NATIONAL UNIVERSITY OF ENGINEERING
COLLEGE OF INDUSTRIAL AND SYSTEMS ENGINEERING
SYSTEMS ENGINEERING PROGRAM

SYLLABUS - ST295 BUSINESS ENGINEERING

I. GENERAL INFORMATION

CODE	:	ST295
SEMESTER	:	10
CREDITS	:	3
HOURS PER WEEK	:	4 (Theory – Practice)
PREREQUISITES	:	GP515 Strategic Planning and Management
CONDITION	:	Compulsory
INSTRUCTORS	:	Mery Morales, Daniel Llanos
INSTRUCTOR E-MAIL	:	merynoemi0601@yahoo.com

II. COURSE DESCRIPTION

The aim of this theoretical-practical course is develop within students the skills for identifying and modeling the processes of an organization, their relationships and dependencies for detecting problems and bottlenecks limiting the performance in order to propose changes and redesigns for increasing the throughput, quality, efficiency and responsiveness. In this course, students complete the capstone project presenting the solution to a real-world problem taking into account issues such as business core competencies and capacities, processes modeling, redesign and optimization, technology integration, total quality management, value flow, business redesign and strategic vision.

III. COURSE OUTCOMES

1. Identify business rules through the construction of a model of the organization used to propose continuous improvement strategies and actions.
2. Identify the core competencies and capacities of an organization and develops an effective vision of it.
3. Model and optimize the process of an organization pointing to its integrated management.
4. Model the value flows and propose their reinvention.
5. Apply proper technologies for the modeling and simulation of the processes of an organization.
6. Complete a report

IV. LEARNING UNITS

1. CONCEPTS AND COMPONENTS OF BUSINESS ENGINEERING

Objectives and benefits of business engineering / Components of business engineering: total quality management, process redesign, value flow reinvention, organization redesign, strategic vision, information technologies, cultural and organizational development.

2. PROCESSES CONTINUOUS IMPROVEMENT

KAIZEN: concept, P and R criteria / Quality, cost, delivery / Total quality management TQM / Quality circles / TQM requirements / Waste identification and elimination / Tools for quality improvement / Implementation of a quality management system / Process based quality management.

3. PROCESS MODELING AND REDESIGN

Process mapping: macro-processes, strategic processes, operation and support processes / Description of organizational processes / Process selection considering: client impact, business impact, performance, change sensitivity / Process characterization and prioritization / Block diagrams / Flow graphs / Internal and external client identification / Client expectations / Process analysis / Process diagrams / Metrics definition: quality, costs, service, time / Software tools for process modeling / Process redesign / Benchmarking / Process standardization / Proposal of new vision, goals and attributes / Characteristics of redesigned processes / Technical design of improved processes: feasibility, impact / Construction of new process AMEBA / Simulation of new and redesigned processes.

4. VALUE FOW AND VALUE FLOW REINVENTION

Concept and identification of value flows in an organization / Value flow mapping / Client value flow / Primary value flow and Support value flow / Software tools for representing the value flow of a business / Value flow reinvention / End-to-End redesign / Processes and value stream / Value stream and value chain / Great changes and goals: dramatic changes and improvements / Value chain as a earning laboratory / Work flow reinvention / Software tools for simulating the new value flow.

5. BUSINESS REDESIGN, CULTURAL AND ORGANIZATIONAL DEVELOPMENT

Old and new corporations / Horizontal organization / The organization as a learning laboratory / Corporate culture change / The organization as knowledge generator / Learning organizations / Management of corporate changes risks / Ethics and social responsibility / Innovation management / Conflicts and problems management / Organizational environment / Human capital / Corporate culture change / Management risks of corporate changes.

6. STRATEGIC VISION AND DEVELOPMENT OF INFORMATION TECHNOLOGIES

Strategic revolution / Strategic skills / Core competencies / Optimization and innovation / Business solutions using information technologies / Electronic commerce / Virtual organization.

V. LABORATORIES AND PRACTICAL EXPERIENCES:

Partial report 1: Total quality management. Kaizen
Partial report 2: Process redesign (BPM)
Partial report 3: Value flow and value reinvention
Final report

VI. METHODOLOGY

Student teams complete the capstone project along the academic semester. The instructor sequentially presents the mains issues and steps of business engineering and students apply them for improving the processes of a business or organization. In all sessions, students' active participation is encouraged. At the end of the academic semester, student teams submit and orally defend the project report. Best projects are recommended to be presented in the Student Project Contest.

VII. EVALUATION FORMULA

The average grade PF is calculated as follows:

$$PF = (PP + EP + 2\,EF)/4$$

EP: Mid-Term Exam EF: Final Exam PC: Project Report

VIII. BIBLIOGRAPHY

1. **MARTIN, JAMES**
   The Great Transition Using the Seven Disciplines of Enterprise Engineering to Align People, Technology and Strategy**.**
   Amacon Editorial, 1995

2. **STAFFORD, BEER**
   Diagnosing the System for Organizations
   John Wiley & Sons. Editorial, 2002