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DUAL-, OR COMBINED-, DEGREES PROGRAMS AT UNIVERSITY LEVEL

Abstract

In recent years, there has been a new growing trend towards dual or combined degree programs, both at undergraduate and graduate levels within fields of engineering and sciences. Different departments at various colleges and universities throughout the nation are presently offering either combined intra-departmental BS/MS or MS/PhD programs, and/or dual inter-departmental graduate degrees. There are different advantages to these types of programs. Combined degrees save time by allowing students to enter earlier in their professional careers with advanced degrees. This can help reduce financial stress of education. And dual-degree programs help diversify an individual's technical and professional skills. Usually universities have slightly more stringent eligibility criteria and rules for selecting students into combined and dual-degree programs. A study by National Academy of Sciences (NAS) suggested that world of work has become more interdisciplinary, collaborative, and global, and requires that we produce young professionals who are adaptable and flexible, as well as technically proficient. With ever-increasing demand to keep up with the new technology and growing competition, employers are currently seeking employees with either diversified background or advanced degrees to be able to handle the additional stress put forth by the industrial sector. Diversity, strong fundamentals, advance body of knowledge and technical skills to handle the new technology is the key to future progress. This paper analyzes the current trends through highlighting programs offered by Medical and Engineering schools. The better prospective of getting more students interested in these programs is by educating them and their parents about the potential advantages, which includes monetary benefits, diversified skills, technical competency, job security and saving time. This new trend could definitely mark the beginning of next generation of intellectuals with enhanced capabilities to meet the evolving demands of this age.

1. Introduction

To better grasp the concept behind dual- and combined-, degrees programs it is imperative to understand what each term means. '*Combined degrees*' is a course of study with a structure which includes components of two discrete courses and which will satisfy the requirements for either the conferral of a single combined award or conferral of two separate awards.

'*Dual degrees*' are two separate degrees pursued simultaneously in different fields but closely coordinated so as to produce maximum saving of time and cost without sacrificing quality. These usually require students to complete the core courses in both programs, which help them in obtaining diversified skills.

2. Dual-Degrees Programs

Dual-degrees programs provide academically talented students an opportunity to complete a bachelor's/master's and master's/doctorate degrees in a shorter time span. It allows students to double-count graduate courses for both degrees, thus reducing the time it would take to complete the two degrees.

To expose students to versatility to better perform and outsmart the demands of any profession, universities around the United States are offering innovative degree programs to the interested and prospective students. Medical schools are not exceptions.

2.1 Programs offered at Medical Schools Nationwide

Dual-degree programs allow medical students to pursue a second graduate-level degree at the same time they are completing an MD (Doctor of Medicine). Many students choose to pursue joint or dual degrees through their school of medicine, where they can incorporate a master's in a subject like neurology or cell biology into their medical curriculum. A number of medical schools also allow students to concurrently pursue a degree in another school at the same institution. For instance, students may choose to pursue a master's degree through the school of public health or a JD (Juris Doctor) through the law school. The benefit to pursuing two degrees simultaneously is that it tends to be more expeditious and therefore, cheaper than pursuing the degrees individually, since dual-degree programs tend to condense or accelerate required coursework.

In most cases, students pursuing a dual degree complete the first two years of medical school with their class, then enter the second-degree program in the third year, returning to medical school for the final two years of clinical rotations. For example, a student pursuing an MD/JD would complete her first two years of pre-clinical coursework in medical school. In her third year, the student would start law school, completing the curriculum in two (rather than three) years. Finally, the student returns to medical school for the final two years of clinical rotations, and confer a MD and JD after six years of study.

2.2 Advantages of Dual-Degree Programs

Medical-school programs are highly academic and comprehensive, and most offer ample research opportunities to their students. Therefore, aspiring doctors are generally satisfied with the level of training and education they receive in the typical four-year program. If the goal is to become a practicing doctor, working in a hospital, clinic, or private practice setting, a combined-degree program probably is not right for that student. Even if one is interested in a highly specialized medical field, medical school, residency, and internship will usually provide sufficient training and background.

Students who choose dual-degrees programs generally have different career goals than students who want to be doctors. Either they are interested in academic medicine and feel that their research would benefit from the broad-based curriculum and clinical skills taught in medical school, or they are interested in a career in health care, but they prefer to work in a high-level administrative, policy-making, or business setting rather than in

direct patient care. In some cases, students choose to pursue an additional degree because they want to practice and research in a specific medical specialty and medical school, while broad-based, doesn't provide depth in every medically-relevant subject. [1]

2.3 Types of Dual-Degree Programs

At most schools, students have the option of pursuing an MD and another medically relevant graduate degree. While medical schools can certainly appreciate the Renaissance student, most won't let a student get a PhD in Comparative Literature while simultaneously becoming a doctor. The Association of American Medical Colleges offers a complete list of medical schools offering dual-degree programs, which includes,

- 1) MD/MS (Masters of Science),
- 2) MD/MPH (Masters in Public Health)
- 3) MD/MBA (Masters of Business Administration)
- 4) MD/JD
- 5) MD/PhD (Doctor of Philosophy)

3. Combined-Degrees Programs

Superior students can earn both the bachelor's and master's degree in a shorter time than typically would be possible. Different universities throughout the country have various programs to assist students in achieving such market driven dynamic goals. One such reputable school would be University of Florida (UF) which has several academic programs to help students pursue combined-degrees in their field of interest.

3.1 Programs at the University of Florida (UF)

Undergraduate students at UF who wish to enroll in graduate-level courses for a master's degree have an opportunity to do so through a combined-degree program. Students who meet the combined-degrees application requirements can enroll in 12 credits of graduate courses during their junior and senior years. These credits can satisfy the undergraduate degree requirements and, if the student is admitted to graduate school at UF, the 12 credits also satisfy graduate degree requirements. The program's minimum admission requirement is a 3.2 GPA (may be higher for some programs). Admission to the corresponding graduate program requires an 1100 GRE score (may be higher for some programs).

3.2 Advantages of a Combined-Degree Program

- 1) Obtain an undergraduate and a graduate degree in much less time than two separate degrees.
- 2) Cost of both degrees is reduced, since at least 12 credits apply toward both degrees.
- 3) Time to decide whether to pursue further graduate or professional study.
- 4) Enhanced job marketability; many professions now require a master's degree for entry-level positions.

- 5) Continuity between undergraduate and graduate studies.
- 6) Florida Prepaid College Tuition Program: Financial aid may be available for the graduate degree portion of the program. [2]

3.3 Combined Bachelor's/Master's Degree Programs in the Department of Engineering

Different departments within the school of Engineering at UF which offer dual-degrees programs to qualified students are : Aerospace Engineering, Mechanics and Engineering Science, Agricultural and Biological Engineering, Civil and Coastal Engineering, Computer and Information Science and Engineering, Electrical and Computer Engineering, Environmental Engineering, Industrial and Systems Engineering (BSISE/ENM, BSISE/MBA), Materials Science and Engineering, and Nuclear and Radiological Engineering.

4. Discussion

Although the system of graduate education in the United States is one of the best in the world for training scientists and engineers, it has lately come under attack for its inflexibility and for turning out a steady stream, if not a flood, of academic researchers during a time when government support of research is dwindling and the demand for new researchers is dropping.

The attack is from three sides. Young scientists are increasingly critical of the system as they become mired in the mud of perpetual postdoctoral fellowships or (as 50% of them do) seek employment in a non-academic or even non-science field. The government has criticized the system as inflexible, and unwilling or unable to prepare scientists to contribute to our present national needs. Industry, which absorbs much of the overflow of academic researchers, complains that new PhD's are often too specialized for the range of tasks that will confront them in a non-academic environment.

Because of these real or perceived insufficiencies in the way we now train future scientists, the Committee on Science, Engineering, and Public Policy of the National Academy of Sciences (NAS) in 1995 published a lengthy report on Reshaping the Graduate Education of Scientists and Engineers. [5, 6] They offer two broad recommendations to those institutions involved in the training of scientists and engineers, the essence of which is to educate our students much more broadly and prepare them for careers outside of, as well as inside, academia.

- 1) To produce more versatile scientists and engineers, graduate programs should provide options that allow students to gain a wider variety of skills; and
- 2) Graduate scientists and engineers and their advisers should receive more up-to-date and accurate information to help them make informed decisions about professional careers.

It was also recommend that more students be offered the option of a Master's degree or a new type of PhD degree in preparation for work in a non-traditional field. They indicated that Master's degrees have been typically undervalued, underpromoted, and underused. Both the Master's degree and the novel PhD would be based on research that required less

time than would a thesis or dissertation in preparation for an academic career. Presumably, the novel Ph.D. degree would also contain some non-traditional courses.

5. Conclusion

Based on the above referenced publication by NAS, the concept of dual- and combined-degrees programs is in-sync with the recommendations highlighting the diversity and stronger technical skills. And the popularity and success of these innovative programs is evident from the number of universities and colleges around the country which are offering such degrees programs to the interested students.

6. Reference

- 1) <http://www.princetonreview.com/medical/research/articles/find/jointdegree.asp>
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- 3) <http://www.registrar.ufl.edu/catalogarchive/0203catalog/colleges/engineering/programs.html>
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- 5) Greater Versatility would improve Job outlook for Graduate Science, Engineering Students,
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- 6) Reshaping the Graduate Education of Scientists and Engineers (1995), Committee on Science, Engineering, and Public Policy, National Academy of Sciences, National Academy Press, Washington, DC