The course involves the study, design, development, implementation, support and management of computer-based information systems, particularly software applications and computer hardware. It deals with the use of electronic computers and computer software to convert, store, protect, process, transmit, and securely retrieve information. When computer and communications technologies are combined, the result is a series of technologies tools that facilitate management of many companies and in many different fields of application.

In recent decades widespread incorporation of Information Technology (IT) into many tiers of business, political processes and everyday life has caused fundamental restructuring of the global economy. IT has increased international interconnectedness and speed up the process of globalization. IT has been key factor in the information revolution, facilitating the transition from industrial economies, driven by the manufacturing sector, to knowledge economies.

By the end of this course, you will have a sound understanding of IT, how computers are used in the enterprise, how communications systems can help boost productivity, and how the World Wide Web can influence the way of doing business.

OBJECTIVES AND SKILLS
At the end of this course and having completed the activities the students should be able to:

- Have a solid understanding of the role of technologies for managing information in organization.
- Identify how information systems are used across and within organizations for competitive advantage.
- Create solutions to various organizational problems with information technology.
- Make informed decisions regarding the use of information technology in businesses.
- Describe techniques for securing information management in organizations.
METHODOLOGY
The course follows a participant-centred learning methodology as much as possible. A variety of teaching methodologies will be used, could include lecture/presentations, case studies, real-life examples, discussions, demonstrations, practical sessions (hands-on practice), small and large group exercises, role plays and simulations.

<table>
<thead>
<tr>
<th>Teaching methodology</th>
<th>Weighting</th>
<th>Estimated time a student should dedicate to prepare for and participate in</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>40.0 %</td>
<td>60 hours</td>
</tr>
<tr>
<td>Discussions</td>
<td>20.0 %</td>
<td>30 hours</td>
</tr>
<tr>
<td>Exercises</td>
<td>40.0 %</td>
<td>60 hours</td>
</tr>
<tr>
<td>Group work</td>
<td>0.0 %</td>
<td>0 hours</td>
</tr>
<tr>
<td>Other individual studying</td>
<td>0.0 %</td>
<td>0 hours</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100.0 %</td>
<td>150 hours</td>
</tr>
</tbody>
</table>
PROGRAM

SESSION 1
INTRODUCTION TO INFORMATION TECHNOLOGY IN BUSINESS
- Introduction to the course
- Information technology evolution
- The challenge of managing information in today businesses

SESSION 2
THE VALUE OF INFORMATION
- Data, information, knowledge and wisdom
- Use of information in organizations

B.C.: Chapter 1, Bélanger et al (Book)

SESSION 3
INTRODUCING INFORMATION SYSTEMS AND INFORMATION TECHNOLOGY
- Introduction to information systems and their main components
- The relation between information systems and information technologies

B.C.: Chapter 2, Bélanger et al (Book)

SESSION 4
INFORMATION SYSTEMS, INFORMATION TECHNOLOGY AND DIGITAL INNOVATION
- Introduction to digital innovation
- Example of digital innovations and the role of information systems and information technologies

B.C.: Chapter 2, Bélanger et al (Book)

SESSIONS 5 - 6
A DATA-CENTRIC VIEW OF THE WORLD: DATA, DATABASES AND BIG DATA
- Overview of relational databases
- Main principles of data management
- Non-structured databases
- Introducing Big Data – main characteristics and uses

B.C.: Chapter 5, Bélanger et al. (Book)
M.D.: Big Data (SI2-107-I-M)

SESSIONS 7 - 8
MODELLING RELATIONAL DATABASES
- Introducing entity-relationship models
- Rules for generating databases schemas from E-R models
- Examples of use

*B.C.: Entity-Relationship Modeling (Developing Web-Enabled Decision Support Systems)*

**SESSION 9**

**REVIEW AND DISCUSSION OF FIRST BLOCK**

**SESSION 10**

**FIRST PARTIAL EXAM**

**SESSIONS 11 - 12**

**INTRODUCTION TO BUSINESS INTELLIGENCE AND DATA ANALYTICS**

- Exploiting information in organizations
- Introducing business intelligence and data analytics

*B.C.: Chapter 6, Bélanger et al. (Book)*

*M.D.: Business Intelligence (SI1-131-I-M)*

**SESSION 13**

**INFORMATION AND KNOWLEDGE FOR BUSINESS DECISION MAKING**

- Using information for decision making
- Introduction to knowledge management

*B.C.: Chapter 14, Bélanger et al. (Book)*

**SESSION 14**

**INTERNET AND THE WEB: FROM CONNECTED DOCUMENTS TO CONNECTED THINGS**

- Introduction to Internet
- Introduction to Web
- Internet of Things

*B.C.: Chapter 7, Bélanger et al. (Book)*

**SESSIONS 15 - 16**

**INFORMATION INTERCHANGE AND SOCIAL MEDIA**

- Introduction to the Web 2.0 and social media
- The Web revolution


*M.D.: WEB.2.0 (SI1-130-I-M)*

**SESSIONS 17 - 18**
PROTECTING THE INTERNET
  - Main information security threats
  - Techniques for protecting digital information
  - The role of humans in information security

*B.C.: Chapter 8, Bélanger et al. (Book)*

*M.D.: Sownage: Cyber security and business continuity (SI1-139-I-M)*

SESSION 19

REVIEW AND DISCUSSION OF SECOND BLOCK

SESSION 20

SECOND PARTIAL EXAM

SESSIONS 21 - 22

DEVELOPING INFORMATION SYSTEMS
  - Introducing software development methodologies
  - Challenges in developing information systems

*B.C.: Chapter 10, Bélanger et al. (Book)*

SESSION 23

MANAGING USER REQUIREMENTS
  - The role of user requirements in information systems development
  - Introduction to use cases

SESSIONS 24 - 25

INTRODUCTION TO PSEUDO-CODE AND FLOWCHARTING
  - Introduction to algorithms
  - Introduction to pseudo-code and main operands
  - Introduction to flowcharting

SESSION 26

MORE ON PSEUDO-CODE AND FLOWCHARTING
  - Using pseudo-code and flowcharting to model problems

SESSIONS 27 - 28

INFORMATION-BASED BUSINESS PROCESSES
  - Process modelling
  - Technology and processes
  - Business process re-engineering
SESSION 29
REVIEW AND DISCUSSION OF THIRD BLOCK

SESSION 30
FINAL EXAM
BIBLIOGRAPHY
Buy your books here
IE Library Permalink: https://ieknowledge.ie.edu/undergraduate-degrees/bachelor-in-information-systems-management/
Title: Information Systems for Business: An Experiential Approach
Author: France Bélanger, Craig Van Slyke, Robert E. Crossler
Publisher / Edition / Year: Prospect Press / 2nd Edition / 2016
Medium: X PRINT ELECTRONIC

PROFESSOR BIO

Professor: ALVARO ARENAS SARMIENTO
E-mail: aarenas@faculty.ie.edu

ALVARO E. ARENAS.

Alvaro is an innovator, researcher, technology fan, professor of information technologies, and director of the Department of Information Systems and Technologies at IE Business School. He has a Masters and a D.Phil in Computation from Oxford University, a Bachelors and a Masters in Systems Engineering and Computer Science at the University of the Andes, Colombia.

Alvaro’s main area of interest is the management of trust and security in distributed information systems. From their point of view “the globalization of business requires interoperation of enterprise systems, however there is resistance to such interoperability due to the lack of reliance on external systems and wanting to avoid exposing corporate systems to new risks, especially those relating to security”. His experience at both the corporate and academic level has focused on this challenge by applying techniques of trust management and risk management that ensure collaboration in distributed systems.

Alvaro has participated in several research and consulting projects for companies such as SAP, HP, Microsoft, E&Y, and IBM, among others. Before joining the faculty of the IE Business School, Alvaro was senior researcher at the Science and Technology Facilities Council (STFC), a council part of the Department of Trade and Industry in the United Kingdom, where he led the Distributed Systems team at STFC e-Science Centre.

Academic Background
D.Phil. in Computation. Computing Laboratory, Oxford University, UK (2000)
M.Sc. in Computation. Computing Laboratory, Oxford University, UK (1994)
M.Sc. in Systems Engineering and Computation. Universidad de los Andes, Colombia (1990)
B.Sc. in Systems Engineering and Computation. Universidad de los Andes, Colombia (1988)

Professional Experience
Informations Systems Area Chair, IE Business School, May 2011
Senior research scientist. STFC Rutherford Appleton Laboratory, UK (2006-2010)
Research scientist. STFC Rutherford Appleton Laboratory, UK (2003-2006)
Head of Information Technology Group. Laboratorio de Computo Especializado Universidad Autonoma de Bucaramanga, Colombia (1999-2002)

OTHER INFORMATION

CODE OF CONDUCT IN CLASS
1. **Be on time**: Students arriving more than 5 minutes late will be marked as “Absent”.

   Only students that notify in advance in writing that they will be late for a specific session may be granted an exception (at the discretion of the professor).

2. **If applicable, bring your name card and strictly follow the seating chart.** It helps faculty members and fellow students learn your names.

3. **Do not leave the room during the lecture:** Students are not allowed to leave the room during lectures. If a student leaves the room during lectures, he/she will not be allowed to re-enter and, therefore, will be marked as “Absent”.

   Only students that notify that they have a special reason to leave the session early will be granted an exception (at the discretion of the professor).

4. **Do not engage in side conversation.** As a sign of respect toward the person presenting the lecture (the teacher as well as fellow students), side conversations are not allowed. If you have a question, raise your hand and ask it. If you do not want to ask it during the lecture, feel free to approach your teacher after class.

   If a student is disrupting the flow of the lecture, he/she will be asked to leave the classroom and, consequently, will be marked as “Absent”.

5. **Use your laptop for course-related purposes only.** The use of laptops during lectures must be authorized by the professor. The use of Social Media or accessing any type of content not related to the lecture is penalized. The student will be asked to leave the room and, consequently, will be marked as “Absent”.

6. **No cellular phones:** IE University implements a “Phone-free Classroom” policy and, therefore, the use of phones, tablets, etc. is forbidden inside the classroom. Failing to abide by this rule entails expulsion from the room and will be counted as one absence.

7. **Escalation policy: 1/3/5.** Items 4, 5, and 6 above entail expulsion from the classroom and the consequent marking of the student as “Absent.” IE University implements an “escalation policy”: The first time a student is asked to leave the room for disciplinary reasons (as per items 4, 5, and 6 above), the student will incur one absence, the second time it will count as three absences, and from the third time onward, any expulsion from the classroom due to disciplinary issues will entail 5 absences.