



College of Engineering

122 Hitchcock Hall
2070 Neil Avenue
Columbus, OH 43210-1278
Phone 614-292-2651
FAX 614-292-9379
E-mail engosu@osu.edu

Date: 23 April 2013

To: Randy Smith
Vice Provost, Office of Academic Affairs (OAA)

From: Ed McCaul
Secretary, College of Engineering & Committee on Academy Affairs (CCAA)

Subject: Global Option in Engineering

CCAA reviewed and approved the attached proposal to create a Global Option in Engineering on the 17th of April 2013. The proposed option has the support of the Office of International Affairs. I am forwarding it to you so that it can be approved by the Council on Academic Affairs. If you have any questions concerning this proposal please let me know.

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Proposal for a Global Option in Engineering (GO ENGR)

Background and Rationale

In the Autumn of 2011, a study group was established by the Core Curriculum and College Services Committee (Core) to address the issue of what improvements could be made in the undergraduate engineering curriculum to better prepare students for the practice of engineering in a global environment. One of the recommendations of the study group (full report at <http://eeic.osu.edu/about/globalization>) was to develop a Global Option in Engineering for students. A framework for this option was developed by the Office of International Affairs (OIA) and approved by Council of Deans and the Council on Academic Affairs. A follow up task force was established to develop a proposal for the Core Committee consideration. This task force consisted of the following persons:

Amanda Crall, Advisor, Undeclared Engineering Students
Shelley Diewald, UG Student, Mechanical Engineering
Richard Freuler, Professor of Practice, EEIC
Robert Gustafson (Chair), Director EEIC
Ed McCaul, Assistant Dean, Undergraduate Education and Student Services
Neelam Soundarajan, Associate Professor, Computer Science and Engineering
Zachary Stilp, UG Student, Civil Engineering
Mary Ross, Advisor, Civil, Environmental and Geodetic Engineering
ExOfficio
Roberto Rojas, Associate Dean, Graduate and Professional Programs
David Tomasko, Associate Dean, Undergraduate Education and Student Services

The current proposal was developed based on the OIA description of the Global Option (Appendix 1) and the following eight global competencies for engineers defined by the earlier study group:

1. Understanding of global cultural diversities and their impact on engineering decisions.
2. Ability to deal with ethical issues arising from cultural or national differences.
3. Proficiency in a second language.
4. Ability to communicate across cultural and linguistic boundaries.
5. Proficiency in working in an ethnically and culturally diverse team.
6. Understanding of the connectedness of the world and the workings of the global economy.
7. Understanding of the international aspects of engineering topics such as supply chain management, intellectual property, liability and risk, market and product design considerations, and business practices.
8. Familiarity with the history, government, and economic system of several target countries.

Note that these eight competencies incorporate the five skills identifies in the OIA document.

Goal

The goal of the GO ENGR program is for students to enhance their global competencies and thereby better prepare for the practice of engineering in a global environment and participation as an active global citizen. Students are to enhance their global competencies by participation in one or more meaningful international experiences. GO ENGR will include curricula selections with global perspective elements as part of their engineering degree program. GO ENGR is designed such that it can be

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completed without adding time to graduation. Students participating in the GO ENGR program will, upon completing requirements for graduation, receive a documentation of completion and designation on the their transcript as Engineering Global Option.

Framework and Components for Engineering

Students participating in the GO ENGR program will plan an undergraduate curriculum with elements related to international themes and global dimensions as described in the following components. Courses, international experiences, language, and reflection in the components constitute a special engagement well beyond the standard requirements for graduation.

Component	Description	Minimum Expected Credits
A. Introductory Exposure	Early Education Abroad experience, e.g. a Global May Term course, either in or outside engineering, preferably as a freshman/sophomore.	3
B. International	Options: 1. Courses involving international elements that apply engineering or technical knowledge, e.g. research or service learning	3
	Or 2. Coop/Internship Outside the U.S. (Registration in ENGR 4191 required).	0
C. Cultural and Language	Options: 1. Advanced proficiency in a language, other than English, at level 2 ACTFL.	
	Or 2. Completion of a world language, other than English, minor.	
	Or 3. Advanced (3000 or above) Education Abroad in General Education and/or Engineering, may include one Global Studies Approved General Education course.	6 or more
D. Design with international focus	Senior level (4000 or above) courses with strong international focus, approved by the major, i.e. capstone design.	6

Additional program requirements include:

1. Pre and Post evaluation of global competencies on a standardized assessment (pre-evaluation when joining the GO ENGR program; post-evaluation before graduation) in collaboration with the Office of International Affairs.
2. Maintaining a comprehensive e-portfolio or record of activities addressing the A through D components above and reflecting on global competencies attainment.
3. All graded components must be at C or better level and satisfactory completion of any S/U courses.
4. Completion of all degree requirements for a College of Engineering baccalaureate program.
5. Students are expected to remain in good academic standing in the College to continue and to receive documentation of completion and transcription designation.

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Students in any engineering major are encouraged to declare intent to participate in the GO ENGR program as soon as possible. Students enrolling in the program may abandon the program without penalty.

Procedure and Oversight

The GO ENGR will be managed by the Global Studies Office within the Undergraduate Education and Student Services area of the College of Engineering. This office will be responsible to:

- Assure students of the college are aware of the program
- Establish a system for communicating program goals and requirements to students and to help management of student participation
- In cooperation with academic advisors in the College, advise students regarding the program
- In cooperation with Departments, develop/identify discipline specific international focused courses and experiences (internships, service learning, long-term study abroad programs) which support the program
- Maintain records of student participation in the program
- Continually seek to improve the program with program approvals for change being processed through the Core Curriculum and College Services Committee
- Establish and maintain an assessment plan for the program including longitudinal tracking of participants and global competencies before and after scores.
- Collaborate with the Office of International Affairs and other GO Options with the University
- Seek funding to support student and faculty participation
- Report at least annually on the program to the Core Curriculum and College Services Committee.

Metrics and Milestones

- Program approval will require the same approval and monitoring of curriculum as all similar programs; approval by Core Curriculum and College Services Committee, College Committee on Academic Affairs, and Council on Academic Affairs; oversight by Core Curriculum and College Services Committee. Goal for initial approval is December 2013.
- Enroll students in the program beginning Autumn 2014.
- Up to 5% of UG engineering students participating in the program by 2020.

INTERNATIONAL AFFAIRS COMMITTEE

Sub-Committee 1: Develop Students' International Experience

Global Option (GO): An Undergraduate Certificate Proposal for a Structured International Learning Experience (October, 2012)

Topic	Framework for a curriculum enhancement program that permits students to acquire a documented international expertise integrated into any major.
Goal	Providing a curriculum resulting in a certificate for students who wish to acquire a meaningful international experience and global perspectives as part of their major without adding time to graduation.
Who	Students in participating curricula, commit as soon as they declare a major, and who are in continued good standing with a min. GPA of 2.5.
How	Commit by contract to a career-long challenge curriculum related to international themes and global dimensions (see "Components" for details).
Result	Satisfactory completion of the contract results in a certificate upon graduation. Non-completion of the contract will not carry any penalty and will still leave the student with the experience and credit of the parts completed.
Components¹	<p>Courses, international experiences, language, and reflection in six areas constituting a special engagement well beyond standard requirements:</p> <p>A • 1 Freshmen/Sophomore year 4-week Early Exposure (e.g. Global May) Education Abroad program (3 credit) AND/OR • 1 discipline-related international experience (3 credit)</p> <hr/> <p>B • 2 courses with strong international focus, preferably within major (6 cr)</p> <hr/> <p>C Advanced proficiency in one language (other than English or native language) at level 2 ACTFL. For foreign language majors, the level of attainment is 3 (6+ cr)</p> <hr/> <p>D • 1 capstone project in discipline on an international theme (research, internship, service learning) (3 cr)</p> <hr/> <p>E • Evaluation of global competencies on a standardized assessment (pre-evaluation when joining the Global Option; post-evaluation before graduation)</p> <hr/> <p>F • Comprehensive e-portfolio of international activities</p> <p>Programs will set requirements by defining the departmental specifications for each group A to F that constitute special achievement for a given major.</p>
Purpose	<ul style="list-style-type: none"> • Combining major with strong international enhancement • Increasing educational attainment with international experience and global perspectives

¹ This is a recommendation that allows variation within the framework by colleges and departments.

	<ul style="list-style-type: none"> • Developing a set of global skills² to a higher performance level • Preparing for a transnational competitive work environment with global challenges • Combining academic achievement with active experience and application
Advising	<ul style="list-style-type: none"> • Part of UAFYE orientation (possibly also a recruiting tool) • General advising • Colleges/departments provide curriculum guides and major advising • On-line advising, consultation, and advisor contact • Contract can be established up to beginning of Junior standing • Contract can always be abandoned without penalty
Academic Unit	<ul style="list-style-type: none"> • Develops courses that satisfy the Global Option program by focusing on one or more of the observable and measurable competencies (entire course or “embedded”; courses are open to all students meeting course prerequisites) • Develops/identifies discipline-specific international experiences beyond standard expectations (internships, service learning, long-term study abroad programs, oversee international research collaborations for special projects, etc.)
OIA	<ul style="list-style-type: none"> • Develops Early Exposure (e.g. Global May general education) Education Abroad Programs and work with A&S and academic units in creating/identifying discipline-specific experiential opportunities • Facilitate global competencies assessment for student awareness and growth • facilitate language proficiency testing (in collaboration with FLC)
Metrics and Milestones	<ul style="list-style-type: none"> • Development of framework (2010-11) and institutional approval (2011-12) • Of 160 programs, 15% with up to 5% students in GO by 2015 = 340 students (add 3-4 programs/year over the college clusters) • 33% of programs with 7% students by 2018 in GO each = 1000 students (add 10 programs/year over the 3 college clusters)
Assess	<ul style="list-style-type: none"> • Input: Numerical goals of participation (units, diversity, students; see above) • Output: Number of certificates (350/yr by 2018) • Outcome and Impact: Increase in global competencies assessment scores compared to cohort (NSEE scores, Freshmen compared to Seniors) <p>Career path of graduates including international work/travel business here and (longitudinal, in collaboration with Alumni Association)</p>
Oversight	<ul style="list-style-type: none"> • Global Option establishment for a given curriculum follows standard program approval process from academic unit to college to CAA • Delivery of Global Option programs requires the same CAA approval and monitoring of curriculum delivery
Cost Factors	<ul style="list-style-type: none"> • Developing Early Exposure Education Abroad 4-wk programs (including A&S general education) • Academic unit international experiences require advising staff for Education Abroad opportunities plus specific Global Option advising • Academic units invest in capacity to teach international courses • IT based advising tools to be developed and maintained by academic units and OIA.
Roll-out	<ul style="list-style-type: none"> • Working with different colleges, pilot programs in 2011-12 (Soc Work & Pub Health) • Produce UAFYE and OIA promotional materials (mainly IT based) • Focus on program accessibility (disciplines, student demographics, academic achievement level) • Position alongside Honors & Scholars, but more hands-on, with direct experience and highly inclusive.
Approval	<ul style="list-style-type: none"> • Provost’s Council has approve general idea as did IAC. • Framework has been presented to CAA (Oct.’12) and there was no objection to proceed with program development.

²The five skills: • Ability to work effectively in international settings; • Awareness of and adaptability to diverse cultures, perceptions and approaches; • Versed in currents issues and major global trends; • Capacity for effective communication across cultural and linguistic boundaries; • Ability to comprehend the international dimension of one’s field of study



April 10, 2013

To:

College of Engineering Curriculum Committee
Dean College of Engineering,
Council of Academic Affairs
Registrar

Re: SUPPORT FOR ENGINEERING GLOBAL OPTION – GO-ENG

As part of the strategies to internationalize student learning experiences at The Ohio State University, the Global Option (GO) is a curriculum enhancement program through which Ohio State students are able to acquire documented international expertise integrated into participating majors without adding time to graduation. The Global Option is a key component of Ohio State's strategy for institutional internationalization as presented in the President and Provost's Council on Strategic Internationalization. Recently, the College of Engineering, one of the participants in the Global Option program completed its design for a unique Global Option curriculum for its students using the general framework endorsed by the Council of Deans and approved by the Council of Academic Affairs in October 2012.

For over a year a College of Engineering study group established by the Core Curriculum and College Services Committee (Core) explored ideas on how to improve the undergraduate engineering curriculum to better prepare students for the practice of engineering in a global context. The Office of International Affairs (OIA) along with the University Center for Teaching Excellent (UCAT) supported the study group's work as part of OIA's ongoing work with other colleges and units such as Public Health and Social Work to enhance student's international learning experiences through the Global Option.

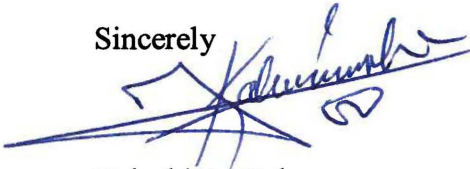
Following the conclusion of the Engineering study group's work, a report was presented to Ohio State's university-wide International Affairs Committee on February 17, 2013 as a best practice model for other colleges and units. The findings and recommendations of the report align quite well with Ohio State's campus-wide internationalization master plan and provide useful lessons for other colleges considering the addition of a Global Option to their curriculum.

The Engineering GO study group's report is significant in its use of survey research as well as its articulation of how the College of Engineering will implement the Global Option curriculum. The study group's survey research indicates the relevance of a well-designed GO curriculum to the development of effective global competencies for engineers. The report includes concrete recommendations on how to implement the curriculum. The Engineering study group's work is important because many good ideas for education reform do not often survive the report stage because of absence of implementation strategies. Specifically, the report submitted by the Engineering study group and approved by the

College of Engineering Curriculum Committee contains specific strategies for its implementation. With the current Engineering Global Option, students will enhance their global competencies and be better prepared for the practice of engineering in an ever-changing global arena.

The Office of International Affairs and its constituent units are committed to continuing their support of the Engineering Global Option curriculum's efforts to internationalize students' learning experience at the Ohio State University. OIA's Dr. Esther Gottlieb who was a member of your study group will continue to collaborate with the group on the development and implementation of a global study option for engineering students. OIA fully endorses the GO-ENG curriculum and remains ready to collaborate with you to internationalize the learning experiences of engineering students at The Ohio State University consistent with the President's and Provost's Council on Strategic Internationalization goals.

Sincerely



Kelechi A. Kalu
Associate Provost for Global Strategies & International Affairs



William E. Brustein
Vice-Provost for Global Strategies and International Affairs