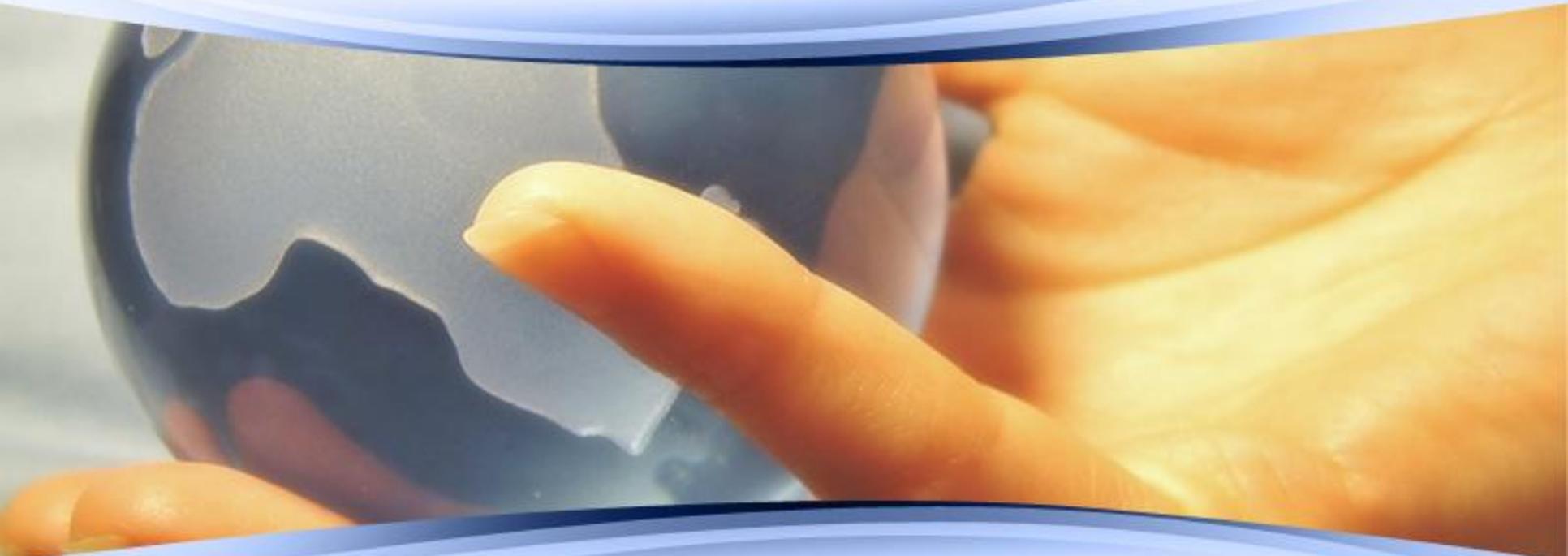


Languages and Cultures for Professions: Pathways to Global Engineering

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Global Pathways to International Engineering: Realities



Iowa State University of Science and Technology

- Entering Freshmen:
 - ISU’s College of Engineering and College of Liberal Arts and Sciences are the only ISU colleges requiring language for acceptance
- Undergraduates at ISU
 - Only the College of Liberal Arts and Sciences requires any language training (1 year)
 - 1 year language requirement for Elementary Education majors and 2 years for Global Resource Systems
 - No international experience / study abroad requirement
 - 3 credits of “international perspectives” required of all students

Our Premise



- Millions of engineers all over the world speak a second, third and sometimes fourth language. Many are multi-cultural.
- Many will be working in teams, on global projects and will need cross-cultural communication training.
- Knowing only English and being marginally familiar with world cultures is insufficient to be competitive in the global marketplace.

Why Languages and Engineering?



“Hottest college degrees for getting hired” (CNN Money.com, September 8, 2006)

- “If you decide to pursue one of these majors (engineering, business, physical therapy) don’t neglect your language skills... **Being multilingual will pay off** in marketing, finance, banking, trade, social services, health care, and **engineering**, especially if at least one of the languages you learn is an Asian one.”

Iowa International Business Survey (2005)*



Iowa businesses report that...

- employees need foreign language skills to conduct business (67%)
- employees should have an appreciation of cross-cultural differences (68%)
- it is important or very important that employees have an understanding of foreign markets and business practices (64%)
- it is important for employees to have an understanding of technical or scientific language (40%)
- overall revenue would increase “somewhat” to “a great deal” with more employees proficient in foreign languages (82%)

But... 46% reported that finding employees with these characteristics was “very difficult.”

** Iowa Internal Business Survey. National Foreign Language Resource Center (NFLRC) and The Iowa World Language Association. Ames, Iowa: National. Foreign Language Resource Center, 2005.*

IOWA STATE UNIVERSITY



Meeting the Global Challenge



Some guiding questions:

- How can we prepare our students for living and working in global contexts?
- Who will our students be working with?
- Where will they be working?
- How will they be communicating as individuals or as part of communities?
- How can we make them more competitive?

Global Pathways to International Engineering: Answers



Languages and Cultures for Professions (LCP)

- A second major option for language students whose primary major is from the College of Engineering
- Funded in part by a U.S. Department of Education Title VI-A UISFL grant (2004-2006)

What is LCP?



Languages and Cultures for Professions is a focused second major for engineering students

- fewer credits than traditional language major (30 cr.)
- requires study abroad and/or an international internship
- features technical and professional courses in the target language; studies in Technical Translation and Applied Linguistics
- provides language and culture training within a professional context

Languages and Cultures for Professions (LCP) Objectives



#1 to implement an LCP second-major option in Engineering for...

- Chinese Studies (minor)
- French
- German
- Russian Studies
- Spanish

Languages and Cultures for Professions (LCP) Objectives



#2 build curricular bridges between courses focused on professions and courses on contemporary area studies:

– **“Today” courses**

- China Today
- France Today
- German Today
- Russia Today
- Spain Today and Latin America Today

– **“Business and Professions” courses in each language**

Base Curriculum: “Business & Professions” and “Today” courses



Business and the Professions:

- Taught in the target language, topics related to key business and engineer concepts; cultural situations and ethical and practical aspects of working abroad
- CV & letter writing; Global project management teams and research-oriented portfolios; Case Studies and Business Plan creation

Today courses:

- Taught in target language; Current social, political, economic and cultural issues in the countries under study
- Guest Speakers in class room or via distance ed./remote
- Teams investigate special topics; Case studies of particular social issues

The LCP Global Skill Set



What do LCP majors acquire from coursework?

- Academic training in professional practices of the target country
- Increased foreign-language skills
- Knowledge of and sensitization to the target country's cultural values, norms, and taboos as well as its political, linguistic, historical, and economic heritage
- Experience resolving cultural issues and problems
- Preparation for working abroad

Languages and Cultures for Professions (LCP) Objectives



#3 to expand study abroad and internship opportunities

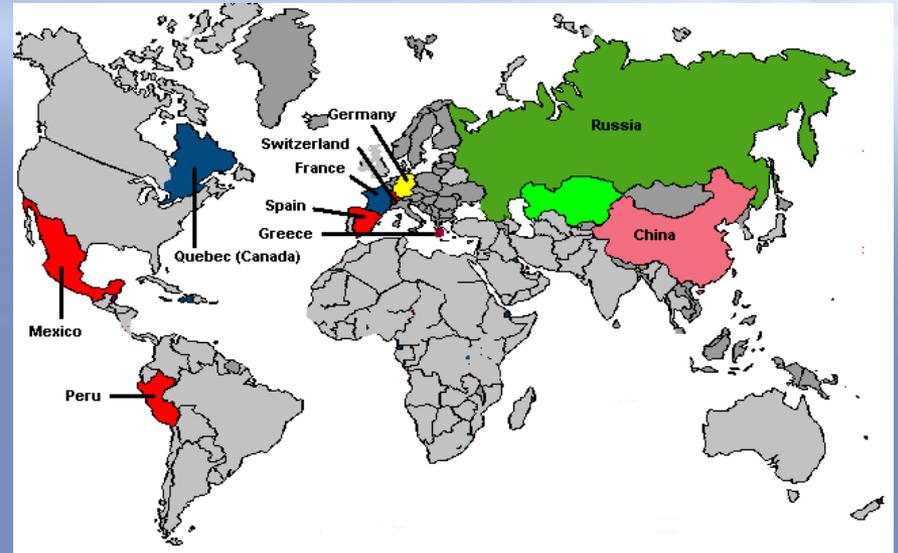
- Faculty-led study abroad programs
- In-house and consortium study abroad/exchange opportunities available across the globe
- International Internships for academic credit with leading global companies or as a part of the study abroad experience

Professional Practice – International Experiential Learning



Study Abroad & Internships

- Department directs or participates in 15 different study abroad programs in 10 countries on 4 continents.
- During FY 2008-2009, 160 students studied abroad for a semester (47) or summer (113), representing 15% of all ISU students (1069) and 53% of all LAS students (212)
- Nearly 100 students have interned abroad since 2004



LCP Highlight

ISU on the Mediterranean: Summer in Valencia, Spain



Unique Coursework and Experiential Learning:

- Beginning – Advanced Spanish Language, Culture and Literature
- **Industrial Engineering 305**
 - A study of finance principles related to engineering and how they are similar and different to the European context
- Biology 384: International Field Work
- Marketing 484: International Marketing
- Management 310: International Business
- Management 367: International Entrepreneurship



Research on Language-Based Study Abroad Programs



Students who acquire language proficiency while participating in a program abroad:

- greater range of communicative strategies and improved comprehension of the social, psychological, cultural, and linguistic aspects of world cultures
- confidence and self-awareness, increased independence, self-sufficiency, maturity, and willingness to think with an open mind
- comfort in a foreign setting which might include the decision to take risk, decide to open a business, work abroad, or try some other professional activity.

Study of Indiana University Business students (2004)*



Students report:

- experience abroad impacted future career plans (96%)
 - listed the experience on resumes (94%)
 - were questioned about experience in job interviews (74%)
 - interest in working abroad (89%)
 - actively marketing themselves for an international career (58%)
- **For those who never studied abroad, only 51% held any international interests at all**
 - Even though globalization is alive and well!

*Orahood, Tammy, Kruze, Larisa and Pearson, Denise E. "The Impact of Study Abroad on Business Students' Career Goals." *Frontiers* 10.7 (2004): 117-30.



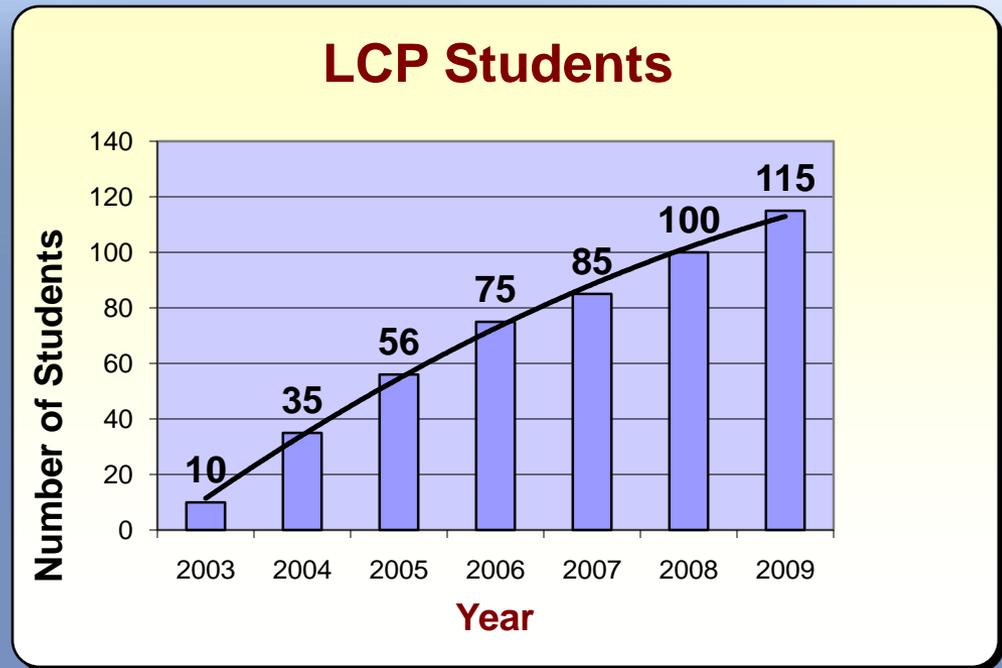
**Has it been successful?
Have we met our goals and objectives?**

Success?



Enrollments

- 115+ majors in LCP (35 in 2004)
- Nearly 50 Engineering students enrolled in minors
- 275+ students from Engineering enrolled in language classes



Success?



Curriculum

- 32 courses developed or enhanced since 2004 (19 language courses & 13 international /area studies courses)

Faculty Training, Research and Consulting

- new avenues for faculty research and training;
- LCP directors are actively sought out to consult with other universities, act as external reviewers, speak at university events, collaborate on projects

Success?



Funding

- LCP is on the ISU University Foundation targeted list of potential donors
- External and Internal Grants; Private Donors fund student scholarships, administrative support

Collaborations:

- Multi-disciplinary study abroad programs developed including internships
- LCP courses included in new Global Resource Systems major
- “Technology, Globalization, and Culture”



**Where do we go from here?
What can we expect in the future?**

Future Pathways



Engineering curricula is being impacted by increased demand for...

- interdisciplinary coursework and more collaboration across disciplines
- international experiential learning (by employers and students)
- student engagement projects (Engineers for a Sustainable World; Engineers Without Borders, service learning projects, etc.)
- Less Commonly Taught Languages (LCTLs), especially Asian and African languages

As a result, we must find ways to integrate foreign languages into these experiences and improve international programs

A few final thoughts...



We consider internationalism a meaningful experience in a language and culture other than one's own which normally requires an immersion experience abroad featuring language and culture training.



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