



# FREEDOM TO EXPLORE

**M Gopal, Director, School of Engineering, Shiv Nadar University, on how embedded learning can equip students with disciplinary depth and multi-disciplinary breadth**

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## ONLINE PRESCRIPTION

Every year, more than one lakh MBBS doctors take the PG entrance examination. However, the number of PG seats is around 23,000. With this in mind, Medvarity, a medical e-learning venture, was established in April 2006, with the launch of its portal [www.medvarity.com](http://www.medvarity.com). While it conducts online courses for doctors, healthcare professionals and graduates, it aims to deliver information technology based education to healthcare providers. These courses are intended to bridge the gap between the demand for PG education in medicine and supply of the same.

A hybrid model, it comprises an interactive, multimedia-rich content mode of delivery. While courses for doctors include programmes that are designed by subject experts, courses for nurses include short advanced courses, which are delivered part-time without upsetting one's work schedule. Courses for other healthcare professionals comprise specialties such as rehabilitation sciences along with short courses for paramedics.

**E**mbodied learning is a contemporary educational term and its interpretation varies with different users. In fact, this term represents integrated interdisciplinary learning in the context of the role of technology in education.

**U** Industry expects an engineer to handle broader implications of an engineer's job profile

The interdisciplinary focus prepares students not only to specialise in specific areas, but also to develop a broad based learning foundation that incorporates a range of specific disciplines, including the natural sciences and social sciences, humanities, communication,

business, engineering and the creative arts. In course of integrating the humanities and social sciences, natural sciences and technology studies equip students with disciplinary depth and multi-disciplinary breadth.

An embedded curriculum also places more emphasis on experiential learning. It replaces the traditional model of 'learn-and-then-do' with a newer 'learning-while-doing' model. Education on professional ethics is also embedded in the curriculum to expose students to professional ethical

dilemmas they may face on an individual basis as well as the larger ethical aspects of technology development.

### INDUSTRY EXPECTATIONS

Traditional learning produces employable graduates in the context of current and futuristic industry demands. The industry expects an engineer to have the knowledge and ability to handle broader implications of an engineer's job profile — sustainability aspects, safety, health, environmental and

other professional issues including ethics, commercial and economic considerations, etc. Traditional learning, focusing on disciplinary depth and ignoring multi-disciplinary breadth, does not prepare students to meet industry demands.

Imparting a broad based and well rounded educational experience, an embedded curriculum provides students with the freedom to explore a variety of subjects and areas of interest. Such a room for exploration provides students with the opportunity to

pursue a range of intellectual interests resulting in greater academic success, better career choices and professional success along with personal satisfaction.

### INTELLECTUAL TOOLS

Recent developments in technology are rapidly and continuously driving local, national and global changes, thus, offering an increasingly integrated, complex and unpredictable world to live in. So students must be armed with intellectual tools to understand physical, biological and social systems, historical development and modern formation of a global society. Integration of humanities and social sciences into all professional programmes will enhance the 'professional personality' of students.

Embedded education must offer not only discipline-oriented, but also problem-oriented education in order to engage and involve students so that they are encouraged to address pressing problems that India is facing or likely to face. Integration of knowledge from various disciplines, conversion of learning into innovation, commercialisation of innovations and fostering a culture of entrepreneurship are important pillars of embedded education for the future.

Many success stories, including the IT, are

going through a phase of curriculum review. An ideal curriculum structure that would truly make embedded education effective, needs to be designed on the following six principles:

- Students must take a core of common subjects designed to ensure that students have the breadth of learning, historical context and understanding of contemporary developments that are necessary not only to succeed but to lead in the 21<sup>st</sup> century
- Students have the flexibility to choose multiple electives, providing them with the opportunity to discover their academic passion and enhancing their engagement in the learning process through individualisation of their programmes of study
- Students specialise in subject areas of their choice
- Students must incorporate courses with an international focus, in their programmes of study
- Students must be trained in and must participate in real, experiential and applied learning
- Students must take courses to prepare them for a life-long commitment to leadership grounded in values, ethics and service to society

### AT A GLANCE: EMBEDDED LEARNING



- An interdisciplinary **FOCUS** prepares students not only to **SPECIALISE** in specific areas, but also to **DEVELOP** a broad based learning **FOUNDATION**
- An **EMBEDDED** curriculum places more **EMPHASIS** on experiential learning
- Integration of **HUMANITIES** and **SOCIAL** sciences into all **PROFESSIONAL** programmes will enhance the professional personality of **STUDENTS**
- Embedded **EDUCATION** must offer not only **DISCIPLINE CENTRED**, but also **PROBLEM-CENTRED** education