

# The STELA System

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**Abstract-** *For the past 10 years, the Graduate Department in Production and Systems Engineering of the Federal University of Santa Catarina, Brazil, has made it a priority to apply technology toward widening the scope and increasing the availability of education opportunities, principally via an emphasis on modern distance education. To accommodate the resulting growth in the student body, in 1995 the department implemented an advanced university administration system. This paper describes the STELA Java/Database integrated system created to facilitate departmental administration, lessen bureaucracy, offer tools for teachers and students to improve communication and learning, and foster a culture of technology use. The STELA system currently serves as a model for graduate departments throughout Brazil.*

## Introduction

In the New World order emphasizing sustainable development, the strategic positions of nations are differentiated by competitiveness and a qualified labor force. In this light, graduate level programs are a catalyst in the process of providing capable human and technological resources. A key element in the process of sustainable development is productivity in all areas of graduate programs: accessibility, flow of information, relevance and volume of academic production and research, the attainment of a large quota of students, and better qualified content and production.

Some graduate programs clearly valorize the role of technology and productivity. For the past 10 years, the Graduate Department of Production and Systems Engineering (PPGEP) at the Federal University of Santa Catarina, Brazil, has included as indispensable in its strategic plan the development of modern distance education, with the objective of widening the department's scope of activities and allowing for a larger student body. In

order to efficiently manage this planned expansion and the resulting increase in workload for professors and staff, in 1995 the PPGEP created STELA, a computerized system for the management and control of the department's administrative and academic activities, including a series of support functions for research and orientation of the professors within the department.

## System Objectives

The STELA system's main objectives are to lessen bureaucracy and reduce administrative costs, to give support for strategic decision making in the coordination, academic and scientific support of professors, researchers and students, to centralize information sources (automatic generation of information for the Internet, local networks and the course catalog) and to customize and integrate operational activities with the systems used by the Brazilian federal granting agencies (CAPES and CNPq).

## System Functions

The STELA system's database serves several functions, from the qualitative and quantitative support of the graduate department, to administrative activities, such as student registration, and official document requests and emission. It also facilitates the routine academic activities of professors by supplying such information as a detailed profile of students and reducing time-consuming tasks such as acquiring and distributing information.

Professors use STELA for filling out the "curriculum bank" of the CNPq (form 168), authorizing the enrollment of students into their courses, verifying the academic profile of their students, and analyzing the academic accomplishments of fellow teaching staff.

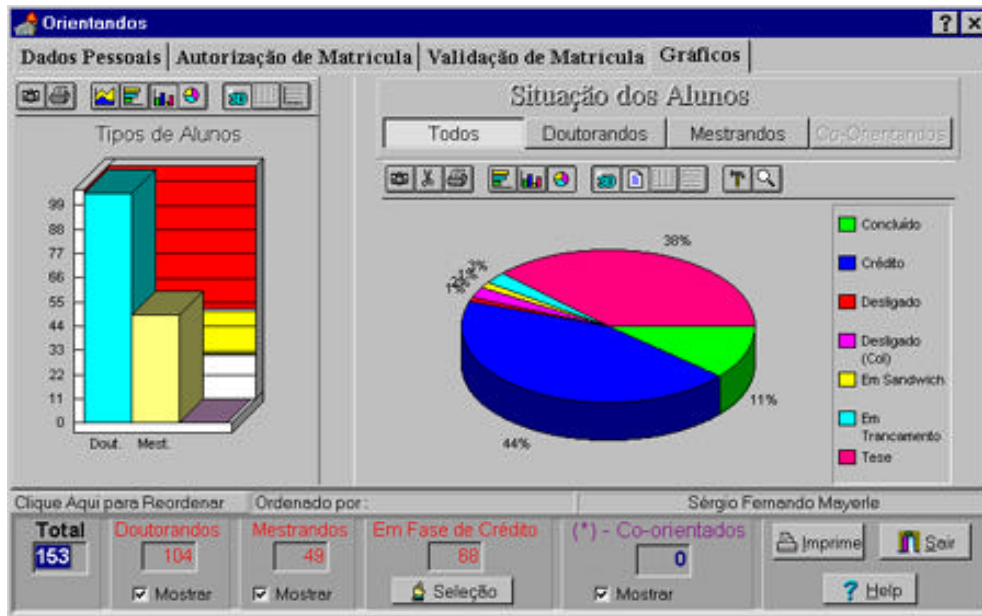


Figure 1. Academic Profile of Students in the Graduate Program as Generated by the STELA System

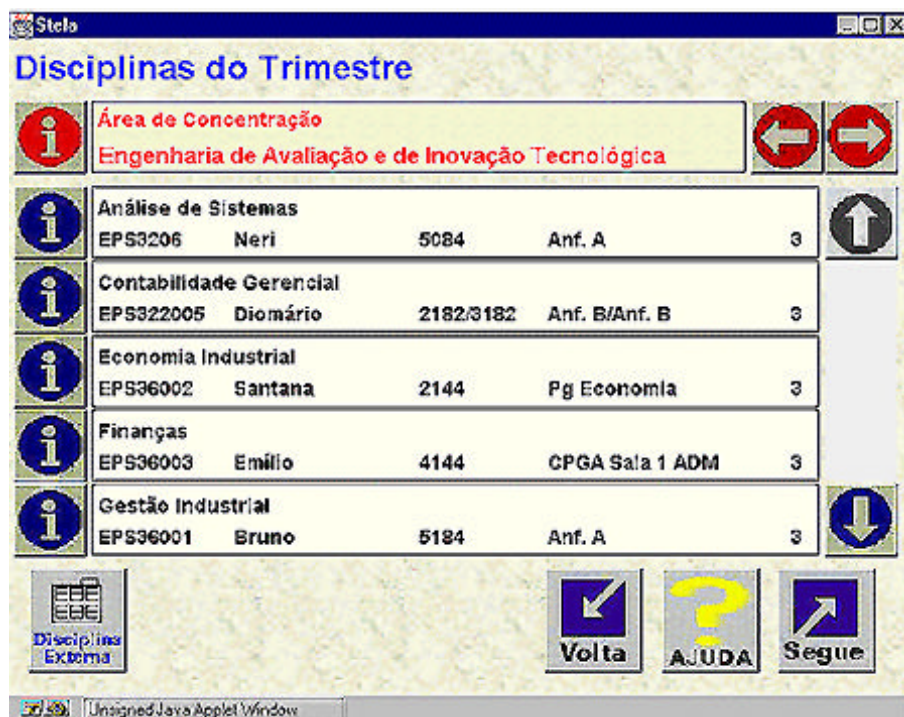


Figure 2. The interface of the STELA's student registration component



*Figure 3. A STELA System touch-screen terminal*

### **Implementation Process**

Initially, via a single, configurable database, student registration, document requests/emission and updates of registration lists were made available on multimedia touch-screens in the main entrance of the Production and System Engineering building, offering direct access to the general office. In subsequent stages of the project, STELA was transformed into an academic control system, maintaining everything from records of meetings between graduate students and their supervisors, to lists of all the scientific and technical production of the department.

The department now has complete reports of the number of students, flow of information, production, academic ranking of its teaching staff, complete chart of the performance per area of specialization, etc. Such information is fundamental for strategic decision making in curriculum development, distribution of departmental resources and the establishment of new policy.

Having successfully met its primary objectives, the STELA system continues to expand. Last year selected components of the STELA system were made available on Internet via password, and further Internet-based extensions of the applications of STELA's database are currently under construction. These include the facilitation of classroom learning and teaching via the per-semester automatic generation and archiving of customizable course Web sites, HTML forms templates for students to upload Masters and Doctoral dissertations and create personal home pages, graphical environments to facilitate collaboration between students, researchers and interested business representatives, among others.

### **Results**

By diminishing bureaucracy, the STELA system has improved the performance of administrative staff, despite the significant growth of the student body. On the academic side, STELA has improved communications between the student body and teaching staff, and made the incorporation of modern information technology in education reality. The success to date and ongoing expansion of the STELA system is a primary example of Brazilian expertise and innovation in production engineering, acting as a tool to facilitate the success of its student body in the modern global economy, and serving as a model ultimately geared towards Brazil's sustainable development.