

# **PROGRAM REVIEW**

**Bachelor of Science in Applied Engineering**

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## **BACKGROUND**

University of Louisville (UofL) Libraries are comprised of:

- 1) Ekstrom Library serving humanities, social sciences, life sciences, business, engineering, physical sciences, and technology,
- 2) Kornhauser Health Sciences Library,
- 3) Anderson Music Library,
- 4) Bridwell Art Library,
- 5) The Law Library, and
- 6) University Archives and Special Collections.

UofL's library system supports the teaching and research needs of more than 22,000 students and more than 7,000 faculty and staff. UofL belongs to the Association of Research Libraries (ARL), an organization of 126 North American library systems affiliated with large, comprehensive research institutions; the State-Assisted Academic Library Council of Kentucky (SAALCK); and Kentuckiana Metroversity, a consortium of Louisville area libraries.

This report provides a summary of library resources that support teaching and research in Applied Engineering. It concludes that the library's current resources are adequate to support the new program and identifies resources that could be purchased to increase and strengthen the library's support for this program and other existing programs.

## **SERVICES**

### **Research Assistance and Instruction**

Each library within the University of Louisville Libraries offers instruction programs designed to meet the needs of its researchers. Ekstrom Library's information literacy program provides both face-to-face and online research instruction tailored to specific courses and assignments. The library's Research DIY website offers additional online support for students, with brief video tutorials, infographics, and other instructional materials.

Ekstrom Library also provides research assistance through in-person consultations, e-mail, telephone, and online chat. Ekstrom also has an assigned library liaison and subject specialist for the J.B. Speed School of Engineering.

### **Interlibrary Loan and Document Delivery**

Faculty and students can access books and articles not held by UofL Libraries through [Interlibrary Loan](#). Document delivery services allow patrons to request that library-owned articles or book chapters less than 50 pages in length, and within copyright fair use guidelines, be scanned and delivered to them electronically. Ekstrom Library has a [Distance Learning Services Specialist](#) who provides online learners with access to print and electronic resources.

## STAFFING

According to the most recent data available from ARL, UofL Libraries' staff to student ratio is slightly above average compared to our established benchmark institutions.

<u>FY 2019-2020</u>	<u>Library Staff</u>	<u>Full-Time Students</u>	<u>Ratio Staff : FT Students</u>
<b>University of Louisville</b>	<b>102</b>	<b>18,650</b>	<b>1:183</b>
SUNY @ Buffalo	121	26,616	1:220
Stony Brook University	74	22,188	1:300
Temple University	135	33,783	1:250
University of Alabama @ Birmingham	114	38,103	1:334
University of California – Irvine	171	35,809	1:209
University of California – San Diego	223	37,150	1:167
University of New Mexico	129	27,074	1:210
University of Cincinnati – Main Campus	130	34,575	1:266
University of Illinois @ Chicago	133	28,606	1:215
University of Iowa	198	26,045	1:132
University of North Carolina @ Chapel Hill	311	25,423	1:82
University of Pittsburgh – Main Campus	246	30,746	1:125
University of South Carolina	176	33,094	1:188
University of Utah	198	25,142	1:127
Virginia Commonwealth University	151	25,550	1:169
Wayne State University	113	18,635	1:165

## COLLECTIONS

### Books

Here is a breakdown of the library's current holdings of both print and eBooks, categorized by relevant Library of Congress subject heading:

LC Subject	# of Print Books	# of eBooks	Print Books published in last 20 years	eBooks published in last 10 years
Electrical Engineering	4785	12731	752	6288
Mechanical Engineering & Machinery	2542	2594	311	1604
Manufactures	2319	955	343	295
Engineering Management	56	62	15	16

### Periodicals

UofL currently has online full-text access to the following journals that focus on topics related to the proposed program. Journals are listed by Scimago Journal Rankings from highest to lowest.

Journal	Online Full-Text Holdings
Annual Reviews in Control (SJR:3.742)	1996-Present
Applied Energy (SJR:2.907)	1995-Present UofL Faculty Published
Automation in Construction (SJR:2.401)	1995-Present UofL Faculty Published
IEEE Transactions on Automation Science and Engineering (SJR:1.865)	2004-Present UofL Faculty Published

<b>Computers &amp; Operations Research (SJR:1.716)</b>	<b>1974-Present</b> UofL Faculty Published
<b>Journal of Management in Engineering (SJR:1.619)</b>	<b>1985-Present</b>
<b>International Journal of Control, Automation and Systems (SJR:0.761)</b>	<b>2009-Present</b>
<b>Engineering, Construction, and Architectural Management (SJR:0.717)</b>	<b>2003-Present</b>
<b>Design Automation for Embedded Systems (SJR:0.46)</b>	<b>1997-Present</b>
<b>Automation and Remote Control (SJR: 0.325)</b>	<b>2001-Present</b>

### Online Databases

The following databases offer indexes, abstracts, and full-text access to the periodicals listed above plus thousands of other publications and data related to the proposed program.

- **Compendex**
- **ScienceDirect**
- **Wiley Online Library**
- **Web of Science**
- **IEEE Xplore**
- **Inspec**
- **ACM Digital Library**
- **ASTM Compass**

### Other Resources

There are online research guides in Electrical Engineering, Computer Engineering and Computer Science, Civil and Environmental Engineering, Industrial Engineering, Standards, and Patents which can be used to support the proposed program. Graduate students may also benefit from the [Productive Researcher Portal](#), which provides advanced research strategies and tools. Ekstrom Library and Kornhauser Library also provide regular training in [EndNote](#) citation management software.

## Analysis of Collections

- UofL Libraries have approximately 26,000 e-books and print books that would support the multi-discipline courses within the Applied Engineering Degree. Of those titles, only one-third have been published within the last 20 years.
- UofL Libraries subscribes to the leading journals that publish the latest research in the topics covered in the Applied Engineering Program.
- Fifteen new classes are being developed to support this program. UofL Libraries has adequate resources to support the current curriculum that makes up the proposed Bachelor of Science in Applied Engineering, but there are several books and standards that should be purchased to support student and faculty research.

## RECOMMENDATIONS

- UofL Libraries could support the current and proposed programs by purchasing the International Society of Automation Standards:
  - <https://www.isa.org/standards-and-publications/isa-standards/search>
  - For more information: standards@isa.org
- UofL Libraries can also strengthen its support of current and the proposed program by purchasing the following books:
  - Bouwman, Patrick. (2021). Fundamentals of process control: principles and concepts. INSTRUMENT SOCIETY OF AME. (\$89.00)  
<https://www.isa.org/products/fundamentals-of-process-control-principles-and-con>
  - International Society of Automation Safety Series (\$517.65):  
<https://www.isa.org/products/safety-series>
  - Rumble, John. (2023). CRC Handbook of Chemistry and Physics. CRC Press. (\$230.00) <https://www.routledge.com/CRC-Handbook-of-Chemistry-and-Physics/Rumble/p/book/9781032425207> or the online subscription:  
<https://www.routledge.com/go/crc-handbook-of-chemistry-and-physics-subscribe>
  - Chilcutt, Alexa S. and Adam J. Brooks. Engineered to Speak: Helping You Create and Deliver Engaging Technical Presentations. (2019). Wiley-IEEE Press. (\$77.95) <https://www.wiley.com/en-us/Engineered+to+Speak%3A+Helping+You+Create+and+Deliver+Engaging+Technical+Presentations-p-9781119474968>
- A thorough LibGuide has already been developed for Electrical Engineering, Computer Engineering and Computer Science, Civil and Environmental Engineering, and Industrial Engineering. New LibGuides can be developed to support any courses associated with the Bachelor of Science in Applied Engineering.
- Ekstrom Library has a dedicated Science Librarian who will be the primary point of contact for students and faculty associated with the proposed program.

## **CONCLUSION**

- The University of Louisville Libraries have adequate resources to support the proposed program.
- The University of Louisville Libraries have resources that marginally support the proposed program. We recommend providing funding for the purchase of materials and resources outlined in the Recommendations section of this document.
- The University of Louisville Libraries do not have adequate resources to support the proposed program.