

SYLLABUS

IS410E

Information Systems and AI for Business

ACADEMIC AREA :	OPERATIONS AND ANALYTICS
PROGRAMME :	PGE / UGTC LEVEL 4 PGE
PERIOD :	SPRING
COORDINATOR :	Mr. Hadj BARKAT
INSTRUCTOR(S) :	Mr. Hadj BARKAT
CONTACT HOURS :	24.0 hours
STUDY TIME :	60 hours hours (Class preparation, homework and assessments)
CREDITS :	4.0 ECTS
AOL :	NO

PRE-REQUISITE MODULES :

None

MODULE DESCRIPTION :

CONTRIBUTION TO PROGRAMME LEARNING OBJECTIVES :

- Demonstrate advanced technological literacy to Connect physical and digital spaces #ConnectSpaces

MODULE INTENDED LEARNING OUTCOMES (ILOs) :

Upon successful completion of this course, you will be able to: 1) Realize of the importance of IT management in today businesses. 2) Understand and to applying concepts, tools, and techniques to design appropriate digital business models. 3) Strategically manage the digital transformation of a company. 4) Become familiar with emerging trends in IT, and to understand the implications of these trends on organizations.

TOPICS COVERED :

1) Fundamentals of IT management. State of IT, IT-business strategic alignment and Digital transformation. 2) Managing IT initiatives, Managing digital transformation, Internet and world wide web technologies and Implementation of key enterprise systems. 3) Digital innovation and future trends in IT, Transformation of industries and society and Emerging trends in IT.

RESEARCH-LED TEACHING :

It involves integrating current research, industry trends, and emerging technologies into the curriculum to enhance students' understanding and critical thinking. Here are some ideas for research-led teaching approaches for this module:

Case Studies and Current Industry Examples: Use real-world case studies and examples to illustrate the application of information and digital technology management concepts. Encourage students to analyze and discuss these cases, drawing upon current research, industry reports, and scholarly articles to support their analysis. Explore how the latest research findings can inform decision-making in similar situations.

Emerging Technology Presentations: Assign students to research and deliver presentations on emerging technologies relevant to information and digital technology management. Examples may include blockchain, artificial intelligence (AI), Internet of Things (IoT), cybersecurity, and cloud computing. Encourage students to explore the latest research findings, industry applications, and potential implications for organizations.

Industry Research Projects: Engage students in research projects focused on specific areas of information and digital technology management. Encourage them to explore current industry challenges, investigate best practices, and propose innovative solutions based on rigorous research methods. This can involve interviews with industry professionals, analysis of industry reports, and benchmarking studies.

CSR AND SUSTAINABLE DEVELOPMENT GOALS :

As an innovation IT are changing the way we live, the way we learn, the way we work: new way to do banking, commerce, business, work ... It is a revolution.

Since Technology exists it is a wonderful tool to enhance and understand , to facilitate social links between members of groups.

IT reduces the impact pollution of traditional production tools by automating and rationalising the work.

Digital transformation for example reduces the use of paper, of vehicles, offices... It allows also the e-work and e-learning.

IT reduces and help in controlling the CO2 production.

CSR NB HOURS :

3

SUSTAINABLE DEVELOPMENT GOALS COVERED :

- 09 - Industry, innovation and infrastructure
- 11 - Sustainable cities and communities
- 12 - Responsible consumption and production

TEACHING METHODS :

The module will employ a dynamic teaching approach that combines traditional lecturing with engaging case discussions. Throughout the course, we will delve into world-class business cases, providing students with real-life examples of how organizations have successfully addressed their challenges.

Class participation will be a key component of the learning experience. Prior to each case discussion, study questions will be assigned, serving as a framework for in-depth analysis during class sessions. Your active involvement and insightful interventions will be evaluated as they contribute to the overall class understanding and build upon previous comments.

By actively participating in the case discussions, you will gain a deeper understanding of the intricacies involved in information and digital technology management. You will have the opportunity to apply theoretical concepts to practical situations, honing your critical thinking and problem-solving skills. Emphasizing the quality of your interventions ensures that class discussions are enriched and insights are shared collaboratively.

The assessment components for this module will comprise a mid-term exam and a group project, offering students the opportunity to demonstrate their knowledge and practical application of the course materials.

Mid-term Exam: The mid-term exam will evaluate your understanding of the theoretical topics covered in the course. It will consist of multiple-choice questions, where you will need to select the most appropriate answer from the options provided. This exam will be conducted individually, allowing you to showcase your grasp of the fundamental concepts.

Group Project: The group project will foster collaboration and critical analysis skills as you work in teams of 5-6 students (depending on the class size) to examine the impact of information technology on a specific industry or company. Your

group is expected to conduct thorough research, gather relevant data, and develop insightful findings. The culmination of the project will be a well-prepared presentation that will be delivered during session 10.

Through the group project, you will gain hands-on experience in conducting research, analyzing industry trends, and assessing the implications of information technology. This project will provide a platform for you to showcase your teamwork, communication, and presentation skills. The focus will be on delivering a high-quality research project that generates valuable insights and recommendations for the industry or company under study.

Both the mid-term exam and the group project are designed to assess your comprehension of the course content, encourage critical thinking, and develop your ability to apply theoretical knowledge to practical scenarios.

Overall, each team will have 10 minutes to discuss their group work with their professor and classmates.

The presentation file have to be uploaded on Moodle 48 hours before the presentation.

NO REPORT IS NEEDED

The group project in this module emphasizes the importance of delivering a high-quality and impactful presentation. The objective is for students to develop a real-world project focusing on digital innovation/transformation and current/future trends in IT within companies or industries. This project serves as a complement to the session on digital innovation and trends, encouraging students to be proactive, pioneering, and to take a leadership role. Students are given the freedom to select their own topic and industry based on their interests and aspirations.

To ensure smooth coordination, one member of each group should communicate the chosen topic and group composition to the instructor by the end of session 2. This communication can be done via email, Moodle, or in-person through a paper submission in class.

Here are some examples of potential project topics:

Illustration of digital transformation initiatives in the banking industry.

Digital service innovation in car manufacturers.

The impact of SMACIT portfolio (social media, mobile, analytics, cloud computing, and Internet of Things) in a specific company.

Future digital trends in logistics, focusing on artificial intelligence and robotics.

Key digital initiatives in the media industry.

These examples provide a starting point, but students are encouraged to explore other relevant topics that align with their interests and industry preferences. The project serves as an opportunity to delve into real-world cases, conduct research, and analyze the impact of digital technology in various sectors.

The expectation is for students to demonstrate their research and presentation skills by delivering a compelling and insightful project presentation. This project encourages critical thinking, innovation, and an in-depth understanding of digital transformation and emerging trends in the IT field.

This course has been designed to be highly interactive, where students learn from each other's experiences and discussion in class and working groups. In this sense, while the course is designed to provide you with interesting materials and facilitated discussion to frame learning, much of your learning depends your engagement, preparation, active participation, and your ongoing reflection.

METHODS OF ASSESSMENT :

Continuous/Final	Group/Individual	Assessment	Weight	Duration	ILOs assessed
Continuous	Individual	Quiz	20%		All
Continuous	Group	Group project	30%		All
Final	Individual	Final written exam	50%	2 Heures	All

Assessment 1 details:

The course will also include a mid-term exam composed of multiple choices questions (being only one correct) on the theoretical topics. The date have to be checked with your professor depending of your group schedule.

Assessment 2 details:

Preparation of group project at home

Feedback will be given on the 10 th session

Assessment 3 details:

A final exam made of thinking and analysis questions is given.

ACADEMIC INTEGRITY :

Academic misconduct encompasses various behaviors or actions that violate the principles of academic integrity, fairness, and honesty, thereby undermining the credibility of academic work, assessments, or research. Examples of academic misconduct include:

- Cheating
- Plagiarism
- Fabrication
- Gaining an unfair advantage
- Assisting others in committing academic misconduct, such as by utilizing generative AI
- Falsification of records or official documents
- Unauthorized access to restricted information or data
- Unauthorized or unethical use of generative AIS

Academic misconduct is a serious offense and can result in consequences such as module failure, research project failure, or even expulsion from the school. To prevent unintentional academic misconduct, it is essential to consult with your instructor to understand the specific rules and instructions pertaining to the use of AI in learning and assessment.

For more comprehensive information on academic integrity rules, principles, and disciplinary procedures, please refer to the Academic Integrity section of the Student Handbook.

BIBLIOGRAPHY :

- 1) Laudon KC & JP, (2019). Management Information Systems: Managing the Digital Firm, (16th edn). Pearson Education. [eBook <https://bit.ly/3OU675r>]
- 2) BARKAT H. How Condor Electronics implemented SAP S/4 Hana, 2020 Case study
- 3) CIO from IDG. CIOs Advance their Strategic Role. With digital transformation well under way, IT leaders are expanding their business strategy responsibilities, identifying new areas of growth and playing a hand in driving profitability. IDG Communications, Inc. 2017, 12 pages
- 4) Capgemini Consulting. 2012. Burberry's digital transformation: An interview with Angela Ahrendts, CEO of Burberry, pp. 1-6.
- 5) Dubois D., Chae I., Niessing J., and Wee J. 2016. AccorHotels and the digital transformation: Enriching experiences through content strategies along the customer journey. INSEAD Business School Case(01/2017-6241), pp. 1-25.
- 6) Dyche, J. (2015). The New IT: How Technology Leaders are Enabling Business Strategy in the Digital Age. McGraw-Hill Education. [eBook <https://bit.ly/4cLVe1s>]
- 7) Fitzgerald M., Kruschwitz, N., Bonnet, D., and Welch M. 2013. Embracing digital technology: A strategic imperative. MIT Sloan Management Review: Research Report, pp. 1-15.
- 8) MIS Quarterly Executive, September 2017, How Big Old Companies Navigate Digital Transformation. pp 197-213
- 9) Cambridge Service Alliance 2017, Digital Business Transformation and Strategy:What Do We Know So Far?
- 10) IMD. 2017. The state of digital disruption in 2017. Global Center for Digital Business Transformation, pp. 1-8 RENNES SCHOOL OF BUSINESS (Fall 2019) Page 4
- 11) McAfee A. 2006. Enterprise 2.0: The dawn of emergent collaboration. MIT Sloan Management Review 47(3), pp. 21-28.
- 12) Pearlson, K. E., & Saunders, C. S. (2021). Managing and Using Information Systems: A Strategic Approach. Wiley.

13) Ross J., and Weill P. 2002. Six IT decisions your IT people shouldn't make. Harvard Business Review 80(11), pp. 84-92.

Additional Reading

MODULE PLAN SESSIONS :

Plan Session 01 :

Session 1:

Presentation of the course

Organization of group projects

Fundamentals of IT management: State of IT & Business Processes & Types of Information Systems

Case study to prepare for the next session: Can You Run the Company with Your iPhone?

Laudon (2018)

Plan Session 02 :

Session 2:

Discussion about the Case study: Can You Run the Company with Your iPhone?

Laudon (2018)

Plan Session 03 :

Session 3:

Information Systems, Organizations, and Strategy 1:

Definition and importance of information systems in organizations.

Components and types of information systems (transaction processing systems, management information systems, decision support systems, etc.).

Role of information systems in supporting organizational processes, communication, and decision-making.

Strategic Role of Information Systems:

Examining the strategic significance of information systems in organizations.

Linking information systems to organizational goals and objectives.

Understanding how information systems can enable innovation, differentiation, and improved decision-making.

Organizational Structure and Information Systems:

Exploring the relationship between organizational structure and information systems.

Impact of organizational design on the implementation and effectiveness of information systems.

Aligning information systems with the structure and needs of the organization.

Information Systems and Competitive Advantage:

Analyzing how information systems can contribute to gaining a competitive edge.

Understanding the concept of strategic information systems.

Identifying ways information systems can enable cost leadership, differentiation, and focus strategies.

Business Processes and Information Systems:

Linking business processes to information systems.
Role of information systems in streamlining and automating business processes.
Leveraging information systems to improve efficiency, productivity, and customer satisfaction.

Decision Support Systems (DSS):

Introduction to decision support systems and their role in organizational decision-making.
Exploring different types of decision support systems (data-driven DSS, knowledge-driven DSS, etc.).
Utilizing decision support systems to enhance strategic decision-making.

Laudon (2018)

Plan Session 04 :

Session 4:
Information Systems, Organizations, and Strategy 2:

Information Systems and Organizational Culture:

Examining the influence of organizational culture on information systems adoption and usage.
Addressing cultural barriers to change in implementing new information systems.
Fostering a culture that embraces technology adoption and innovation.

Ethical and Social Implications of Information Systems:

Discussing ethical and social considerations associated with information systems.
Privacy, security, and responsible data management in the digital age.
Impact of information systems on society, individuals, and employment.

Strategic Alignment and IT Governance:

Aligning information systems strategy with overall business strategy.
Implementing effective IT governance structures and processes.
Balancing innovation, risk management, and compliance in IT decision-making.
Value Proposition in Information Systems:

Defining the concept of value proposition and its significance.
Exploring how information systems create value for organizations and stakeholders.
Identifying the different dimensions of value that information systems can offer.

Laudon (2018)

Plan Session 05 :

Session 5:
Introduction to Artificial Intelligence
Definition of AI
Importance and impact of AI in various fields

Key Concepts in AI
Machine Learning: Supervised, Unsupervised, and Reinforcement Learning
Deep Learning and Neural Networks
Natural Language Processing (NLP)
Computer Vision
Robotics and Automation

AI Techniques and Algorithms
Decision Trees
Bayesian Networks
Support Vector Machines (SVM)
Genetic Algorithms

Convolutional Neural Networks (CNN)
Recurrent Neural Networks (RNN)

Plan Session 06 :

Session 6:

Introduction to Enterprise Systems:

- Definition and scope of enterprise systems.

- Importance of enterprise systems in modern organizations.

- Common types of enterprise systems (e.g., Enterprise Resource Planning (ERP), Customer Relationship Management (CRM), Supply Chain Management (SCM)).

Enterprise System Implementation:

- System selection and procurement.

- Customization vs. off-the-shelf solutions.

- Implementation methodologies (e.g., phased, big bang, parallel).

- Challenges and best practices in implementation.

Case study: How Condor Electronics implemented SAP S/4 Hana

Plan Session 07 :

Session 7:

Fundamentals of digital transformation (DT) 1:

Understanding Digital Transformation:

- Definition of digital transformation and its significance in today's business environment.

- Differentiating between digitization, digitalization, and digital transformation.

- Exploring the driving forces behind digital transformation, such as customer expectations, market disruptions, and technological advancements.

Overview of the MIT and Capgemini Conceptual Model:

- Introduction to the MIT and Capgemini conceptual model for digital transformation.

- Explanation of the model's key components and their interdependencies.

- Understanding how this structured framework can guide organizations in their digital transformation journeys.

Vision and Strategy:

- Defining a clear digital transformation vision aligned with organizational objectives.

- Establishing a digital strategy that outlines the goals and desired outcomes of the transformation.

- Setting a roadmap for executing the strategy and monitoring progress.

Leadership and Governance:

- Identifying the role of leadership in driving and championing digital transformation.

- Establishing governance structures and processes to oversee transformation initiatives.

- Creating a culture of innovation, collaboration, and continuous improvement.

Case Study

Plan Session 08 :

Session 8:

Fundamentals of digital transformation (DT) 2:

Customer Centricity:

- Placing the customer at the center of digital transformation efforts.

- Understanding customer needs, preferences, and pain points in the digital age.

- Designing and delivering exceptional digital experiences through personalization, convenience, and responsiveness.

Technology and Data:

Evaluating emerging technologies and their potential impact on the organization.

Incorporating technologies such as cloud computing, artificial intelligence (AI), big data, and Internet of Things (IoT) into the transformation strategy.

Developing data strategies to capture, analyze, and leverage insights for informed decision-making.

Organizational Agility and Talent:

Building an agile and adaptable organization to respond to the dynamic digital landscape.

Assessing the organization's capabilities and identifying skill gaps.

Developing talent acquisition, retention, and upskilling strategies to cultivate a digital-ready workforce.

Change Management and Risk Mitigation:

Addressing change management challenges and overcoming resistance to change.

Managing risks associated with digital transformation, such as cybersecurity and data privacy.

Implementing effective communication, training, and change adoption strategies.

Measurement and Continuous Improvement:

Establishing metrics and KPIs to track the progress and success of digital transformation initiatives.

Implementing feedback loops and data-driven approaches for continuous improvement.

Evolving the transformation strategy based on learnings and market dynamics.

Digital maturity matrix

Plan Session 09 :

Session 9:

Mock Exam

Discussion about the Case study Burberry...

Plan Session 10 :

Session 10:

Group Projects presentations

Students have to upload their presentations and share it with their professors through MOODLE 48 h prior to session 10

