Georgia's 21st-Century Technology, Engineering, and Computer Science Workforce Challenge

The Economics of Georgia

**ADVANCED ROBOTICS**
$1.7 to $4.5 trillion Global impact per year by 2025
12 % Size of Global Manufacturing Workforce Impacted

**CYBERSECURITY**
1.5 Million Jobs by 2020, nationally
$4.7 billion Georgia Annual Revenue

**INFORMATION TECHNOLOGY**
$113.1 Billion economic impact on Georgia
17,000 technology companies
200,000 high-tech professionals

**AEROSPACE**
$ 8.3 Billion Georgia Annual Revenue

**DEFENSE**
$ 6.4 Billion in U.S. Department of Defense (DoD) contract work was performed in Georgia, Of this, the Aerospace sector accounts for $2.7 Billion

The High School and Middle School Courses

<table>
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<th>3 Middle School Courses</th>
<th>40 High School Courses</th>
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<tbody>
<tr>
<td>Engineering and Technology</td>
<td>Engineering and Technology</td>
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<td>Advanced Manufacturing</td>
<td>Computer Science</td>
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<td>Industrial Systems</td>
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The Teacher Development Goldilocks Problem

Historically, teacher development has followed one of two pathways. The TOO-COLD approach tends toward providing traditional educator development with weak content and non-supportive environments. The result is a teacher without the correct content knowledge, classroom, and career developmental background. The TOO-HOT approach goes to the other extreme and demands a fully qualified engineer or scientist to teach a K-12 course. The result is a very expensively produced teacher, that does not have the correct content knowledge, nor the skills needed to teach.

This is the Goldilocks Problem in STEM+CS Teacher Development

The optimal approach is to create a ‘sub-engineer / teacher’ degree program that captures the fundamentals of engineering, technology, and computer science, plus STEM+CS pedagogy.

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