### PH Strategic Plan Report - May 02

#### Table 2-4. Goal 1: Enhance the Quality of WPI's Academic Programs

<table>
<thead>
<tr>
<th>Outcome Objectives</th>
<th>Performance Measures</th>
<th>Responsible Parties</th>
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<tbody>
<tr>
<td>1.1 Fully develop the WPI Plan for all students around an &quot;honors college&quot; metaphor at all levels.</td>
<td>Faculty size; number National Merit Scholars; ranking of undergraduate program; impact of first year; curriculum improvements; graduation rate; practice graduate program statistics; IQP quality; learning outcomes; number large (&gt;35) classes.</td>
<td>Provost's Office; Admissions Office; Faculty Governance.</td>
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<tr>
<td>1.2 Develop aligned incentives for faculty and staff to promote action plans.</td>
<td>Faculty diversity; faculty and staff salaries compared to benchmarks; employee satisfaction; effectiveness of reward system.</td>
<td>Provost; Director of Human Resources; Assistant VP Student Affairs; Multicultural Awareness Staff Member; Faculty Governance.</td>
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<tr>
<td>1.3 Provide increasing opportunities for student involvement in research.</td>
<td>Number students in summer research; impact of graduate fellowships.</td>
<td>Associate Provost.</td>
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<tr>
<td>1.4 Maintain contemporary teaching laboratories.</td>
<td>Adequacy of funding for equipment and instrumentation maintenance and renewal; average age statistics.</td>
<td>Property Administrator; Provost's Office; Dean, Division of Continuing Studies.</td>
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</table>

**Objective 1.1**  
*Fully develop the WPI Plan for all students around an "honors college" metaphor at all levels.*

**Performance:**  
Impact of first year:

- One faculty member is a member of the First-Year Tutorial
project team (sponsored by the Davis Foundations).

- One faculty member is an Insight advisor.

Curriculum improvements:

- A new undergraduate laboratory course (PH 2601 Photonics Laboratory) is now available, associated with the IPG Lab and outfitted with state-of-the-art photonics equipment.
- A new course on Atomic Force Microscopy has been offered to undergraduates for the past two years and will continue to be offered.

Number of large classes:

- During this past year, as a typical year, Physics offered 14 courses that had enrollments of less that 35 students, and 10 courses that had enrollments of more than 35. Physics has always had a high proportion of small classes, which includes all of the intermediate and advanced courses along with occasional introductory offerings. All of the large-enrollment classes (two of which are invariably above 360 students) are divided into 30-student conference sections, and several faculty members, including some of the newest members of the department, are actively experimenting with and implementing active-learning techniques to improve student involvement in these courses taken by many students to fulfill a requirement.

**Objective 1.2**  
*Develop aligned incentives for faculty and staff to promote action plans.*

**Performance:**  
Faculty Diversity:

- Two of the 12 tenured/tenure-track members of the department are women, which is a first-ever occurrence for this department and finally puts us in line with American Physical Society best-practice advice that states that any physics department with female faculty members should never have fewer than two women on the faculty for long-term well-being of the female faculty members. (Although this is not addressing the popular meaning of diversity undoubtedly...*
intended under this item, we note that four of the 12 members of this department are not native-born Americans: two are from India, one is from Mauritius, and one is from Russia. Physics is a diverse group, indeed!

**Objective 1.3**  
*Provide increasing opportunities for student involvement in research.*

**Performance:** Number of students in summer research:

- The Physics Department has a long history of involving undergraduates in research during the summer. During the past few years, the record has even improved, rising from an average of three to an average of five.

Impact of graduate fellowships:

- For Physics, the focus is not fellowships but research assistantships. During the past decade as funded research activities have increased, Physics seems to have reached a stable level where in this next year there will be a minimum of three students supported on Ras, with the potential for this number going as high as four or five. This is a high-water mark for the era of the past 30 years.

**Objective 1.4**  
*Maintain contemporary teaching laboratories.*

**Performance:**

- As a result of an initiative undertaken with IPG, the Physics Department now has a state-of-the-art photonics laboratory, which this year was used in conjunction with a laser physics course and an optics course. As mentioned above, this lab will be the site of a photonics laboratory course starting this next year.

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<th>Table 2-5. Goal 2: Further WPI's Position as a National University</th>
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<tr>
<td><strong>Outcome Objectives</strong></td>
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<tr>
<td>2.1 Improve the quality and diversity of the student body.</td>
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</table>
students receiving financial aid.

| 2.2 Support the faculty's efforts in research and scholarship. | Impact of thrust areas on faculty and graduate student recruiting; annual research expenditures; number proposals and awards; faculty and graduate student support levels; AACSB accreditation status; average course load for faculty; minimum and mean GRE scores; annual number Ph.D. graduates; number full time graduate students; annual research expenditures per faculty member; amount of Indirect Costs recovered. | Associate Provost; Thrust Area Directors; Academic Department Heads; Director, Plant Services. |
| 2.3 Develop creative partnerships with industry, organizations, and other universities. | Number of partnerships; value added; statistics associated with Silicon Valley center and other new ventures. | Provost Office; Dean, Division of Continuing Studies; VP University Relations. |
| 2.4 Continue to develop a comprehensive base of programs through aligned resource allocations. | Student participation in humanities and arts programs; status of academic programs; alumni satisfaction with preparation; percentage and average gift value of alumni participation in Annual Fund; endowment per student; payroll per student credit hour delivered. | Provost's Office; Faculty Governance; VP University Relations. |
| 2.5 Expand opportunities for synchronous and asynchronous networked learning. | Number students involved in distance learning; number courses offered; number companies participating. | Dean, Division of Continuing Studies; Provost's Office; VP Information Technology. |
| 2.6 Conduct a comprehensive image-building and marketing effort. | Uniformity of publications; name recognition; changes in number of applications; geographic base of applicant pool. | University Relations; Dean, Division of Continuing Studies. |
Objective 2.1  Improve the quality and diversity of the student body.
Performance: None.

Objective 2.2  Support the faculty's efforts in research and scholarship.
Performance: In the last ten years, the Physics Department has hired six new, tenure-track faculty (and two hires are pending) -- all as a result of retirements or resignations. With a total number of tenured and tenure track faculty equal to 13, this means that a majority of physics department faculty are relatively new to the WPI campus. All of the new hires have a significantly higher commitment to research and scholarship than the individuals they replaced.

As a result, external research grant support has increased. As of March 2002, the physics department has $759K of committed external funding (most are multi-year grants -- so this is not equal to income for this Fiscal Year).

The comparable number three years ago was $400K. There are also two other proposals which are likely to be funded this Spring. Two of the new grants are prestigious NSF Career Awards. Two are NSF MURA grants, which have the added benefit of enhancing WPI's research reputation at the multiple universities involved.

Increased grant support allows larger participation of WPI faculty in professional society meetings, increases the number of graduate students who can be financially supported, and provides funds for new research laboratory equipment.

Other forms of external recognition have also increased. Professor L. R. Ram-Mohan was recently elected as a Fellow of the American Physical Society (and of the Australian Physical Society). Faculty members in the physics department are very much in demand as speakers at other universities and at various meetings -- to the point where coordination of absences is becoming difficult.

Objective 2.3  Develop creative partnerships with industry, organizations, and other universities.
Performance: None.
**Objective 2.4**  
Continue to develop a comprehensive base of programs through aligned resource allocations.

**Performance:** None.

**Objective 2.5**  
Expand opportunities for synchronous and asynchronous networked learning.

**Performance:** None.

**Objective 2.6**  
Conduct a comprehensive image-building and marketing effort.

**Performance:** None.

### Table 2-6. Goal 3: Establish WPI as a Leader in Global Technological Education

<table>
<thead>
<tr>
<th>Outcome Objectives</th>
<th>Performance Measures</th>
<th>Responsible Parties</th>
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<tbody>
<tr>
<td>3.1 Expand participation by students and faculty in the Global Perspective Program.</td>
<td>Dollar value of scholarship fund; faculty involvement; number projects conducted at global sites; number faculty and students involved with sister institutions.</td>
<td>VP University Relations; Provost's Office; Faculty Governance, Dean, IGSD.</td>
</tr>
<tr>
<td>3.2 Make the transition from multinational sites to a global system.</td>
<td>Number teams involving remote sites; degree of integration of global sites.</td>
<td>Dean, IGSD.</td>
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</table>

**Objective 3.1**  
Expand participation by students and faculty in the Global Perspective Program.

**Performance:** Faculty involvement:

- During the past three years, three faculty members have served at project sites outside of the continental United States, and three faculty members have served at the Goddard Space Flight Center. It is also worth noting that because physics major courses are only offered once per year, there are occasionally scheduling conflicts created by students who want to go to a particular site that is available only in conflict with a mainline major course. In such cases, students are encouraged to participate in the IQP program of their choice, with the department making every effort to accommodate missed courses through independent studies scheduled for
another term when the student is on campus.

**Objective 3.2**  
*Make the transition from multinational sites to a global system.*

**Performance:** None.

| Table 2 7. Goal 4: Improve WPI's Campus Culture and Community Presence |
|---|---|---|
| **Outcome Objectives** | **Performance Measures** | **Responsible Parties** |
| 4.1 Construct and renovate facilities to accommodate social and academic activities and solve the parking problem. | Funds available; adherence to construction timetable. | VP University Relations; VP Student Affairs; Assistant VP Student Affairs; VP Administration; Director, Plant Services. |
| 4.2 Improve ethnic and gender diversity in our community. | Quality of life on campus; role and value of support groups. | VP Student Affairs; Assistant VP Student Affairs; Multicultural Awareness Staff Member. |
| 4.3 Provide a safe environment for our community that fosters learning and development with appropriate alternatives to alcohol and drug abuse. | Safety statistics; number violations of alcohol and drug policies; results of CORE Alcohol and Other Drug National Survey; results from Higher Education Research Institute National Survey. | Director Public Safety; Campus Safety Officer; Assistant VP Student Affairs; Healthy Alternatives Office. |
| 4.4 Expand efforts to meet the needs of adult learners. | Net revenue; numbers of faculty and students involved. | Dean, Division of Continuing Studies; Director, ADLN; Academic Department Heads. |
| 4.5 Enhance the Career Development Center. | Number students and employers involved; placement rates; number of alumni participating. | Director, Career Development Center; VP Student Affairs; VP University Relations. |
4.6 Maintain facilities and surrounding peripheral properties according to master plan.

Progress against maintenance plan; deferred maintenance balance; state of grounds and facilities; neighborhood relations.

Director, Physical Plant.

4.7 Enhance support for K-12 system and the local community.

Number programs; number participants; summer program net revenue; number students in teacher certification program.

Provost's Office; Dean, Division of Continuing Studies; Assistant VP Student Affairs; Director Minority Affairs; VP University Relations.

Objective 4.1 Construct and renovate facilities to accommodate social and academic activities and solve the parking problem.

Performance: None.

Objective 4.2 Improve ethnic and gender diversity in our community.

Performance: None

Objective 4.3 Provide a safe environment for our community that fosters learning and development with appropriate alternatives to alcohol and drug abuse.

Performance: None.

Objective 4.4 Expand efforts to meet the needs of adult learners.

Performance: None.

Objective 4.5 Enhance the Career Development Center.

Performance: None.

Objective 4.6 Maintain facilities and surrounding peripheral properties according
Objective 4.7  
Enhance support for K-12 system and the local community.

Performance: None.

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<tr>
<th>Table 2 8. Goal 5: Expand WPI's Educational Resources</th>
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<tbody>
<tr>
<td><strong>Outcome Objectives</strong></td>
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<tr>
<td>5.1 Improve library resources, services, and facilities</td>
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<tr>
<td>5.2 Establish state-of-the-art computing resources and network performance</td>
</tr>
<tr>
<td>5.3 Create and maintain sufficient electronic classrooms to support on- and off-campus programs.</td>
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</tbody>
</table>

Objective 5.1  
Improve library resources, services, and facilities.

Performance: None.

Objective 5.2  
Establish state-of-the-art computing resources and network performance.

Performance: None.
Objective 5.3  

Create and maintain sufficient electronic classrooms to support on- and off-campus programs.

Performance:  None.