

68 Integrating education with consumer behaviour relevant to energy efficiency and climate change at the universities of Russia, Sri Lanka and Bangladesh (BECK)

MODULE SPECIFICATION

Originating Institution, Department	Module Co-ordinator(s)
MGSU - Moscow State University of Civil Engineering, Department of social, psychological and legal communications, Department of urban planning	Zinaida Ivanova Nadejda Miloradova Nina Danilina

TITLE OF THE MODULE

Title of the module	Module code ¹
Qualitative and Quantitative Research on Consumer's Behaviour	
Related to Energy Efficiency and Climate Change	

PROGRAMME(S) IN WHICH TO BE OFFERED:

Bachelor's Program "Construction"
Bachelor's Program "Urban planning"
Master's Program "Urban planning"
Master's Program «Energy Saving and Energy Efficiency in Buildings»

LEVEL OF STUDIES²

First cycle (BSc/BA) 🔀	Second cycle (MSc/MA) 🔀	Third cycle (PhD) 🗌
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CREDITS AND LEARNING HOURS

Credit Value ³	ECTS Value ⁴	Indicative academic learning hours ⁵	Length (in Semesters) ⁶	Year in which to be offered
4	4	120	1	1

ANNOTATION OF THE MODULE⁷



¹ To be indicated by the Institution

² According to the Framework of Qualifications for the European Higher Education Area, Annex 8: <u>http://www.aic.lv/ace/ace_disk/Bologna/Bergen_conf/Reports/EQFreport.pdf</u>

³ Permissible credit values as set out in Institution's Academic Regulations

⁴ European Credit Transfer System, 1 ECTS = 25-30 academic learning hours. Please refer to

ECTS Users' Guide: https://ec.europa.eu/education/ects/users-guide/docs/ects-users-guide_en.pdf

⁵ 1 academic learning hour is equal to 45 minutes

⁶ Indicate 0.5, 1, 1.5 or 2

⁷ Please provide brief summary of the module, up to 200 words



The module is based on the integrated approach covering a wide range of sociological, psychological, cultural, economic and urban issues. This approach is based on the recognition, that consumer behavior is multifaceted. It depends on the existing traditions of natural resource management, recognition of the value of nature in culture, as well as on the level of economic development of the country, technologies of energy generation and use.

The course provides knowledge about the situation in the field of climate change, about the state policy of energy conservation, and energy efficiency, resource management; about bioclimatic architecture and sustainable urban development in Russia.

The latest concepts and theories of consumer behavior are described in the module. Based on them, the authors developed a typology of consumer behavior taking into account ethnic, demographic, generational, subcultural and other criteria.

The course aims to familiarize students with strategies and methods for researching consumer behavior. Based on the objectives of the module, authors focus on methods for studying consumer behavior related to energy efficiency and climate change. Separate topics are devoted to the characterization of quantitative and qualitative sociological and psychological methods. In addition, the best European research experience and everyday consumer practices are examined.

Having studied the theoretical approaches and methods of sociology and psychology applicable to the study of the whole variety of problems, the student should be able to apply them in their future professional activities to ensure sustainable urban development.

The module will be implemented through the BECK Simulated Big Data Interuniversity Networked Affective Educational Centre by using computer learning systems, big data mining, an affective tutoring system, e-sources and the Moodle Virtual Learning Environment.

AIM OF THE MODULE⁸

- 1) To acquaint students with the negative effects of climate change, to show the threats this process carries.
- 2) Teach students to see the relationship between human activities and the degradation of the biosphere, the relationship between energy consumption and climate change.
- 3) Provide students with knowledge and information on how to solve emerging problems, while simultaneously stimulating their creative thinking, creativity, and project activities.
- 4) Provide students with knowledge of models, types of consumer behavior in Russia and other countries;
- 5) Provide students with knowledge of methodology and methods for studying consumer behavior related to energy efficiency and climate change.
- 6) Form ability to investigate consumer behavior using different methods.

MOOC LEARNING AND TEACHING STRATEGIES

MOOC-based training has the following advantages:

1. Massive and global education. MOOC technology provides accessibility to everyone and has great potential for further development. Perhaps in the future, the MOOC will become the main form of education and training of specialists.

⁸ Aim of the module must correspond to the BECK Capacity Building Framework







- 2. Lifelong learning. MEP implements the concept of lifelong education lifelong learning.
- 3. Accessibility of education. MOOC provides access to information from anywhere in the student's location, comfort and free mode, flexible training schedule
- 4. Orientation to various levels of training of students. Unlimited strength. The possibility to widely attract students and expand the coverage of the students, including people with disabilities.

At the same time, the MOOC system has some disadvantages:

- 1. Limiting the possibility of individual training, teacher advice in real time.
- 2. A high percentage of students' self-exclusion (including due to the lack of an external system for monitoring academic performance, and the level of assimilation of the material).
- 3. Inadequate digital competency of teachers.

At present, two forms of implementation have been developed in world educational practice - xMOOC end cMOOC, which differ in the organization of the educational process, the choice of teaching methods and the role of the teacher.

Given the various approaches, advantages and disadvantages of MOOC, it is following **teaching and learning strategies** for implementing the module (with a bias to the xMOOC form) using the BECK Center and the Moodle virtual area are offered:

- Focus on a wide range of listeners
- Free and flexible training schedule
- Ensuring effective educational process and high quality of education
- Formation of the necessary universal and professional competencies of the student for competitiveness in the labor market
- Orientation of the module on the implementation of the principles of the lifelong education
- Development of students ' independent thinking skills, initiative, self-control

Methods of learning and teaching of the course:

- *video-lectures with subtitles* (multimedia course or seperate videos covering one topic of the lecture or part of the lecture) with illustrative material;

- *video-practical exercises* (on-line meetings with students in real time). Use of active teaching methods: training cases, business games, project methods, Brainstorm methods. Conducting online discussions through the Open Network system and a forum-discussion of group projects. Orientation to independent thinking, initiative. The formation of the skills of scientific research, creative work, the ability to prepare a presentation;

- *Independent work of students* includes the study of educational, methodological, reference and additional literature on topics, preparation for practical classes, group work by full-time students (educational sociological research), and the preparation of reports for a scientific conference. Students gain access to additional resources available on the Internet, for example, in the intelligent electronic libraries of MGSU, IPRbooks, Science Direct, Scopus. Posting some teaching materials on the teacher's blog.

Testing of knowledge is based on phased control. Since modern youth have fragmented (clip) thinking, and also lack the perseverance and patience to master a large amount of material, large amounts of information should be divided into parts, preserving their logical connection and





providing a systematic and holistic picture of the studying object. Introduction of the 'milestones' system - a phased summarization of the material using:

1) testing

2) mutual testing by students of knowledge from each other (communication, discussion, cooperation). Each student checks 3 other people's work, 3 other students check his work3) final exams

Feedback:

1) Meeting with the teacher in the audience on a schedule, counselling;

2) Use of social networks (e.g. Facebook);

3) Use of forums for operational communication and consultation;

4) Communication with a student using E-mail

Training and methodical materials:

- video and audio files;

- handbook, contents information for students and teachers;
- textbook (using the method of augmented reality, tables, diagrams, etc.)

- presentations;

- questions for the exam or test, self-preparation, defense of the essay, for self-solving practical problems;

- homework (essay, tests).

INTENDED LEARNING OUTCOMES AND ASSESSMENT

Learning Outcomes of the module ⁹	Methods of studies	Assessment methods of student achievements ¹⁰	Assessment criteria of student achievements by assessment levels
	Blended learning,	Problematic questions	Threshold achievement
01. Knows the theory,	integrated affective	Intelligent tests	level
methodology,	tutoring and	Regular tests	Able to apply quantitative
quantitative and	affective computing	🛛 Problematic tasks	and qualitative research
qualitative methods of	methods. The	Projects	methods to study
researching consumer	Integrated Method	Peer evaluation	consumer behavior
behavior.	includes computer	🔀 Automated feedback	relevant to energy
Able to apply into	learning systems, big	Final evaluation	efficiency and climate
practice for study	data mining, an	Other: assessment of	change
consumer behavior	affective tutoring	a group survey	Typical achievement level
related to energy	system, access to e-		Able to apply quantitative
efficiency and climate	sources (open-		and qualitative research

⁹ Learning outcomes are specified in three categories – as **knowledge, skills and competence**. This signals that qualifications – in different combinations – capture a broad scope of learning outcomes, including theoretical knowledge, practical and technical skills, and social competences where the ability to work with others will be crucial. Please refer to Cedefop (2017). Defining, writing and applying learning outcomes: a European handbook. Luxembourg: Publications Office of the European Union. <u>https://www.cedefop.europa.eu/files/4156_en.pdf.</u> Learning outcomes of the module must correspond to the BECK Capacity Building Framework.

¹⁰ Please select from the list. Additional assessment methods may be added.

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change by using modern ICT technologies	source videos, simulators such as calculators and software, and case studies from the best universities around the world), self- study in the Moodle Virtual Environment (learning materials including audiovisual materials, text materials, online interactions in forums to build a learning community, and exercises with an integrated feedback mechanism), live events (video conferencing)		methods to study consumer behavior relevant to energy efficiency and climate change by using modern ICT technologies <i>Excellent achievement level</i> Able to apply quantitative and qualitative research methods to study consumer behavior relevant to energy efficiency and climate change by using modern ICT technologies at an advanced level
O2. Able to determine the needs and interests of various social groups using sociological and psychological quantitative and qualitative methods	Blended learning, integrated affective tutoring and affective computing methods	 Problematic questions Intelligent tests Regular tests Problematic tasks Projects Peer evaluation Automated feedback Final evaluation Other: assessment of a group survey 	ThresholdachievementlevelHas basic skills to researchneeds and interests ofvarious social groups usingsociological andpsychological quantitativeand qualitative methodsTypical achievement levelHas intermediate skills toresearch needs andinterests of various socialgroups using sociologicaland psychologicalquantitative methodsExcellent achievement levelHas advanced skills toresearch needs andinterests of various socialgroups using sociologicaland psychologicalqualitative methodsExcellent achievement levelHas advanced skills toresearch needs andinterests of various socialgroups using sociologicalandpsychologicalquantitative and qualitativemethods





03. Able to prepare tools for quantitative and qualitative sociological and psychological researches and conduct field applied research to solve specific problems	Blended learning, integrated affective tutoring and affective computing methods.	 Problematic questions Intelligent tests Regular tests Problematic tasks Projects Peer evaluation Automated feedback Final evaluation Other: activity assessment 	ThresholdachievementlevelHas the basic skills ofpreparingtoolspreparingtoolsforquantitative and qualitativesociologicalandpsychologicalresearchesand forconductingfieldapplied researchTypical achievement levelHas the intermediate skillsofpreparingtoolsforquantitative and qualitativesociologicalandpsychologicalresearchesand forconductingfieldapplied researchExcellent achievement levelHasHasadvancedsociologicalandpreparingtoolsforquantitative andqualitativesociologicalandpsychologicalresearchesandforconductingfieldapplied research
04. Able to carry out designing and project implementation, based on knowledge of the behavior of various social groups related to energy efficiency and climate change; able to work (cooperate) with others participants of project	Blended learning, integrated affective tutoring and affective computing methods	 Problematic questions Intelligent tests Regular tests Problematic tasks Projects Peer evaluation Automated feedback Final evaluation 	ThresholdachievementlevelHas basic skills for designingandprojectimplementation, based onknowledge of the behaviorof various social groupsrelated to energy efficiencyand climate changeTypical achievement levelHas the intermediate skillsdesigning and projectimplementation, based onknowledge of the behaviorof various social groupsrelated to energy efficiencyand climate changeExcellent achievement levelHas advanced skills fordesigning and projectimplementation, based onknowledge of the behaviorof various social groupsrelated to energy efficiencyand climate changeExcellent achievement levelHas advanced skills fordesigning and projectimplementation, based onknowledge of the behaviorof various social groupsrelated to energy efficiencyand climate change.Has advanced skills fordesigning and projectimplementation, based onknowledge of the behaviorof various social groupsrelated to energy efficiencyand climate change.Hasand climate change.Hasand climate change.

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	skills of effective cooperate
	with others participants of
	project

MODULE MARK CALCULATION¹¹:

Assessment components (in chronological order of submission/examination date)				
Type of		Duration	Word count (if	Component pass
assessment ¹²	Weighting, %	(if exam)	essay or similar):	required ¹³
Assessment of the				
degree of				
interaction and	30%			Yes 🗌 No 🔀
participation of the				
students				
Conducting group	50%		6000	
sociological survey	5070		0000	
Online examination	20%	20 minutos		
(test)	2070	20 minutes		
Total:	100%			

SYLLABUS OUTLINE

No.	Topic ¹⁴	Number of hours ¹⁵
1.	Introduction to the module. Characteristics of the situation of energy efficiency and climate change. Purpose and objectives of the module. Universal and professional competencies of students, formed within the discipline.	8
2.	Methodology and methods of studying consumer behavior. Typology of consumer behavior based on the allocation of ethnic, demographic, generational, subcultural and other groups. The selection criteria: values, needs, style of behavior. The latest concepts and theories.	14
3.	Quantitative methods for studying consumer behavior related to energy efficiency and climate change. Document analysis, big data. Survey techniques. Longitudinal research. Analysis and interpretation of results.	20
4.	Qualitative strategies and research methods. Case study: in-depth case study. Observation. Photo and video monitoring. Interview. Focus groups.	20
5.	Psychological methods for studying consumer motivation related to energy efficiency and climate change. Physiological observations. Psychographic analysis of behavior. Experiment. Modeling of the behavior.	18

¹¹ Please list all components, sum must be equal to 100%. Note that successful course completion should be recognised as indicating worthwhile educational achievement.

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¹² Please indicate in chronological order of submission date each assessment component by type, e.g. examination, home work, coursework, project

¹³ Indicate Yes to specify the assessment component(s) to be passed in order to pass the module

¹⁴ Please add as many topics as needed

¹⁵ Includes self-learning, on-line conferences and consultations



7.	Formation of energy efficient behavior. Education. Informing the public. Bench Marking with neighbors. Education, training. Training of specialists. Best practices: a comparative analysis	14
8.	State policy related to energy efficiency and climate change. Bioclimatic architecture and construction. Technologies of the Smart city: safety, control of resources management. Household policy. Green line of household appliances. Management and self-government. The role of the civil society	14
	Total:	120

LEARNING MATERIALS¹⁶

6.

Core materials (up to 5 references):

- Блэкуэлл, Р.Д., Миниард, П.У., Энджел Дж.Ф., Поведение потребителей. СПб.: Питер, 2000. 760 с. Blackwell, R.D., Miniard, P.W., Engel, J.F. Consumer Behavior (2006). 10th Edition, Thomson South-Western College Pub, 832 p. https://fileskachat.com/download/15267_e85c16fec84a0c099a167526b7d49867.html
- Никитин, Е.Е., Никитина, Т.Е. Методология и практика проведения социологических исследований в сфере теплосбережения населенных пунктов [Methodology and Practice of Sociological Surveys in the Field of Heating Supply to Inhabited Localities] (2013) URL: <u>http://iestream.ru/innomer/1779-metodologiya-i-praktika-provedeniya-sociologicheskihissledovaniy-v-sfere-teploobespecheniya-naselennyhpunktov</u>.
- 3. Manning, Ch, Clayton S. Psychology and Climate Change. Publisher: Academic Press Release Date: June 2018.

https://www.researchgate.net/publication/333542289 Psychology and Climate Change

- 4. Spangenberg, J. H., Lorek S. Sufficiency and consumer behaviour: From theory to policy. Energy Policy, Vol. 129, June 2019, Pp. 1070-1079.
- 5. Williamson, K., Satre-Meloy, A., Velasco, K., & Green, K. (2018). Climate Change Needs Behavior Change: Making the Case for Behavioral Solutions to Reduce Global Warming. Arlington, VA: Rare.

Supplementary materials (up to 10 references):

- 1. Nauges, C., Wheeler S.A. (2017) The Complex Relationship Between Households' Climate Change Concerns and Their Water and Energy Mitigation Behaviour. Ecological Economics, Volume 141, Pp. 87-94.
- Tobler, Ch., Visschers, VHM., Siegrist, M. Addressing *climate change*: Determinants of *consumers*' willingness to act and to support policy measures. Journal of Environmental Psychology. Vol. 32, Issue 3, 2012, Pp.197-207
- 3. Ivanova, Z., Pichugin, I, Naimaviciene, J. (2015) Behavioral Aspects of Energy and Heat Consumption (Basing on Opinion Poll Data). Procedia Engineering, 117, pp. 154–161.
- 4. Ivanova Z., Smetanina T. (2016) Research into Behaviour Patterns Typical for Consumers of Construction Material as the Mission of Ecological Management. MATEC Web of Conferences, Vol.73.

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¹⁶ Courses should provide high quality materials to enable an independent learner to progress through selfstudy. Materials should make best use of online affordances (interactivity, communication, collaboration) as well as rich media (video and audio) to engage students with their learning.



- 5. Ivanova, Z., Eichner M. (2018) Climate saving building construction for biosphere compatible and human urban environments. International Conference on Smart, Sustainable and Sensuous Settlements Transformation (3SSettlements) Proceeding. Technische Universität München (TUM), Germany. Pp. 223-229.
- 6. Kimberly, S. Wolske, Paul C. Stern. (2018) 6 Contributions of psychology to limiting climate change: Opportunities through consumer behavior. Psychology and Climate Change. Pp. 127-160
- 7. Burke, M., Ockwell, D., Whitmarsh, L. (2018) Participatory arts and affective engagement with climate change: The missing link in achieving climate compatible behaviour change? Global Environmental Change. Vol. 49, Pp. 95-105
- Прохода, В.А. Энергосберегающее поведение населения России и других европейских стран. Энергобезопасность и энергосбережение. 2018, № 3. <u>https://istina.msu.ru/publications/article/150305855/</u>
- 9. Сергеева, А. Русские: стереотипизация поведения, традиции, ментальность [Russians: Behavioral Patterns, Traditions, Mentality] (2006) М.: Флинта. Наука, 320 с.
- 10. System Innovation for Sustainability 4: Case Studies in Sustainable Consumption and Production
 Energy Use and the Built Environment. Edited by <u>Saadi Lahlou.</u> 2011, 232 p.
- 11. European Attitudes to Climate Change and Energy: Topline Results from Round 8 of the European Social Survey.

https://www.europeansocialsurvey.org/docs/findings/ESS8 toplines issue 9 climatechange.pdf

12. Public Perceptions on Climate Change and Energy in Europe and Russia: Evidence from Round 8 of the European Social Survey Public attitudes to welfare, climate change and energy in the EU and Russia (PAWCER)

https://www.europeansocialsurvey.org/docs/findings/ESS8_pawcer_climate_change.pdf

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On-line resources¹⁷:

- 1. Climate Research Information Center. <u>https://archi.ru/projects/world/14486/centr-izucheniya-izmenenii-klimata-climatorium</u>
- 2. Climate change adaptation. <u>https://www.gov.uk/environment/climate-change-adaptation</u>
- 3. Climate Change & Resilience Information Centre: <u>https://careclimatechange.org/</u>
- 4. Climate ADAPT: https://climate-adapt.eea.europa.eu

Other materials:

Lecture materials available at the BECK Simulated Big Data Interuniversity Networked Affective Educational Centre.

REQUIRED IT RESOURCES¹⁸

No.	Software, manufacturer
1.	MS Word
2.	MS Excel
3.	MS Power Point
4.	Adobe Acrobat reader

¹⁷ Please provide links

¹⁸ Please add as many software as needed for the course

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Date of completion of this version of Module Specification

Date of approval by the Faculty:

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