# Program Model 2024-2025 SY

## Engineering Strand

<table>
<thead>
<tr>
<th>Grade</th>
<th>Science</th>
<th>Research</th>
<th>Math</th>
<th>Credits</th>
</tr>
</thead>
</table>
| 11    | University Physics I: Calculus-based  
       | 2 HS Science  
       | VPCC - PHY 241, 4 credits | Research Methodology & Ethics  
       | 1 HS Elective  
       | VPCC: MTH 245, 3 credits | Calculus  
       | 1 HS Math  
       | VPCC - MTH 263, 4 credits  
       | VPCC - MTH 264, 4 credits | 4 HS credits  
       | VPCC 15 credits |
| 12    | University Physics II: Calculus-based  
       | 2 HS Science  
       | VPCC - PHY 242, 4 credits | Honors Research & Mentorship  
       | 2 HS Electives  
       | VPCC: NAS 206, 3 credits | Calculus  
       | 1 HS Math  
       | VPCC - MTH 263, 4 credits  
       | VPCC - MTH 264, 4 credits | 5 HS credits  
       | VPCC 15 credits |
|       |         |          |      |         |
|       |         |          |      |         |

Prerequisites: Biology, Chemistry, and Math minimum of Precalculus

Revised 2.1.2024
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| 11    | **University Physics 1:**  
Calculus-based  
2 HS Science  
VPCC: PHY 241, 4 credits  
OR  
**General College Physics 1:**  
Algebra-based  
2 HS Science  
VPCC: PHY 201, 4 credits  
VPCC: PHY 202, 4 credits | **Research Methodology & Ethics**  
1 HS Elective  
VPCC: MTH 245  
3 credits | **Precalculus**  
1 HS Math  
VPCC - MTH 161, 3 credits  
VPCC - MTH 162, 3 credits | 4 HS credits  
VPCC 13 credits |
| 12    | **Advanced Biological Analysis**  
2 HS Science  
VPCC: BIO 101, 4 credits  
VPCC: BIO 102, 4 credits | **Honors Research & Mentorship**  
2 HS Electives  
VPCC: NAS 206, 3 credits | **Calculus**  
1 HS Math  
VPCC - MTH 263, 4 credits  
VPCC - MTH 264, 4 credits | 5 HS credits  
VPCC 19 credits |
|       |         |          | **Differential Equations**  
1 HS Math  
VPCC - MTH 267, 3 credits | | 5 HS credits  
VPCC 14 credits |
|       |         |          | **Multivariable & Linear Algebra**  
1 HS Math  
VPCC - MTH 265, 4 credits  
VPCC - MTH 266, 3 credits | | 5 HS credits  
VPCC 18 credits |
### COMPUTATIONAL SCIENCE STRAND

<table>
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<th>Math</th>
<th>Credits</th>
</tr>
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</table>
| 11    | **Computational Physics:**
  - Algebra-based physics
  - VPCC: PHY 201, 4 credits
  - VPCC: PHY 202, 4 credits
|         | **Research Methodology & Ethics**
  - 1 HS Elective
  - VPCC: MTH 245
  - 3 credits |
|         | **Precalculus**
  - 1 HS Math
  - VPCC - MTH 161, 3 credits
  - VPCC - MTH 162, 3 credits |
|         | **Calculus**
  - 1 HS Math
  - VPCC - MTH 263, 4 credits
  - VPCC - MTH 264, 4 credits |
|         | **Multivariable & Linear Algebra**
  - 1 HS Math
  - VPCC - MTH 265, 4 credits
  - VPCC - MTH 266, 3 credits |

| 12    | **Computational Computer Programming**
  - 2 HS Science
  - VPCC: CSC 221, 222, 6 credits |
|         | **Honors Research & Mentorship**
  - 2 HS Electives
  - VPCC: NAS 206, 3 credits |
|         | **Calculus**
  - 1 HS Math
  - VPCC - MTH 263, 4 credits
  - VPCC - MTH 264, 4 credits |
|         | **Differential Equations**
  - 1 HS Math
  - VPCC - MTH 267, 3 credits |
|         | **Multivariable & Linear Algebra**
  - 1 HS Math
  - VPCC - MTH 265, 4 credits
  - VPCC - MTH 266, 3 credits |

#### IMPORTANT INFORMATION:

It is imperative that all students meet with their high school counselor to ensure that the requirements for the Advanced Diploma are met.

Dual enrollment credits and fees, determined by VCCS and VPCC, are not guaranteed and may change throughout the school year.

Revised 2.1.2024