 10.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MTHE 430</td>
<td>Modern Control Theory</td>
<td>4.00</td>
</tr>
<tr>
<td>MTHE 474</td>
<td>Information Theory</td>
<td>3.00</td>
</tr>
<tr>
<td>MTHE 472</td>
<td>Control Of Stochastic Systems</td>
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<tr>
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</table>

**Total Units** 26.50

**Minimum Total Credits: 42.5**
Electives
M11 students must choose 4 technical electives: a minimum of one (1) technical elective must be taken from List I; and the remaining from List II, subject to the requirement that the elective selection satisfies the following two criteria:

1. the selection exceeds the minimum of 40 Accreditation Units (AUs) in Engineering Design (ED) and
2. the selection exceeds the minimum of 120 AUs in Engineering Design + Engineering Science (ES+ED).

Please Note: the term in which a course is offered can change from one academic year to the next. This can occur due to instructor availability or a change to departmental resources. Please refer to the on-line Course Timetable to determine the terms in which the courses in this Technical Elective section will be offered.


Minimum Total Credits: 38.5

Complementary Studies
Refer to the Complementary Studies section of this calendar for details regarding the requirements for all Engineering programs. For the Mathematics and Engineering Program, the Engineering Economics course is APSC 221 Economic And Business Practice, and the Communications requirements are met through courses taken in the core program (MTHE 393 Engineering Design and Practice for Mathematics and Engineering, MTHE 494 Mathematics and Engineering Seminar, MTHE 493 Engineering Math Project and APSC 293 Engineering Communications)