

<b>COURSE:</b> HOW TO BUILD IN A CIRCULAR WAY
<b>AUTHOR:</b> PUK - PEDAGOGICAL UNIVERSITY OF KRAKOW
<b>THEME:</b> <ul style="list-style-type: none"> <li>– RENEWABLE ENERGY,</li> <li>– <b><u>SUSTAINABLE HOUSING,</u></b></li> <li>– SUSTAINABLE FOOD SYSTEM,</li> <li>– CIRCULAR ECONOMY: <ul style="list-style-type: none"> <li>○ DESIGN AND PRODUCTION,</li> <li>○ CONSUMPTION,</li> <li>○ RECOVERY AND WASTE MANAGEMENT.</li> </ul> </li> </ul>
<b>MODULE:</b> SUSTAINABLE HOUSING
<b>SESSION:</b>
<b>LECTURE TOPICS:</b> RESPONSIBLE INNOVATION IN CONSTRUCTION, CONSUMER CHOICES FOR GREEN BUILDING <ol style="list-style-type: none"> <li>1. THE IDEA OF SUSTAINABLE CONSTRUCTION</li> <li>2. BENEFITS AND COSTS OF SUSTAINABLE CONSTRUCTION</li> <li>3. HOW TO IMPLEMENT RESPONSIBLE INNOVATION IN CONSTRUCTION AT THE LEVEL OF SUPPLY AND DEMAND?</li> </ol>
<b>TARGET GROUP:</b> SEE MEMBERS, STUDENTS, HE TEACHERS
<b>INTEGRATION INTO CURRICULUM:</b> possible integration into the course „ SUSTAINABLE HOUSING “ on Bachelors‘ and Masters‘ degree in the field of Social Economy; the element of the diploma seminar’s subject
<b>LEARNING OUTCOMES:</b> <i>maximum 5 learning outcomes based on Bloom’s Taxonomy in terms of students’ knowledge, comprehension, application, analysis, synthesis.</i> <ul style="list-style-type: none"> <li>- <u>Knowledge</u>: to explain the idea of a sustainable building process and the conditions for its implementation,</li> <li>- <u>Understanding</u>: to understand how to implement green building in everyday life,</li> <li>- <u>Application</u>: to demonstrate the feasible actions taken by ourselves,</li> <li>- <u>Analysis</u>: to analyse the benefits of taking action towards sustainable building innovation,</li> <li>- <u>Synthesis</u>: to transform linear choices and practices into behaviours that fit into a circular economy.</li> </ul>
<b>LECTURE OBJECTIVES:</b> The aim of the module is to explain the concept of the <b>SUSTAINABLE HOUSING</b> and illustrate with real-life examples how it can be adopted as a sustainable way of thinking and acting in everyday life, especially in professional work of social economy entities.
<b>LECTURE DURATION:</b> 25 LESSONS HOURS (10 HOURS WITH TEACHER & 15 HOURS SELF-LEARNING)
<b>GREEN SKILLS ADDRESSED:</b> (KEEP RELEVANT ONES FROM THE LIST) <b><u>DESIGN SKILLS,</u></b> LEADERSHIP SKILLS, <b><u>MANAGEMENT SKILLS,</u></b> CITY PLANNING SKILLS, LANDSCAPING SKILLS, ENERGY SKILLS,



FINANCIAL SKILLS, PROCUREMENT SKILLS, WASTE MANAGEMENT SKILLS, COMMUNICATION SKILLS

**SDGS ADDRESSED:** GOAL 12: RESPONSIBLE CONSUMPTION AND PRODUCTION, GOAL 13: CLIMATE ACTION.

LECTURE DEVELOPMENT

BEFORE: *preparation prior to the lesson*

CONSIDER WHAT BUILDING CONDITIONS AND CONSUMPTION STANDARDS CAN RESULT IN SAVINGS AND IMPROVEMENTS IN THE QUALITY OF LIFE WHERE YOU LIVE

INTRO: *ideas for activating the student's background knowledge or ice breaker:*

USING A BRAINSTORMING TECHNIQUE, USING BRAIN STORM TECHNIQUE, FIND 10 OPPORTUNITIES FOR LOW-COST CONSTRUCTION USING RECYCLED MATERIAL

DURING:

**1. THE IDEA OF SUSTAINABLE CONSTRUCTION**

TIME	TYPE OF ACTIVITY	LEARNING ACTIVITIES	(VISUAL) AIDS
45 minutes	reading	reading scientific material on so-called responsible innovation in construction, including local initiatives under the direction of social economy actors, which are part of urban regeneration processes aimed at revitalising derelict inner cities, improving the quality of life and re-establishing social ties in large housing estates through various types of green and social projects in the form of developing common spaces for residents and organising regular workshop meetings	hard copy or digital version of materials
20 minutes	writing	list the reasons for	Paper and pencil/



		the emergence of the sustainable construction concept	computer
25 minutes	discussion	discussion in small groups on the reasons behind the concept of sustainable housing and commercial buildings and preparing a ranking from most important to least important on a flipchart and sharing it with the class	Paper and pencil/computer, flipchart
45 minutes	reading	reading scientific material on the relationship between green building and quality of life	hard copy or digital version of materials
25	writing	types and processes of innovation in construction	Paper and pencil/computer
20	discussion	small group discussion on the current situation in the construction industry and the quality of life associated with it; presentation of results to the class	Paper and pencil/computer, flipchart
<b>2. BENEFITS AND COSTS OF SUSTAINABLE CONSTRUCTION</b>			
<b>TIME</b>	<b>TYPE OF ACTIVITY</b>	<b>LEARNING ACTIVITIES</b>	<b>(VISUAL) AIDS</b>
45 minutes	reading	reading scientific material on the benefits and costs of sustainable	hard copy or digital version of materials

		construction for the manufacturer, the user and society	
45 minutes	writing	Write down the main barriers and opportunities for implementing sustainable construction	Paper and pencil/computer,
45 minutes	discussion	small group discussion on barriers and opportunities and preparation of a joint SWOT analysis on a flipchart	Paper and pencil/computer, flipchart
<b>3. HOW TO IMPLEMENT RESPONSIBLE INNOVATION IN CONSTRUCTION AT THE LEVEL OF SUPPLY AND DEMAND?</b>			
TIME	TYPE OF ACTIVITY	LEARNING ACTIVITIES	(VISUAL) AIDS
45 minutes	reading	reading materials on good practice in construction including sustainable local initiatives under the guidance of social economy actors.	hard copy or digital version of materials
25 minutes	writing	Share responsible, green building practices due to the scale of difficulty of introducing them in the country of residence. Identify the type of difficulties on the supply and demand side.	Paper and pencil/computer,
65 minutes	discussion	Small group discussion on the implementation of	Paper and pencil/computer, flipchart

		innovation in construction - the role of public actors, entrepreneurs, consumers and social economy actors in this respect, including sustainable local initiatives inspired and led by social economy actors.	
15 hours	homework	See below	Paper and pencil/computer,
<p>BEYOND:</p> <p><b>Homework:</b> Analyse your daily activities where you live and make a list of all those in which you consume resources. Evaluate how many of these resources you use unnecessarily and propose actions to reduce their use at the level of design and use of the premises.</p> <p>Consider what actions at the level of awareness-raising in different sectors of the economy are necessary to accelerate the implementation of sustainable construction.</p> <p><b>Assessment:</b> A written report after the assignment will be reviewed by the course leader.</p> <p><b>Recommended additional materials:</b> <i>any website or video material that can be provided as additional material, categorize them (website, video, podcast, etc. and include a description of the material, e.g. TED Talk about creative thinking and turning harmful pollution into something useful:</i></p> <p><b>1. Webpages:</b></p> <p><a href="https://www2.deloitte.com/pl/pl/pages/press-releases/articles/zrownowazony-rozwoj-motorem-wzrostu-dla-branzy-budowlanej.html">https://www2.deloitte.com/pl/pl/pages/press-releases/articles/zrownowazony-rozwoj-motorem-wzrostu-dla-branzy-budowlanej.html</a> - Sustainability to drive growth for the construction industry.</p> <p><a href="https://ceo.com.pl/deloitte-branza-budowlana-odegra-jedna-z-kluczowych-rol-w-osiaganiu-neutralnosci-klimatycznej-99020">https://ceo.com.pl/deloitte-branza-budowlana-odegra-jedna-z-kluczowych-rol-w-osiaganiu-neutralnosci-klimatycznej-99020</a> - The construction industry will play a key role in achieving climate neutrality.</p> <p><a href="https://www.rondo1.pl/budynek">https://www.rondo1.pl/budynek</a> - Architectural icon of Warsaw.</p> <p><a href="https://C:/Users/ADMIN2/Downloads/polscy_przedsiębiorcy_2013.pdf">https://C:/Users/ADMIN2/Downloads/polscy_przedsiębiorcy_2013.pdf</a> - Entrepreneurs in Poland - facts, figures, examples.</p> <p><a href="https://C:/Users/ADMIN2/Downloads/mierzenie-efektywnosci-dzialan-csr_fob_2012.pdf">https://C:/Users/ADMIN2/Downloads/mierzenie-efektywnosci-dzialan-csr_fob_2012.pdf</a> -</p>			



Measuring the social impact of CSR.

[https://knowledge4policy.ec.europa.eu/foresight/topic/changing-nature-work/impact-shift-circular-economy\\_en](https://knowledge4policy.ec.europa.eu/foresight/topic/changing-nature-work/impact-shift-circular-economy_en) - Changing the impact of a circular economy.

## 2. Scientific papers (on-line available):

Adamczyk, J., Dylewski R., (2010), *Recycling construction waste in the context of sustainable construction*, Problems of eco-development, vol. 5, nr 2, pp. 125-131., (<https://yadda.icm.edu.pl/baztech/element/bwmeta1.element.baztech-article-BPL2-0017-0024>).

Deloitte, (2018), *Closed loop - open opportunities Prospects for developing a closed loop economy in Poland*, (<https://www2.deloitte.com/pl/pl/pages/zarzadzania-procesami-i-strategiczne/articles/innowacje/raport-zamkniety-obieg-otwarte-mozliwosci.html>).

European Commission, (2018), *Public procurement for a circular economy*, ([http://ec.europa.eu/environment/gpp/pdf/cp\\_european\\_commission\\_brochure\\_pl.pdf](http://ec.europa.eu/environment/gpp/pdf/cp_european_commission_brochure_pl.pdf)).

Mazur-Wierzbička E (2014), *Eco-innovation - an important element of sustainable construction*, Internal trade, University of Szczecin, 5(352):138-148, pp.138-148, (<http://cejsh.icm.edu.pl/cejsh/element/bwmeta1.element.desklight-dc642495-4f86-40c3-ba28-67a605a4ca69>).

Sztuba M., (2021), *Modern technology and innovation are changing construction*, *Modern Engineering Construction*, nr. 3., pp. 36-52, (<http://yadda.icm.edu.pl/yadda/element/bwmeta1.element.baztech-150d84e5-5008-4e6b-abdf-e095d6a316e6>).

Kowalska, K., Szczygieł, E., Szyja, P., Śliwa, R. (2022). *SDG Labs Research Report. Green skills in the field of Social Economy. The theoretical model of Socially Driven Green Labs programme*, Pedagogical University of Krakow (<https://sdglabs.uom.edu.gr/sdg-labs-research-report/>).

Szczygieł, E., Kowalska, K. (2021). Meeting halfway - understanding circular behaviour among households as a starting point for business practices, *European Research Studies Journal*, XXIV(3B), pp. 967-980 (DOI: <https://doi.org/10.35808/ersj/2550>).

## 3. Scientific tools

example studies

