

# COURSE OUTLINE

## 1. Data about the study programme

1.1 Higher education institution	Transilvania University of Braşov
1.2 Faculty	Food and tourism
1.3 Department	Food and Tourism Engineering and Management
1.4 Field of study <sup>1)</sup>	Engineering and management
1.5 Study level <sup>2)</sup>	Master
1.6 Study programme/ Qualification	Engineering and management in luxury hospitality (in English)

## 2. Data about the course

2.1 Name of course	Integrated Smart Systems for Sustainable Luxury Hospitality							
2.2 Course convenor	Prof. dr. eng. Gaceu Liviu							
2.3 Seminar/ laboratory/ project convenor	Prof. dr. eng. Gaceu Liviu							
2.4 Study year	1	2.5 Semester	1	2.6 Evaluation type	E	2.7 Course status	Content <sup>3)</sup>	PC
							Attendance type <sup>4)</sup>	CPC

## 3. Total estimated time (hours of teaching activities per semester)

3.1 Number of hours per week	4	out of which: 3.2 lecture	2	3.3 laboratory	2
3.4 Total number of hours in the curriculum	56	out of which: 3.5 lecture	28	3.6 laboratory	28
Time allocation					hours
Study of textbooks, course support, bibliography and notes					20
Additional documentation in libraries, specialized electronic platforms, and field research					20
Preparation of seminars/ laboratories/ projects, homework, papers, portfolios, and essays					20
Tutorial					5
Examinations					4
Other activities.....					
3.7 Total number of hours of student activity	69				
3.8 Total number per semester	125				
3.9 Number of credits <sup>5)</sup>	5				

## 4. Prerequisites (if applicable)

4.1 curriculum-related	• Engineering and management for tourism
4.2 competences-related	• The use of computing technology with Windows 10 operating system and Open Office.

## 5. Conditions (if applicable)

5.1 for course development	• Video projector, internet connection
5.2 for seminar/ laboratory/ project development	• Computer network, Windows operating system, Office applications, Web browser, Macromedia Dreamweaver, FIDELIO, Medallion

## 6. Specific competences and learning outcomes

Professional competences	<p><b>Cp.1 Manage and plan the various resources, such as human resources, budget, timeline, deliverables and quality required for a specific project, and monitor the progress of the project to achieve a specific objective within a given timeframe and budget.</b></p> <p>L.O. 1.1 Graduates will be able to identify and allocate human, financial, and material resources efficiently to execute complex luxury hospitality projects, ensuring alignment with premium quality standards and client expectations. L.O.2.1 Absolvenții vor fi capabili să identifice și să aloce eficient resursele umane, financiare și materiale pentru a executa proiecte complexe în ospitalitatea de lux, asigurând alinierea la standardele de calitate premium și la așteptările clienților.</p> <p>L.O. 1.5 Graduates will demonstrate the ability to apply precision engineering principles to create sustainable luxury spaces, incorporating biophilic design, circular economy practices, and eco-friendly technologies for premium guest experiences.</p> <p>L.O. 1.6 Graduates will be able to plan, manage, and oversee hotel, resort and restaurant renovation or expansion projects, balancing budget, timelines, and brand-specific luxury aesthetics.</p> <p><b>Cp.3 Analyze production processes in order to make improvements. Perform analysis to reduce production losses and overall manufacturing costs.</b></p> <p>L.O. 3.1 Graduates will be able to evaluate production workflows in luxury hospitality, such as artisan food preparation or beverage manufacturing, to identify inefficiencies and propose data-driven process enhancements.</p> <p>L.O. 3.2 Graduates will acquire the skills to analyze and mitigate production losses in high-end culinary and hospitality operations, including strategies for sustainable waste management and precision engineering.</p> <p>L.O. 3.4 Graduates will demonstrate the ability to leverage guest data and preferences to design and implement tailored services, such as curated menus, bespoke accommodations, and exclusive activities in high-end hospitality settings.</p>
Transversal competences	<p><b>Ct.4 Manage quality related aspects</b></p> <p>L.O. 4.1 Graduates will demonstrate the ability to design and implement comprehensive quality assurance frameworks tailored to the high standards expected in luxury hotels, restaurants, and cafes.</p> <p>L.O. 4.4 Graduates will develop expertise in analyzing guest feedback and operational data to implement ongoing improvements in service excellence and personalized experiences in luxury properties.</p> <p>L.O. 4.5 Graduates will demonstrate the ability to integrate sustainable practices into quality management processes, ensuring that eco-friendly initiatives enhance, rather than compromise, the high standards of luxury hospitality.</p> <p><b>Ct.5 Ensure customer orientation.</b></p> <p>L.O. 5.1 Graduates will demonstrate the ability to design and implement guest-focused services and experiences, ensuring that every touchpoint exceeds the expectations of high-end clientele.</p> <p>L.O. 5.4 Graduates will acquire the skills to create functional, aesthetically pleasing, and culturally immersive environments in luxury hotels, restaurants, and cafes that enhance the overall guest experience.</p> <p>L.O. 5.5 Graduates will develop the capacity to design luxury hospitality infrastructure that seamlessly integrates ergonomics and sustainability, ensuring guest comfort while meeting eco-friendly standards.</p>

## 7. Course objectives (resulting from the specific competences to be acquired)

7.1 General course objective	<ul style="list-style-type: none"> <li>To develop theoretical and practical skills required for designing, implementing, and managing integrated intelligent systems tailored to the luxury hospitality industry, with a strong focus on sustainability and technological innovation.</li> </ul>
7.2 Specific objectives	<ul style="list-style-type: none"> <li>Understanding the fundamental principles of intelligent systems and the technologies used in the luxury hospitality industry.</li> <li>Applying sustainable technological solutions, including resource optimization and</li> </ul>



	<p>minimizing environmental impact.</p> <ul style="list-style-type: none"> <li>• Developing integration skills for smart systems, such as automation, the Internet of Things (IoT), and artificial intelligence, to enhance customer experiences.</li> <li>• Analyzing global trends in sustainable luxury hospitality, with a focus on innovation and personalization.</li> <li>• Creating practical projects that involve implementing integrated technological solutions aligned with international standards and market needs.</li> <li>• Building management competencies for intelligent systems, including performance monitoring and adapting to the dynamic requirements of the industry.</li> </ul>
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## 8. Content

8.1 Course	Teaching methods	Number of hours	Remarks
Introduction to Integrated Intelligent Systems (Definition of intelligent systems concepts; the role of advanced technologies in luxury hospitality; sustainability in the context of hospitality.)	Interactive course presentation	2	Use of multimedia tools, educational films
Domotic Systems in Luxury Hospitality (Introduction to domotic technology: concepts and applications; control of lighting, climate, and security in smart rooms; automation and personalization of the luxury environment for guests; interaction between domotics and sustainability: reducing energy consumption and optimizing resources.)	Interactive course presentation	4	Use of multimedia tools, educational films
Fundamental Technologies for Intelligent Systems (Internet of Things (IoT) and device connectivity; Artificial Intelligence (AI) and machine learning in hospitality; Big Data and data analytics in decision-making.)	Interactive course presentation	4	Use of multimedia tools, educational films
Automation and Personalization of Customer Experience (Automation technologies in luxury hotels and restaurants; integration of customer preferences through smart solutions.)	Interactive course presentation	4	Use of multimedia tools, educational films
Sustainable Solutions in Hospitality (Efficient management of resources (energy, water, waste); eco-friendly materials and technologies.)	Interactive course presentation	4	Use of multimedia tools, educational films
Design and Implementation of Integrated Systems (Development stages of an integrated system; case studies and best practices.)	Interactive course presentation	4	Use of multimedia tools, educational films
Cybersecurity and Ethics in Intelligent Systems (Ensuring the security of customer data; adherence to ethical and confidentiality standards.)	Interactive course presentation	2	Use of multimedia tools, educational

Emerging Trends in the Luxury Hospitality Industry (Robotic automation; Virtual Reality (VR) and Augmented Reality (AR); Blockchain in hospitality.)	Interactive course presentation	4	films Use of multimedia tools, educational films
Bibliography			
<ol style="list-style-type: none"> <li>1. Thomas Erl, Ricardo Puttini, Zaigham Mahmood, Cloud Computing: Concepts, Technology &amp; Architecture Prentice Hall, 2013</li> <li>2. Richard Susskind, Daniel Susskind, The Future of the Professions: How Technology Will Transform the Work of Human Experts, Oxford University Press, 2015</li> <li>3. Matthew N. O. Sadiku, Sarhan M. Musa, Syed A. Nasar, Smart Grid Technology and Applications CRC Press, 2020</li> <li>4. Gerald D. Jones, L. Douglas Smith, The Internet of Things in the Modern Business World: An Analysis Routledge, 2021</li> <li>5. Gaceu, L. Inginerie asistată de calculator. Editura Infomarket, 2006</li> <li>6. Gaceu, L., Gruia, R. Sisteme informatice în management. Editura Infomarket, 2006</li> <li>7. Gaceu, L., FMEA Used as Risk Assessment Method in Food Labeling. Journal of EcoAgriTourism, 1, 2010)</li> <li>8. John M. Carroll, Human-Computer Interaction in the New Millennium, Addison-Wesley, 2002</li> <li>9. James Canton, Future Smart: Managing the Game-Changing Trends That Will Transform Your World Da Capo Press, 2015</li> <li>10. Ken Sinclair, Automated Buildings: The Internet of Things for Smart Buildings Automated Buildings Press, 2018</li> <li>11. Bing Ran, Smart Technologies and Innovation for a Sustainable Future, Springer, 2017</li> <li>12. Robert C. Brears, The Green Economy and Smart Cities: A Policy Perspective Springer, 2020</li> </ol>			
8.2 Seminar/ laboratory/ project	Teaching-learning methods	Number of hours	Remarks
Integrated Software Solutions for the HoReCa Industry (S2S)	Specific computer applications	4	
Integrated Software Solutions for the HoReCa Industry (Medallion)	Specific computer applications	4	
Integrated Software Solutions for the HoReCa Industry (Fidellio)	Specific computer applications	4	
Simulation and creation of scenarios for customer service personalization	Specific computer applications	4	
Introduction to configuring an IoT system; connecting and controlling smart devices	Specific computer applications	4	
Implementation of sustainable solutions (monitoring energy and water consumption through sensors; resource optimization using intelligent algorithms)	Specific computer applications	4	
Practical project: creating a personalized intelligent system (Developing a prototype system for a sustainable luxury hotel or restaurant)		4	
Bibliography			
<ol style="list-style-type: none"> <li>1. Richard Susskind, Daniel Susskind, The Future of the Professions: How Technology Will Transform the Work of Human Experts, Oxford University Press, 2015</li> <li>2. Gerald D. Jones, L. Douglas Smith, The Internet of Things in the Modern Business World: An Analysis Routledge, 2021</li> </ol>			

3. Gaceu, L. Inginerie asistată de calculator. Editura Infomarket, 2006
4. Gaceu, L., Gruia, R. Sisteme informatice în management. Editura Infomarket, 2006
5. Gaceu, L., FMEA Used as Risk Assessment Method in Food Labeling. Journal of EcoAgriTourism, 1, 2010
6. John M. Carroll, Human-Computer Interaction in the New Millennium, Addison-Wesley, 2002
7. Ken Sinclair, Automated Buildings: The Internet of Things for Smart Buildings Automated Buildings Press, 2018
8. Robert C. Brears, The Green Economy and Smart Cities: A Policy Perspective Springer, 2020
9. \*\*\*\* Manuale S2S, Fidellio, Medallion

#### 9. Correlation of course content with the demands of the labour market (epistemic communities, professional associations, potential employers in the field of study)

The alignment of the course content is achieved through consultation with experts from academic communities, professional associations, and employers, integration of market requirements, international standards, and emerging technologies, as well as periodic updates to the curriculum based on feedback and industry trends.

#### 10. Evaluation

Activity type	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percentage of the final grade
10.4 Course	The use of assimilated knowledge to explain and understand the taught concepts	Written and oral exam	70%
10.5 Seminar/ laboratory/ project	The use of skills developed during the semester to solve assigned problems and design individual projects	Specific applications in the laboratory	30%
10.6 Minimal performance standard			
Course: Addressing each topic to a minimum grade of 5.			
Laboratory: Correct practical resolution of at least 2/3 of the assigned problems.			

This course outline was certified in the Department Board meeting on 12.09.2024 and approved in the Faculty Board meeting on 12.09.2024

- 1) Field of study – select one of the following options: Bachelor / Master / Doctorat (to be filled in according to the forceful classification list for study programmes);
- 2) Study level – choose from among: Bachelor / Master / Doctorat;

- <sup>3)</sup> Course status (content) – for the Bachelor level, select one of the following options: **FC** (fundamental course) / **DC** (course in the study domain)/ **SC** (speciality course)/ **CC** (complementary course); for the Master level, select one of the following options: **PC** (proficiency course)/ **SC** (synthesis course)/ **AC** (advanced course);
- <sup>4)</sup> Course status (attendance type) – select one of the following options: **CPC** (compulsory course)/ **EC** (elective course)/ **NCPC** (non-compulsory course);
- <sup>5)</sup> One credit is the equivalent of 25 study hours (teaching activities and individual study).