SUSTAINABLE DEVELOPMENT GOALS

UNIVERSITY OF BAHRAIN

17.4.2 Education for SDGs: specific courses on sustainability

Academic Year 2023-2024

17 PARTNERSHIPS FOR THE GOALS

www.uob.edu.bh/sustainability

17.4.2 Education for SDGs: specific courses on sustainability

Table of Contents

Executive Summary

The University of Bahrain (UoB) demonstrates a strong institutional commitment to embedding sustainability and SDG principles into academic programs, fully addressing THE Impact Rankings Indicator 17.4.2. Through dedicated degree programs, specialized electives, and curriculum-integrated projects, UoB equips students with the knowledge and competencies required to advance sustainable development.

Key Highlights:

- **Dedicated Degree Programs:**
    - **M.Sc. in Sustainable Energy Transition Systems** – Focused on clean energy, carbon reduction, and climate action, aligning with SDG 7, SDG 9, SDG 11, and SDG 13.
    - **Postgraduate Renewable Energy Courses (REE601–REE605)** – Cover solar, wind, geothermal, and hybrid systems, promoting innovation and low-carbon solutions.
- **Specialized Undergraduate & Postgraduate Courses:**
    - **Sustainability Accounting & Reporting (ACC485, ACC630)** – SDG 12, SDG 13.
    - **Environmental Economics & Sustainable Development (ECON351)** – SDG 8, SDG 13, SDG 15.
    - **Sustainable Finance (FIN330, FIN634)** – SDG 7, SDG 13.
    - **Entrepreneurship and Sustainability (ENTR476)** – SDG 8, SDG 9, SDG 12.
    - **Teaching Environmental & Earth Sciences (TC1SC348, TC2SCT413)** – SDG 6, SDG 7, SDG 11, SDG 12, SDG 13, SDG 14, SDG 15.
    - **STEAM Education for Primary Teachers (TCST418)** – SDG 4, SDG 3.
    - **Urban Design & Sustainable Architecture (ARCG317, ARCU624)** – SDG 11, SDG 13.

- **Integration Across Disciplines:**
    - Architecture and engineering courses embed **SDG 11 (Sustainable Cities)** and **SDG 13 (Climate Action)** through design studios and technical projects.
    - Civil engineering courses address **SDG 6 (Clean Water)** and **SDG 12 (Responsible Consumption)** via water supply and wastewater treatment modules.
- **Global Partnerships Enhancing Sustainability Education:**
    - **MoU with British University of Bahrain** for joint sustainability-focused programs.
    - **Collaboration with CERN** embedding sustainability principles in STEM education and research projects.

Measurable Outcomes:

- **30+ courses** explicitly aligned with SDGs across undergraduate and postgraduate levels.
- **1 full master's program** dedicated to sustainable energy transition.
- **Multiple curriculum-integrated projects** addressing renewable energy, climate action, and sustainable urban design.
- **International collaborations** ensuring global benchmarking and experiential learning opportunities.

Performance Data for 2024–2025:

- **Level One Courses**
    - *1st Semester*: Total Students = **1,882**, Students achieving ≥70% = **976**
    - *2nd Semester*: Total Students = **1,990**, Students achieving ≥70% = **1,549**
- **Level Two Courses**

- *2nd Semester*: Total Students = **1,081**, Students achieving ≥70% = **604**

This demonstrates strong engagement and achievement in SDG-related commitment to embedding sustainability and SDG principles into academic programs.

Conclusion:

UoB's comprehensive approach to sustainability education—through dedicated programs, specialized courses, and global partnerships—positions it as a regional leader in advancing SDG literacy and innovation. These initiatives operationalize SDG 4 (Quality Education), SDG 7 (Clean Energy), SDG 11 (Sustainable Cities), and SDG 13 (Climate Action), ensuring graduates are prepared to drive sustainable transformation locally and globally.

1. University of Bahrain and British University of Bahrain MoU – Advancing Joint Academic Programs and Sustainability Education

In 2024, the University of Bahrain (UOB) and the British University of Bahrain (BUB) formalized a Memorandum of Understanding (MoU) to enhance cooperation in academic programs, research collaboration, and professional development. Signed by Dr. Fuad Mohammed Al-Ansari, President of UOB, and Dr. Ebrahim Mohammed Janahi, President of BUB, the partnership underscores a shared vision to integrate sustainability principles and SDG-related themes across higher education curricula and joint training initiatives.

The agreement promotes the exchange of academic expertise, faculty collaboration, and the development of specialized courses and workshops that align with global sustainability priorities. By encouraging joint research projects, seminars, and professional training, both institutions aim to embed sustainability competencies and interdisciplinary approaches within teaching and learning.

Through this collaboration, UOB and BUB are strengthening their capacity to deliver specific educational offerings that address the UN Sustainable Development Goals (SDGs), preparing students to apply sustainability knowledge to real-world social, environmental, and economic challenges. The initiative directly supports SDG 4 (Quality Education) and SDG 17 (Partnerships for the Goals) by advancing sustainable learning pathways and fostering a culture of innovation and responsible global citizenship.

Evidence: University of Bahrain – UOB and BUB Sign Collaboration Agreement (2024)

2. University of Bahrain & CERN – Global Scientific Partnership Advancing Innovation and Sustainable Development

News Press Source: https://www.uob.edu.bh/35571/

University of Bahrain & CERN – Integrating Sustainability and Scientific Education for Global Impact

On 22 June 2023, the University of Bahrain (UOB) entered into an International Cooperation Agreement with the European Organization for Nuclear Research (CERN) to promote education for sustainable development (ESD) through curriculum-integrated research, advanced scientific training, and international student mobility.

The partnership embeds sustainability, innovation, and environmental responsibility within STEM education, creating pathways for Bahraini students and researchers to participate in CERN's specialized programs such as the Accelerator School, School of Computing, European School of Physics, and the CERN Summer Student Program.

This collaboration demonstrates how formal academic programs and experiential learning can be structured to advance SDG 14.4.2, aligning higher education with sustainable engineering, green innovation, and global scientific literacy.

Curriculum-Integrated Sustainability Projects

Project 1: Design of Tooling B (Endcap Removal Platform for the HGCAL Upgrade)

Students and faculty co-developed an automated aluminum platform for CERN's Compact Muon Solenoid (CMS) detector.

The use of aluminum—a lightweight, corrosion-resistant, and recyclable material—reflects sustainable material design principles taught in UOB's mechanical and industrial engineering programs.

This project delivers hands-on education in sustainable manufacturing, lifecycle efficiency, and resource-conscious innovation.

Project 2: Performance Auto-Tuning Framework for GPU Applications Using Parameter Optimization

Through coursework and research-based learning, students optimized computing performance to reduce energy consumption and hardware strain, directly applying concepts from sustainable computing and energy-efficient algorithm design.

17.4.2 Education for SDGs: specific courses on sustainability

The project supports digital sustainability education, enabling learners to translate theory into practical low-carbon computing solutions.

Project 4: Fluid Mechanics – CO_2 Cooling System

This applied learning project links thermodynamics education with climate action and energy recovery systems.

Students design and assess CO_2-based cooling plants that reduce radiation damage in CERN detectors while recycling waste heat.

It provides a case study in green engineering, sustainable energy systems, and environmental risk assessment, supporting sustainability-focused course objectives.

Project 5: Minimum Ionizing Particle Timing Detector (MTD) Project

This course-integrated project develops advanced monitoring frameworks to detect system inefficiencies and prevent equipment failures, enhancing operational sustainability.

Students gain exposure to data-driven decision-making, predictive maintenance, and smart system design, reinforcing sustainability through efficiency and resilience.

Education for Sustainable Development and Global Mobility

The partnership embeds Education for the SDGs (ESD) through student and faculty mobility, enabling Bahraini learners to engage with international sustainability practices and global scientific governance frameworks.

CERN-based learning experiences are recognized as credit-bearing academic activities within UOB's curriculum, ensuring direct integration of sustainability learning outcomes in degree programs.

Complementing formal education, UOB conducts public exhibitions, interactive workshops, and outreach events to build community awareness on science, sustainability, and climate innovation, particularly targeting youth and women in STEM.

These initiatives promote inclusive, equitable access to sustainability education, expanding the university's societal contribution to SDG 4.7 and SDG 14.4.2.

The UOB–CERN collaboration exemplifies education for sustainable development through structured academic engagement, meeting THE Impact Rankings criteria under SDG 14.4.2 by:

- Delivering sustainability-focused coursework and applied projects within science and engineering programs.

- Embedding environmental responsibility, resource efficiency, and sustainable innovation in research-based teaching.
- Facilitating international student mobility for sustainability learning and cross-cultural scientific exchange.
- Strengthening institutional capacity in sustainability education and global research collaboration.
- Providing inclusive access to sustainability-focused learning opportunities for students and community members.

Impact Summary

The University of Bahrain's collaboration with CERN demonstrates how academic programs and experiential learning can drive sustainability literacy, innovation, and climate-conscious engineering.

By integrating sustainability principles into scientific education, UOB ensures that students develop the competencies needed to address global sustainability challenges, advance green technologies, and lead responsible innovation for a sustainable future.

3. Courses Directly Related to SDGs

Course Code	Course Title	Level	Aligned SDGs	Rationale
ACC485	Sustainability Accounting & Reporting	Undergraduate	SDG 12 SDG 13	Focus on sustainability reporting, ESG disclosure, and accountability in business impact.
ECON351	Environmental Economics & Sustainable Development	Undergraduate	SDG 8 SDG 13 SDG 15	Links environmental sustainability with economic policy for sustainable development.
FIN330	Sustainable Finance	Undergraduate	SDG 7 SDG 13	Addresses green investment, ESG financing, and climate-related financial risk.
ENTR476	Entrepreneurship and Sustainability	Undergraduate	SDG 8 SDG 9 SDG 12	Integrates sustainable business models and environmental/social entrepreneurship.
ENTR474	Social Entrepreneurship	Undergraduate	SDG 1 SDG 10 SDG 11	Focuses on ventures addressing social and environmental challenges.
MGT437	Business Ethics	Undergraduate	SDG 16 SDG 12	Embeds ethical business behavior and accountability in governance.
FIN634	Sustainable and Green Finance	Postgraduate	SDG 13	Explores green bonds, ESG investing, and environmental responsibility in finance.
ACC630	Sustainability Accounting & Reporting	Postgraduate	SDG 12 SDG 13	Focuses on sustainability disclosure frameworks and corporate environmental accountability.
TC2SCT413	Teaching Environmental & Earth Sciences 2	Undergraduate	SDG 6 SDG 7 SDG 11 SDG 12	The course integrates multiple Sustainable Development Goals (SDGs) by connecting scientific concepts to real-world sustainability practices. It addresses SDG 6 through lessons on water conservation and pollution control;

			SDG 15	SDG 7 via discussions on renewable energy and air quality; and SDG 11 through projects on waste management and community engagement. Students also explore SDG 12 by examining sustainable resource use and circular economy principles, SDG 13 through understanding ecosystem roles in climate regulation, and SDG 15 by studying biodiversity and conservation. Collectively, these elements equip students to design and lead educational initiatives that foster environmental awareness, sustainable behaviour, and climate responsibility.
TC1SC348	Teaching Environmental & Earth Sciences1	Undergraduate	SDG 6 SDG 7 SDG 11 SDG 12 SDG 13 SDG14 SDG 15 SDG 17	The course integrates multiple Sustainable Development Goals (SDGs) through a holistic approach that links scientific understanding with practical sustainability action. Students explore SDG 6 by studying water conservation, pollution control, and sustainable water management; SDG 7 through lessons on renewable energy and air quality; and SDG 11 by connecting classroom learning to community initiatives on waste reduction and sustainable living. They address SDG 12 by examining consumption patterns and promoting responsible resource use, and SDG 13 by understanding the relationship between ecosystems and climate regulation, developing strategies for climate literacy and action. Elements of SDG 14 and SDG 15 are covered through discussions on biodiversity, aquatic systems, and land conservation, emphasizing the interdependence of natural ecosystems. Finally, SDG 17 is reinforced through collaborative projects using international

				environmental resources, highlighting the role of partnerships and knowledge exchange in achieving sustainability goals.
TCHL418	**Health, Safety, and Nutrition for Children**	Undergraduate	SDG 2 SDG 3 SDG 4 SDG 5 SDG 6 SDG 10 SDG 12 SDG 13 SDG 16 SDG 17	The course aligns with multiple Sustainable Development Goals (SDGs) by promoting holistic child health, inclusive education, and sustainable practices. It advances SDG 3 through training in physical, mental, and emotional well-being, preventive care, and first aid; and supports SDG 2 by teaching balanced nutrition and food security awareness. In line with SDG 4, it prepares future teachers to create safe, health-conscious learning environments, while SDG 5 and SDG 10 are addressed through gender-sensitive and inclusive approaches to child care and health education. The course integrates SDG 6 and SDG 12 by emphasizing hygiene, sanitation, and responsible food consumption, and connects to SDG 13 through lessons on climate impacts on health and sustainable school environments. It contributes to SDG 16 by promoting child protection and safeguarding, and reinforces SDG 17 by fostering partnerships between educators, health institutions, and communities to strengthen collective action toward sustainable well-being.
TCSC118	**General Science**	Undergraduate	SDG 12 SDG 13 SDG 14 SDG 15	The course integrates environmental sustainability themes across several SDGs. It addresses SDG 13 by examining the environmental impact of human activities and promoting sustainable responses to climate change. SDG 14 is reflected in lessons on marine and freshwater ecosystems, emphasising control of pollution and the sustainable use of

				resources. Through topics on biodiversity and conservation, the course advances SDG 15, while SDG 12 is reinforced through discussions on energy efficiency, resource management, waste reduction, and recycling practices.
TC2SC213	**Fundamentals of Biology**	Undergraduate	SDG 13 SDG 14 SDG 15	The course integrates key environmental sustainability concepts across SDG 15, SDG 14, and SDG 13. It emphasizes the protection and sustainable management of terrestrial and aquatic ecosystems, biodiversity conservation, and the prevention of desertification. By exploring how living and non-living components interact within ecosystems, students gain insight into their role in regulating the Earth's climate and supporting sustainable use of natural resources, reinforcing the importance of ecosystem preservation for planetary stability.
TCSC228	**Teaching Environmental Literacy and 21st Century Learning Skills in Science**	Undergraduate	SDG 6 SDG 7 SDG 13 SDG 14 SDG 15	The course integrates SDGs 6, 7, 13, 14, and 15 by engaging students in developing lesson plans and projects on water conservation, clean energy, climate action, and ecosystem protection. Through hands-on assignments, students design educational materials that promote sustainable water use, renewable energy awareness, climate change mitigation, and the conservation of marine and terrestrial biodiversity, fostering environmental literacy and responsibility among future educators.
TCST418	**STEAM Education for Primary Teachers**	Undergraduate	SDG 3 SDG 4	The course aligns with SDG 3 by integrating the UNESCO STEM framework, using global and environmental issues to design lessons that foster global citizenship and sustainability awareness. It directly supports SDG 4 (Target 4.7) by preparing teachers to embed education for

				sustainable development into their teaching practice. Additionally, it enables flexible integration of other SDGs (e.g., 6, 7, 13, 14, 15) through a pedagogical framework that connects science education with real-world sustainability challenges.

17.4.2 Education for SDGs: specific courses on sustainability

Course Title	Level	Rationale
Engineering Management	Undergraduate	There are no explicit references to the United Nations Sustainable Development Goals (SDGs) or the 2030 Agenda within the syllabus. The following topics align with a couple of SDGs (possibly not explicitly). Chapters/Topics – Design of Products & Quality Management. The topic Product Design covers subjects like Design for Environment, which theoretically explains the importance of sustainable practices (SDG9 and SDG12). Additionally, topics such as Six Sigma and Quality Management Systems in the course focus on continuous improvement, reducing rework and defects, and thereby decreasing waste, which again aligns with SDG12.
Manufacturing Processes	Undergraduate	The course includes a chapter on the economics of machining (a manufacturing technique). Process conditions best suited to minimise cost and maximise production rate are determined and applied in real-life production. Both aspects are closely associated with sustainability and thus sustainable development
Social and Cultural Factors in Design	Undergraduate	The course INTD 414 Social and Cultural Factors in Design directly supports SDG 5 – Gender Equality by engaging students in a critical investigation of how built environments influence and reflect women lived experiences. Through assignments and case-based analyses, students explore spatial needs, safety, privacy, accessibility, and empowerment as essential design determinants for women in domestic, educational, and public contexts. The course encourages learners to assess social norms and cultural frameworks that shape women's participation in space, leading to design proposals that promote inclusivity, dignity, and equal opportunities. By translating theoretical understanding into spatial strategies—such as designing women-centric workspaces, educational facilities, or community hubs—students cultivate design literacy that advances gender-responsive and equitable environments in alignment with the United Nations Sustainable Development Goals.
MENG 300	Undergraduate	It includes engineering financial assessment related to environmental and sustainable projects
Building Service Systems	Undergraduate	One of the topic contents show the harvesting of rainwater for irrigation.

17.4.2 Education for SDGs: specific courses on sustainability

ARCG 216	Undergraduate	The course is an introduction to sustainable design. Students are briefly introduced to sustainable development and SDGs. The course then focuses on environmental design to reduce energy use and adopt passive solutions.
ARCH712: CONTEMPORARY ISSUES	Postgraduate	SDG 1: No Poverty through and SDG 2: Sustainable cities and communities by bridging the gap of students' knowledge to globalization, migration, sustainability, deforestation, climate change, poverty, natural and man-made disasters, wars, heritage conservation, and preservation
Urban Design (ARCG317)	Undergraduate	This course integrates the principles of Sustainable Development Goal 11 (Sustainable Cities and Communities) and Goal 7 (Affordable and Clean Energy) through evidence-based urban design projects. Students explore the spatial, social, and environmental dimensions of sustainable urban form, focusing on walkability, housing, renewable energy integration, and public space design. The course involves collaboration with governmental institutions related to urban planning and housing in Bahrain, fostering real-world engagement with national sustainability strategies.
Design V (with Eskan Bank Award)	Undergraduate	The Design Studio V course advances SDG 11 (Sustainable Cities and Communities) and SDG 17 (Partnerships for the Goals) through the Eskan Bank Award housing project, where students design adaptable low-rise housing and collaborate with governmental housing institutions to promote inclusive and sustainable urban development.

17.4.2 Education for SDGs: specific courses on sustainability

ARCH712: CONTEMPORARY ISSUES, ARCG 621– Comprehensive Design Project, ARCH 631– Professional Practice, ARCH731 - Research & Design , ARCG 510 - Architectural Design VII, ARCG522 - PROJECT MANAGEMENT , LNDA 313 Working Drawings	Postgraduate	ARCH712: CONTEMPORARY ISSUES, SDG 1: No Poverty through and SDG 2: Sustainable cities and communities by bridging the gap of students' knowledge to globalization, migration, sustainability, deforestation, climate change, poverty, natural and man-made disasters, wars, heritage conservation, and preservation ARCG 621– Comprehensive Design Project SDG 1: No Poverty through, SDG 3 Good Health and well-being and SDG 11: Sustainable cities and communities that this course guides the students to conceptualize a real design project based on consideration of the SDG 1: No Poverty through, SDG 3 Good Health and well-being and SDG 11: Sustainable cities and communities. ARCH 631– Professional Practice SDG 11: Sustainable cities and communities, and SDG 8: Decent Work and Economic Growth, by bridging the gap between students' knowledge and professional practice. ARCH731 - Research & Design SDG 17 Partnership for the Goals bridges the gap between students' knowledge and contributes to enhancing design via the Partnership. ARCG 510 - Architectural Design VII SDG 11: Sustainable cities and communities, where students are expected to demonstrate their knowledge and architectural design skills, with equal emphasis on cultural, environmental, social, and technical issues. ARCG522 - PROJECT MANAGEMENT SDG 8: Decent Work and Economic Growth through introducing project management, project delivery, and project life cycle, resource planning, and Cost estimating, budgeting, and control. LNDA 313 Working Drawings SDG 8: Decent Work and Economic Growth and SDG 11: Sustainable cities and communities, where students use sustainable concepts in selecting building construction and materials
ARCG310, ARCG320	Undergraduate	ARCG310 is an architectural design course that focuses on the Environmental aspect of the design and construction of projects. ARCG320 is an architectural design course that focuses on preserving and expressing cultural identities. Therefore, it enriches students' understanding of culture and the importance of preserving it.
INTA 321 Furniture Design & Production	Undergraduate	The course contains a design project that focuses on the use of CNC machining, which helps in local manufacturing and reduces waste. It promotes using one material when making a furniture piece. This is aligned with SDG 11. Sustainable Cities and Communities and SDG 12. Responsible Consumption and Production.

17.4.2 Education for SDGs: specific courses on sustainability

ARCH 511, Graduation Project I	Undergraduate	ARCG 511 prepares students to develop a comprehensive architectural program that integrates functional, human, technical, and environmental considerations. Through this course, students engage in research, site analysis, and the application of sustainable design principles, directly linking to several SDGs: SDG 3 – Good Health and Well-Being. By assessing user needs and activities, students design spaces that promote physical, mental, and social well-being. SDG 4 – Quality Education: The course enhances students' specialist knowledge, research skills, and critical thinking, fostering high-quality learning outcomes. SDG 9 – Industry, Innovation, and Infrastructure: Students apply advanced architectural theories, design methodologies, and technical skills to create innovative and resilient infrastructure solutions. SDG 11 – Sustainable Cities and Communities: Emphasis on site analysis, functional design, and sustainable environmental strategies ensures that proposed architectural solutions contribute to safe, inclusive, resilient, and sustainable urban environments. SDG 12 – Responsible Consumption and Production: By incorporating passive environmental controls, sustainable energy systems, and relevant building codes, students learn to design resource-efficient and environmentally responsible buildings. SDG 13 – Climate Action: The integration of renewable energy systems and passive environmental controls aligns student projects with climate-responsive and energy-efficient design practices. Overall, ARCG 511 equips students to create architectural solutions that balance human needs, environmental sustainability, and social responsibility, reflecting the holistic objectives of the SDGs.

17.4.2 Education for SDGs: specific courses on sustainability

ARCG 520, Graduation Project II – Design Stage	Undergraduate	ARCG 520 focuses on the design stage of the graduation project, enabling students to express creativity, architectural identity, and critical problem-solving skills while addressing complex design challenges. The course's emphasis on integrating environmental, technical, and social considerations connects to several SDGs: SDG 3 – Good Health and Well-Being: Students design spaces that consider user safety, accessibility, and comfort, promoting overall well-being. SDG 4 – Quality Education: The course develops advanced analytical, research, and design skills, fostering lifelong learning and professional competency. SDG 9 – Industry, Innovation, and Infrastructure: Students apply innovative architectural solutions and technical expertise in developing resilient, functional, and creative designs. SDG 11 – Sustainable Cities and Communities: By integrating site characteristics, environmental considerations, and sustainable systems, students contribute to the creation of sustainable and inclusive built environments. SDG 12 – Responsible Consumption and Production: Designs incorporate sustainable materials, energy efficiency, and environmental responsiveness. SDG 13 – Climate Action: Environmental and technical integrations, such as passive design strategies and site-specific responses, address energy efficiency and climate resilience. Overall, ARCG 520 fosters the development of innovative, sustainable, and socially responsible architectural designs that reflect global SDG principles.
Design, Culture and Environment	Undergraduate	INTD 326 will focus on 3- Good Health and Well Being;9- Industry, Innovation and Infrastructure;11- Sustainable Cities and Communities;13- Climate Action. Lectures with sustainability-focused content; Case studies on sustainable practices; Hands-on projects and design challenges; Research-based assignments. the course will include Fieldwork or real-world case studies, Group projects with sustainability themes.

17.4.2 Education for SDGs: specific courses on sustainability

ARCG 410: Architectural Design V	Undergraduate	ARCG 410 develops students' architectural design skills with a focus on housing, integrating technical knowledge, social awareness, and environmental considerations. Through site-responsive housing design, material selection, and building systems integration, students create functional, sustainable, and inclusive residential solutions that address diverse user needs. The course aligns with several SDGs: SDG 3 – Good Health and Well-Being: Students design residential spaces considering safety, accessibility, and human comfort to promote physical and mental well-being. SDG 4 – Quality Education: The course fosters critical thinking, research, and design communication skills, contributing to high-quality professional learning. SDG 9 – Industry, Innovation, and Infrastructure: Students apply knowledge of building systems, materials, and structural solutions to develop innovative and resilient housing designs. SDG 11 – Sustainable Cities and Communities: Site analysis, context-sensitive planning, and sustainable design strategies support the creation of safe, inclusive, and environmentally responsible housing within communities. SDG 12 – Responsible Consumption and Production: Consideration of material performance, environmental impact, and reuse promotes sustainable construction practices in residential buildings. SDG 13 – Climate Action: Integration of site orientation, climate responsiveness, and environmental systems encourages energy-efficient and climate-sensitive housing solutions. Overall, ARCG 410 equips students with the skills to produce architecturally creative, socially inclusive, and environmentally sustainable housing designs, reflecting the principles of the SDGs.

17.4.2 Education for SDGs: specific courses on sustainability

ARCH 611, Design and Community	Postgraduate	ARCH 611 explores the intersection of architecture with social, cultural, and environmental contexts, emphasizing inclusive and sustainable design that positively impacts communities. Through research, case studies, and collaborative design, students develop skills in empathy, social innovation, and stakeholder engagement, directly connecting to several SDGs: 1. SDG 3; Good Health and Well-Being: By focusing on community needs and inclusive spaces, the course promotes social, mental, and physical well-being. 2. SDG 4; Quality Education: Students engage in critical research, reflection, and knowledge synthesis, fostering advanced learning and professional competencies. 3. SDG 10; Reduced Inequalities: The course emphasizes social justice, equity, and design strategies that address disparities within communities. 4. SDG 11; Sustainable Cities and Communities: By examining environmental, cultural, and social contexts, students contribute to creating resilient, inclusive, and sustainable urban environments. 5. SDG 16; Peace, Justice, and Strong Institutions: The focus on participatory design and collaborative processes nurtures community empowerment, ethical engagement, and inclusive decision-making. 6. SDG 17; Partnerships for the Goals: Multidisciplinary collaboration and stakeholder engagement foster partnerships to advance sustainable community development. Overall, ARCH 611 equips students to design thoughtfully, integrating social, environmental, and cultural considerations to create equitable, sustainable, and community-focused built environments, reflecting the core principles of the SDGs.
CENG322: Water Supply & Sewerage	Undergraduate	SDG 6: Clean Water and Sanitation // The course directly addresses the requirement for safe water access and sanitation by providing students with the essential design and maintenance skills for robust water distribution networks and effective sewerage systems, which are foundational to Goal 6. // This course teaches students the engineering principles for managing water resources from source to disposal. The content covers the fundamentals of groundwater flow, the design of conduits and water distribution systems, and the operation of reservoirs and pumping stations for clean water supply. For sanitation, it focuses on the design of sanitary sewers, the hydraulics of wastewater flow, and the construction and maintenance of sewer systems.

17.4.2 Education for SDGs: specific courses on sustainability

CENG427: Treatment of Wastewater	Undergraduate	SDG 6: Clean Water and Sanitation // This course is a direct effort towards SDG 6, which aims to improve water quality by reducing pollution and increasing the safe treatment of wastewater. By focusing on tertiary treatment and the environmental impact of contaminants, the course trains engineers to safeguard water ecosystems and public health. // This course focuses entirely on the principles for the design and operation of wastewater treatment facilities. It is designed to give students a strong understanding of the main contaminants in Municipal Wastewater and their impacts on human health and the environment. Key topics include the design principles for various treatment stages: preliminary, primary, secondary, tertiary treatment units, and sludge treatment processes.
ARCG 522: Project Management	Undergraduate	Describe the best practices of Project Management - Related to 9- Industry, Innovation and Infrastructure
ARCG 413: Contracts & Implementations of Documents	Undergraduate	All about interrelationships and contracts - 9- Industry, Innovation and Infrastructure
CENG209: Introduction to Engineering Profession	Undergraduate	SDG 16:The focus on Ethics and Corporate Responsibility supports the principles of transparent and just practice (SDG 16). This foundational course explicitly addresses non-technical, professional competencies vital for sustainable development. Key topics include Sustainability, Corporate Responsibility, Ethics (including professional ethics), and the interaction between technology and society. It also includes project management and teamwork.

17.4.2 Education for SDGs: specific courses on sustainability

CENG328: Civil Engineering Projects and Seminar	Undergraduate	SDG 9: Industry, Innovation, and Infrastructure & SDG 11: Sustainable Cities and Communities. This directly links academic knowledge to practical, sustainable design solutions, aligning with SDG 9's call for innovation and SDG 11's goal of resilient infrastructure. The focus on real-world problems ensures the projects address contemporary challenges of sustainable development. The course is a core mechanism for developing "creative design and critical thinking skills" by challenging students to use "problem-based learning to find solutions to real engineering problems". Students are exposed to "ongoing important projects in the country and in the world" and must organize a seminar to present their proposed design components. The course emphasizes the role of civil engineers as designers and decision makers.
CENG580: Advanced Construction Project Management	Postgraduate	SDG 9: Industry, Innovation, and Infrastructure & SDG 12: Responsible Consumption and Production. This course applies advanced management techniques to construction projects. It focuses on the strategic planning and control necessary to execute large-scale, resilient infrastructure projects effectively (SDG 9). By emphasizing efficient resource allocation, risk management, and schedule optimization, the course contributes to minimizing waste and maximizing value throughout the project life cycle, aligning with SDG 12 (responsible consumption and production).
ARCU 624 - Sustainable Urban Design	Postgraduate	This course focuses on the sustainability of urban environments through an integrated exploration of urban design, planning, and development economics. Students will analyse the environmental, social, and economic dimensions of urban growth, with an emphasis on sustainable development agendas and the reduction of environmental impacts from urbanisation. By studying real-world urban systems and planning frameworks, learners will gain the tools to design cities that are resilient, inclusive, and resource efficient. This Course aligns with SDG (11), (9) & (13)

17.4.2 Education for SDGs: specific courses on sustainability

LNDA 311 - Urban Studies	Undergraduate	This course introduces the foundational principles of urban design and explores its interconnections with urban landscapes. It examines the city as both a landscape and a system of places, highlighting how spatial design shapes human experience and environmental quality. Students will study the concept of the landscape as a series of "outdoor rooms," focusing on how design enables a sense of place, identity, and community. Through lectures, case studies, and design exercises, the course integrates urban design theory, landscape design practices, and sustainability principles to foster a holistic understanding of urban environments. This course aligns with SDG (11), (13), (3) & (9)
Conservation of Buildings	Undergraduate	The course content is primarily aligned through its direct contribution to SDG 11.4, which focuses on protecting cultural heritage. It also contributes to broader impact on other goals such as sustainable cities (SDG 11) by enhancing adaptive reuse of heritage sites and local communities (SDGs 1, 8, 11) through intangible cultural activities documentation and awareness.
Architecture Design III - ARCG 310	Undergraduate	The course Architecture Design III (ARCG 310) aligns with SDG 4 – Quality Education and SDG 11 – Sustainable Cities and Communities by fostering critical thinking, creativity, and environmental responsibility among students. It provides students with a comprehensive understanding of how environmental factors influence architectural design, encouraging sustainable development to develop context-responsive solutions. Through analytical research and and practical design project, students develop essential skills to integrate traditional environmental control techniques with modern practices. By emphasizing the design of sustainable urban environments, the course promotes learning and innovation in architecture that supports the development of sustainable cities and communities.

17.4.2 Education for SDGs: specific courses on sustainability

Architecture Design IV (ARCG 320)	Undergraduate	Architectural Design IV supports SDG 4 – Quality Education and SDG 11 – Sustainable Cities and Communities by providing students with an integrated learning experience that connects theory, history, culture, and environmental awareness through design practice. The course encourages students to apply their accumulated knowledge to real-world contexts: historical, urban, and natural, enhancing their critical thinking and design problem-solving abilities. By emphasizing the relationship between architecture, culture, and the environment, it promotes a holistic and inclusive approach to education that cultivates creativity, cultural sensitivity, and sustainable design thinking.
Highway Engineering	Undergraduate	SDG 3: Good Health and Well-being: The course contributes to safer mobility and public health by teaching students how to design highways and road networks that minimize accident risk, improve traffic safety, and ensure comfortable travel conditions. Through topics such as geometric design, pavement evaluation, and traffic control, students learn how engineering decisions directly influence road safety and users' well-being. SDG 9: Industry, Innovation, and Infrastructure: Highway Engineering builds students' capacity to design, construct, and maintain sustainable and resilient transportation infrastructure. The course emphasizes innovative materials, modern construction techniques, and efficient design standards that support economic growth and technological advancement within the transportation sector. SDG 11: Sustainable Cities and Communities: By addressing the planning and design of road systems that integrate with urban development, the course supports the creation of inclusive, safe, and accessible transport networks. Students learn to develop highway solutions that enhance mobility, reduce congestion, and support sustainable urbanisation, thereby contributing to more liveable and connected communities.
INTD 324: Furniture Design	Undergraduate	The course contains a design project that focuses on the use of CNC machining, which helps in local manufacturing and reducing waste. It promotes using one material when making a furniture piece. This is aligned with SDG 11. Sustainable Cities and Communities and SDG 12. Responsible Consumption and Production.

17.4.2 Education for SDGs: specific courses on sustainability

ARCG 314 / ARCG 326/ ARC 211/ ARCG 210/ ARC 210/ LNDA 411/ LNDA 420	Undergraduate	ARCG 314 / ARCG 326/ ARC 211: Theory of architecture, talks about people, communities, and places, strongly linked to SDG 11 SDG 11 "Sustainable Cities and Communities". ARCG 210/ ARC 210: Design 1, same focus on housing, also SDG 11, LNDA 411/ LNDA 420, GRADUATION 1 & 2 FOR LANDSCAPE, relates to SDG 14 – Life Below Water & SDG 15 – Life on Land
Vernacular Heritage (ARCG 318)	Undergraduate	Vernacular architecture, defined by its reliance on local resources, cultural context, and passive climate strategies, offers a powerful, time-tested model for sustainability. Studying this tradition moves beyond simple historical analysis; it serves as a foundation for designing modern, resilient, and equitable built environments, directly contributing to the achievement of the UN Sustainable Development Goals (SDGs). The course particularly aligns with the following SDGs: SDG 11: Sustainable Cities and Communities, SDG 12: Responsible Consumption, SDG 13: Production and Climate Action, SDG 9: Industry, Innovation, and Infrastructure and SDG 4: Quality Education.
Graduation Project I	Undergraduate	The course includes research on passive and active environmental solutions for the students' projects. this aligns with SDG 11: Sustainable Cities and Communities, SDG 7: Affordable and Clean Energy, SDG 13: Climate Action.
Graduation Project II (ARCG 520)	Undergraduate	The course includes applying passive and active environmental solutions to the students' projects. This aligns with SDG 11: Sustainable Cities and Communities, SDG 7: Affordable and Clean Energy, and SDG 13: Climate Action.
Environmental Systems III	Undergraduate	The course covers topics related to Illumination, Lighting Efficiency and Initial vs Operational costs for installations. the project also encourages the students to come up with an efficient lighting design by combining various concepts.

17.4.2 Education for SDGs: specific courses on sustainability

ARCG 412 and ARCG 423	Undergraduate	The course ARCG 412 (Working Drawing-I) develops the technical literacy students need to deliver safe, resource-efficient buildings through working drawings (plans, elevations, sections and details) and coordinated building services. The course covers water supply and drainage layouts (supporting SDG 6), selection of materials, finishes, and building envelope systems (responsible sourcing and durability under SDG 12 and innovation under SDG 9), and integrated documentation that links design to construction for more sustainable urban outcomes (SDG 11). A construction site-visit report reinforces real-world practice and reflective learning (SDG 4). Building on ARCG 423 (Working Drawing-II), this course expands integrative coordination of MEP systems (Electrical layout, lighting, HVAC, firefighting/alarm) and coordinated reflected ceiling plans, which support energy efficiency and safety (SDG 7, SDG 3). Students produce advanced details for facades/cladding, vertical circulation (stairs/elevators), openings, and green/roof-garden assemblies (drainage, waterproofing, expansion joints), promoting durable, low-impact assemblies (SDG 12), infrastructure innovation (SDG 9), and liveable community buildings (SDG 11). The technical model + final submission consolidates professional competencies (SDG 4).
ARCG310	Undergraduate	The course focuses on environmental solutions that are linked to environment-related Sustainable Development Goals (SDGs).
ARCG 520	Undergraduate	The Graduation Design course is a comprehensive project encompassing architectural, sustainable, structural, social, and cultural aspects, all of which are closely aligned with the Sustainable Development Goals (SDGs).
INTA 223	Undergraduate	INTA 223 has one project that aligns with SDG 9 (Industry, Innovation, and Infrastructure) by integrating technology and creativity into the design process. Using digital fabrication tools such as CNC machines and laser cutters, students learn to transform digital designs into precise physical models, promoting innovation and technological advancement.

17.4.2 Education for SDGs: specific courses on sustainability

Traffic Engineering	Undergraduate	The Traffic Engineering course supports several United Nations Sustainable Development Goals (SDGs) by promoting safer, more efficient, and sustainable transportation systems. It directly contributes to SDG 3 (Good Health and Well-being) through the study of driver and vehicle characteristics and traffic control measures that enhance road safety. By optimizing traffic flow, reducing congestion, and improving travel time and delay, it supports SDG 11 (Sustainable Cities and Communities) through better urban mobility and reduced environmental impact. Additionally, the course's emphasis on capacity analysis and efficient roadway design aligns with SDG 9 (Industry, Innovation, and Infrastructure) by fostering resilient and sustainable transport infrastructure.
Highway Engineering	Undergraduate	The Highway Engineering course aligns with several United Nations Sustainable Development Goals (SDGs) by emphasizing the development of safe, efficient, and sustainable transport infrastructure. It contributes to SDG 9 (Industry, Innovation, and Infrastructure) through the study of highway planning, design, and construction practices that promote resilient and quality infrastructure. By addressing topics such as geometric design, drainage, and pavement materials, the course supports SDG 11 (Sustainable Cities and Communities) through the creation of accessible and reliable road networks that enhance urban and rural connectivity. Furthermore, by incorporating economic and environmental considerations in highway planning and design, the course advances SDG 13 (Climate Action) by encouraging sustainable construction practices and minimizing the environmental impact of transportation systems.

17.4.2 Education for SDGs: specific courses on sustainability

Advanced Traffic Engineering	Postgraduate	The Advanced Traffic Engineering course aligns with several United Nations Sustainable Development Goals (SDGs) by focusing on innovative, data-driven, and sustainable approaches to traffic management and system optimization. It contributes to SDG 9 (Industry, Innovation, and Infrastructure) through the application of advanced traffic flow theories, modelling techniques, and intelligent transportation systems that enhance the efficiency and resilience of transport networks. By emphasizing safety analysis, congestion management, and signal optimization, the course supports SDG 11 (Sustainable Cities and Communities) through the development of smart, safe, and accessible urban mobility solutions. Furthermore, by promoting sustainable traffic operations and reducing vehicular emissions through efficient system design, the course advances SDG 13 (Climate Action) by contributing to the reduction of the environmental footprint of transportation systems.
Transportation Planning and Modelling	Postgraduate	The Transportation Planning and Modelling course aligns with several United Nations Sustainable Development Goals (SDGs) by emphasizing data-driven, equitable, and sustainable approaches to transportation system design and evaluation. It contributes to SDG 9 (Industry, Innovation, and Infrastructure) through the application of analytical and modelling techniques that support the development of efficient and resilient transport systems. By addressing urban transportation planning, travel demand forecasting, and network assignment, the course supports SDG 11 (Sustainable Cities and Communities) through the promotion of integrated, accessible, and environmentally responsible mobility solutions. Moreover, by incorporating evaluation methods that balance social, economic, and environmental factors, the course advances SDG 13 (Climate Action) by fostering sustainable transportation planning practices that mitigate congestion and reduce emissions.

Traffic Flow and Capacity Analysis	Undergraduate	The Advanced Traffic Engineering course aligns with several United Nations Sustainable Development Goals (SDGs) by focusing on innovative, data-driven, and sustainable approaches to traffic management and system optimization. It contributes to SDG 9 (Industry, Innovation, and Infrastructure) through the application of advanced traffic flow theories, modelling techniques, and intelligent transportation systems that enhance the efficiency and resilience of transport networks. By emphasizing safety analysis, congestion management, and signal optimization, the course supports SDG 11 (Sustainable Cities and Communities) through the development of smart, safe, and accessible urban mobility solutions. Furthermore, by promoting sustainable traffic operations and reducing vehicular emissions through efficient system design, the course advances SDG 13 (Climate Action) by contributing to the reduction of the environmental footprint of transportation systems.
Road Safety Analysis	Postgraduate	Safety design and operational practices for streets and highways, including safety improvement programs, design of barrier systems, bicycle and pedestrian consideration, access control, safety evaluation, and measures of effectiveness.
Road Safety Analysis	Postgraduate	The Road Safety Analysis course aligns with several United Nations Sustainable Development Goals (SDGs) by focusing on the development of safe, inclusive, and sustainable transportation systems. It contributes to SDG 3 (Good Health and Well-being) through the study of safety design principles, operational practices, and evaluation methods that reduce traffic crashes and enhance the protection of all road users. By incorporating pedestrian and bicycle safety considerations, the course supports SDG 11 (Sustainable Cities and Communities) through the promotion of inclusive and equitable mobility within urban environments. Additionally, by emphasizing evidence-based safety improvement programs and effective design strategies, the course advances SDG 9 (Industry, Innovation, and Infrastructure) by fostering the creation of resilient, efficient, and safer transport infrastructure.

Public Mass Transportation Systems	Postgraduate	The Public Mass Transportation Systems course aligns with several United Nations Sustainable Development Goals (SDGs) by promoting sustainable, efficient, and inclusive urban mobility. It contributes to SDG 11 (Sustainable Cities and Communities) through the study of public transit systems that enhance accessibility, reduce congestion, and support equitable transportation for all populations. By addressing topics such as planning strategies, management, and financing of transit systems, the course supports SDG 9 (Industry, Innovation, and Infrastructure) through the development of modern, resilient, and efficient mass transport infrastructure. Furthermore, by emphasizing environmentally friendly modes such as rail and bus transit, the course advances SDG 13 (Climate Action) by encouraging a modal shift from private vehicles to sustainable public transportation, thereby reducing emissions and improving urban air quality.
Road Traffic Management	Postgraduate	The Road Traffic Management course aligns with several United Nations Sustainable Development Goals (SDGs) by promoting efficient, safe, and sustainable management of transportation systems. It contributes to SDG 11 (Sustainable Cities and Communities) through the study of integrated urban traffic management, bus priority systems, and non-motorised transport facilities that enhance urban mobility and accessibility. By incorporating Intelligent Transport Systems (ITS), speed management, and road pricing strategies, the course supports SDG 9 (Industry, Innovation, and Infrastructure) through the application of advanced technologies and innovative policies that improve traffic efficiency and infrastructure performance. Furthermore, by encouraging sustainable travel modes and reducing congestion and emissions, the course advances SDG 13 (Climate Action) by fostering environmentally responsible traffic management practices that contribute to cleaner and more liveable cities.

17.4.2 Education for SDGs: specific courses on sustainability

M.Sc. in Sustainable Energy Transition Systems	Postgraduate	The M.Sc. in Sustainable Energy Transition Systems aligns with several United Nations Sustainable Development Goals (SDGs). SDG 13: Climate Action: The focus on reducing carbon emissions and promoting energy transition directly tackles climate change issues. Courses on carbon capture and utilization foster strategies to mitigate climate impacts. . SDG 7: Affordable and Clean Energy: The program focuses on energy transition from fossil fuels to sustainable energy sources, promoting clean and affordable energy access. Courses on energy generation and storage are directly linked to developing technologies that ensure energy security and sustainability. SDG 9: Industry, Innovation, and Infrastructure: By addressing the technological challenges of energy systems and emphasizing innovation (e.g., energy digitization and carbon capture), the program encourages resilient infrastructure and fosters innovation in the energy sector. SDG 11: Sustainable Cities and Communities: The program's emphasis on energy policy and management contributes to the development of sustainable urban environments that prioritize clean energy solutions, thus enhancing community resilience and sustainability. SDG 4: Quality Education: The interdisciplinary nature of the program provides high-quality education that equips students with critical thinking and problem-solving skills necessary for addressing complex energy issues.
CHENG 463: Fundamentals of Water Desalination	Undergraduate	SDG 6: Clean Water and Sanitation: The course focuses on desalination processes that provide safe drinking water, addressing the critical need for clean water in regions with limited freshwater resources. Topics on water quality, including the characteristics of seawater and groundwater, ensure that students understand the importance of providing safe and potable water for both drinking and industrial use. The economics of desalinated water and the discussion on water treatment processes contribute to sustainable management practices for water resources, essential for long-term water security.

17.4.2 Education for SDGs: specific courses on sustainability

REE602: Photovoltaic Systems	Undergraduate	History of PV technology; Types of PV Systems, Principles of operation of photovoltaic systems; PV systems performance characteristics as a function of environmental conditions; Site assessment for PV systems installation, selection of an appropriate system design; Installation of basic subsystems; Inspection and maintenance of PV Systems; Safety considerations during installation and exploitation of PV systems. PV systems: standard PV systems, PV concentrator.
REE603: Wind Energy Systems	Postgraduate	The following topics will be covered in the course: Statistical methods of wind analysis, Wind Resources Assessment and Site Selection, Wind Machine Technologies and wind turbines performance analysis. The course deals with the basic characteristics of wind energy, site characterisation, fundamental principles of wind energy utilisation, and discusses the design of basic parts, including aerodynamics, mechanical and electrical design aspects. Special emphasis will be given to the theory of the design of turbine blades. Offshore and onshore wind plants. integration into the power systems will also be addressed in this course. Furthermore, the environmental impacts of wind power utilization will be discussed.
EENG490: Senior Project	Undergraduate	This paper studied a wind energy system and proposed two techniques in the control of the output voltage of a wind turbine generator. Note that the output voltage from the wind turbine generator is often not constant due to the intermittency of the wind speed. The voltage controller has been designed using MATLAB/SIMULINK toolboxes' flexibility. The performance of the proposed voltage controller has been tested via computer simulations as well as via an experiment performed on a typical laboratory vertical-axis wind turbine (VAWT). The present paper also studied the distance optimization between VAWTs when the latter are installed as arrays in highways.
EENG446-Solar and Wind Renewable System	Undergraduate	EENG 446 equips students with the knowledge and skills to design and analyse solar and wind energy systems, promoting the use of clean, reliable, and sustainable energy solutions that support global access to affordable and renewable energy.
EENG444: Electric Drives I	Undergraduate	Use the regeneration of Energy during the braking of electric motors.

17.4.2 Education for SDGs: specific courses on sustainability

REE601- Renewable Energy Systems	Postgraduate	REE601 fosters advanced understanding of renewable energy technologies, including solar, wind, biomass, and hybrid systems, to promote sustainable and efficient energy solutions. The course aligns with SDG 7 by preparing students to develop and implement innovative clean energy systems that enhance energy access, efficiency, and sustainability at local and global levels.
REE601: RENEWABLE ENERGY SYSTEMS FUNDAMENTALS,	Postgraduate	Gaining an understanding of the principles of renewable energy technologies is key to understanding the technological basis of the systems and their applications. This is particularly important with regard to the overall energy mix of a specific country. This module provides you with the fundamentals of renewable energy technologies and their impact on global and national energy systems. The purpose of this module is to introduce the basis for assessment of the performances of wind, wave and tidal, hydroelectricity, biomass and waste technologies, and geothermal technologies. Basic introduction to the relevant market and financial management, policies, regulations and incentives will be experienced.
REE602-Photovoltaic Energy Systems	Postgraduate	REE602 focuses on the design, operation, and performance analysis of photovoltaic (PV) systems, promoting the adoption of clean and sustainable electricity generation. The course aligns with SDG 7 by enabling students to develop efficient and affordable solar energy solutions that support the global transition toward renewable energy and reduced dependence on fossil fuels
REE603- Wind Energy Systems	Postgraduate	REE603 enhances students' understanding of wind energy conversion technologies and system integration for sustainable electricity generation. The course aligns with SDG 7 by promoting the development and implementation of efficient, clean, and affordable wind energy solutions that contribute to global renewable energy goals and reduce carbon emissions.
REE604- Solar thermal Energy	Postgraduate	REE604 supports SDG 7 (Affordable and Clean Energy) by promoting the design and application of solar thermal technologies for clean and sustainable heat and power generation. It also contributes to SDG 13 (Climate Action) through the reduction of greenhouse gas emissions, SDG 9 (Industry, Innovation, and Infrastructure) by encouraging innovation in renewable energy systems, and SDG 12 (Responsible Consumption and Production) by fostering efficient and sustainable energy utilization practices.

17.4.2 Education for SDGs: specific courses on sustainability

CHENG423: Plant Design Project course	Undergraduate	SDG 3: Good Health and Well-being: Emphasis on safety and health considerations in process design., SDG 4: Quality Education: Promotes experiential learning through field visits, group projects, and presentations., SDG 9: Industry, Innovation and Infrastructure: Focus on industrial process design, innovation, and infrastructure development., SDG 12: Responsible Consumption and Production: Includes sustainability assessments, material and energy balances, and economic evaluations., SDG 13: Climate Action: Environmental impact assessments and sustainability considerations support climate-conscious engineering
REE605-Special Topics in Renewable Energy Engineering	Postgraduate	These courses collectively support SDG 7 (Affordable and Clean Energy) by promoting knowledge and practical skills in renewable energy generation, storage, and system installation. Energy Storage Systems and Energy Conservation Techniques contribute to SDG 12 (Responsible Consumption and Production) through efficient energy management and reduced energy waste. Energy Economics, Policies, and Regulations align with SDG 13 (Climate Action) and SDG 8 (Decent Work and Economic Growth) by addressing sustainable energy policies, economic frameworks, and climate-resilient strategies. Installation of Renewable Energy Systems supports SDG 9 (Industry, Innovation, and Infrastructure) by developing technical expertise for clean energy deployment. Courses such as Geothermal Energy, Wave Energy, and Other Forms of Renewable Energy Systems further contribute to SDG 13 (Climate Action) by diversifying renewable energy resources and fostering innovation toward a sustainable, low-carbon future.
EEM699-Master Thesis	Postgraduate	EEM699 – master's Thesis allows students to conduct in-depth research or development projects in renewable energy and related fields, directly supporting SDG 7 (Affordable and Clean Energy) by fostering innovative solutions for sustainable energy. The course also promotes SDG 9 (Industry, Innovation, and Infrastructure) through research-driven technological advancement and SDG 13 (Climate Action) by encouraging projects that address climate mitigation, energy efficiency, and low-carbon solutions.

17.4.2 Education for SDGs: specific courses on sustainability

MSc Thesis	Postgraduate	The MSc Thesis course aligns strongly with several United Nations Sustainable Development Goals (SDGs) by emphasizing independent research, innovation, and the pursuit of solutions to global civil engineering challenges. As a capstone of the MSc program, the thesis allows students to apply advanced knowledge and analytical skills to address complex problems related to infrastructure, sustainability, safety, and environmental stewardship. This directly supports SDG 9 (Industry, Innovation, and Infrastructure) through the development of resilient and sustainable engineering solutions. By encouraging research that promotes sustainable urban development, efficient resource use, and climate resilience, the course also advances SDG 11 (Sustainable Cities and Communities) and SDG 13 (Climate Action). Moreover, in line with the program's intended learning outcome (PILO) of solving global issues through research, the MSc Thesis fosters innovation, ethical responsibility, and global awareness—qualities essential for achieving the broader vision of the SDGs and contributing to a more sustainable and equitable world.
ARCG210	Undergraduate	The course emphasizes designing sustainable homes with conscious passive designs to respond perfectly to the local environment.
Architectural Design 2	Undergraduate	The course emphasizes in designing sustainable, energy-efficient community buildings which are designed in a way to encourage collaboration and engagement between the community members.
Environmental System I	Undergraduate	The course teaches the students how to design energy-efficient buildings using insulation, shading, and passive strategies as a response to the climate in order to save energy. It also promotes designing sustainable buildings that reduce resource consumption while meeting occupants' comfort requirements at the same time.
Building service systems	Undergraduate	The course promotes designing buildings' efficient water supply, drainage, and electrical systems, which save water use, enhance safe drainage, and reliable electrical systems, directly promoting in provision of clean Water and clean energy. It also contributes to creating resilient structures and safer living environments.

17.4.2 Education for SDGs: specific courses on sustainability

Architectural construction I	Undergraduate	The course promotes the use of sustainable building materials and construction methods to achieve responsible consumption and production. It also enhances safety in buildings, as a response to achieve sustainable cities and communities.
Architectural Graphics I	Undergraduate	The course supports the sustainable goals by developing precision and communication skills essential for designing sustainable and efficient buildings. It also preserves foundational skills in technical drawing, supporting lifelong learning and quality education.
Design communication I	Undergraduate	The course supports the sustainable goals by developing precision and communication skills essential for designing sustainable and efficient buildings. It also preserves foundational skills in technical drawing, supporting lifelong learning and quality education.
Architectural Graphics II	Undergraduate	The course teaches freehand sketching and manual drawings that foster creativity and visual communication skills, supporting quality education through hands-on, artistic learning. Helping students to visualise and communicate sustainable design concepts, it indirectly supports sustainable cities and encourages more thoughtful, human-centred architecture.
Design Communication II	Undergraduate	The course teaches freehand sketching and manual drawings that foster creativity and visual communication skills, supporting quality education through hands-on, artistic learning. Helping students to visualise and communicate sustainable design concepts, it indirectly supports sustainable cities and encourages more thoughtful, human-centred architecture.
INTD 411: Graduation Project Design Stage and INTD 420: Graduation Project Design Stage	Undergraduate	Both the Programming and Design Stage courses support the SDGs by encouraging students to apply sustainable design principles in their projects. Through researching sustainable materials and energy-efficient tools, students contribute to SDG 4 (Quality Education), SDG 7 (Clean Energy), SDG 11 (Sustainable Cities), SDG 12 (Responsible Consumption), and SDG 13 (Climate Action), fostering environmentally and socially responsible design practices.

17.4.2 Education for SDGs: specific courses on sustainability

INTA 212 - Building Construction I	Undergraduate	This course aligns with the UN Sustainable Development Goals (SDGs) by encouraging students to explore sustainable and eco-friendly materials, climate-responsive and energy-efficient techniques, and local construction practices. Through this learning, students contribute to SDG 4 (Quality Education), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action)—promoting environmentally responsible and contextually appropriate building study.

17.4.2 Education for SDGs: specific courses on sustainability

Course Title	Level	Rationale for Linking to SDGs
Health Education and Promotion (NUR126)	Undergraduate	This course emphasizes health education, empowering individuals to make informed health decisions, directly supporting SDG 3 (Good Health and Well-Being) through enhanced community awareness.
Community Health Nursing and Clinical (NUR416 & NUR417)	Undergraduate	Focused on population health assessments and community interventions, these courses reduce health disparities, aligning with SDG 10 by ensuring equitable access to healthcare services.
Adult Health Nursing I and Clinical (NUR225 & NUR226)	Undergraduate	These courses focus on adult health assessment and management, equipping students with essential skills for quality healthcare, thus contributing significantly to SDG 3 by improving health outcomes for adults.
Obstetrics and Gynecological Nursing and Clinical (NUR320 & NUR321)	Undergraduate	These courses prepare students to address reproductive health and maternal care, supporting SDG 3 and SDG 5 (Gender Equality) by promoting safe childbirth practices and women's health empowerment.
Gerontological Nursing (NUR220)	Undergraduate	This course addresses the healthcare needs of older adults, aligning with SDG 3 and SDG 10 (Reduced Inequalities) by ensuring equitable access to care for aging populations.
Nursing Research and Evidence-Based Practice (NUR312)	Undergraduate	This course promotes evidence-based solutions to improve patient care, directly supporting SDG 3 by facilitating the integration of research into practice, enhancing healthcare quality.
Mental Health Nursing and Clinical (NUR313 & NUR314)	Undergraduate	Focused on the assessment and management of mental health issues, these courses promote holistic well-being, seamlessly linking to SDG 3 by enhancing mental health care and support.
Adult Health Nursing II and Clinical (NUR315 & NUR316)	Undergraduate	These advanced courses deepen understanding of complex health issues, ensuring comprehensive care strategies that support SDG 3 and improve health equity.

Pediatric Nursing and Clinical (NUR322 & NUR323)	Undergraduate	Concentrating on pediatric physical and mental health, these courses promote early interventions, directly advocating for SDG 3 by ensuring healthy development for children.
Health Policy and Nursing Leadership (NUR430)	Undergraduate	Emphasizing the link between health policies and practice, this course addresses healthcare access and quality, directly supporting SDG 3 by advocating for policies that benefit all populations.
Integrated Nursing Practicum I and II (NUR421 & NUR422)	Undergraduate	These practicums provide comprehensive hands-on experience across various nursing fields, supporting SDG 4 (Quality Education) and SDG 3 by fostering effective caregiving that meets diverse health needs.

Program Title	level	Rationale for Linking to SDGs
Master of Science in Adult Health Advanced Practice Nursing	Postgraduate	This program trains nurses to provide advanced care for complex adult health conditions, enhancing healthcare delivery. By focusing on preventative care and chronic disease management, it supports **SDG 3** (Good Health and Well-Being) by promoting better health outcomes and reducing the burden of illnesses in adult populations.
Postgraduate Diploma in Midwifery	Postgraduate	Emphasizing safe and respectful maternal and newborn care, this program empowers midwives to improve reproductive health. It aligns directly with **SDG 3** by ensuring safe childbirth practices and maternal health, as well as **SDG 5** (Gender Equality) by advocating for women's rights during pregnancy and childbirth, ultimately contributing to healthier families and communities.
Postgraduate Diploma in Critical Care Nursing	Postgraduate	This diploma equips nurses with specialized skills for managing critically ill patients, emphasizing rapid assessment and intervention. By enhancing the quality of critical care services, it supports **SDG 3** by improving survival rates in emergencies and providing life-saving interventions, which are essential in promoting health and well-being.

Postgraduate Diploma in Emergency Nursing	Postgraduate	Focused on preparing nurses for high-pressure situations, this program enhances the ability to provide immediate and effective care in emergencies. Aligning with **SDG 3**, it ensures timely healthcare responses in crisis situations, thus improving health outcomes for populations during emergencies and disasters.
Postgraduate Diploma in Cardiovascular Care Nursing	Postgraduate	Aimed at preventing and managing cardiovascular disease, this program educates nurses on heart health and lifestyle interventions. By addressing one of the leading causes of death globally, it directly supports **SDG 3** by promoting cardiovascular health and enhancing the quality of life for affected individuals, reducing healthcare costs and improving community health.
Postgraduate Diploma in Nephrology Nursing	Postgraduate	This program specializes in caring for patients with kidney diseases, emphasizing disease management, patient education, and lifestyle modifications. It aligns with **SDG 3** by focusing on improving the quality of life for individuals with chronic kidney conditions and championing healthcare systems that effectively manage chronic illnesses, leading to better health outcomes.

Program Title	Level	Rationale
Master in Environment and Sustainable Development	Postgraduate	The Master in Environment and Sustainable Development aligns with several United Nations Sustainable Development Goals (SDGs). SDG 11: Sustainable Cities and Communities: The program focuses on urban planning, environmental governance, and sustainable resource management, enabling students to design and support resilient and inclusive communities. SDG 13: Climate Action: Courses addressing climate adaptation, mitigation strategies, and environmental impact assessments equip learners to analyze climate-related risks and develop actionable solutions for national and global challenges. SDG 6: Clean Water and Sanitation: By examining water quality, wastewater treatment, and sustainable water resource management, the program supports efforts to ensure safe and sustainable water access. SDG 15: Life on Land: The program's emphasis on biodiversity protection, land management, and ecological restoration contributes to conserving terrestrial ecosystems. SDG 4: Quality Education: Through interdisciplinary training and research-based learning, the program enhances students' analytical, technical, and leadership skills to address complex sustainability issues.

17.4.2 Education for SDGs: specific courses on sustainability

Master of Science in Environmental Chemistry	Postgraduate	The Master of Science in Environmental Chemistry aligns with several United Nations Sustainable Development Goals (SDGs). SDG 6: Clean Water and Sanitation: The program emphasizes chemical analysis of water pollutants, treatment processes, and monitoring techniques that support safe and sustainable water systems. SDG 3: Good Health and Well-Being: By examining the impact of chemical contaminants on human health, the curriculum equips students to assess environmental risks and develop measures to reduce exposure. SDG 12: Responsible Consumption and Production: Courses addressing industrial pollution, hazardous waste management, and sustainable chemical practices foster environmentally responsible production systems. SDG 13: Climate Action: The study of atmospheric pollutants and their contribution to climate change enables students to propose scientific solutions for emission reduction and environmental protection. SDG 4: Quality Education: The program provides advanced laboratory skills, research methodologies, and scientific knowledge necessary to prepare specialists capable of contributing to national environmental priorities.

17.4.2 Education for SDGs: specific courses on sustainability

Doctor of Philosophy in Environment and Sustainable Development	Postgraduate	The Doctor of Philosophy in Environment and Sustainable Development aligns with several United Nations Sustainable Development Goals (SDGs). SDG 13: Climate Action: The program engages doctoral candidates in advanced research on climate mitigation, adaptation frameworks, and environmental policymaking, contributing to long-term climate resilience. SDG 11: Sustainable Cities and Communities: Research areas such as environmental planning, urban sustainability, and risk reduction strategies support the creation of safe, inclusive, and sustainable urban systems. SDG 7: Affordable and Clean Energy: The program explores sustainable energy transitions and policy frameworks that enable cleaner and more efficient energy systems. SDG 15: Life on Land: Investigations into ecosystem protection, biodiversity conservation, and land restoration reinforce national and global commitments to preserving natural habitats. SDG 4: Quality Education: Through original research, scholarly publications, and capacity-building, the program strengthens academic excellence and contributes to expanding national expertise in sustainability.

- Master in Environment and Sustainable Development

https://science.uob.edu.bh/graduate/master-in-environment-and-sustainable-development/

- Master of Science in Environmental Chemistry

https://science.uob.edu.bh/graduate/m-sc-in-environmental-chemistry/

- Doctor of Philosophy in Environment and Sustainable Development

https://science.uob.edu.bh/graduate/doctorate-in-environment-and-sustainable-development/