Strengthening the Global Competence and Research Experiences of Undergraduate Students

A QUALITY ENHANCEMENT PLAN
Submitted by the Georgia Institute of Technology
to the Commission on Colleges
Southern Association of Schools and Colleges
March 2005
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March 15, 2005

Dr. G. Jack Allen  
Associate Executive Director  
Commission on Colleges  
Southern Association of Colleges and Schools  
1866 Southern Lane  
Decatur, Georgia 30033

Dear Dr. Allen:

We are pleased to submit our Quality Enhancement Plan, “Strengthening the Global Competence and Research Experiences of Undergraduate Students,” as a key part of Georgia Tech’s 2005 SACS reaffirmation. This plan is the result of a two-year, Institute-wide effort. It describes a timely and promising set of initiatives to improve the quality of our undergraduate experience in two strategically important areas: the preparation of our undergraduates for the global community and the enhancement of their skills in scholarship and innovation. The Institute is committed to this five-year Quality Enhancement Plan as outlined in this proposal.

We look forward to the visit of the Reaffirmation Committee on April 26-28, 2005, and benefiting from their thoughts and advice.

Sincerely,

G. Wayne Clough  
President

cc: Members of the Reaffirmation Committee  
    Provost and Vice President for Academic Affairs  
    Senior Vice President for Administration and Finance  
    Associate Provost and SACS Accreditation Liaison  
    Vice Presidents  
    Vice Provosts  
    Deans

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A Unit of the University System of Georgia   An Equal Education and Employment Opportunity Institution
EXECUTIVE SUMMARY

When founded in 1885, the Georgia Institute of Technology (Georgia Tech) was dedicated to providing technological leaders for the state and nation whose education combined science-based academic studies with “learning by doing” in applied technical settings. This educational philosophy continues today, as evidenced by the many employers who speak highly of the ready-to-work capabilities and can-do spirit of Georgia Tech graduates. Even though our students, alumni, and employers are pleased with the quality of our programs, Georgia Tech continuously seeks to improve its programs to assure they provide our graduates with a contemporary education and the lifelong learning skills needed for the future. Following a two-year Institute-wide effort, two initiatives were selected for our Quality Enhancement Plan (QEP). These initiatives, deemed the most promising and timely strategic areas in which to improve the quality of Georgia Tech’s educational experience, are to strengthen the global competence and research experiences of undergraduate students to be well prepared to practice their disciplines in a global context and to strengthen the opportunities for them to enhance their skills in scholarship and innovation through research.

The first initiative, referred to as the International Plan, seeks to increase the number of undergraduate students who graduate with global competence in the international practice of their major. Global competence is the product of both international studies and experiences designed to instill a deep and multi-faceted understanding of global relations, intercultural differences, and international disciplinary practices. This initiative involves a unique degree-long program that integrates international studies and experiences into any major at Georgia Tech. Graduates of the program will be proficient in a second language; be knowledgeable about comparative international relations, the world economy, and the socio-political systems and culture of at least one other country or world region; and be able to practice their discipline within an international context. Students completing the program will receive the degree designation “International Plan” on their transcripts and diplomas to signify the depth and breadth of their global competence in their major. Among the desired outcomes is to achieve Georgia Tech’s strategic goal of having 50 percent of its undergraduate students graduate with an international experience by 2010.

The second initiative seeks to increase the number of undergraduate students participating in research and encourage more students to pursue a research career. This effort is based on two programs known as the Undergraduate Research Opportunities Program (UROP) and the Research Thesis Option. The Undergraduate Research Opportunities Program seeks to facilitate the participation of more undergraduate students in research, encourage longer research experiences, and improve the quality of these experiences through faculty mentoring. The Research Thesis Option is designed for those students who seek an intensive research experience and possibly a research career. Participants in both programs will deepen and broaden their problem-solving and communication skills, knowledge of the frontiers of their discipline, and research competence and confidence. Students completing the Research Thesis Option will receive the recognition “Research Thesis Option” on their transcripts to signify the extra depth and breadth of their research experience. Among the desired outcomes is to have 60 percent of Georgia Tech’s undergraduate students graduate with research experience by 2010.

The five-year, $4.9-million QEP involves all six colleges of Georgia Tech and a number of support units. Georgia Tech’s broad base of research programs and international efforts are important enablers for these two initiatives. The Undergraduate Research Opportunities Program will facilitate participation in research for all undergraduate majors, and the International Plan and the Research Thesis Option are designed to accommodate all undergraduate majors whose academic units choose to participate. The management and implementation of the QEP involves the senior administration of Georgia Tech, college and unit leadership, and faculty and students organized into principally three committees. Each initiative is led by a committee of faculty, staff, and students; chaired by a member of the faculty; and co-chaired by a member of the provost’s office. These committees are responsible for implementing their respective initiatives. The leadership of these two committees, plus representatives from the offices of Organizational Development and Assessment, form a third committee to manage the QEP as a whole. All three committees will work in close collaboration with participating academic and support units. We believe the QEP’s goals are challenging, attainable, and sustainable.
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I. INTRODUCTION

A. Focus of the QEP

When founded in 1885, the Georgia Institute of Technology (Georgia Tech) was dedicated to providing technological leaders for the state and nation whose education combined science-based academic studies with "learning by doing" in applied technical settings [1]. This educational philosophy continues today and is embodied in Georgia Tech’s mission "to provide the state of Georgia with the scientific and technological knowledge base, innovation, and workforce it needs to shape a prosperous and sustainable future and quality of life for its citizens" [2]. In keeping with this mission, Georgia Tech’s vision is to "define the technological research university of the twenty-first century and educate the leaders of a technologically driven world" [2]. In the pursuit of its mission and vision, Georgia Tech is guided by a strategic plan with seven goals. First among those goals is a student-focused education:

"The student body is the soul of Georgia Tech and the mark of our success. To our undergraduate and graduate students alike, we owe a relevant, learner-centered education that prepares them for life and leadership. We strive to make the teaching and learning environment one in which students, faculty, and staff excel. To this end, we recognize that ownership and accountability for education rests with all of us.

Georgia Tech will nurture a community of scholars that seeks out the rich opportunities for lifelong learning both inside and outside of the classroom. Georgia Tech’s rigorous curriculum and co-curricular activities will continue to challenge our students to grow as intellectual and social beings, preparing them for success on their chosen path.

In return, we expect Georgia Tech students to make a responsible investment in their own education. They will be expected to participate in building a learning environment that fosters an extensive exchange of ideas through classroom discussion, interaction with faculty and fellow students, and respect for the Academic Honor Code. Faculty and students will learn from each other" [2].

Given our history, mission, and vision, it should not be surprising that Georgia Tech graduates are highly regarded for their ready-to-work capabilities and can-do spirit [3-5]. Georgia Tech instills these capabilities in many ways, including a variety of active, problem-based, or project-based learning opportunities; design experiences and competitions; hands-on laboratories; cooperative education and internships; research experiences; study abroad programs; and co-curricular activities. Students learn to work comfortably in collaborative situations, communicate effectively with a broad range of audiences, and apply the latest advancements in their disciplines to real problems. They also learn to identify their educational needs, locate the appropriate learning resources, and attain the necessary competencies. Essentially, Georgia Tech provides students with a learning environment involving the ambiguity, complexity, and social contexts of real life.

Even though our students, alumni, and employers are pleased with the quality of our programs [3-7], Georgia Tech continuously seeks to improve its programs to assure they provide our graduates with a contemporary education and the lifelong learning skills needed for the future [8-10]. Choosing among the many opportunities to improve Georgia Tech’s educational experience through the Quality Enhancement Plan (QEP) involved a thorough Institute-wide effort. Ultimately, two initiatives were selected as the most promising and timely strategic areas in which to improve the quality of Georgia Tech’s experience, namely, to strengthen the opportunities for our undergraduate students to be well prepared to practice their disciplines in a global context and to strengthen the opportunities for them to enhance their skills in scholarship and innovation through...
research. A brief overview of each initiative follows, with more detailed descriptions provided in sections II and III.

1) Global competence: Today’s graduates live and work in a highly interdependent global community. In keeping with the impact of globalization on business practices and world economies, Georgia Tech seeks to globalize its educational experiences by preparing students for leadership roles in government, and academic careers with advanced communication and technical skills developed within an international context.

The objective of this initiative is to increase the number of undergraduate students who graduate with global competence in the international practice of their major. Global competence is the product of both international studies and experiences designed to instill a deep and multifaceted understanding of global relations, intercultural differences, and international disciplines. This initiative, known as the International Plan, is a unique degree-long program designed to integrate international studies and experiences into any major at Georgia Tech. Graduates of the program will be proficient in a second language; knowledgeable about comparative international relations, the world economy, and the socio-political systems and culture of at least one other country or world region; and be able to practice their discipline within an international context. Students completing the program will receive the degree designation “International Plan” on their transcripts and diplomas to signify the depth and breadth of their global competence in their major. Among the desired outcomes of the initiative is to achieve Georgia Tech’s strategic goal of having 50 percent of its undergraduate students graduate with an international experience by 2010.

2) Research experiences: Research is the economic engine of today’s knowledge-based economy. Research is also among the most pedagogically sound means to teach students about their majors, introduce them to the technical forefront of their disciplines, and demonstrate to them the value of scholarship and innovation to society.

The objective of this effort is to increase the number of undergraduate students participating in research and encourage more students to pursue a research career. This effort is based on two initiatives known as the Undergraduate Research Opportunities Program (UROP) and the Research Thesis Option. The Undergraduate Research Opportunities Program will facilitate the participation of more undergraduate students in research, encourage longer research experiences, and improve the quality of these experiences through faculty mentoring. The Research Thesis Option is for those students who seek an intensive research experience, and possibly a research career. Participants in both programs will deepen and broaden their problem-solving and communication skills, knowledge of the frontiers of their discipline, and research competence and confidence. Students completing the Research Thesis Option will receive the recognition “Research Thesis Option” on their transcripts to signify the extra depth and breadth of their research experience. Among the desired outcomes is to have 60 percent of Georgia Tech’s undergraduate students graduate with research experience by 2010.

B. Implementation of the QEP

In August 2002, the provost created the Council for Institutional and Academic Program Review and Accreditation (hereafter, the Council) to provide counsel and advice on matters related to the institutional development, review, and accreditation of Georgia Tech’s academic programs. It is composed of seventeen faculty and staff members. Among the Council’s responsibilities is the ongoing oversight of Georgia Tech’s compliance with SACS accreditation standards, practices, and policies, including the preparations for Georgia Tech’s 2005 SACS reaffirmation. Dr. Jack R. Lohmann, professor of industrial and systems engineering and associate provost, chairs the Council. He is a member of the Institute’s 2005 SACS reaffirmation Leadership Team, which also includes the president, provost, and senior vice president. Dr. Lohmann also serves as Georgia Tech’s SACS accreditation liaison. The Council will provide overall oversight of the QEP.

The implementation and daily management of the QEP resides with three committees. Each initiative is led by a steering committee of faculty, staff, and students and is chaired by a faculty member. A member of the provost’s office provides support for each chair and serves as co-chair. Dr. Howard A. Rollins, professor of psychology and director of International Education, chairs the International Plan Steering Committee, and Dr. Amy S. Bruckman, associate professor of computing, chairs the UROP and Research Thesis Option Steering Committee. A third committee, the QEP Steering Committee, provides overall leadership and coordination for the QEP. This committee includes the chairs and co-chairs of the two steering committees, Dr. Joseph Hoey, director of Assessment, and Dr. Hal Irvin, executive director of
Organizational Development. It is chaired by the associate provost. Appendix B lists these committees and their membership. It also lists other committees and offices directly involved with the QEP.

The five-year plan focuses on undergraduate students and involves all six colleges. The Undergraduate Research Opportunities Program will facilitate participation in research for all undergraduate majors, and the International Plan and the Research Thesis Option are designed to accommodate all undergraduate majors whose academic units choose to participate. The five-year horizon was selected so as to implement the initiatives as soon as possible while also recognizing the need for an adequate multi-year effort to pilot the initiatives, expand participation and evaluate progress, and assure their long-term sustainability.

The total budget for the QEP is $4,964,166 over five years (FY06-10), as shown in Table 1. The budget for FY11 represents the estimated annual costs to sustain the QEP programs beyond the initial five-year period. Supporting budgets for the QEP initiatives are presented in sections II and III. Alternative and/or supplemental resources will be sought as part of Georgia Tech’s capital campaign and from appropriate external agencies, programs, and foundations; however, the Institute is committed to providing the resources needed in the absence of other sources of support. Indeed, Georgia Tech’s broad base of research programs and international efforts are important enablers for these two initiatives.

The principal milestones for implementing the QEP are shown in Table 2. By the end of FY06, both initiatives will have finished the planning phase of their programs, obtained the necessary Institute approvals, established the appropriate governance structures, and enrolled their first cohort of students. By the end of FY08 both initiatives will seek to have achieved at least 50 percent of their enrollment goals and have begun formative assessment of student learning outcomes. During the final two years, FY09 and FY10, the initiatives will complete the expansion of student participation and consolidate the efforts into sustainable programs. Summative assessment will be performed in FY11 as the programs begin their steady-state operations.

The details of the QEP initiatives are presented in the next two sections.

<table>
<thead>
<tr>
<th>Categories</th>
<th>FY06</th>
<th>FY07</th>
<th>FY08</th>
<th>FY09</th>
<th>FY10</th>
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<td>$400,596</td>
<td>$489,521</td>
<td>$484,809</td>
<td>$1,937,824</td>
<td>$336,208</td>
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<td>307,192</td>
<td>309,868</td>
<td>326,502</td>
<td>1,531,896</td>
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<td>Support Staff</td>
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<td>57,550</td>
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<td>63,014</td>
<td>65,940</td>
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<td>Students</td>
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<td>21,449</td>
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<td>97,805</td>
<td>117,271</td>
<td>317,512</td>
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<td>Travel</td>
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<td>76,000</td>
<td>76,000</td>
<td>380,000</td>
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<td>Mat’ls/Supplies</td>
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<td>80,840</td>
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<td>110,974</td>
<td>130,819</td>
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<td>Total</td>
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<td>$1,201,341</td>
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1 The fiscal year is July 1 through June 30.
2 Estimated annual costs to sustain the programs.

Table 1. Total budget for the QEP

Strengthening the Global Competence and Research Experiences of Undergraduate Students
<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>International Plan</th>
<th>UROP and Research Thesis Option</th>
</tr>
</thead>
</table>
| 2006        | • 100 students enrolled in the International Plan.  
• Governance structures in place.  
• Curricula approved for initial participating units; additional units identified and engaged.  
• Staffing complete; recruiting processes in place.  
• New international courses developed and approved. | • 50 additional students enrolled in research via the UROP efforts; 10 students enrolled in the Research Thesis Option.  
• Governance structures in place.  
• Research Thesis Options approved for initial participating units; additional units identified and engaged.  
• Staffing complete; recruiting processes in place.  
• Web site to coordinate the program launched. |
| 2007        | • 200 students enrolled in the International Plan.  
• Principal international sites for study abroad, internships, and research opportunities engaged.  
• Curriculum matching between Georgia Tech and international partners completed.  
• Students planning international experiences in FY07 advised and placed. | • 100 additional students enrolled in research via the UROP efforts; 20 students enrolled in the Research Thesis Option.  
• Fall research job fairs offered to introduce students to research opportunities.  
• Spring research symposia display student research projects to the campus. |
| 2008        | • 250 students enrolled in the International Plan.  
• First cohort (from FY06) completes their international experiences.  
• Midpoint progress report distributed to campus, including formative assessment of student learning outcomes.  
• Academic units establish culminating courses needed for FY09. | • 150 additional students enrolled in research via the UROP efforts; 35 students enrolled in the Research Thesis Option.  
• First graduates expected for the Research Thesis Option.  
• Midpoint progress report distributed to campus, including formative assessment of student learning outcomes.  
• $1 million of the $2.5 million endowment raised. |
| 2009        | • 300 students enrolled in the International Plan.  
• First cohort (from FY06) graduates.  
• Summative assessment begins; graduating students complete surveys, tests, language proficiency test, and reflective essay. | • 225 additional students enrolled in research via the UROP efforts; 50 students enrolled in the Research Thesis Option.  
• Participation in spring research symposia increased and quality improved.  
• Summative assessment begins; graduating students complete surveys and reflective essay. |
| 2010        | • 300 students enrolled in the International Plan.  
• Second cohort completes the program.  
• Second round of summative assessment.  
• First round of alumni surveys.  
• Impact Report submitted to SACS. | • 300 additional students enrolled in research via the UROP efforts; 70 students enrolled in the Research Thesis Option.  
• Second round of summative assessment.  
• First round of alumni surveys.  
• $2.5 million endowment raised.  
• Impact Report submitted to SACS. |
| 2011        | • Summative assessment of the initiative. | • Summative assessment of the initiative. |

Table 2. Principal milestones for the QEP.
A. Rationale for the Initiative

1) The U.S. scene for international preparation:
Globalization is a fact of life, whether in the management of business enterprises, the conduct of government affairs, or the exploration of the frontiers of science and technology. Our highly interdependent global society is as much a result of the need to address major worldwide challenges, such as sustainability, health, and security, as it is the result of important advancements in the conduct of international commerce, e.g., the European Union, NAFTA, and the creation of nearly instantaneous worldwide communications, e.g., cellular telephones, the Internet. These challenges and opportunities are multifaceted, technically, economically, and culturally. As such, organizations are adapting in response, and the new organizational forms are often flat, team-oriented, and globally focused [11]. In addition to having the requisite technical competence, working in such organizations requires new skills in the social processes of learning and collaborating [12]. The demand for these new skills will have a profound impact on how we educate our students [13]. According to Olfs [14] of Siemens AG, “Top companies are looking for students with outstanding preparation in their field, proficiency in at least one foreign language, and work experience, especially abroad, for leadership tracks to secure the future international competitiveness of the company.”

Unfortunately, most U.S. students are ill prepared to live and work in the global community. For example, in 2002-03, only 11 percent of the graduates from U.S. institutions participated in an international academic experience [15]. Further, of this small percentage, approximately one-half were majors in humanities, social sciences, fine or applied arts, and foreign languages; one-fifth were majors in business and management; one-tenth were majors in physical sciences, computer sciences, and mathematics; and engineering majors were only 3 percent.

The lack of participation in international experiences by U.S. students is not due to an absence of debate in the education community about the need for a global perspective, as can be observed in recent reports and global conferences, worldwide accreditation reforms, and efforts to enhance global career mobility [16-20]. The debate points to a need for graduates to have both a disciplinary competency and the ability to apply that competency in a global economic, social, and environmental context. Why the lack of participation? A principal reason is that students—including Georgia Tech students—find making the necessary arrangements too discouraging, i.e., inflexible curricula, difficulty obtaining academic credit for work completed elsewhere, lack of convenient entry points into international academic programs, and the cost of participating [19-21].

Universities across the United States have tried a variety of approaches to increase student participation in international experiences: short-duration service learning opportunities and faculty-led courses offered while on international travel (two to six weeks); semester or year-long study abroad, internships, or research experiences; and supplemenal educational offerings such as minors, co-majors, and certificates in international or global studies. Short-duration service learning and faculty-led courses during international travel are by far the most popular. They can be offered during the summer, are relatively inexpensive, and are often taught in English, sometimes by the faculty of the home institution. However, as beneficial as they are for those students with little or no international exposure, they also have some significant disadvantages. They provide limited cultural immersion, offer little opportunity to gain second language proficiency, often lack contextual educational preparation upon which to have an informed experience, and are typically isolated events in the pursuit of a student’s degree.

Through the QEP, Georgia Tech is implementing a new approach that addresses these shortcomings. It develops global competence by combining language proficiency, coursework in international subjects, and extensive international experience within any major. 2 see next page

2) Georgia Tech’s international efforts: Georgia Tech has a long history of encouraging students to pursue international experiences. The College of Architecture established the Paris Program with the École d’Architecture Paris-La-Villette in 1975 for its architecture majors to study in Paris during their senior year [24]. Presently, one-half of architecture seniors participate. In 1989, Georgia Tech established a campus in

II. STRENGTHENING THE GLOBAL COMPETENCE OF UNDERGRADUATE STUDENTS
Metz, France, now called Georgia Tech Lorraine, which focused initially on offering graduate students dual master’s degrees in electrical engineering in collaboration with selected French universities [25]. This expanded to the doctoral level and then to mechanical engineering. The program recently broadened again to include a summer study abroad program for more undergraduate majors from the Atlanta and Savannah campuses in preparation for offering year-round educational opportunities in the near future. Over the last decade, Georgia Tech has made a concerted effort to develop international study and work experiences for students in all six colleges. In AY2003-04, 691 students participated in faculty-led summer study abroad programs, 103 enrolled in semester (or longer) study abroad programs (mostly through our exchange partnerships), 52 worked on independent research projects, and 5 held international internships. The total, 877 students, represents 33.7 percent of the baccalaureates conferred that year, a percentage that is well above the national average. In AY2002-03, Georgia Tech placed nineteenth nationally among research universities whose students graduated with an international experience [15], and was a national leader among engineering colleges (see Table 3).

Like their fellow students nationally, the majority of Georgia Tech students clearly prefer to participate in faculty-led summer study abroad programs. However, in recent years, there has been a steady increase in the number of students who choose more significant experiences, such as spending a semester or a year studying at one of Georgia Tech’s partner universities or working in an international internship or research project. Many Georgia Tech students have an interest in pursuing international experiences involving the use of a second language. For example, it is noteworthy that 1,800 undergraduates per semester enroll in foreign language courses as electives. In a recent survey of these students, of which 1,142 responded, 683 students (60 percent) indicated they would like to pursue an international experience using the language they were studying (see Figure 1) [27]. Furthermore, 71 percent of respondents preferred either a term or two of study or internship or a term of study plus an internship. One-fourth of Georgia Tech alumni report that they wished their international

<table>
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<th>INSTITUTION</th>
<th>Col. (1)</th>
<th>Col. (2)</th>
<th>INSTITUTION</th>
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<td>18. RPI</td>
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<td>31.7</td>
<td>19. Arizona State</td>
<td>1,060</td>
<td>15.6</td>
</tr>
<tr>
<td>10. Florida</td>
<td>1,464</td>
<td>11.4</td>
<td>20. Washington</td>
<td>1,038</td>
<td>15.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>21. UCLA</td>
<td>1,006</td>
<td>7.8</td>
</tr>
</tbody>
</table>

Legend: Col. (1) – Number of engineering degrees, B.S., M.S., and Ph.D., 2002-2003; Col. (2) – percentage of all university majors graduating with an international experience. Explanation: The percentage of engineering students graduating with an international experience in column (1) is not known (except for Georgia Tech). The percentage is not likely to be greater than the percentage of all university majors that graduated with an international experience, column (2), and more likely to be considerably less given the current low overall national average of participation in international experiences by engineering students. Sources: Column (1), [26], column (2), [15].

Table 3. Top producers of U.S. engineering degrees in 2002-2003 and their potential student participation in international experiences.

1 Fantini, Arias-Galicia and Guay express well the concept of “global competence,” sometimes called international, intercultural, or multicultural competence [22, p. 1]: “We are entering a new age. Some call it an era of globalization in which the links among peoples around the world are increasingly visible and felt, and the term “interdependence” is no longer an abstraction. … It calls for nothing less than the development of new abilities…Some have labeled these abilities “global competence” or “international competence,” [23] recognizing the need to know more about the world. Others stress individual and interactional aspects of intercultural dealings and use the label “intercultural competence;” signaling that knowledge of the world alone is not enough. With this term, attention is focused on how people engage in cross-cultural encounters. In such encounters, individuals face new options, each with a concomitant consequence; but the choices made when entering a new culture are better informed when the players possess cross-cultural skills, positive attitudes, and awareness, in addition to knowledge.”
preparation had been better [3, 4].

The interest in increased global outreach is reflected in other ways at Georgia Tech. For example, new residence halls are being planned in Metz, France, to supplement the housing now available to Georgia Tech students through its two partner universities co-located with Georgia Tech Lorraine—Supélec and ENSAM—to accommodate the expansion of the undergraduate programs. Georgia Tech recently signed two Memoranda of Understanding with Shanghai Jiao Tong University and Peking University in China to develop joint research and educational programs, and in the case of the latter, to develop a joint college of engineering located on the Peking University campus in Beijing. An Institute-wide committee recently recommended further development of a more formal presence in Singapore and increased interactions with the nation’s three principal universities, Nanyang Technological University, the National University of Singapore, and the Singapore Management University. Discussions with these universities have begun. Other efforts are being planned. It is Georgia Tech’s strategic goal to have one-half of its undergraduate students graduate with an international experience by 2010 (hereafter referred to as the “50 percent goal”).

While it may be possible to reach this goal by simply encouraging increased participation in existing international programs, we believe we can and should offer our students a more demanding program that provides them with a greater depth and breadth of knowledge and experiences needed to function effectively internationally. In so doing, we also need to address the principal perceived barriers to participating in international experiences often cited by our students (Table 4).

Through the QEP, Georgia Tech is launching a unique initiative that is designed to go well beyond traditional approaches to the international preparation of undergraduates in two inter-related ways. First, the approach offers a comprehensive and coherent program involving second language proficiency, study in a core set of international subjects, and a significant international experience. Second, it is integrated within a student’s major so that students learn the practice of their major within an international context.

The initiative presented below provides such preparation. It will neither replace nor supplant other Georgia Tech international programs. Rather, it will be Georgia Tech’s “signature” international program, one that “raises the bar” nationally for programs designed to enhance international study and experiences for undergraduates. Achieving the projected enrollments will contribute significantly toward the attainment of Georgia Tech’s 50 percent goal.

The initiative, referred to as the International Plan, has been in the planning phase since January 2003. It presently involves sixteen baccalaureate programs.

B. Focus of the Initiative

1) Overview: The International Plan is a coherent, degree-long baccalaureate program that develops the global competence of students in the context of their majors and does so within the current degree requirements of the majors to assure timely completion of their majors.

---

Figure 1. Georgia Tech student interest in an international experience requiring the use of a second language and the type and duration of the experience desired.

---

3Supélec and ENSAM are the grandes écoles for electrical engineering and mechanical engineering, respectively, in France.

4Aerospace Engineering; Architecture; Biology; Chemistry; Civil Engineering; Computer Engineering; Computer Science; Earth and Atmospheric Sciences; Economics; Electrical Engineering; Industrial Engineering; History; Technology and Society; International Affairs; Management; Mechanical Engineering; and Modern Languages.
degrees. Global competence is the product of both education and experience. In this initiative, it is characterized by a graduate’s proficiency in a second language; knowledge about comparative international relations, the world economy, and the socio-political systems and culture of at least one other country or world region; and ability to practice his or her discipline within an international context. In addition to disciplinary degree requirements, the International Plan is defined by a set of three overarching curriculum and international residency requirements within which individual academic units tailor an integrated program of international studies, language acquisition, and international experiences for their majors. Students must (a) demonstrate proficiency orally and in writing in a second language; (b) complete an international residential experience of two terms (for a total of not less than six months) involving study, work, or research related to their majors; and (c) complete a core set of three courses on international subjects and participate in a culminating course that ties the international education and experience to the student’s major. Upon completion of his or her degree, the degree designation “International Plan” will appear on the student’s transcript and diploma to signify the importance of this extra academic effort and to make more apparent to employers the significance of the student’s international preparation in his or her chosen discipline.

The plan is designed to address several perceived barriers to student participation in international study and work experiences. The discipline-specific, unit-supported curriculum will diminish considerably the difficulties of obtaining international study and work experiences that count for credit toward a student’s degree. Further, special relationships with a limited set of well-selected international partners will be developed to diminish the administrative overhead and higher expenses often associated with more broadly distributed lower participation international programs. Finally, the degree designation will provide an incentive for students to overcome the additional personal challenges and expenses often associated with international study and experiences. While the costs of international study and experiences will always be a challenge, we hope to diminish this concern through the use of exchanges, internships, and support from foundations, agencies, alumni, and corporations. We have also budgeted to provide travel supplements for students with financial needs to participate in the plan.

2) Goals:

The initiative has three overarching goals. Section II.C.2 describes in detail the constituent parts of these goals, methods of assessment, and metrics for evaluating their attainment. The overarching goals are the following.

- Participation Goals: Create an International Plan program by 2010 for every major at Georgia Tech desiring such a plan. Further, enroll a cohort of 100 students in FY06 and increase the enrollment to a steady state of 300 students by FY09. This level of participation would bring Georgia Tech very close to its 50 percent goal.

Table 4. Study abroad survey of Georgia Tech freshman and sophomore students [21].

<table>
<thead>
<tr>
<th>QUESTION/RESPONSE</th>
<th>STUDENTS RESPONDING (N = 417)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do they want to go?</td>
<td>91% (Yes)</td>
</tr>
<tr>
<td>What are the barriers?</td>
<td></td>
</tr>
<tr>
<td>No courses toward major</td>
<td>66%</td>
</tr>
<tr>
<td>Cannot afford</td>
<td>61%</td>
</tr>
<tr>
<td>Fail to graduate on time</td>
<td>42%</td>
</tr>
<tr>
<td>Campus commitments</td>
<td>32%</td>
</tr>
<tr>
<td>Parents opposed</td>
<td>13%</td>
</tr>
</tbody>
</table>

- Among the locations currently under consideration are Monterrey Institute of Technology (Mexico); Nanyang Technological University (Singapore); National University of Singapore; Singapore Management University; Peking University (China); Technical University of Munich (Germany); Tsinghua University (China); and the partners of Georgia Tech Lorraine. Others are being discussed.
- Georgia Tech graduates approximately 2,500 undergraduates each year. The 300 students participating in the International Plan represent 12 percent of the graduating class. When added to the current 33.7
C. Implementation Plan

1) Requirements: The International Plan is defined by a set of three overarching curriculum and international residency requirements as described in Table 5.

percent involved in other international programs, the total participation would be just under 50 percent. It is assumed that the International Plan does not draw away from participation in other international programs, or if it does, that the heightened awareness of the need for global competence as a consequence of this effort will compensate for the draw with more students enrolling in international programs than would otherwise be the case.

There is a considerable amount of literature on global competence and its assessment that helped inform these definitions [22][28-32].

Intermediate-Mid: Able to handle successfully a variety of uncomplicated, basic, and communicative tasks and social situations. Can speak simply about self and family members. Can ask and answer questions and participate in simple conversations on topics beyond the most immediate needs, e.g., personal history and leisure time activities. Utterance length increases slightly, but speech may continue to be characterized by frequent long pauses, since the smooth incorporation of even basic conversational strategies is often hindered as the speaker struggles to create appropriate language forms. Pronunciation may continue to be strongly influenced by first language and fluency may still be strained. Although misunderstandings still arise, the Intermediate-Mid speaker can generally be understood by sympathetic interlocutors.

Intermediate-High: Able to handle successfully most uncomplicated communicative tasks and social situations. Can initiate, sustain, and close a general conversation with a number of strategies appropriate to a range of circumstances and topics, but errors are evident. Limited vocabulary still necessitates hesitation and may bring about slightly unexpected circumlocution. There is emerging evidence of connected discourse, particularly for simple narration and/or description. The Intermediate-High speaker can generally be understood even by interlocutors not accustomed to dealing with speakers at this level, but repetition may still be required.

The requirements of the plan allow flexibility across Georgia Tech’s diverse undergraduate programs while assuring the development of an appropriate level of global competence integrated within the major and developed over the course of a student’s baccalaureate program. The development of each unit’s program within the plan’s requirements will follow the Institute’s academic policies and procedures. Upon completion of his or her degree, the degree designation “International Plan” will be placed on the student’s transcript and diploma, similar to the degree designation “Cooperative Plan” now used for Georgia Tech’s cooperative education program. An example curriculum for the International Plan for the Bachelor of Science in Electrical Engineering is shown in Table 6.

2) Assessment: To facilitate assessment of the initiative’s impact, the four student learning outcomes and one program objective are further defined as follows. Graduates will be able to—

Second Language Proficiency

- Communicate in a second language. Students choosing to use English during their international residency experience must attain the ACTFL proficiency “Intermediate-Mid”, and those choosing to use their second language during their international experience must attain the ACTFL proficiency of “Intermediate-High.”

Comparative Global Knowledge

- Demonstrate knowledge about their culture within a global and comparative context;
- Demonstrate knowledge of global issues, processes, trends, and systems;
- Demonstrate knowledge of at least one other culture, nation, or region, such as beliefs, values, perspectives, practices, and products.

Intercultural Assimilation

- Readily use second language skills and/or knowledge of other cultures to extend their access to information, experiences, and understanding;
- Convey an appreciation for different cultures in terms of language, art, history, etc.;
- Interact comfortably with persons in a different cultural environment and be able to seek out further international or intercultural opportunities.

Global Disciplinary Practice

- Use cultural frames of reference and alternate perspectives to think critically and solve problems within the discipline in the context of at least one other culture, nation, or region;
- Collaborate professionally with persons of different cultures and function effectively in multicultural work environments.
A. **Course Requirements**—The following courses constitute the curricular component of the International Plan. They provide the academic foundation that complements the international experience. They may be taken within any unit at Georgia Tech or elsewhere. The Registrar's Office will maintain a list of courses that have been approved by the Institute Undergraduate Curriculum Committee to satisfy each of the following areas.

i. At least one course focused on international relations historically and theoretically, including topics such as the role of state sovereignty and nationalism and non-state actors in the international system; international conflict, peace, security, intervention, and nation-building; international organizations, law, and ethics; transnational problems of the environment, terrorism, health, and migration; among other issues.

ii. At least one course that provides a historical and theoretical understanding of the global economy, including topics such as international trade, finance, investment, and production; regional economic integration (such as the EU); economic development and modernization; and questions of natural resource sustainability.

iii. At least one course that provides familiarity with another country or world region that allows systematic comparisons of society and culture. This course could come from various disciplinary perspectives, including history, public policy, philosophy, international affairs, literature, economics, management, and architecture, among others. This course should be directly relevant to the international context of the intended overseas experience in Part C.

iv. A culminating academic experience, occurring either at the end of or after the international experience in Part C, that integrates knowledge of the discipline and the international experience in a global context. The academic experience may be offered within specific disciplines or in a multidisciplinary context.

B. **Second Language Requirement**—Students must demonstrate (through testing or other approved means) competency in a language other than English at an appropriate level. The language requirement may be satisfied in a student's native language if it is not English. The specific coursework or other activities necessary to achieve the required competency will vary depending upon a student's background and intended activities during the international experience.

All students must demonstrate at least a level of proficiency corresponding to that expected following two years of college coursework in the language. Students may be required to attain a higher level of proficiency prior to beginning the international experience in order to meet specific requirements of that experience.

Students whose international study/work experience is in a language other than English must demonstrate a level of proficiency corresponding to ACTFL's Intermediate-High by the time of graduation. Upon return to Georgia Tech following the international experience defined in Part C, students will be tested to determine if they have successfully mastered the language at the required proficiency level.

C. **International Experience Requirement**—Two academic terms of residential foreign experience are required, which must be characterized by living among and immersed within the local international academic, research, or work community. The terms of experience need not be consecutive and may occur in different countries. A total of twenty-six weeks (six months) of active engagement is required.

The terms may consist of full-time academic study that involves coursework that counts for credit toward the degree, internship or work experience, or research. Academic study may occur at Georgia Tech international campuses, at Georgia Tech international partner institutions, or in a faculty-directed residential program. International Plan-required courses may be taken during the period of international study if these courses are deemed acceptable and equivalent to the required courses by the appropriate academic unit(s).

Students whose normal residence is outside the United States may not complete the international experience in the country of residence unless granted an exception. In such cases, the proposed international experience should clearly demonstrate how it will contribute to achievement of the International Plan objectives.

Plans for international experience must be approved in advance by the student's home academic unit, verifying the suitability of the planned coursework and that the experience is appropriate to the student's area of study. Plans also must be approved by the Office of International Education and, when applicable, the Division of Professional Practice to ensure conformance with relevant Institute policies and procedures.

Table 5. The overarching requirements for the International Plan.
<table>
<thead>
<tr>
<th><strong>FRESHMAN YEAR</strong></th>
<th><strong>JUNIOR YEAR (GEORGIA TECH LORRAINE; SOME COURSES TAKEN AT SUPÉLEC)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>4 MATH 1501 Calculus I</td>
<td>3 ECE 3025 Electromagnetics</td>
</tr>
<tr>
<td>4 CHEM 1310 General Chemistry</td>
<td>4 ECE 3040 Microelectronic Circuits</td>
</tr>
<tr>
<td>3 CS 1371 Computing for Engineers</td>
<td>3 ---- ---- Engineering elective (thermo.)</td>
</tr>
<tr>
<td>3 ENGL 1101 English Composition I</td>
<td>3 ---- ---- Global Econ. or Int’l Relations</td>
</tr>
<tr>
<td>2 HPS 10XX Wellness elective</td>
<td>3 ---- ---- Approved Elective</td>
</tr>
<tr>
<td><strong>16 hours</strong></td>
<td></td>
</tr>
<tr>
<td>4 MATH 1502 Calculus II</td>
<td>2 ECE 3041 Instrument &amp; Circuits Lab</td>
</tr>
<tr>
<td>4 PHYS 2211 Introductory Physics I</td>
<td>3 ---- ---- ECE Breadth elective</td>
</tr>
<tr>
<td>3 CS 1322 Object-Oriented Programming</td>
<td>3 ---- ---- ECE Breadth elective</td>
</tr>
<tr>
<td>3 ENGL 1102 English Composition II</td>
<td>3 ---- ---- Engineering elective (prob./stat.)</td>
</tr>
<tr>
<td>3 FREN 2001 French Culture I</td>
<td>2 ---- ---- Eng. elective (COE 2001)</td>
</tr>
<tr>
<td><strong>17 hours</strong></td>
<td>3 ---- ---- Area-focused Int’l Plan course</td>
</tr>
<tr>
<td><strong>SOPHOMORE YEAR</strong></td>
<td></td>
</tr>
<tr>
<td>4 ECE 2025 Intro. Signal Processing</td>
<td></td>
</tr>
<tr>
<td>3 ECE 2030 Intro. Computer Engineering</td>
<td></td>
</tr>
<tr>
<td>4 MATH 2401 Calculus III</td>
<td></td>
</tr>
<tr>
<td>4 PHYS 2212 Introductory Physics II</td>
<td></td>
</tr>
<tr>
<td>3 FREN 2002 French Culture II</td>
<td></td>
</tr>
<tr>
<td><strong>18 hours</strong></td>
<td></td>
</tr>
<tr>
<td>2 ECE 2031 Digital Design Lab</td>
<td></td>
</tr>
<tr>
<td>3 ECE 2040 Circuit Analysis</td>
<td></td>
</tr>
<tr>
<td>4 MATH 2403 Differential Equations</td>
<td></td>
</tr>
<tr>
<td>3 ---- ---- History/Government</td>
<td></td>
</tr>
<tr>
<td>3 ---- ---- Global Econ. or Int’l Relations</td>
<td></td>
</tr>
<tr>
<td>3 ---- ---- Science elective</td>
<td></td>
</tr>
<tr>
<td><strong>18 hours</strong></td>
<td></td>
</tr>
</tbody>
</table>

| **SENIOR YEAR**                                                                 |                                                                                                                                     |
| 2 ECE 3042 Microelectronic Circuits Lab                                        |                                                                                                                                     |
| 3 ---- ---- ECE Breadth elective                                                |                                                                                                                                     |
| 3 ECE 4000 Proj. Eng. & Prof. Practice                                          |                                                                                                                                     |
| 4 ---- ---- ECE elective                                                        |                                                                                                                                     |
| 3 ---- ---- Approved Elective                                                   |                                                                                                                                     |
| **15 hours**                                                                    |                                                                                                                                     |
| 3 ECE 4006 Major Design Project                                                |                                                                                                                                     |
| 4 ---- ---- ECE elective                                                        |                                                                                                                                     |
| 3 ---- ---- ECE elective                                                        |                                                                                                                                     |
| 3 ---- ---- Culminating Int’l Plan course                                       |                                                                                                                                     |
| 3 ---- ---- Humanities elective (ethics)                                        |                                                                                                                                     |
| **16 hours**                                                                    |                                                                                                                                     |

**132 total hours**

*Notes:* Humanities—9 hours (3 applied to approved electives); Social Science—12 hours approved electives (including 3 excess humanities hours). Actual elective credit hours may differ from those shown. Prior credit for freshman language courses is assumed. Flexibility in course selection and scheduling depends on AP credit and/or prior language experience.

Table 6. Example curriculum for the B.S. in Electrical Engineering (International Plan).
Intercultural Sensitivity

- Accept cultural differences and tolerate cultural ambiguity;
- Comfortably assimilate within other cultures.

The following data and means of collection will be used to assess these competencies:

- Actuarial measures for program evaluation (e.g., enrollment, completion, placement of graduates in positions leveraging their international preparation, gender, ethnicity, GPA, major, and time to completion);
- Surveys of students before and after their international experience, supervisors of interns, graduating seniors, students at commencement, and alumni and their employers (many of these are already in place);
- Tests of students’ foreign language competence;
- Standardized pre- and post-international experience inventory or test of global competence;
- Participant post-international experience reflective essay.

A more detailed explanation of the assessment program is provided in Table 7. The assessment process will also include a number of comparison groups. The principal groups are students who complete the requirements for the International Plan, students who undertake other international study and/or work experiences (e.g., study abroad, internships), including those who complete part but not all of the International Plan, and students who do not participate in any program of international study or work experience.

While the focus of the QEP is to improve undergraduate student learning and performance at Georgia Tech, the QEP affords an opportunity to contribute to the knowledge base of collegiate education and experiences. Thus, as part of the QEP, consideration will be given to conducting elements of the assessment in a fashion consistent with scholarly education research, including dissemination through presentations and publications.

3) Timeline: As provided earlier, Table 2 summarizes the principal milestones for implementing the International Plan. Two major milestones recently achieved were the approval of the International Plan by the Institute Undergraduate Curriculum Committee (IUCC) on January 19, 2005, and the Academic Senate on February 1, 2005. The curriculum plans for each major must also be approved by the IUCC, and the plans by the initial set of participating units are expected to complete their approvals by the end of Spring 2005, thus allowing the first cohort of students to enroll in Fall 2005.

Students will normally be expected to enter the International Plan as freshmen and complete their initial language instruction and coursework on international subjects by the end of their sophomore year. They would then complete their international study, work, and/or research in the junior year, including perhaps one summer. Thus, in the first two years of the initiative, students will be mostly on the Atlanta or Savannah campuses working toward their international experience. Starting in the third year (FY08), the first group of students will be ready for their international experience. In the fourth year (FY09), the first cohort will participate in their culminating courses, and students electing the second language option will be tested for language proficiency. The fourth year will be the first year in which the degree designation is expected to be awarded. Consequently, the first two years of the plan’s implementation will involve developing new courses and/or additional sections of existing courses, and arranging for an appropriate number and distribution of study abroad and international internship or research opportunities. The third through fifth years will focus on the international experience, culminating courses, and ramping up the effort to reach the goals of the initiative. Table 8 provides a more detailed set of milestones for the first year.

4) Personnel, organization, and management: The International Plan is a collaborative effort among a number of Georgia Tech units. The participating academic units are responsible for developing the curriculum for their majors, recruiting students within their majors, and providing academic and professional assessment; basically, the overall implementation and operation of the International Plan within their unit. The Ivan Allen College will provide the principal guidance and the essential instruction in second language preparation and coursework in international subjects; however, courses from other units within Georgia Tech and elsewhere may

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9 For example, presentations (some with papers) have already been presented at conferences sponsored by the Council on International Educational Exchange; Engineering Conferences International; Frontiers in Education; Société Européenne pour la Formation des Ingénieurs; and the (University of Rhode Island) Colloquium on International Engineering Education. A paper is currently in preparation for submission to a special issue on new engineering competencies by the European Journal of Engineering Education.

10 There may be a few students upon inauguration of the International Plan who may have the language preparation and international coursework already such that they may be ready to pursue their international experience sooner than the first cohort of freshman.
also be used as approved. The Office of International Education will provide support in developing international academic sites, general marketing and recruiting participants from high school applicants as well as students electing to study abroad, orienting and preparing students for study abroad, and overall coordination among the academic and other support units. The Division of Professional Practice will facilitate the development and management of the international internships, and the Office of Career Services will provide support for graduate placement and interactions with employers seeking graduates with substantial international preparation. The Office of Assessment will provide support for designing assessment activities and assistance with collecting and evaluating data.

The International Plan will be governed by a faculty oversight committee. This committee will develop policies and procedures for the operation of the plan, the participant application process and monitoring of student performance, and the initial review of courses to be included as meeting the objectives of the International Plan requirements\[11\]. Those matters affecting Institute undergraduate program policies and procedures will be referred to the IUCC for approval.

The principal personnel are listed in Appendix B.

5) **Budget.** The budgets for the International Plan and its assessment are shown in Tables 9 and 10.

\[11\] This committee will replace and assume the responsibilities of the current steering committee whose task was to develop the International Plan. It will include many members of the current steering committee plus some additional representatives.
<table>
<thead>
<tr>
<th>Participation Goals, Student Learning Outcomes, Program Objectives</th>
<th>Assessment Methods</th>
<th>Implementation and Data Collection</th>
<th>Performance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Participation Goals</strong></td>
<td>Registration and participation counts by semester.</td>
<td>Tallied by Office of International Education, merged with student demographics and performance data, analyzed by Office of Assessment.</td>
<td>100 students, FY06 200 students, FY07 250 students, FY08 300 students, FY09 300 students, FY10</td>
</tr>
<tr>
<td>• Student participation.</td>
<td>Exit survey, commencement survey, alumni and employer surveys.¹</td>
<td>Administered at degree completion, at graduation, and 2-4 years following graduation, and analyzed by Office of Assessment.</td>
<td></td>
</tr>
<tr>
<td>• Graduate placement.</td>
<td>Survey of employers of interns.²</td>
<td>Administered through Division of Professional Practice following internship abroad. Analyzed by Office of Assessment.</td>
<td></td>
</tr>
<tr>
<td><strong>Second Language Proficiency</strong></td>
<td>Pre-/post- competency tests administered by School of Modern Languages.³</td>
<td>Administered by School of Modern Languages prior to departure and upon return to campus. Analyzed by director of undergraduate studies.</td>
<td>Results from the first year of plan operation will be used as a baseline, and progress will be measured against that baseline. Where available, previous survey data may also be used as a baseline. The exception is language testing. Students choosing to use English during their international residency experience must attain the ACTFL proficiency Intermediate-Mid, and those choosing to use their second language during their international experience must attain the ACTFL proficiency of Intermediate-High</td>
</tr>
<tr>
<td>• Communicate in a second language.</td>
<td>Survey of employers of interns.¹</td>
<td>Administered through Division of Professional Practice following internship abroad. Analyzed by Office of Assessment.</td>
<td></td>
</tr>
<tr>
<td><strong>Comparative Global Knowledge</strong></td>
<td>Self-report on post-experience survey.</td>
<td>Administered upon return by Office of International Education and analyzed by Office of Assessment.</td>
<td>Results from the first year of plan operation will be used as a baseline, and progress will be measured against that baseline. Where available, previous survey data may also be used as a baseline.</td>
</tr>
<tr>
<td>• Demonstrate knowledge about cultures within a global and comparative context.</td>
<td>Standardized test of cross-cultural competence.</td>
<td>Administered by Office of International Education prior to departure and upon return; comparison group included as a control. Analyzed by Office of Assessment.</td>
<td></td>
</tr>
<tr>
<td>• Demonstrate knowledge of global issues, processes, trends, and systems.</td>
<td>Pre-/post- international experience questionnaire.</td>
<td>Administered prior to departure and upon return by the Office of International Education. Analyzed by Office of Assessment.</td>
<td></td>
</tr>
<tr>
<td>• Demonstrate knowledge of at least one other culture, nation, or region, such as beliefs, values, perspectives, practices, and products.</td>
<td>Post-international experience reflective essay.</td>
<td>Administered upon return to campus by the Office of International Education.</td>
<td></td>
</tr>
</tbody>
</table>

¹ These instruments are already in use and supported by the Office of Assessment.
² All students electing the second language option will be tested upon return from their international experience as part of the requirements for the International Plan designation. However, only a sample of the students will be tested before their experience for purposes of assessment.
³ These instruments are already in use and supported by the Office of Assessment.

Table 7. Assessment plan for the International Plan (continued on next page).
<table>
<thead>
<tr>
<th>Participation Goals, Student Learning Outcomes, Program Objectives</th>
<th>Assessment Methods</th>
<th>Implementation and Data Collection</th>
<th>Performance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intercultural Assimilation</strong></td>
<td>Standardized test of cross-cultural competence.</td>
<td>Administered by Office of International Education prior to departure and upon return; comparison group included as a control. Analyzed by Office of Assessment.</td>
<td>Results from the first year of plan operation will be used as a baseline, and progress will be measured against that baseline. Where available, previous survey data may also be used as a baseline.</td>
</tr>
<tr>
<td>• Readily use second language skills and/or knowledge of other cultures to extend their access to information, experiences, and understanding.</td>
<td>Pre-/post-international experience questionnaire.</td>
<td>Administered prior to departure and upon return by Office of International Education and analyzed by Office of Assessment.</td>
<td></td>
</tr>
<tr>
<td>• Convey an appreciation for different cultures in terms of language, art, history, etc.</td>
<td>Post-international experience reflective essay.</td>
<td>Administered upon return to campus by the Office of International Education. Analyzed by the Office of Assessment.</td>
<td></td>
</tr>
<tr>
<td>• Interact comfortably with persons in a different cultural environment and be able to seek out further international or intercultural opportunities.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Global Disciplinary Practice</strong></td>
<td>Standardized test of cross-cultural competence.</td>
<td>Administered by Office of International Education prior to departure and upon return; comparison group included as a control. Analyzed by Office of Assessment.</td>
<td>Results from the first year of plan operation will be used as a baseline, and progress will be measured against that baseline. Where available, previous survey data may also be used as a baseline.</td>
</tr>
<tr>
<td>• Use cultural frames of reference and alternate perspectives to think critically and solve problems within the discipline in the context of at least one other culture, nation, or region.</td>
<td>Pre-/post-international experience questionnaire.</td>
<td>Administered prior to departure and upon return by Office of International Education. Analyzed by Office of Assessment.</td>
<td></td>
</tr>
<tr>
<td>• Collaborate professionally with persons of different cultures, and function effectively in multicultural work environments.</td>
<td>Post-international experience reflective essay.</td>
<td>Administered upon return by Office of International Education. Analyzed by Office of Assessment.</td>
<td></td>
</tr>
<tr>
<td><strong>Intercultural Sensitivity</strong></td>
<td>Pre-/post-international experience questionnaire.</td>
<td>Administered prior to departure and upon return by Office of International Education. Analyzed by Office of Assessment.</td>
<td>Results from the first year of plan operation will be used as a baseline, and progress will be measured against that baseline. Where available, previous survey data may also be used as a baseline.</td>
</tr>
<tr>
<td>• Accept cultural differences and tolerate cultural ambiguity.</td>
<td>Post-international experience reflective essay.</td>
<td>Administered upon return by Office of International Education. Analyzed by Office of Assessment and applicable unit.</td>
<td></td>
</tr>
<tr>
<td>• Comfortably assimilate within other cultures.</td>
<td>Survey of employers of interns.¹</td>
<td>Administered following internship by Division of Professional Practice, and analyzed by Office of Assessment.</td>
<td></td>
</tr>
</tbody>
</table>

¹ These instruments are already in use and supported by the Office of Assessment.

Table 7. Assessment plan for the International Plan (continued from previous page).
<table>
<thead>
<tr>
<th>Time Frame</th>
<th>Milestones</th>
<th>Activities</th>
</tr>
</thead>
</table>
| February-April 2005 | Create a faculty oversight committee and define the goals and duties of this committee. | • Committee to review and approve plans from academic units that seek to participate in the International Plan and submit these to the IUCC for approval.  
• Committee to review and approve courses proposed to meet the course requirements for the International Plan and submit these to the IUCC for approval.  
• Application form and certification form(s) of completion of the International Plan requirements. |
|                    | Create appropriate administration forms.                                    | • Develop recruitment materials: applicants to Georgia Tech, high school students; current Georgia Tech students, especially freshmen and sophomores; work with the admissions office to update their brochures and presentations. 
• Develop and mail information to students who have indicated they will attend Georgia Tech as freshmen in fall of 2005. 
• Create an International Plan Web site (on the OIE site); create links to the site from the admissions office, registrar's office, participating units, etc. |
| May-August 2005    | Hire faculty and staff.                                                     | • Hire language instructors for the first cohort in the fall. 
• Identify or hire faculty to teach the global economics, international affairs, and country-specific/world region courses. 
• Hire a study abroad advisor for students who elect the International Plan. 
• Hire a director to lead the development of the international internships. |
|                    | Create orientation materials and programs.                                 | • Create materials for FASET orientation sessions for students entering Georgia Tech fall of 2005, and for academic units summarizing the procedures and processes for students in the plan (e.g., forms and sign-offs; coordination of student advisement among the academic unit, Office of International Education, Division of Professional Practice, Modern Languages). |
|                    | Kick off the program.                                                       | • Meet with undergraduate coordinators to kick off the implementation of the plan; seek additional participation from academic units that have not yet decided to participate or have not yet obtained approval from the IUCC for participation.  
• Solicit proposals for new courses to meet the required courses of the plan.  
• Begin recruitment of 2005-06 cohort by mailings, etc. |
| August-December 2005 | Initiate long-term efforts.                                               | • Recruit the 2005-06 cohort of students. 
• Begin recruiting faculty and staff for second year of program. 
• Solidify relations with existing international partner universities and determine course matches in participating GT units with units in international partners; begin to identify additional international partner universities, establish exchange agreements and course matches. 
• Begin search for international internship opportunities in targeted countries and in collaboration with partner universities. 
• Solicit proposals for innovative culminating courses/academic experiences from participating GT academic units. |
| January-March 2006  | Prepare for second year.                                                   | • Accelerate recruitment of the 2005-06 cohort; add special page on admissions Website; initiate mailings to students who have accepted admission to Georgia Tech.  
• Prepare for FASET orientations for the summer of 2006. 
• Hire new faculty and staff for appointment in the summer and fall of 2006. |

Table 8. Timetable of activities for the first year of the International Plan.
**Table 9. Budget for the International Plan.**

<table>
<thead>
<tr>
<th>Categories</th>
<th>FY06</th>
<th>FY07</th>
<th>FY08</th>
<th>FY09</th>
<th>FY10</th>
<th>TOTAL</th>
<th>FY11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. Staff</td>
<td>$185,000</td>
<td>$226,500</td>
<td>$292,430</td>
<td>$352,115</td>
<td>$330,781</td>
<td>$1,386,826</td>
<td>$316,997</td>
</tr>
<tr>
<td>Support Staff</td>
<td>120,000</td>
<td>160,000</td>
<td>163,850</td>
<td>160,360</td>
<td>165,254</td>
<td>769,464</td>
<td>168,559</td>
</tr>
<tr>
<td>Students</td>
<td>20,000</td>
<td>20,800</td>
<td>21,362</td>
<td>22,497</td>
<td>23,397</td>
<td>108,056</td>
<td>23,865</td>
</tr>
<tr>
<td>Travel</td>
<td>37,500</td>
<td>75,000</td>
<td>93,750</td>
<td>92,869</td>
<td>230,827</td>
<td>307,081</td>
<td>92,869</td>
</tr>
<tr>
<td>Mat’ls/Supplies</td>
<td>41,000</td>
<td>41,440</td>
<td>54,398</td>
<td>77,374</td>
<td>92,869</td>
<td>307,081</td>
<td>92,869</td>
</tr>
<tr>
<td>Total</td>
<td>$430,000</td>
<td>$499,540</td>
<td>$616,172</td>
<td>$730,843</td>
<td>$750,448</td>
<td>$3,027,003</td>
<td>$797,290</td>
</tr>
</tbody>
</table>

1 The fiscal year is July 1 through June 30.
2 Estimated annual costs to sustain the programs.
3 A. Additional language instructors will be needed for sixteen new language sections. Enrollments in language classes are projected to increase by 200, 600, 900, 1,100, and 1,200 students over the five-year period, respectively. With class sizes of twenty-five, four full-time language instructors plus part-time instructors will be needed to cover sixteen new sections by the fifth year. The cost of language proficiency testing in the fourth and fifth years is also included as well as an increase in the intensive language programs (LBATS) in the summer of the second year. Some administrative costs are included to handle the more complex operations involved.
B. Several schools in Ivan Allen College (e.g., International Affairs, History, Economics) will be expected to offer some courses needed to meet the international core requirements, primarily additional sections of existing courses. Two new faculty members will be needed as well as some adjunct faculty and phased in over five years. Modest administrative and travel costs are also included.
C. The Office of International Education (OIE) will play a central role in the daily operations of the plan, such as marketing, advising students about study abroad, providing pre-departure orientation programs, assisting with difficulties abroad, etc. OIE will hire two additional study abroad advisors (currently OIE has one person to handle the seventy-eighty semester abroad students). In addition, for the first three years of the QEP, OIE anticipates hiring one person full-time with undergraduate advising experience who will assist academic units locate the appropriate international partner universities, evaluate course equivalencies between institutions, and create an appropriate international experience. The budget includes funds for faculty and OIE staff to visit potential international partner sites, and funds for both printed and Web-based marketing materials.
D. The Division of Professional Practice will be responsible for establishing and monitoring international internships for students. Currently, the Division commits less than half of one staff member’s time to this effort. The budget includes full-time and part-time professional staff members to develop international internships, travel to establish the internships, and miscellaneous costs.
E. Each participating academic unit will incur some expenses associated with implementing the International Plan. Some may need to revise a course or create a new one (such as for the culminating course/academic experience), or incur miscellaneous costs associated with establishing international study abroad partners and internships, or require additional support in advising students. It is anticipated that each participating unit may need as much as $10,000 in initial seed funds to initiate their International Plan efforts.
4 Students participating in the International Plan will likely need modest support to assist with travel to/from their international sites. A pool of travel stipends will be available for up to one-half of the participants who are in most need of this assistance. We anticipate that the average cost of this stipend will be $750 per student. Georgia Tech is committed to augmenting this pool as necessary to assure that all students in need are assisted.

**Table 10. Assessment budget for the International Plan.**

<table>
<thead>
<tr>
<th>Categories</th>
<th>FY06</th>
<th>FY07</th>
<th>FY08</th>
<th>FY09</th>
<th>FY10</th>
<th>TOTAL</th>
<th>FY11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. Staff</td>
<td>$25,935</td>
<td>$30,434</td>
<td>$25,942</td>
<td>$26,461</td>
<td>$26,990</td>
<td>$135,762</td>
<td>$27,530</td>
</tr>
<tr>
<td>Students</td>
<td>5,523</td>
<td>5,057</td>
<td>5,158</td>
<td>5,262</td>
<td>5,367</td>
<td>26,367</td>
<td>5,474</td>
</tr>
<tr>
<td>Travel</td>
<td>2,000</td>
<td>3,000</td>
<td>3,000</td>
<td>3,000</td>
<td>3,000</td>
<td>14,000</td>
<td>3,000</td>
</tr>
<tr>
<td>Mat’ls/Supplies</td>
<td>9,150</td>
<td>11,100</td>
<td>12,199</td>
<td>12,200</td>
<td>18,500</td>
<td>63,149</td>
<td>10,600</td>
</tr>
<tr>
<td>Total</td>
<td>$42,608</td>
<td>$49,591</td>
<td>$46,299</td>
<td>$46,923</td>
<td>$53,857</td>
<td>$239,278</td>
<td>$46,604</td>
</tr>
</tbody>
</table>

1 The fiscal year is July 1 through June 30.
2 Estimated annual costs to sustain the programs.
3 Web developer to provide support to accessible information to the campus and the assessment plan.
4 Graduate assistants to rate participants’ post-experience reflective statements and similar works for non-participant comparison groups.
5 Standardized tests include a site license and a per-test fee. Also included are additional postage costs in FY07 and FY10 for an expansion of the alumni survey to focus on international experiences. Some modest support for incentives will be provided, if needed (not currently budgeted).
A. Rationale for the Initiative

1) Importance of research experience: Undergraduate research is an important and unique part of the research university experience. Indeed, the National Commission on Educating Undergraduates in the Research University (usually referred to as the Boyer Commission) expressed this well when it stated in its report:

“What is needed now is a new model of undergraduate education at research universities that makes the baccalaureate experience an inseparable part of an integrated whole. Universities need to take advantage of the immense resources of their graduate and research programs to strengthen the quality of undergraduate education, rather than striving to replicate the special environment of the liberal arts colleges. There needs to be a symbiotic relationship between all the participants in university learning that will provide a new kind of undergraduate experience available only at research institutions. Moreover, productive research faculties might find new stimulation and new creativity in contact with bright, imaginative, and eager baccalaureate students, and graduate students would benefit from integrating their research and teaching experiences. Research universities are distinctly different from small colleges, and they need to offer an experience that is a clear alternative to the college experience” [33, pp. 7-8].

The attention to undergraduate research expanded notably following publication of this influential report. It had a catalyzing effect on research universities around the country and caused a critical examination of what constitutes “undergraduate research” [34-38]. Interestingly, two elements appear to be common among the many perspectives offered following the Boyer report. Not surprisingly, one is that undergraduate research should produce an original contribution. The other is the role of the faculty member to mentor and promote the inclusion of the undergraduate researcher into the community of scholars. For example,

“…undergraduate research is defined broadly to include scientific inquiry, creative activity, and scholarship. An undergraduate research project might result in a musical composition, a work of art, an agricultural field experiment, or an analysis of historical documents. The key is that the project produces some original work…Another hallmark of undergraduate research is the role of the mentor, a faculty member who guides the novice researcher and initiates the student into the methods of a discipline” [35, p. 6].

Further, the Boyer report makes an important point about the mentor-mentee relationship: “Undergraduate education in research universities requires renewed emphasis on a point strongly made by John Dewey almost a century ago: learning is based on discovery guided by mentoring rather than on the transmission of information. Inherent in inquiry-based learning is an element of reciprocity: faculty can learn from students as students are learning from faculty” [33, p. 15].

Undergraduate research also provides a forum to promote a multitude of critical skills and attitudes in addition to research competence. For example, the Undergraduate Research Opportunities Program at the University of Michigan found that its program contributed not only to the participants’ research skill development and research confidence, but also to their sense of self as a scientist or researcher and sense of self-responsibility for their own academic experiences and successes [39]. At UCLA, student skills development was assessed in the areas of collaboration, presentation, and teaching skills; gains in research and analysis ability; science competence; and science confidence. It was observed that students participating in undergraduate research experiences had significant gains over their (non-research) peers in terms of their ability to work cooperatively and collaboratively in groups [40]. The
University of Delaware program provides perhaps the most extensive list of competencies that result from undergraduate research experiences, including an ability to solve problems independently, synthesize and use information from diverse sources, understand scientific findings, think logically about complex material, approach problems creatively, maintain openness to new ideas, possess clear career goals, work as part of a team, adapt to rapidly changing technology, develop intellectual curiosity, and understand ethical implications of issues [41]. Most, if not all, of these competencies are embedded in the student learning outcomes of any contemporary undergraduate degree. Thus, undergraduate research is, indeed, an important and unique part of the research university experience.

2) Georgia Tech’s efforts in undergraduate research: Presently, the percentage of Georgia Tech baccalaureates who graduate with a research experience is estimated to be slightly greater than 40 percent, with participation by college ranging from 23 percent to 79 percent (see Figure 2). The scope of participation ranges from involvement in individual faculty research projects to larger Institute-wide research centers. A number of programs are designed specifically to encourage undergraduate participation. For example, among extramural programs at Georgia Tech, seven are supported by the National Science Foundation (NSF), including six NSF Research Experiences for Undergraduates (REU) sites. Two of the REU sites aim to increase the participation of minority students: Summer Undergraduate Research in Engineering/Science and Facilitating Academic Careers in Engineering and Science [42][43]. The other four REU sites focus on increasing participation among all undergraduates within specific disciplines, namely, biology [44], chemistry and biochemistry [45], materials science and engineering [46], and physics [47]. The seventh NSF program focuses on the Vertical Integration of Research and Education in the Mathematical Sciences [48]. Other sponsored programs at Georgia Tech include an Intel program to encourage undergraduate women and minority students to pursue research in computer science and computer engineering [49]; a carpet industry undergraduate research award program in polymer, textiles, and fiber engineering [50]; and a privately funded program in earth and atmospheric sciences [51]. Among the unit-based and research center programs are the Undergraduate Research Scholars program supported by the joint Georgia Tech and Emory University Department of Biomedical Engineering [52], research opportunities in integrated circuit design in the Packaging Research Center [53], the Undergraduate Research Opportunities Program in the School of Electrical and Computer Engineering [54], and the Undergraduate Research Opportunities in Computing in the College of Computing [55].

Additionally, Georgia Tech has begun an Institute-wide effort to further broaden undergraduate research participation. A part-time coordinator was hired in 2001 by the Office of Undergraduate Studies to coordinate and promote undergraduate research opportunities. One of the initial efforts was to promote undergraduate research in all disciplines through a new program called

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12 During the past year, the Georgia Tech office coordinating the President’s Undergraduate Research Awards has been working with academic units to better define and properly account for undergraduate research participation. While progress has been made, further efforts are needed and planned.
the President's Undergraduate Research Awards (PURA) [56]. Approximately 200 undergraduate students a year are awarded either $1,500 for a semester of research with a faculty mentor or up to $1,000 to attend a professional meeting to present their research. Applications for this program have exceeded the budget each semester and they continue to increase each year. Recently, 144 undergraduate courses were created to help track undergraduate research experiences. The courses will also allow students to receive credit on their transcripts for this important learning experience and faculty mentors to receive credit for this significant teaching activity. A searchable database of Institute-wide research opportunities for student and faculty use will be launched in Spring 2005.

As pleased as we are with undergraduate participation in research, we believe we can do better. Through this initiative, Georgia Tech will create an Institute-wide Undergraduate Research Opportunities Program and a complementary intensive research program called the Research Thesis Option. Among other goals, Georgia Tech seeks to increase undergraduate research participation to 60 percent by 2010.

B. Focus of the Initiative

1) Overview: The undergraduate research initiative seeks to increase the number of undergraduate students participating in research experiences as well as enhance the quality of these experiences. These goals will be achieved through two efforts. One is the creation of an Institute-wide Undergraduate Research Opportunities Program to coordinate research opportunities across the campus, track and encourage research experiences, and provide assistance and incentives for both faculty and students to participate. The other is a special program, called the Research Thesis Option, to provide a multi-term research opportunity for those seeking more intensive experiences. Students completing this option will receive the recognition “Research Thesis Option” on their transcripts to signify the extra depth and breadth of their research experiences. These two efforts will facilitate the expansion of current programs and assist in the creation of new ones.

2) Goals: The initiative has three overarching goals. Section III.C.2 describes in detail the constituent parts of these goals, methods of assessment, and metrics for evaluating their attainment. The overarching goals are the following.

- Participation Goals: Increase the enrollment in research by 50 undergraduate students in FY06 and increase the enrollment by 300 students by FY10. This level of participation would achieve the goal of having 60 percent of Georgia Tech’s baccalaureates graduate with a research experience. Additionally, by FY10, have 70 students earn the Research Thesis Option recognition, or 5 percent of total undergraduate research participation.
- Student Learning Outcomes: Students participating in the UROP and Research Thesis Option will demonstrate increased competency in (1) problem-solving, (2) communication, (3) current knowledge of the discipline, (4) research competence, and (5) research confidence.
- Program Objectives: Increase awareness of research opportunities and the value of research, provide additional incentives for both faculty and students to join in research, and facilitate the growth of undergraduate research on campus generally.

C. Implementation Plans

1a) Primary activities of the UROP: The Undergraduate Research Opportunities Program will be housed in the Office of Undergraduate Studies. The initial UROP staff will consist of a director of Undergraduate Research and a staff assistant, who will report to the vice provost for Undergraduate Studies.

The director will coordinate and promote a variety of activities to encourage undergraduate research. These activities may be divided into three groups.

- Promotion: Present undergraduate research opportunities at the FASET freshman orientation and the freshman orientation class GT 1000 “Adjustment to College Life,” and sponsor a series of fall research opportunities fairs to heighten awareness of opportunities within the units, and spring research symposia for students to publicize their work.
- Coordination: Maintain an electronic database of research opportunities, track undergraduate participation campus-wide, and inform NSF grantees of the availability of supplemental funds from NSF’s REU program.
- Enhancement: Raise an endowment of $2.5 million for undergraduate research as part of Georgia Tech’s capital campaign, compete for or help faculty compete for external funding to sponsor campus-wide undergraduate research activities, and

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10 Georgia Tech graduates approximately 2,500 undergraduates each year. The additional 300 students participating in undergraduate research would raise the total participation to 1,500 students, or 60 percent of the graduating class.
infuse research concepts, methodologies, and practices into undergraduate curricula.

1b) Requirements for the Research Thesis Option: The Research Thesis Option is defined by a set of overarching curriculum and research experience requirements as described by the draft requirements in Table 11. The Research Thesis Option received a preliminary review by the IUCCC on February 23, 2005, and is scheduled for a final review and approval on March 30, 2005. The requirements allow a student to pursue the option throughout his or her baccalaureate studies and assure a coherent program of research study and experience. The requirements also allow for flexibility to accommodate the differences in curricula and research approaches among the disciplines. Each unit may propose additional requirements; however, the requirements must be reviewed and approved by the Institute Undergraduate Curriculum Committee and the Academic Senate. Interdisciplinary research is encouraged. Upon completion of his or her baccalaureate, the recognition “Research Thesis Option” will appear on the student’s transcript to recognize the additional effort and make more apparent the significance of the student’s research experience.

2) Assessment: To facilitate assessment of the research initiative’s impact, the student learning outcomes and program objectives are further defined as follows. Graduates will—

**Problem-solving**
- Exhibit intellectual curiosity;
- Use creative approaches to research problems;
- Work independently;
- Think logically about complex material.

**Communication**
- Collaborate effectively in producing a work product or presentation;
- Communicate research findings effectively in writing;
- Communicate research findings effectively verbally.

**Current Knowledge of the Discipline**
- Critically evaluate scientific findings;
- Synthesize and use information from diverse sources;
- Write a coherent literature review of a research area.

**Research Competence**
- Understand research concepts, methods, and practices;
- Understand ethical implications of research issues.

**Research Confidence**
- Exhibit clarity in his or her educational and career goals;
- Perceive himself or herself as responsible for his or her own academic experiences and successes;
- Present research findings effectively in a public forum.

The following data and means of collection will be used to assess these competencies.

- Actuarial measures for program evaluation (e.g., number of students participating by term, major, gender, and ethnicity; increases in participation over time; retention, retention in major, and graduation rates for participating students);
- Attitudinal measures of participating students (e.g., student pre-research and end-of-research questionnaires, focus groups or repeated interviews of a sample of participating students, graduating senior surveys, and alumni surveys; faculty end-of-research evaluation forms, faculty focus groups or interviews of participating faculty);
- Direct measures of student performance (e.g., reflective statement on end-of-research project questionnaire; peer review rubrics for student works produced in the course on “Writing an Undergraduate Thesis”; combination Institute-level and unit-based faculty rating rubrics for thesis proposal and thesis; faculty end-of-research evaluation; e-portfolio assessment of student products);
- Productivity measures of program performance (e.g., percentage of students who complete a research proposal and a research report or thesis; the number of participants who produce a paper, poster, or publishable work as a result of their research project(s)).

A more detailed explanation of the assessment program is provided in Table 12. The assessment process will also include a number of comparison groups. The principal groups are participants in the UROP and Research Thesis Option; students involved in research and not part of an organized unit, college, and Institute program; and students not involved in research.

As mentioned in the assessment plans for the International Plan, the QEP efforts afford an opportunity to contribute to the knowledge base of collegiate education and experiences, in this case, undergraduate research experiences.

3) Timeline: As provided earlier, Table 2 summarizes the principal milestones for implementing the UROP and the Research Thesis Option.

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14 See [36][39, 41][57-60] for some of the literature on undergraduate research experiences and their evaluation that shaped the assessment plans.
The UROP initiative requires hiring additional staff and then implementing the promotion, coordination, and enhancement activities. During the first two years, FY06-07, the emphasis will be on creating the necessary support structures, raising campus awareness, establishing databases and baseline data, and pilot-testing activities. In the third and fourth years, FY08-09, the UROP activities will be scaled up. Significant progress is expected on the endowment efforts by FY08, with the completion of fund raising expected by FY10.

A. Research Experience Requirement—Complete nine units of supervised research, over a period of at least two terms. The research may be for either compensation or for academic credit. At least six credit hours must be on the same research project (broadly defined).

B. Writing Class Requirement—Complete a two-credit class, “Writing an Undergraduate Thesis,” offered by the School of Literature, Communication, and Culture, or an approved equivalent as may be offered by a participating unit or elsewhere.

C. Research Proposal Requirement—Write a research proposal. It must be approved by a faculty advisor and one other faculty member. The proposal will normally be completed at the end of the student’s first semester of research, but must be approved no later than the start of his or her final term of research. An approved proposal is required for admission to the class “Writing an Undergraduate Thesis.” A proposal for a thesis/report of research must include: (1) a literature review demonstrating the student understands the research area and how the research to be conducted fits within that area; (2) a description of the research problem and its importance; and (3) a work plan and schedule for its completion. The minimum work to be completed to earn the transcript recognition must be described clearly.

D. Thesis/Report Requirement—Write a thesis or other substantial written report documenting the results of the research. It must be approved by a faculty advisor and one other faculty member. The thesis or research report should be equivalent in format to a journal publication appropriate to the field. Theses or research reports will be evaluated based on the following set of criteria.

i. Originality—The research should show substantial thought on the part of the student and should not merely restate the results obtained by others. However, the research does not need to be as novel as expected of a scholarly journal publication or doctoral thesis.

ii. Understanding of the Field—The literature review should demonstrate an understanding of the field appropriate for an undergraduate.

iii. Writing—The thesis or research report must reflect accepted standards of style, usage, and composition, and describe the research conducted in sufficient detail that it could be replicated.

iv. Contribution—The thesis or research report must demonstrate an appropriate level of technical/experimental/theoretical achievement or contribution as appropriate to the research area. Negative results are acceptable. The reasons for the unanticipated result should be explained, drawing broader lessons as appropriate.

v. Completeness—The minimum work to be performed as described in the research proposal should be clearly evident.

Table 11. The overarching requirements for the Research Thesis Option (Draft, February 2005)
<table>
<thead>
<tr>
<th>OPERATIONAL GOALS AND</th>
<th>ASSESSMENT METHODS</th>
<th>IMPLEMENTATION AND</th>
<th>PERFORMANCE CRITERIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>STUDENT LEARNING OUTCOMES</td>
<td></td>
<td>DATA COLLECTION</td>
<td></td>
</tr>
<tr>
<td><strong>Participation Goals (UROP)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| • Participation in undergraduate research experiences will increase and will show a more even distribution across disciplines over time. | Actuarial data on: | Data will be queried from BANNER by Institutional Research and Planning, and analyzed and reported by the Office of Assessment. | • 50 students, FY06  
100 students, FY07  
150 students, FY08  
225 students, FY09  
300 students, FY10  
• More than 70 percent of students who participate will do so for more than one term.  
• Participation to include more units on campus, especially increased participation among those with the lower participation rates. |
| • Participants in undergraduate research experiences will be increasingly retained at Georgia Tech and will be increasingly retained in their major relative to students who have not participated. | • percentage of students participating, by term, year, major, college, gender, and ethnicity;  
• increases in participation over time; and  
• retention, retention in major, and graduation rates for participating students and comparison groups. |                     |                      |
| • Participants in undergraduate research experiences will graduate at a higher rate than students who have not participated. | Program data on percentage of students completing a thesis proposal, thesis, poster, or publishable work as a result of their research project(s). | Data will be queried from BANNER by Institutional Research and Planning, and analyzed and reported by the Office of Assessment. | 10 students, FY06;  
20 students, FY07;  
35 students, FY08;  
50 students, FY09;  
70 students, FY10  
• Relative to students who do not participate, program participants will show a higher rate of application for graduate study and completion of doctoral degrees. |
| **Participation Goals (Research Thesis Option)** | Participant placement in and completion of graduate programs. | Data will be collected on senior exit, commencement, and alumni surveys by the Office of Assessment and will be entered, analyzed, and reported by the Office of Assessment. |                      |
| • Students will participate at an increasing rate. |                     |                     |                      |
| • Participants will be prepared for graduate study and will seek graduate study opportunities. |                     |                     |                      |

1 These instruments are already in use and supported by the Office of Assessment.

Table 12. Assessment plan for the UROP and Research Thesis Option (continued on next page).
<table>
<thead>
<tr>
<th>Operational Goals and Student Learning Outcomes</th>
<th>Assessment Methods</th>
<th>Implementation and Data Collection</th>
<th>Performance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>UROP and Research Thesis Option participants will demonstrate gains in the following skills and abilities.</td>
<td>Attitudinal measures include: student pre-project and end-of-project questionnaires, focus groups or repeated interviews of a sample of participating students, graduating senior surveys, and alumni surveys; faculty end-of-project evaluation forms, focus groups or interviews of a sample of participating faculty.</td>
<td>Student pre-project and end-of-project questionnaires will be collected by the PURA office. Data will be entered, analyzed, and reported by the Office of Assessment.</td>
<td>UROP and Research Thesis Option participants will demonstrate significantly higher gains in the specified competencies, relative to students who did not have an undergraduate research experience and relative to students who had a research experience but did not participate in a unit, college, or Institute research program.</td>
</tr>
<tr>
<td>Problem-solving Ability</td>
<td>• Exhibit intellectual curiosity; • Use creative approaches to research problems; • Work independently; • Think logically about complex material.</td>
<td>Focus groups and/or repeated interviews of students and faculty will be undertaken by the Office of Assessment.</td>
<td></td>
</tr>
<tr>
<td>Communication Skills</td>
<td>• Collaborate effectively in producing a work product or presentation; • Communicate research findings effectively in writing; • Communicate research findings effectively verbally.</td>
<td>Graduating senior surveys and alumni surveys will be undertaken by the Office of Assessment.</td>
<td></td>
</tr>
<tr>
<td>Current Knowledge of the Discipline</td>
<td>• Critically evaluate scientific findings; • Synthesize and use information from diverse sources; • Write a coherent literature review of a research area.</td>
<td>Peer review rubrics for the course on “Writing an Undergraduate Thesis” will be developed by faculty teaching the course and refined in conjunction with the Office of Assessment. Student works will be scored by trained raters; data will be entered, analyzed, and reported by the Office of Assessment.</td>
<td></td>
</tr>
<tr>
<td>Research Competence</td>
<td>• Understand research concepts, methods, and practices; • Understand ethical implications of research issues.</td>
<td>Faculty rating rubrics for thesis proposal and thesis will be developed by a faculty committee in conjunction with the Office of Assessment. Proposals and theses will be scored by trained raters; data will be entered, analyzed, and reported by the Office of Assessment.</td>
<td></td>
</tr>
<tr>
<td>Research Confidence</td>
<td>• Exhibits clarity in his or her educational and career goals. • Perceives himself or herself as responsible for his or her own academic experiences and successes. • Presents research findings effectively in a public forum.</td>
<td>Productivity measures include the percentage of students participating who complete a thesis proposal and thesis; the number of participants who produce a paper, poster, or publishable work as a result of their research project(s).</td>
<td></td>
</tr>
<tr>
<td>Productivity measures include: the percentage of students participating who complete a thesis proposal and thesis; the number of participants who produce a paper, poster, or publishable work as a result of their research project(s).</td>
<td>Productivity data will be collected and reported by the PURA office.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 These instruments are already in use and supported by the Office of Assessment.

Table 12. Assessment plan for the UROP and Research Thesis Option (continued from previous page).
The Research Thesis Option requirements and the specific options for each major must be approved by the Institute Undergraduate Curriculum Committee and the Academic Senate. A draft of the overall requirements was recently reviewed by the IUCC, and the final overall requirements are scheduled for review and approval on March 30, 2005. The review and approval of the unit options by the initial set of participating units is expected by the end of Summer 2005. During the first year, FY06, at least one unit from each college will be among the initial set of units to implement a Research Thesis Option program, and a recruiting effort will be launched to increase awareness of the program and to enroll the first cohort of students. The primary efforts in the second and third years, FY07-08, will be to solidify the program, with the goal of graduating the first students in FY08. Building participation in the program will be the major emphasis in the fourth and fifth years, FY09-10.

Table 13 provides a more detailed set of milestones for the first year.

4) Personnel, organization, and management: The UROP and Research Thesis Option are collaborative efforts involving a number of Institute academic and support units. Participating academic units are responsible for developing their own Research Thesis Option and unit-specific UROP activities, including the recruitment of students from their majors, and academic and research advisement; basically, the overall implementation of undergraduate research activities within their unit. The Office of Undergraduate Studies will support these efforts, largely through the assistance of the director of Undergraduate Research and support staff. The UROP and Research Thesis Option Steering Committee will continue to provide overall guidance and oversight for both research efforts. The Research Thesis Option will be governed by a faculty oversight committee. This committee will develop policies and procedures for operating the program, reviewing unit options, and monitoring student performance. The committee will be composed of at least one faculty member from each college, at least two undergraduate students, the director of Undergraduate Research, and a representative from the Office of Assessment. At least one member will also be a member of the IUCC to facilitate communication between the two committees. The Office of Assessment will provide support for designing appropriate assessment activities and assistance for collecting and analyzing assessment data. The principal personnel are listed in Appendix B.

5) Budget: The budgets for the UROP and Research Thesis Option and their assessment are shown in Tables 14 and 15.

\[\]
<table>
<thead>
<tr>
<th>TIME FRAME</th>
<th>MILESTONES</th>
<th>ACTIVITIES</th>
</tr>
</thead>
</table>
| February-April  | Initiate endowment efforts.         | • Draft a white paper for the Development Office.  
                             | 2005                                                                                        | • Discuss the white paper with the development officers and establish development plans. |
|                 | Begin promotion efforts.            | • Present a draft of the Research Thesis Option to the Institute Undergraduate Curriculum Committee (completed February 23) and discuss the process and timetable for obtaining approval (scheduled for March 30). |
|                 | Launch database.                    | • Institute-wide undergraduate research database launched.                                                                                   |
| May-August      | Create an outstanding               | • Develop the guidelines and criteria for an outstanding undergraduate researcher award to complement the current outstanding research mentor(s) award. |
| 2005            | undergraduate researcher award.     | • Complete the approval process and plans for its inclusion in the annual Student Honors Luncheon.                                               |
|                 | Hire staff.                         | • Full-time director for undergraduate research hired.                                                                                 |
|                 |                                     | • Full-time administrative assistant hired.                                                                                              |
| August-December | Kick off the program.               | • Meet with undergraduate coordinators to kick off the implementation of the plan.                                                        |
| 2005            |                                     | • Hold information sessions in each academic unit for upperclassmen to learn more about the UROP and Research Thesis Option.                |
|                 |                                     | • Establish baseline data; hire educational specialist for qualitative assessment.                                                          |
|                 |                                     | • Research job fairs currently held in several colleges to introduce students to research opportunities.                                    |
|                 | Begin recruitment efforts.          | • Research coordinators develop plans for recruiting students.                                                                            |
|                 |                                     | • Create brochures and promotional materials.                                                                                              |
| January-April   | Prepare for second year.            | • Beta test the undergraduate research database.                                                                                          |
| 2006            |                                     | • Prepare for FASET Orientations for the summer of 2006.                                                                                   |
|                 |                                     | • Hold spring research symposia.                                                                                                            |
|                 |                                     | • Review AY2004-05 participation data; use to establish baseline.                                                                          |

Table 13. Timetable of activities for the first year of the UROP and Research Thesis Option.
### Table 14. Budget for the UROP and Research Thesis Option.

<table>
<thead>
<tr>
<th>Categories</th>
<th>FY06</th>
<th>FY07</th>
<th>FY08</th>
<th>FY09</th>
<th>FY10</th>
<th>Total</th>
<th>FY11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty</td>
<td>$50,000</td>
<td>$66,250</td>
<td>$90,063</td>
<td>$118,941</td>
<td>$135,194</td>
<td>$460,448</td>
<td></td>
</tr>
<tr>
<td>Prof. Staff</td>
<td>$106,885</td>
<td>$98,165</td>
<td>$93,237</td>
<td>$98,400</td>
<td>$109,119</td>
<td>$505,806</td>
<td>$114,906</td>
</tr>
<tr>
<td>Support Staff</td>
<td>$35,000</td>
<td>$36,750</td>
<td>$38,588</td>
<td>$40,517</td>
<td>$42,543</td>
<td>$193,398</td>
<td>$44,670</td>
</tr>
<tr>
<td>Students</td>
<td>$7,500</td>
<td>$7,875</td>
<td>$8,269</td>
<td>$8,682</td>
<td>$9,116</td>
<td>$41,442</td>
<td>$9,572</td>
</tr>
<tr>
<td>Travel</td>
<td>$5,000</td>
<td>$5,000</td>
<td>$5,000</td>
<td>$5,000</td>
<td>$5,000</td>
<td>$25,000</td>
<td></td>
</tr>
<tr>
<td>Mat’ls/Supplies</td>
<td>$25,500</td>
<td>$25,500</td>
<td>$25,500</td>
<td>$20,500</td>
<td>$15,500</td>
<td>$112,500</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$229,885</td>
<td>$239,540</td>
<td>$260,657</td>
<td>$292,040</td>
<td>$316,472</td>
<td>$1,338,594</td>
<td>$169,148</td>
</tr>
</tbody>
</table>

1. The fiscal year is July 1 through June 30.
2. Estimated annual costs to sustain the programs.
3. A part-time faculty associate (20 percent time). The faculty associate will help play a leading role in the development of UROP programs. The role of the faculty associate will be reduced as the program matures. Also includes modest support for faculty mentoring undergraduates pursuing the Research Thesis Option; $1,500 per student mentored.
4. Director of Undergraduate Research (full-time academic professional). The director will be part of the Office of Undergraduate Studies and report to the vice provost for Undergraduate Studies. Web developer: 25 percent in year one; 10 percent year two; 5 percent thereafter. Instructor for writing course: $5,000 per class; offered twice years 1-3, three times in year 4, and four times in years 5 and 6.
5. A full-time Administrative Assistant II.
6. A student assistant (10 hours per week during fall/spring terms; full-time in the summer). The student will help design and implement programs to promote undergraduate research, and will also help design and implement paper and Web-based materials.
7. Travel for the director and members of the Office of Undergraduate Studies to attend national conferences on undergraduate research.
8. Materials and supplies include food and similar items for promotional events and informational materials for faculty, students, and potential corporate sponsors in both print and electronic formats.
9. To help sustain and expand the program, the director of Undergraduate Research will work with the vice provosts and the development officers to create an endowment (the endowment principal and income are not included in the table). Corporations will be the initial audience for fund-raising efforts. The budget for materials and supplies gradually diminishes in years three, four, and five in anticipation of creating an endowment. A primary purpose for the endowment is to make the undergraduate research program self-sustaining and to be able to expand the scope of activities beyond those initiated by the QEP. By the end of the QEP, supporting staff salaries will be fully covered by state funds. The endowment income will be to support program costs.

### Table 15. Assessment budget for the UROP and Research Thesis Option.

<table>
<thead>
<tr>
<th>Categories</th>
<th>FY06</th>
<th>FY07</th>
<th>FY08</th>
<th>FY09</th>
<th>FY10</th>
<th>Total</th>
<th>FY11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty</td>
<td>$17,400</td>
<td>$17,748</td>
<td>$18,103</td>
<td>$18,465</td>
<td>$18,834</td>
<td>$90,550</td>
<td>$19,211</td>
</tr>
<tr>
<td>Prof. Staff</td>
<td>$23,225</td>
<td>$23,690</td>
<td>$24,163</td>
<td>$24,647</td>
<td>$25,139</td>
<td>$120,864</td>
<td>$25,642</td>
</tr>
<tr>
<td>Students</td>
<td>$8,350</td>
<td>$8,517</td>
<td>$8,687</td>
<td>$8,861</td>
<td>$9,038</td>
<td>$43,453</td>
<td>$9,219</td>
</tr>
<tr>
<td>Travel</td>
<td>$5,000</td>
<td>$3,000</td>
<td>$3,000</td>
<td>$3,000</td>
<td>$3,000</td>
<td>$17,000</td>
<td>$3,000</td>
</tr>
<tr>
<td>Mat’ls/Supplies</td>
<td>$2,500</td>
<td>$2,800</td>
<td>$1,850</td>
<td>$900</td>
<td>$3,950</td>
<td>$12,750</td>
<td>$1,000</td>
</tr>
<tr>
<td>Total</td>
<td>$57,225</td>
<td>$55,755</td>
<td>$55,803</td>
<td>$55,873</td>
<td>$59,961</td>
<td>$284,617</td>
<td>$58,072</td>
</tr>
</tbody>
</table>

1. The fiscal year is July 1 through June 30.
2. Estimated annual costs to sustain the programs.
3. A faculty member will interview other faculty, both those who participate in undergraduate research projects and those who do not. It will assure a faculty perspective is captured well and it will raise the level of campus discussion and awareness of the initiative. Graduate assistant raters will rate student works and student reflective statements.
4. Web developer to provide support to accessible information to the campus and the assessment plan.
5. Student assistants will transcribe and enter numerical and textual data, provide logistical support, and compute basic statistics.
6. Travel the first year is for training to use the standardized instruments and the following years to disseminate the assessment results.
7. Recording equipment and qualitative software with subsequent upgrades. Also includes additional postage costs in FY07 and FY10 for an expansion of the alumni survey to focus on research experiences.
IV. SUMMARY

Since its founding in 1885, Georgia Tech’s educational programs have been characterized by a philosophy of “learning by doing.” As such, Georgia Tech graduates are known for their ready-to-work capabilities and can-do spirit. In keeping with this philosophy, two initiatives were selected for the Quality Enhancement Plan as the most promising and timely strategic areas in which to improve the quality of Georgia Tech’s educational experience, namely, to strengthen the opportunities for our undergraduate students to be well prepared to practice their disciplines in a global context and to strengthen the opportunities for them to enhance their skills in scholarship and innovation through research.

The first initiative, the International Plan, is a unique degree-long program designed to enhance the global competence of Georgia Tech’s undergraduate majors. The initiative integrates international studies and experiences into any major at Georgia Tech. Graduates of the program will be proficient in a second language; be knowledgeable about comparative international relations, the world economy, and the socio-political systems and culture of at least one other country or world region; and be able to practice their discipline in an international context. Students completing the program will receive the degree designation “International Plan” on their transcripts and diplomas to signify the depth and breadth of their global competence in their major.

The second initiative involves the creation of two programs, the Undergraduate Research Opportunities Program and the Research Thesis Option. The Undergraduate Research Opportunities Program will facilitate the participation of more undergraduate students in research, encourage longer research experiences, and improve the quality of these experiences through faculty mentoring. The Research Thesis Option is for those students who seek an intensive research experience and possibly a research career. Participants in both programs will deepen and broaden their problem-solving and communication skills, knowledge of the frontiers of their discipline, and their research competence and confidence. Students completing the Research Thesis Option will receive the recognition “Research Thesis Option” on their transcripts to signify the extra depth and breadth of their research experience.

The five-year, $4.9-million QEP focuses on undergraduate students and involves the senior administration of Georgia Tech, college and unit leadership, and faculty, staff, and students. Each initiative is led by a committee of faculty, staff, and students; chaired by a member of the faculty; and co-chaired by a member of the provost’s office. The leadership of these two committees, plus representatives from the Institute’s offices of Organizational Development and Assessment, form a third committee to provide operational leadership of the QEP as a whole. These committees will work in close collaboration with participating academic units and a number of support units within Georgia Tech.

Achieving the QEP’s goals will be challenging. However, we believe they are attainable and sustainable.
REFERENCES

27. Fall 2004 Survey by McKnight, Phillip, School of Modern Languages, Georgia Institute of Technology, Atlanta, Georgia.


40. Levis-Fitzgerald and Denson, “Undergraduate Research Opportunities in the Life Sciences,” accepted for presentation at the Association for Institutional Research Forum, San Diego, California, June 2005.


52. Undergraduate Scholars Program, Georgia Tech and Emory, Department of Biomedical Engineering, http://www.gtec.gatech.edu/urs/ursinfo.html.

53. Undergraduate Research Opportunities Program in Packaging Research, http://www.prcc.gatech.edu/students/research_op.htm.


APPENDIX A
DEVELOPMENT OF THE QEP

In August 2002, the provost created the Office of the Associate Provost and appointed the Council for Institutional and Academic Program Review and Accreditation (hereafter, the Council). The associate provost serves as chair of the Council. The principal duties of the Council are to provide counsel and guidance to the provost on matters related to the institutional development, review, and accreditation of Georgia Tech’s academic programs. The Council’s first task was to organize and lead the preparations for Georgia Tech’s 2005 SACS reaffirmation. The associate provost has reported on the SACS preparations at the monthly meetings of direct reports to the provost since September 2002, and met at least quarterly with the SACS Leadership Team and the president’s cabinet of his direct reports.

The Council began its monthly meetings in September 2002. During the fall of 2002, the Council reviewed SACS policies and procedures, consulted with those experienced in SACS accreditations, and discussed possible strategies for accomplishing the necessary tasks. By December 2002, the Council organized itself into two working groups, the compliance group and the QEP group. The compliance group, led by the director of Assessment, was responsible for evaluating Georgia Tech’s operations and practices relative to SACS standards, gathering the necessary documentation, and preparing the Compliance Certification. The QEP group, led by the associate provost, was responsible for identifying potential QEP topics, developing and selecting from among the topics, and preparing the QEP report.

The QEP efforts began with a one-day off-campus retreat held January 24, 2003. The primary goal of the retreat was to identify a potential focus for the QEP, and to the extent possible, the associated principal parts (or activities) that would comprise the QEP. The retreat resulted in largely three areas of opportunity. However, there also remained a need for considerable additional discussion. The three areas were: international preparation, active learning, and leadership development. During much of 2003, the Council continued its discussions of the potential opportunities for the QEP, although at a less intense effort than was devoted to preparing the Compliance Certification. Subsequently, four additional opportunities were identified, some as natural extensions or expansions of the initial three. The seven areas of opportunity at the end of 2003 were: active learning in the freshman-sophomore courses, undergraduate research experiences (an extension of active learning), enhanced professional practice (which subsequently focused on international internships), the International Plan (a refinement of the initial theme of international preparation), and co-curricular experiences, living-learning communities, and an enhanced freshman orientation class, GT 1000 “Adjustment to College Life” (the last three being expansions of the initial theme of leadership development). A common connection among the opportunities was the enhancement of Georgia Tech’s “learning by doing” environment. In early 2004, teams were formed to develop these opportunities into initiatives with specific activities and budgets. The teams met throughout 2004, and the team leaders reported to the Council the development of their initiatives. These were actively discussed in Council meetings. During the summer of 2004, the initiatives were developed into proposals according to a common format. They were shared and reviewed by members of the Council, and presented and discussed at a meeting on September 21, 2004. The results from the meeting were shared with the Leadership Team, who then selected three of the initiatives: the International Plan, international internships, and undergraduate research experiences. Because of considerable commonality, the international internship initiative was merged with the International Plan. The selection of the initiatives was based largely on two factors: compatibility with the guidelines for a QEP and the potential to mature into detailed plans within the ensuing six months. All initiatives were viewed as meritorious and worthy of support. Indeed, one has already received support and the others are expected to be supported as their ideas further develop.

During the fall of 2004 and early spring 2005, two teams have worked to refine their objectives and develop implementation and assessment plans and budgets. These initiatives have been shared broadly across the campus, both in their development and through the distribution of drafts of the QEP. In addition to discussions by the members of the Council and QEP committees with their Georgia Tech colleagues, the QEP has been a topic of ongoing discussion at various leadership meetings, including the Academic Senate, General Faculty Assembly, Executive Board, direct reports to the provost and president, associate deans, undergraduate and graduate coordinators, Institute and unit curriculum committees, and many unit faculty meetings. The Institute is well prepared to implement the QEP.
APPENDIX B

PRINCIPAL PERSONNEL

QEP OVERSIGHT COMMITTEES

LEADERSHIP TEAM

G. WAYNE CLOUGH, President, Chair
JEAN-LOU CHAMEAU, Provost and Vice President for Academic Affairs
ROBERT K. THOMPSON, Senior Vice President for Administration and Finance
JACK R. LOHMANN, Associate Provost (Institutional Development), Professor of Industrial and Systems Engineering, and SACS Accreditation Liaison

COUNCIL FOR INSTITUTIONAL AND ACADEMIC PROGRAM REVIEW AND ACCREDITATION

JACK R. LOHMANN, Associate Provost, Professor of Industrial and Systems Engineering, Chair

Office of the Provost Representatives

CHARLES L. IOJITA, Vice Provost (Research, and Dean of Graduate Studies), and Regents' Professor of Chemistry and Biochemistry
ROBERT C. MCMATH, Vice Provost (Academic Affairs and Undergraduate Studies), and Professor of History, Technology, and Society
WILLIAM J. WEPFER, Vice Provost (Distance Learning and Professional Education), and Professor of Mechanical Engineering
WILLIAM E. SAYLE, Director of Undergraduate Programs, Georgia Tech Lorraine, and Professor Emeritus of Electrical and Computer Engineering

College Deans Representatives

DOUGLAS C. ALLEN, Associate Dean, College of Architecture, and Professor of Architecture
JANE C. AMMONS, Associate Dean, College of Engineering, and NSF ADVANCE Professor of Industrial and Systems Engineering
RICHARD P. BARKE, Associate Dean, Ivan Allen College, and Associate Professor of Public Policy
NATHAN BENNETT, Senior Associate Dean, College of Management, and Professor of Management
MERRICK L. FURST, Associate Dean, College of Computing, and Professor of Computing
ANDERSON P. SMITH, Associate Dean, College of Sciences, and Regents' Professor of Psychology
KATHY L. TOMAJKO, Assistant to the Dean of Libraries

Office of Administration and Finance Representatives

SANDRA J. BRAMBLETT, Director, Office of Institutional Research and Planning
HAL IRVIN, Executive Director, Office of Organizational Development
ROSALIND R. MEYERS, Associate Vice President of Auxiliary Services

Office of Student Affairs Representative

WILLIAM D. SCHAFER, Vice President for Student Affairs

Office of Assessment Representative

J. JOSEPH HOEY, Director, Office of Assessment

QEP STEERING COMMITTEE

JACK R. LOHMANN, Associate Provost, Professor of Industrial and Systems Engineering, and SACS Accreditation Liaison, Chair
AMY S. BRUCKMAN, Associate Professor of Computing
J. JOSEPH HOEY, Director, Office of Assessment
HAL IRVIN, Executive Director, Office of Organizational Development
ROBERT C. MCMATH, Vice Provost, Professor of History, Technology, and Society
HOWARD A. ROLLINS, JR., Director, Office of International Education, and Professor of Psychology

INTERNATIONAL PLAN STEERING COMMITTEE

HOWARD A. ROLLINS, JR., Director of International Education, and Professor of Psychology, Chair
JACK R. LOHMANN, Associate Provost, and Professor of Industrial and Systems Engineering, Co-Chair
THOMAS M. AKINS, Executive Director, Division of Professional Practice
DOUGLAS C. ALLEN, Associate Dean, College of Architecture, and Professor of Architecture
KENT BAREFIELD, Professor of Chemistry and Associate Dean, College of Sciences
RICHARD P. BARKE, Associate Dean, Ivan Allen College, and Professor of Public Policy
YVES H. BERTHELOT, Professor of Mechanical Engineering
MAUREEN S. BIGGERS, Assistant Dean, College of Computing
GEORGE CHIMONAS, Professor of Earth and Atmospheric Sciences
JUNG H. CHOI, Associate Professor of Biology
DEREK M. CUNNOLD, Professor of Earth and Atmospheric Sciences
DOUGLAS FLAMMING, Associate Professor of History, Technology, and Society
MERRICK L. FURST, Associate Dean, College of Computing, and Professor of Computing
PAUL M. GRIFFIN, Associate Chair, and Associate Professor of Industrial and Systems Engineering
JOSEPH L. A. HUGHES, Associate Chair, and Professor of Electrical and Computer Engineering
LAURENCE J. JACOBS, Associate Chair, and Professor of Civil and Environmental Engineering

The Council membership was changed slightly in February 2005 as the Council transitioned from shepherding the SACS reaffirmation process to general oversight of Georgia Tech’s compliance with SACS standards, practices, and policies. Council members completing their terms were: Thomas M. Akins, Executive Director, Division of Professional Practice; Gail DiSabatino, Dean of Students; Ralph Mobley, Director, Office of Career Services; and John K. Mullin, Associate Vice Provost/Associate Vice President, Office of Information Technology. Sandra J. Bramblett, Director, Office of Institutional Research and Planning, joined the Council as a new member.

The initial QEP Steering Committee also included the team leaders for the other initiatives considered for the QEP. They were: Thomas Akins, Executive Director, Division of Professional Practice; Douglas Allen, Associate Dean, College of Architecture; Richard Barke, Associate Dean, Ivan Allen College; Brent Carter, Associate Professor of Materials Science and Engineering; Gail DiSabatino, Dean of Students; Jonathan Gordon, Associate Director, Office of Assessment; Rosalind Meyers, Associate Vice President for Auxiliary Services; Daniel Morrison, Associate Director, Residence Life; Donna Llewellyn, Director, Center for the Enhancement of Teaching and Learning; Ralph Mobley, Director, Office of Career Services; Anderson Smith, Associate Dean, College of Sciences; John Stein, Director of Success Programs; and Raymond Vito, Associate Dean, College of Engineering, and Professor of Mechanical Engineering. Most of these individuals continue to contribute to the QEP through the Council, other committees, or their units.
CHRISTOPHER JARRETT, Associate Director, and Professor of Architecture
RICHARD J. LEBLANC, JR., Professor of Computing
WILLIAM J. LONG, Chair, and Professor of International Affairs
YVETTE MCDONALD, Administrative Director, College of Management
PHILLIP MCKNIGHT, Chair, School of Modern Languages, and Professor of German
RALPH MOBLEY, Director, Office of Career Services
DOUGLAS R. NIGGLEY, Undergraduate Student, Aerospace Engineering
CHARLES K. PARSONS, Professor of Management
CHRISTINE E. RIES, Professor of Economics
DAVID M. SANBORN, Associate Chair, George W. Woodruff School of Mechanical Engineering
LAKSHMI SANKAR, Associate Chair, and Regents' Professor of Aerospace Engineering
TERRY W. SNELL, Associate Chair, and Professor of Biology
J. CAMERON TYSON, Academic Professional, School of Chemistry and Biochemistry
RAYMOND P. VITO, Associate Dean, College of Engineering, and Professor of Mechanical Engineering
DOUGLAS B. WILLIAMS, Associate Chair, and Associate Professor of Electrical and Computer Engineering

UROP and Research Thesis Option Steering Committee

AMY S. BRUCKMAN, Associate Professor of Computing, Chair
ROBERT C. MCMATH, Vice Provost, and Professor of History, Technology, and Society, Co-Chair
E. KENT BAREFIELD, Associate Dean, College of Sciences, and Professor of Chemistry and Biochemistry
RICHARD P. BARKE, Associate Dean, Ivan Allen College, and Associate Professor of Public Policy
LEIGH D. BOTTOMLEY, Program Coordinator for Academic Support and Undergraduate Research
GOUTAM CHALLAGALLA, Associate Professor of Management
JUNG H. CHOI, Associate Professor of Biology
MARY E. CLARK, Undergraduate Student
JEFFREY A. DAVIS, Assistant Professor of Electrical and Computer Engineering
GAIL DISABATINO, Dean of Students
MARK GUZDIAL, Associate Professor of Computing
CHRISTOPHER JARRETT, Associate Director, and Professor of Architecture
GORDON A. KINGSLEY, Associate Professor of Physics
PAUL A. KOHL, Regents' Professor of Chemical and Biomolecular Engineering
CHRISTOPHER S. LYNCH, Associate Chair, George W. Woodruff School of Mechanical Engineering
JO MCVIER, Registrar
ROBERT C. MCMATH, Vice Provost, and Professor of History, Technology, and Society
CHARLES K. PARSONS, Professor of Management
CHARLES F. RUDOLPH, Associate Professor of Architecture
MICHAEL SCHATZ, Associate Chair, and Associate Professor of Physics
ARNOLD SCHNEIDER, Professor of Management, Executive Board Liaison
TERRY W. SNELL, Associate Chair, and Professor of Biology
JOHN T. STASKO, Professor of Computing
JOHN L. TONE, Associate Professor of History, Technology, and Society
DONALD WEBSTER, Associate Professor of Civil and Environmental Engineering
DOUGLAS B. WILLIAMS, Associate Chair, and Associate Professor of Electrical and Computer Engineering

OFFICE OF ASSESSMENT
J. JOSEPH HOEY, Director
JONATHAN GORDON, Associate Director
JOE LUDLUM, Coordinator of Survey Research
J. SHAWN CARNLEY, Web Developer

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