

Work in Progress (WIP): Promoting the Use of Standards by Faculty through Improved Access

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Introduction

Technical standards can provide an effective instructional scaffold for undergraduate engineering coursework [1], [2], and exposing engineering students to appropriate standards is one of the requirements for program accreditation by the Accreditation Board of Engineering and Technology (ABET) [3]. However, providing access to standards can be challenging for academic libraries due to their expense and the restrictions imposed by publishers on borrowing these documents from other libraries [4].

As a first step towards improving access to standards for students and faculty at Oakland University (OU), the use of standards by faculty in their teaching and research is investigated. It is hoped that this study will not only provide guidance on which standards are the highest priority for access by our affiliates, but will also yield insight into how standards are being integrated into coursework in the engineering curriculum at OU.

Methods

With the exception of IEEE standards which are available through a subscription database, access to standards at OU is currently achieved through Interlibrary Loan (ILL). ILL requests for technical standards over an 8-year period 2014-2021 were compiled and characterized by year, publisher, completion status, requestor status, and requestor affiliation (Table 1).

Publisher	Request completed	Request cancelled	Total requests
ASTM	12	6	18
ISO	2	8	10
SAE	4	2	6
ASME	2	1	3
ASHRAE		2	2
AIHA		1	1
AWS	1		1
NCTM	1		1
ROHVA		1	1
SVIA	1		1
Telcordia		1	1
UL		1	1
Total	23	23	46

Calendar Year	Faculty	Graduate Student	Undergraduate Student	Total
2021	1		3	4
2020	1		2	3
2019	2	2		4
2018	3	1	2	6
2017			3	3
2016	3	14		17
2015	6			6
2014	3			3
Total	19	17	10	46

Affiliation	Requests
Engineering	34
Business	10
Nursing	1
Health Sciences	1
Total	46

Table 1: ILL requests for standards, 2014-2021

The volume of requests was fairly low (average of ~6 requests/year) but the data was revealing of which publishers' standards were most frequently requested (ASTM, ISO, and SAE). The data also illustrates the difficulty of finding a library holding the requested document and able to loan it, with 50% of requests for standards being cancelled by ILL staff.

Statistics for IEEE standards downloaded through the subscription database were reviewed for the most recent 28-month period, and totaled 152 downloads over that period; these data indicate a robust level of demand for standards at OU when the standards are easily discoverable and conveniently accessible online.

Guided by the preliminary studies of ILL requests and downloads, a survey was developed to gather data on faculty use of technical standards. The survey was implemented online, took about 10 minutes to complete, and included logic that allowed respondents to answer questions on their use of standards in both coursework and research. Topics queried included:

- school and department affiliation
- standards publishers; methods for discovery and access; volume and frequency of use; current challenges for access; and detail of integration into coursework
- willingness to engage in a follow-up interview with the research team

Whenever possible, survey questions included a free-text response in addition to the multiple choices available.

The research was submitted to the university's Institutional Research Board (IRB), which determined that the project presented minimal risk and did not require ongoing review. A list of faculty email addresses for survey distribution and follow-up was provided by the university's Office of Institutional Research and Assessment (OIRA).

Survey distribution and response rates

Survey distribution to a convenience sample of 108 engineering faculty and 304 faculty in other schools took place in mid-November 2021, with three follow-up emails to non-respondents over the next month (see Table 2). The non-engineering schools were selected for inclusion in the survey based on ILL requests and consultation with liaison librarians.

School/College	Survey Distribution	Started Survey	Started Survey %	Completed Survey	Completed Survey %	Willing follow-ups
Engineering	108	16	15%	16	15%	3
Physical Sciences	113	17	15%	8	7%	2
Health Sciences	80	9	11%	4	5%	0
Business	111	9	8%	7	6%	1
Overall	412	51	12%	35	8%	6

Table 2: Standards survey distribution, completion and follow-up

Of the 412 faculty who received a survey and follow-ups via email, 29 completed the survey, for an overall response rate of ~7% as indicated in Table 2. Response rates were highest among engineering faculty and lowest among faculty in health sciences. A total of six faculty members agreed to be contacted by a member of the research team for a follow-up interview. Given the convenience sampling method used (and the low rate of response), the survey results cannot be reliably generalized to the population of faculty in these four schools, but may still yield initial guidance for improving access to the most-need standards.

Concluding remarks and next steps

Compilation and interpretation of the survey responses are in progress, and free-text answers to survey questions will be used as a basis for follow-up interviews with those faculty who indicated a willingness. In particular, the follow-up interviews will be used to identify standards in regular use for coursework and to prioritize their acquisition. In parallel, inquiries to standards publishers and commercial standards aggregators will be made to identify ways to improve on-demand access to standards from the most-requested publishers, and the library's current policies around collection of standards documents will be reviewed and updated where necessary.

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