

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 ¹⁾	Engineering and management
1.5 Study level ²⁾	Master
1.6 Study programme/ Qualification	Engineering and management in luxury hospitality (in English)

2. Data about the course

2.1 Name of course			Luxury infrastructure engineering and design in HORECA units						
2.2 Course convenor			Assoc. Prof. Ioana Sonia COMĂNESCU, PhD.						
2.3 Seminar/ laboratory/ project convenor			Assoc. Prof. Ioana Sonia COMĂNESCU, PhD.						
2.4 Study year	I	2.5 Semester	I	2.6 Evaluation type	E	2.7 Course status	Content ³⁾	PC	
							Attendance type ⁴⁾	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 seminar/ laboratory/ project	2
3.4 Total number of hours in the curriculum	56	out of which: 3.5 lecture	28	3.6 seminar/ laboratory/ project	28
Time allocation					hours
Study of textbooks, course support, bibliography and notes					16
Additional documentation in libraries, specialized electronic platforms, and field research					24
Preparation of seminars/ laboratories/ projects, homework, papers, portfolios, and essays					24
Tutorial					1
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 ⁵⁾	5				

4. Prerequisites (if applicable)

4.1 curriculum-related	<ul style="list-style-type: none"> Installations and Equipment for Hotels and Restaurants Leisure Installations for Tourism Transportation Systems in the Tourism Industry Public Services and Utilities Elements of Mechanical and Electrical Engineering
4.2 competences-related	<ul style="list-style-type: none"> Competence in Planning and Designing Tourism Industry Infrastructure Skills in Designing and Managing Tourism Infrastructure, such as hotels, resorts, conference centers, or leisure parks. Proficiency in Using CAD Software for technical design. Competence in Efficiently Managing Natural Resources (e.g., water, energy) within tourism infrastructure. Competence in Implementing Sustainable Systems, such as renewable energy and

	recycling solutions. • Skills in Using IoT (Internet of Things) to create smart rooms or technologically integrated facilities.
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5. Conditions (if applicable)

5.1 for course development	• Room with an Appropriate Number of Seats • Video Projector • Whiteboard
5.2 for seminar/ laboratory/ project development	• Room with an Appropriate Number of Seats • PCs • Video Projector • Whiteboard

6. Specific competences and learning outcomes

Professional competences	<p>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.</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.</p> <p>L.O. 1.2 Graduates will demonstrate the ability to develop detailed project schedules for luxury hospitality units, including resorts, hotels, fine dining establishments, and artisan production units, while ensuring timely delivery of key milestones.</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>Cp.2 Provides advice to the industrial units visited on how to better supervise production to ensure correct diagnosis and resolution of manufacturing problems.</p> <p>L.O. 2.1 Graduates will be able to develop and implement supervisory frameworks for managing production processes in luxury hospitality units, ensuring alignment with high-end quality standards and guest expectations.</p> <p>L.O. 2.5 Graduates will be able to recommend and integrate eco-friendly practices, such as circular economy principles and waste minimization strategies, into luxury manufacturing and production processes.</p> <p>Cp.3 Analyze production processes in order to make improvements. Perform analysis to reduce production losses and overall manufacturing costs.</p> <p>L.O. 3.3 Graduates will acquire the skills to design and optimize flexible luxury environments, such as modular hotel rooms or event spaces, that can be reconfigured to meet the specific needs and expectations of individual guests.</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> <p>Cp.7 Protect a client's interests and needs by taking the necessary steps and investigating all possibilities to ensure that the client achieves the preferred outcome.</p> <p>L.O. 7.1 Graduates will demonstrate the ability to analyze client requirements and proactively identify innovative solutions to ensure the realization of their vision in luxury hospitality operations and design.</p> <p>L.O. 7.2 Graduates will acquire the skills to integrate client preferences and expectations into the design and execution of luxury spaces, services, and experiences, ensuring optimal satisfaction.</p> <p>L.O. 7.4 Graduates will demonstrate expertise in researching and evaluating all available options, such as design alternatives, operational models, and service enhancements, to achieve the most favorable results for clients.</p>
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Transversal competences	Ct.1 Organize the team. L.O. 1.1 Graduates will demonstrate the ability to foster a positive and inclusive work environment, promoting teamwork and collaboration among diverse staff in luxury hotels, restaurants, and cafes.
	Ct2 Assume a leadership role. L.O. 2.1 Graduates will demonstrate the ability to develop and implement strategic plans, guiding teams in luxury hotels, restaurants, and cafes towards achieving organizational goals while maintaining the highest standards of service excellence.
	L.O. 2.5 Graduates will acquire the skills to establish and maintain strong relationships with suppliers, vendors, and business partners, fostering collaboration and long-term success in the luxury hospitality sector.
	Ct.3 Manage material and financial resources. L.O. 3.2 Graduates will acquire the skills to assess, manage, and optimize material resources, such as premium ingredients, sustainable materials, and high-end furnishings, to minimize waste and maximize value.
	L.O. 3.3 Graduates will be able to integrate sustainability principles into the management of financial and material resources, promoting eco-friendly practices and long-term cost savings in high-end hospitality operations.
	Ct.5 Ensure customer orientation. 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. 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.

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

7.1 General course objective	<ul style="list-style-type: none"> • Training specialists capable of designing, implementing, and managing technical and architectural infrastructures for luxury units in the HORECA sector (hotels, restaurants, cafes), in line with standards of excellence, sustainability, and innovation, emphasizing on aesthetic, functional, and technical requirements, ensuring these meet the specific needs of this sector.
7.2 Specific objectives	<ul style="list-style-type: none"> • Development of Technical and Engineering Competencies: Integrating advanced engineering solutions into infrastructure design. Applying safety, energy efficiency, and functionality standards to luxury HORECA units. • Promotion of Sustainability: Adopting principles of eco-friendly design and green technologies. Implementing resource-efficient and environmentally impactful solutions. • Interdisciplinary Approach: Combining knowledge from civil engineering, architecture, food technology, energy management, and design. Collaborating with related fields to develop infrastructures that meet the specific requirements of premium clients. • Focus on Innovation and Excellence: Leveraging cutting-edge technologies (IoT, BIM, automated solutions) to optimize functionality. Designing personalized spaces tailored to meet the high expectations of clients. • Developing a Client-Centered Vision: Ensuring a unique user experience by blending comfort, aesthetics, and functionality. Creating adaptable and appealing spaces to cater to a premium clientele.

8. Content

8.1 Course	Teaching methods	Number of hours	Remarks
1. Introduction to luxury hospitality infrastructure.	Presentation	2	

Definition of luxury hospitality and key elements. The role of infrastructure in the premium customer experience. Global trends in luxury hospitality.	Interactive course		
2. Locations - exclusive locations - beaches, mountains, urban centers or private islands. Integration with nature	Presentation Interactive course	2	
3. Design in luxury hospitality. Principles of premium design. Integrating local design and aesthetics into infrastructure.	Presentation Interactive course	2	
4. Sustainable and durable building materials used in luxury HORECA units	Presentation Interactive course	2	
5. Premium facilities and services The design of common spaces: lobbies, spas, infinity pools.	Presentation Interactive course	2	
6. Premium facilities and services. Luxury restaurant design and integration of gourmet cuisines.	Presentation Interactive course	2	
7. Premium facilities and services. Design of fitness and wellness centers for exclusive clients.	Presentation Interactive course	2	
8. Mobility and accessibility in luxury hospitality infrastructure. Design for universal accessibility. Internal transportation solutions for premium clients (private transfers, electric vehicles).	Presentation Interactive course	2	
9. Design of infrastructures for isolated locations (islands, mountains).	Presentation Interactive course	2	
10. Applying sustainability principles in the engineering and design of luxury HORECA units. Renewable energy sources used in hospitality. Energy efficiency in luxury infrastructures. Reducing the carbon footprint.	Presentation Interactive course	6	
11. Applying sustainability principles in the engineering and design of luxury HORECA units. Involving local communities. Partnerships with local artisans.	Presentation Interactive course	2	
12. Trends in luxury HORECA engineering and design: Biophilic design: Incorporating natural elements into spaces to enhance well-being. Adaptive reuse: Transforming historic or abandoned properties into luxury hotels while preserving cultural and historical significance. Minimalism: Shifting focus from opulence to elegance.	Presentation Interactive course	2	
Bibliography 1. Kotur, A. S.; Dixit, S.K. (2022)- <i>The Emerald Handbook of Luxury Management for Hospitality and Tourism</i> , Emerald Publishing Limited Howard House, Wagon Lane, Bingley BD16 1WA, UK , ISBN: 978-1-83982-901-7, 2022 2. Brun, A., & Castelli, C. (2013). <i>The nature of luxury: A consumer perspective</i> . International Journal of Retail & Distribution Management, 41(11/12), 823–847. doi:10.1108/IJRDM-01-2013-0006			

3. Holmqvist, J., Wirtz, J., & Fritze, M. P. (2020). *Luxury in the digital age*. A multi-actor service encounter perspective. *Journal of Business Research*, 121, 747–756.
4. Kapferer, J. N. (2014). *The future of luxury: Challenges and opportunities*. *Journal of Brand Management*, 21(9), 716–726.
5. Yeoman, I., & McMahon-Beattie, U. (2018). *The future of luxury*. Mega drivers, new faces and scenarios. *Journal of Revenue and Pricing Management*, 17(4), 204–217.
6. Sharr, A. (2016). Liebskind in Las Vegas: *Reflections on architecture as luxury commodity*. *Critical luxury studies: Art, design, media*, 151–176.
7. Shen, K. N., Vel, P., & Khalifa, M. (2016). *Website design: Place for luxury brands in Cyberspace*. *Behaviour & Information Technology*, 35(12), 1115–1129. doi:10.1080/0144929X.2016.1188987,
8. Nahodil, P., & Vitku, J. (2013). How to design an autonomous creature based on original life approaches. In J. Kelemen, J. Romportl, & E. Zackova (Eds.), *Beyond artificial intelligence: Contemplations, expectations, applications* (pp. 161–180), Berlin, Springer.
9. Cerović, M., Pavia, N., & Florićić, T. (2019). *The importance of innovation in designing a luxury tourism offering*. The perspective of tourism destination stakeholders. In 5th International Scientific Conference ToSEE–Tourism in Southern and Eastern Europe 2019 “Creating Innovative Tourism Experiences: The Way to Extend the Tourist Season”, Faculty of Tourism and Hospitality Management, University of Rijeka, Opatija, Croatia, 16–18 May 2019, (pp.177–189).
10. Chalastani, V. I., Manetos, P., Al-Suwailem, A. M., Hale, J. A., Vijayan, A. P., Pagano, J., ... Duarte, C. M. (2020). *Reconciling tourism development and conservation outcomes through marine spatial planning for a Saudi giga-project in the Red Sea* (the Red Sea project, Jensen, M., & Andersen, A. H. (2013). *Biofuels: A contested response to climate change*. *Sustainability: Science, Practice and Policy*, 9(1), 42–56. doi:10.1080/15487733.2013.11908106
11. Tekken, V., Costa, L., & Kropp, J. P. (2013). *Increasing pressure, declining water and climate change in north-eastern Morocco*. *Journal of Coastal Conservation*, 17(3), 379–388. doi:10.1007/s11852-013-0234-7
12. Tekken, V., & Kropp, J. P. (2015). *Sustainable water management–Perspectives for tourism development in north-eastern Morocco*.
13. Garnett, S. T., Austin, B. J., Shepherd, P., & Zander, K. K. (2016). *Culture-based enterprise opportunities for indigenous people in the Northern Territory*, Australia.
14. In K. Iankova & A. Hassan (Eds.), *Indigenous people and economic development*. An international perspective (pp. 111–132). London: Routledge.

8.2 Seminar/ laboratory/ project	Teaching-learning methods	Number of hours	Remarks
Sustainable design of luxury HORECA units. Use of solar panels.	Project-based learning, Case study analysis, Workshops focused on the use of design software, Study visits and field learning, Problem-solving learning, Iterative project evaluation.	2	
Sustainable design of luxury HORECA units. Use of energy recovery systems, high-performance insulation.	Project-based learning, Case study analysis, Workshops focused on the use of design software, Study visits and field	2	

	learning, Problem-solving learning, Iterative project evaluation.		
Sustainable design of luxury HORECA units. Smart water and sewage systems.	Project-based learning, Case study analysis, Workshops focused on the use of design software, Study visits and field learning, Problem-solving learning, Iterative project evaluation.	2	
HVAC system design: Ensuring thermal comfort through optimized ventilation and air conditioning systems for various spaces.	Project-based learning, Case study analysis, Workshops focused on the use of design software, Study visits and field learning, Problem-solving learning, Iterative project evaluation.	2	
Design of spaces for professional kitchens. Optimization of operational flow: Planning of work areas to comply with HACCP principles. Advanced equipment and technologies. Energy-efficient and ergonomic cooking equipment. Design of exhaust systems to eliminate odors and fumes, in accordance with safety regulations.	Project-based learning, Case study analysis, Workshops focused on the use of design software, Study visits and field learning, Problem-solving learning, Iterative project evaluation.	4	
Waste Management: Engineering solutions for waste reduction and processing.	Project-based learning, Case study analysis, Workshops focused on the use of design software, Study visits and field learning, Problem-solving learning, Iterative project evaluation.	4	
Event and restaurant design: Acoustic solutions, dynamic lighting and adaptive thermal design. IoT (Internet of Things) integration: Automations for lighting, air conditioning, reservations and	Project-based learning, Case study analysis, Workshops focused on the use of design	4	

customer preference management.	software, Study visits and field learning, Problem-solving learning, Iterative project evaluation.		
Accessibility infrastructure: Universal design for people with disabilities, including ramps, elevators and tactile systems.	Project-based learning, Case study analysis, Workshops focused on the use of design software, Study visits and field learning, Problem-solving learning, Iterative project evaluation.	4	
Fire protection systems: Implementation of sprinklers, detection and alarm systems, as well as safe escape routes.	Project-based learning, Case study analysis, Workshops focused on the use of design software, Study visits and field learning, Problem-solving learning, Iterative project evaluation.	2	
Security and surveillance: Integration of surveillance cameras, access control and anti-theft systems.	Project-based learning, Case study analysis, Workshops focused on the use of design software, Study visits and field learning, Problem-solving learning, Iterative project evaluation.	2	
<p>Bibliography</p> <ol style="list-style-type: none"> 1. Firoozi, A.A. (2024) - <i>Emerging trends in sustainable building materials</i>: Technological innovations, enhanced performance, and future directions, Results in Engineering, Volume 24, December 2024, https://doi.org/10.1016/j.rineng.2024.103521 2. Nouman Khadim (2025), <i>From circularity to sustainability: Advancing the whole building circularity indicator with Life Cycle Assessment (WBCI-LCA)</i>, Building and Environment, Volume 269, 1 February 2025, 112413, https://doi.org/10.1016/j.buildenv.2024.112413 3. Poorisat, T. (2024) - <i>Unlocking the potentials of sustainable building designs and practices</i>: A Systematic Review, Building and Environment, Volume 266, 1 December 2024, 112069, https://doi.org/10.1016/j.buildenv.2024.112069 4. Dash, R. (2024) - <i>Optimizing combined heat and power systems for multi-residential buildings</i>: A multi-objective framework for sustainable energy management, Journal of Energy Storage, Volume 102, Part A, 15 November 			

- 2024, 113972, <https://doi.org/10.1016/j.est.2024.113972>
5. Alshehri, A.M. (2024)- *Building information modeling (BIM) driven performance-based construction for the optimization of sustainable and smart structures development*, Environmental Challenges, Volume 16, August 2024, 100980, <https://doi.org/10.1016/j.envc.2024.100980>
 6. Deep J. Gurung, Paridhi Brahma, Chandan Goswami (2024)- *Sustainable Luxury Tourism*, **Reference Module in Social Sciences**, 2024, <https://doi.org/10.1016/B978-0-443-13701-3.00265-6>
 7. Jain, V. (2023)- *Luxury hospitality: A systematic literature review and research agenda*, International Journal of Hospitality Management, Volume 115, October 2023, 103597, <https://doi.org/10.1016/j.ijhm.2023.103597>
 8. Manfreda, A. (2022)- *The building blocks of luxury accommodation experiences: A meta-ethnographic synthesis*, Tourism Management Perspectives, Volume 41, January 2022, 100926, <https://doi.org/10.1016/j.tmp.2021.100926>
 9. Coita, D. (2023) *Exploring the Impact of Blockchain Technology on Branding in the Luxury Spa Tourism Industry*, Strategic Innovative Marketing and Tourism Current Trends and Future Outlook—10th ICSIMAT, Ionian Islands, Greece, 2023, Springer Proceedings in Business and Economics ISBN 978-3-031-51037-3,
 10. Santos, V. (2024), *Innovation in Luxury Tourism Towards Sustainability*, Volume 1191 LNNS, Pages 175 – 181, 2024 International Conference on Management, Tourism and Technologies, ICMTT 2024
 11. Legrand, W. (2020) - *Luxury tourism in remote destinations: An inquiry into sustainability*. Advances in Hospitality and Leisure, 16, pp. 65-81.
 12. Chen, J.S. (ed.), Emerald Publishing Limited, Bingley, <https://doi.org/10.1108/S1745-354220200000016006>
 13. Kunz, J., May, S., Schmidt, H.J. (2020)- *Sustainable luxury: current status and perspectives for future research* *Business Research*, 13 (2), pp. 541-601. <https://www.springer.com/business+&+management/journal/40685>
doi: 10.1007/s40685-020-00111-3
 14. Romagosa, Francesc, *Sustainability in European luxury tourism companies: an analysis of practices and managerial perspectives*, Tourism Review, 2024
 15. Cervellon, M.-C., Carey, L.D. (2021) -Luxury brands, consumer behaviour, and sustainability, *Firms in the Fashion Industry: Sustainability, Luxury and Communication in an International Context*, pp. 87-95.
<https://link.springer.com/book/10.1007/978-3-030-76255-1>
ISBN: 978-303076255-1; 978-303076254-4
doi: 10.1007/978-3-030-76255-1_6
 16. Jones, G. (2020)- *Luxury Tourism and Environmentalism*, The Oxford Handbook of Luxury Business, pp. 571-590.
<https://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780190932220.001.0001/oxfordhb-9780190932220>
ISBN: 978-019093222-0, doi: 10.1093/oxfordhb/9780190932220.013.31

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

- Epistemic communities provide insights into new research and discoveries relevant to the field of HORECA infrastructures. For example, the use of sustainable materials or the application of IoT (Internet of Things) in the design of luxury establishments.
- Integration of interdisciplinary knowledge: This type of course should include concepts from civil engineering, architecture, food technology, energy management and environmental protection.
- Professional associations (such as those in the hospitality, architecture or engineering fields) can validate whether the skills taught in the course are those required in the market.
- The course structure can be aligned with the requirements of internationally recognized standards (for example, LEED for green infrastructures or other certifications specific to luxury HORECA).
- Employers value knowledge that is immediately applicable in practice. Course content can include case studies, real project simulations and practice in collaboration with HORECA establishments.

- Employers in the luxury HORECA field usually demand customized solutions and advanced technologies. Therefore, the course should address personalized design, sustainability, and the integration of modern technologies.
- Organizing meetings between academics, industry experts, and employer representatives to review the course content.
- Surveys and studies: Obtaining data on labour market requirements and expectations.
- Continuously adapting the curriculum
- Incorporating soft skills (project management, communication, creativity) and hard skills (CAD design, energy efficiency solutions).
- Periodically refreshing of the materials to include the latest developments in design, legislation, or innovative technologies.

10. Evaluation

Activity type	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percentage of the final grade
10.4 Course	Correct acquisition of specific terms and their appropriate use;	Written assessment	20 %
	Correct use of theoretical bases in addressing specialized problems;		30 %
10.5 Seminar/ laboratory/ project	Proiectarea sustenabilă a infrastructurilor unităților HORECA de lux	Project Presentation Evaluation Periodic Visas	50%

10.6 Minimal performance standard

The student must demonstrate an understanding of the fundamental concepts related to engineering and design of HORECA infrastructures, such as:

- Technical standards and norms for HORECA infrastructures.
- Principles of sustainable design and energy efficiency.
- The role and integration of advanced technologies (e.g., Building Management Systems - BMS).
- Designing plans for functional spaces (e.g., professional kitchens, receptions, conference rooms).
- Conducting feasibility studies and optimization for infrastructures.
- Using design software.
- Completing a simple project or simulation. The student must identify and propose solutions for specific challenges, such as: energy consumption optimization, reducing the ecological impact of projects, space management in relation to functional requirements.

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;
- 3) 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);
- 4) Course status (attendance type) – select one of the following options: **CPC** (compulsory course)/ **EC** (elective course)/ **NCPC** (non-compulsory course);
- 5) One credit is the equivalent of 25 study hours (teaching activities and individual study).