

The Emergence of the Online Master's Degree

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The fastest adoption of online education within engineering has come at the master's level. This is likely due to several factors. One, since most master's degrees are not accredited, there are no accreditation concerns with online delivery. Second, many students who work full time cannot attend traditional master's programs. Third, many institutions have found the online master's program to be a good source of additional revenue. I recently conducted a study of 198 universities within the United States that offer a master's degree in engineering. I have found that at least 52 of these schools offer at least one master's degree online. This represents 26% of all schools offering an engineering master's degree. That is impressive growth in a short amount of time! The 52 schools offer a total of 155 master's degrees, so on average each school offers about 3 degrees. There are 30 unique degrees with the most popular being Electrical Engineering (21), Computer Science/Software Engineering (19), Engineering Management (16), Mechanical Engineering (16), and Industrial Engineering (12). The cost per credit hour varied from a low of \$154 to a high of \$2630. The median cost was \$623 per credit hour for instate students and \$1067 per credit hour for out of state students.

The institutions that offer the online master's degrees are generally well known and are leaders within the US engineering education community. These universities have embraced online learning and obviously believe that it does not diminish the overall quality of their brand or product. With such growth and apparent success with graduate online degrees, one has to wonder why this cannot work in some form at the undergraduate level. Of course work on this has begun at the University of North Dakota, which will begin accepting students into their ABET accredited online engineering programs in August 2011. While there is still the requirement of on campus labs, much of the rest of the delivery is done online. I am sure that other schools will follow with similar approaches. And perhaps we can take it one step further and provide students with the equipment necessary to do laboratories themselves or with other students nearby. I am aware of several current grant proposals where engineering educators are studying the usage of low-cost remote laboratory experiments. There is much work to be done, but providing access so that more students can learn engineering is an important and exciting endeavor.