IV: Program Design

1. **Based on the Market Analysis/Influence in Section III, evaluate the current curriculum's strengths and identify those areas that require attention and changes or additions that could lead to increased growth in the program.**

   Currently, Cape Cod Community College's IT Program is part of the Business Department. The IT program offers the following 8 Associate Degree options:
   - Administrative Assistant - General
   - Administrative Assistant - Medical
   - Application Specialist
   - Database Development and Management
   - Information Technology
   - Network Administration
   - Software Development
   - Web Site Design and Development

   The 8 IT Certificate options include the following:
   - Administrative Assistant:
     - General Office Administration
     - Medical Office Administration
   - Application Specialist
   - Database Design
   - Desktop Publishing
   - PC Service Technician
   - Web Site Design
   - Paralegal Studies

   The IT Program’s strengths include the breadth and depth of the offerings and the up-to-date nature of offerings. Another strength of the IT program is the many course offering that are suitable for non-IT majors. The weaknesses of the program include its small enrollment leading to small class sizes in the upper level courses. These courses are frequently canceled leading to many course substitutions in order for students to graduate in a timely manner. The breadth of the program, one of its strengths, is also one of its weaknesses.

   Consolidation of the current A.S. options eliminating those with extremely low enrollment would benefit the program. Having a stronger, required cooperative work experience in all options would also strengthen the program. A major marketing effort for a new consolidated program is also a key component to reinvigorating the program. The College, with the guidance of the IT faculty, is in the process of adding IT fluency to its graduation requirements. When this change takes place, IT offerings will need to be modified to meet the needs of all students. IT fluency embraces IT skills (Applications), IT concepts (IT Fundamentals), and higher-level, problem-solving in IT.

   One of the highest enrolled IT options is the Medical Administrative Assistant options. The employment possibilities in the medical support area are expanding on Cape Cod as it is a retirement destination. The program needs to develop a option leading to Certified Professional Coding status for students. The College is currently pursuing a grant to develop a Medical Informatics curriculum that will greatly impact the offerings in database development and design. The certificate in Paralegal Studies is also well enrolled although it is only offered at night. The College needs to devote the resources to create an Associates Degree in Paralegal Studies that is offered to both day and night students. Medical Informatics would seem to be a fruitful area for new growth.

2. **Curriculum: Provide information from the College catalog, which identifies all of the courses in the program(s) of study. (Attach copies as printed in the most recent College catalog.)**
3. Identify and discuss program courses for which outcomes are available.
   (See Appendix D)
   Student Learning Outcomes are available for all courses in the program.

4. Attach copies of the College syllabus for each program course.
   (See Appendix D)

5. How are course outcomes developed, reviewed and modified?
   Course outcomes are developed by the full-time IT faculty using academic and industry standards. The outcomes are reviewed and approved by the Business Department and the Curriculum and Programs Committee. Major changes to the outcomes are discussed with the IT Advisory Committee. Because IT industry standards and technologies are constantly changing, modifications to the curriculum and outcomes are an ongoing process.

6. Describe how course outcomes are assessed.
   Course outcomes are assessed by a variety of methods including hands-on projects, team projects, hands-on testing, objective testing, and writing projects. Business writing is encouraged across the curriculum.

7. Describe the process used to review curriculum and course content. What is the role of faculty? What is the role of the Program Advisory Committee?
   Updates to the curriculum to keep pace with changing industry standards are initiated by the full-time faculty and reviewed and approved by the Business Department and the Curriculum and Programs Committee. Major revisions to the curriculum are discussed with the IT Advisory Committee and sometimes are the result of suggestions made by the Advisory Committee.

8. Describe the process used for annual review of textbooks.
   Individual faculty members are responsible for textbook choices as required by our MCCC contract. Adjunct faculty relies heavily on input from the full-time faculty. GIT110 Microcomputer Applications has a standard textbook agreed upon by consensus of all faculty teaching the course. These are important procedures to ensure that all sections of a course achieve the same learning outcomes.

9. Describe how courses are scheduled to meet the needs of day and evening students?
   Multiple-section courses that are offered every semester always have day and evening sections. Single sections courses that are offered every semester alternate day and evening offerings. Courses that are offered only once a year have an evening section offered every other year, although these sections are often canceled for low enrollment. This is a thoughtful attempt to schedule so as to meet the needs of all students.

10. Describe the process for assuring that students who are enrolled in courses offered through evening or at a distance are acquiring the same skill set as those students who are enrolled in the day program.
    All IT courses offered at Cape Cod Community College work with the same set of Student Learning Outcomes and general evaluation procedures. The evaluation of course materials and the competency of the instructors follows Massachusetts Community College Council guidelines. These evaluative procedures are the purview of the administrative staff. These are important procedures to ensure that all sections of a course achieve the same learning outcomes.

11. Provide a proposed revised curriculum for the program and describe the rationale for the course sequence.
Peter Saflund, Saflund Institute, in the keynote address BATEC (Boston Area Technology Education Consortium) Workforce Study at the CITI/BATEC IT Futures forum on February 2, 2007, reinforced the message of the IT Advisory Committee. Business and industry is assuming adequate IT skills in the areas of web, database, networking, and application development. What the future IT workers need are soft skills especially in the areas of communication and customer service. The following are cited by Saflund as the most important employability skills:

- Communication (oral and written)
- Work productively in teams and groups
- Customer and business focus
- Listen for meaning and comprehension
- Resourceful and creative problem solving
- Prioritize work and self evaluate
- Comprehend and communicate quantitatively
- Develop original solutions to novel problems

The revised, consolidated IT AS degree curriculum attempts, in two years, to give Cape Cod Community College students the fundamentals of web, database, networking, and application development skills while incorporating the "soft" and business skills so important to employability. The new curriculum incorporates the business core. The general education requirements will enhance the "soft" skills. This appears to be a well thought-out revision, combining technical, soft and business skills with general education courses.

### Revised IT AS Degree Curriculum

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>COM103</td>
<td>Oral Communication</td>
<td>3</td>
<td>ENL010 or a satisfactory reading comprehension score on the basic skills assessment</td>
</tr>
<tr>
<td>ENL101</td>
<td>English Composition I</td>
<td>3</td>
<td>Appropriate score on the Computerized Placement Test or grade of C or better in ENL050 or ESL201</td>
</tr>
<tr>
<td>ECO117 (or) ECO118</td>
<td>Principles of Macroeconomics (or) Principles of Microeconomics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Language Arts (or) Fine and Performing Arts</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PSY101</td>
<td>General Psychology</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Education elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mathematics</td>
<td>3/4</td>
<td></td>
</tr>
<tr>
<td>BUS100</td>
<td>Introduction to Business</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ACC111</td>
<td>Accounting I with Computer Applications</td>
<td>3</td>
<td>MAT020, ENL020</td>
</tr>
<tr>
<td>BUS120</td>
<td>Business Law</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>GIT110</td>
<td>Microcomputer Application Software*</td>
<td>3</td>
<td>GIT102 or equivalent, ENL020 &amp; ENL050</td>
</tr>
<tr>
<td>BIT112</td>
<td>Information Technology Foundations</td>
<td>3</td>
<td>ENL020 &amp; ENL050</td>
</tr>
<tr>
<td>BIT113</td>
<td>Microcomputer Hardware</td>
<td>3</td>
<td>MAT030, ENL020, &amp; ENL050</td>
</tr>
<tr>
<td>BIT115</td>
<td>Operating Systems</td>
<td>3</td>
<td>GIT110</td>
</tr>
<tr>
<td>GIT150</td>
<td>Database Applications</td>
<td>3</td>
<td>GIT120, GIT108 or GIT110 or equivalent skill level in Windows</td>
</tr>
<tr>
<td>BIT187</td>
<td>Networking Essentials</td>
<td>3</td>
<td>BIT113; Corequisite: BIT115</td>
</tr>
<tr>
<td>GIT183</td>
<td>Web Site Design and Scripting (or)</td>
<td>3</td>
<td>ENL020 &amp; ENL050 (or) GIT110 (or) GIT110</td>
</tr>
</tbody>
</table>


12. **Explain how general education components are integrated within the program.**
The general education electives enhance students’ oral and written communication, quantitative, and social and global awareness skills.

13. **Describe the instructional methodologies utilized in the program.**
Almost all IT courses are taught in “smart” computer classrooms with projection systems. Methodologies include modeling, demonstration, lecture, hands-on experimentation, case studies, and team projects.

14. **Provide examples of how students demonstrate their use and understanding of information technology in the program.**
Students demonstrate their use and understanding of information technology throughout the entire program. From courses ranging Introduction to Information Technology to advanced IT electives, students are exposed to hands-on IT experiences and expected to demonstrate their competency by working with teams, documenting case studies, completing projects, and taking exams.

15. **List any changes that would enhance student learning.**
Increased emphasis on communication, customer service, and business skills would greatly enhance learning. Having a required work experience in all IT AS degree options would reinforce the skills learned in the classroom and introduce students to work in a business, IT environment.

16. **Describe any work-based or service-learning opportunities within the program.**
Currently all work-based or service learning opportunities in the IT program are elective options. The courses that provide work-based opportunities are as follows:
- BIT261 – IT Cooperative Work Experience (3 credits – 300 hours)
- BIT263 – IT Cooperative Work Experience (2 credits – 150 hours)
- BIT 260 – IT Field Project (1 credit)
- BIT221 – Web Site Development Practicum (3 credits) BIT 221 also qualifies as service learning as students volunteer to develop a web site for a nonprofit organization.

17. **Provide data that demonstrates the effectiveness of the opportunities described above.**
Although the number of students availing themselves of work-based and service-based learning opportunities is limited, almost all students who do participate receive excellent evaluations from their employers. Several of the students have been employed at their cooperative work sites after graduation. For example, The Woods Hole Oceanographic Institute has employed at least two of Cape Cod Community College’s IT graduates after first providing a cooperative work experience.

18. **Provide examples of student learning outcomes (knowledge, skills, abilities) for the program and its courses.**
(Please see Appendix D for complete student learning outcomes by course.)
The program outcomes for the Information Technology are as follows:
- Read, write, discuss and think critically about topics and ideas in information and/or office technology
- Analyze ethical issues and apply ethical standards in the performance of responsibilities in a variety of information and office technology careers
• Synthesize information from communications, information technology, office technology, and business to provide customer service and solve business problems
• Assume positions in a variety of information and office technology careers
• Work well with teams in a information or office technology setting
• Transfer to baccalaureate programs from an AS program
• Continue in an AS program for certificate students

19. Describe any new student assessment methods that have been implemented. For the past four years Cape Cod Community College has been a Certiport testing center. Instructors and students have had limited access to Microsoft Office and IC3 testing because sufficient resources have not been devoted to the testing center. The college might consider devoting more money to support the Certiport testing center and give students more opportunities to achieve industry-standard certification.