INFORMATION TECHNOLOGY PRESSURE TEST

FEBRUARY 26, 2021
Motivation and Process - Same as for Other Disciplines

Analyze ITEC Program Academic Map
   is a pathway to graduation in four years attainable?

Identify impediments to student progress towards graduation
   examine with an eye toward momentum

Recommendations
Information Technology at GGC

• We have a great story!
  − 1300 Students, 70 Faculty
  − 5 Concentrations: Software Development, Systems and Security, Digital Media, Enterprise Systems, Data Science and Analytics
  − Most diverse college in the SE, open access, undergraduate only
  − Largest ITEC Program in USG

• High quality
  − Compliance to ITEC 2017 (ACM SIGITE Standard), higher than that 88% US schools
  − Culture of competition and winning
  − Culture of continuous improvement
  − Research/scholarship: student engaged, SoTL
IT: Systems and Security Academic Map

This academic map is a suggested four-year schedule of courses based on degree requirements in the GGC catalog. The sample schedule serves as a general guideline to help build a full schedule each term. Missing milestones could delay your program.

IT: Software Development Academic Map

This academic map is a suggested four-year schedule of courses based on degree requirements in the GGC catalog. The sample schedule serves as a general guideline to help build a full schedule each term. Missing milestones could delay your program.

IT: Data Science and Analytics Academic Map

This academic map is a suggested four-year schedule of courses based on degree requirements in the GGC catalog. The sample schedule serves as a general guideline to help build a full schedule each term. Missing milestones could delay your program.

IT: Enterprise Systems Academic Map

This academic map is a suggested four-year schedule of courses based on degree requirements in the GGC catalog. The sample schedule serves as a general guideline to help build a full schedule each term. Missing milestones could delay your program.

IT: Digital Media Academic Map

This academic map is a suggested four-year schedule of courses based on degree requirements in the GGC catalog. This sample schedule serves as a general guideline to help build a full schedule each term. Missing milestones could delay your program.

Also see the current undergraduate catalog for a complete list of requirements, electives, and prerequisites. This map is not a substitute for academic advising—contact your advisor if you have questions about scheduling or your degree requirements. Also see the current undergraduate catalog for a complete list of requirements.
Are we offering enough sections at diverse days/times to meet needs?

Initial pressure test conclusion - met
- Stable: sizable enrollment and schedule
- Annual 2/3-year projection updates
- Required courses every semester (D/N)
- Monitor fill rates very frequently

Faculty staffing met, with concerns
- Outstanding request for 4 FT faculty
- Need robust IT and proctoring infrastructure for new programs, will stress faculty loads too
- FT faculty not following enrollment increases

Turn to impediments!
Impediments – By Data/Analysis/Discussion

1) **Students enter with deficiencies in fundamental English and math**
2) Student is unable or chooses not to take sufficient credits each semester
3) Student is not properly advised, or fails to take the advice given, regarding sequencing.
4) Student does not achieve the required course grade to advance
5) **Student suspends or takes a pause**
6) Compounding of the factors listed above

**Bolded items different than those of PSYC/ENGL**
1) ITEC Students Enter w/Deficiencies in English and Math

ENGL
- 8% require learning support English

MATH
- 7% require learning support math
- 87% do not take MATH 1113 as their first math course
  Only ~3% take MATH 2200 Calc I

8-9 in 10 will need to extend their ideal four-year plan to accommodate catch-up course
work in math and/or English.

Repels Momentum!
The DFWI in Area A-E for ITEC majors from fall 2016 to fall 2019 timeframe has been consistently 28 to 31%, overall. **3 in 10 ITEC students will need to repeat a Gen-Ed course. Repels Momentum!**

ITEC majors most difficult: MATH 1113 and CHEM 1211K/CHEM 1212K. **4 to 5 in 10 ITEC Students will need to repeat a MATH course, 4 to 5 in 10 will need to repeat a CHEM course. Repels Momentum!**

Source: GGC Institutional Research and Analytics
2) Insufficient Credits Each Semester

ITEC students take 11.98 credits/semester, on average. 1 in 3 ITEC majors are on a 5+ year pace.

8 in 10 ITEC majors do not enroll in enough credits for 4-year cadence. Repels Momentum!

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3) Poorly advised, or fails to take the advice given, regarding course sequencing.

- Example Course Dependency Diagram – Digital Media AY19-20
Dependency Diagrams for ITEC Concentrations
**INFORMATION TECHNOLOGY – PRESSURE TEST**

**Course Sequencing**

Several high stakes ‘gateway’ courses
- ITEC 1001, ITEC 2140, ITEC 2150, ITEC 2201

**II-Advisement**
- Faculty:student ratio increasing
  - grows from 27.9 fall ‘17 to 30.0 fall ’19
  - faculty FT shortfall, doing more with less

Any sequence interruption **Repels Momentum!**

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**DFWI Gateway Fall 2019**

<table>
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<tr>
<th>Course Code</th>
<th>Percentage</th>
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<td>ITEC 1001*</td>
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<td>ITEC 2150</td>
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* Gen-ed, all majors

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**Georgia Gwinnett College**
4) If the student does not achieve the required course grade to advance.

- C or better required
  - in all prerequisites
  - any course in major
- Any miss **Repels Momentum!**
5) Student Suspends or Takes a Pause Semester

- “It’s taking too long!”
- Anecdotally, we know this
  - Monetary reasons
  - Job demands increase, in- or out-of-field
  - Could use more data
  - Increased during pandemic
- Adds one or more semesters, Repels Momentum!
6) Conditions Compound

• Frequently observed
  – through exception requests - pre-req overrides, non-standard substitutions, pile up at capstone time
  – for those that make the request. How many more are there?
• Perhaps 1-2 setbacks can be absorbed
• Long course sequences chains are unforgiving
• Consider the 5-year paced student
  – 1-2 more setbacks can easily push them to 5.5 or 6 or 6+
• Multiple setbacks will delay completion, Repelling Momentum!
RECOMMENDATIONS

Work with GGC stakeholders to improve fulltime enrollment options
  - financial aid, scholarships

Mentoring
  - Focus with students on proper course sequencing
  - Advocate/reward Peer Supplemental Instruction (PSI) attendance and Academic Enhancement Center (AEC) tutoring in ENGL, MATH, and ITEC gateways
  - Keep mentor load manageable, allowing familiarity and personalized attention

Increase ITEC fulltime faculty

Explore
  - Methods to improve student performance in gateway courses
    - PSI, OER, bootcamp(s), online drill/practice tools, etc.
  - Continued pressure testing
  - Gather / analyze deeper data - time to graduation, number of repeats, etc.
  - Summer bridge programs or mini-mesters to help students catch up
  - Peer-mentoring program