York University SDG Course Inventory

SDG 6 – Clean Water and Sanitation

SDG 6 - Clean Water and Sanitation wants to open access to healthy drinking water and proper sanitation systems. Over 2.2 billion people still lack safe drinking water sources and 3.4 lack basic hygiene and sanitation systems. To remedy this, there must be a major investment in infrastructure development and training to ensure safe and clean drinking water.

York University's SDG Course Mapping highlights courses and programs in the Lassonde School of Engineering and the Faculty of Science as particularly relevant to SDG 6. York's course offerings for SDG 6 include a range of engineering and science courses examining hydrology, fluid dynamics, sanitary conditions, and biogeochemistry.

Click Here to learn more about York's initiatives towards accomplishing SDG 6

Click Here to learn more about the United Nations' SDG 6 targets and goals

SDG 6 Courses at YU	Primary SDG	Secondary SDG	Ancillary SDG	Total Courses
	16	2	0	18

Click Here to access York University's full course inventory

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York University 2022 SDG Course Mapping - SDG 6

COURSE TITLE	FACULTY	SUBJECT	CODE	CREDIT	DESCRIPTION	LANGUAGE	PRIMARY SDG	SECONDARY SDG	ANCILLIARY SDG
Soil Mechanics	Lassonde School of Engineering	CIVL	3110	3	The course presents essential topics in soil mechanics, including the origin and nature of soils, soil identification and classification, compaction, seepage theory, groundwater flow nets, stresses and strains in soils, effective stress concept, consolidation, shear strength of soils, and earth pressure theory. Emphasis is on learning of fundamental soil mechanics concepts using examples of their application to geotechnical engineering. Laboratory practicum component of the course provides hands-on experience of laboratory tests that are commonly used for determination of physicochemical and engineering properties of soils. Prerequisites: LE/CIVL 2160 3.00, LE/CIVL 2210 3.00 or LE/CIVL 2210 4.00, LE/CIVL 2220 3.00 or LE/CIVL 2220 4.00.	en	SDG 6 Clean Water and Sanitation		
Hydrogeology	Lassonde School of Engineering	CIVL	4013	3	This course introduces students to hydrogeology and contaminant hydrogeology through theory, and computer simulations. Topics include: hydrologic cycle, groundwater flow on a regional scale; aquifers, aquitards and aquicludes; contaminant transport via groundwater; pumping of confined and unconfined aquifers; groundwater flow modeling, environmental impacts and remediation technologies. Prerequisites: LE/CIVL 3110 3.00, LE/CIVL 2240 3.00	en	SDG 6 Clean Water and Sanitation		
Water Resources Engineering	Lassonde School of Engineering	CIVL	4022	3	This course focuses on the advance principles of engineering hydrology and hydraulics and applies them to various water resource engineering systems with a focus on sustainability and environmental integration. The course will review basic hydrology and hydraulics engineering principles and introduce sustainable water resource management and planning, including: Groundwater and surface water processes; Watershed runoff simulation in rural and urban settings; Numerical simulation of water resources systems; Urban hydrology, water distribution and stormwater management systems; Extreme event analysis, risk & uncertainty for hydrological and hydraulic design; Water-use and stresses in agriculture, industry, domestic, recreation and ecological needs; Water markets and economics of water resources management. Prerequisites: LE/CIVL 3120 4.00, LE/CIVL 3220 3.00	en	SDG 6 Clean Water and Sanitation		

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Environmental Fluid Mechanics	Lassonde School of Engineering	CIVL	4024	3	This course illustrates the principles, dominant processes, mathematical descriptions, and practical application of fluid mechanics pertaining to environmental engineering. In this course students gain knowledge of the processes that govern the flow in natural surface water systems including rivers, lakes, and reservoirs. The focus will be on understanding the nature of turbulent flows, shallow water hydraulics, and unsteady transient flow dynamics and how they shape and affect the mixing and transport of mass and pollutants in natural environmental systems. Using a state-of-art computational fluid dynamics tool, students examine the formation of these mechanisms, investigate their impacts on environmental transport, and apply these concepts to control flow and mass transport to mitigatehazards in surface water environments. The knowledge of mixing and transport is more important than ever, as scientists and engineers are detecting higher concentrations of known contaminants and discovering new and emerging ones in natural systems. This course aims to equip undergraduate students with key knowledge and skills, critical in interdisciplinary design projects in the areas of fluid mechanics, hydraulics, and environmental science. The knowledge and experiences gained in this course will expand the scope of 4th year Civil Engineering capstone projects. It will also build the foundation for other applied areas in water resources and hydraulics such ashydraulic numerical modelling, sedimentology, and river engineering. Prerequisites: LE/CIVL 3120 4.00, SC/MATH 2271 3.00.	en	**SDG 6 Clean Water and Sanitation**		
Advanced Sanitary and Environmental Engineering	Lassonde School of Engineering	CIVL	4043	3	This course introduces advanced topics in the discipline of sanitary/environmental engineering, including design of lime soda ash softening in drinking water treatment, design of biological wastewater treatment systems, and sludge and residual solids management in water and wastewater treatment. An introduction to tertiary wastewater treatment is also provided along with a discussion of solids and biosolids management and disposal issues. Prerequisites: LE/CIVL 3240 3.00	en	**SDG 6 Clean Water and Sanitation**		
Introduction to Environmental Engineering	Lassonde School of Engineering	CIVL	2240	3	Physical environment and how it is influenced by human activity; Mass and energy balance of environmental systems; environmental pollution and its causes; basic principles in chemistry and physics to explain the behaviour of pollutants in the environment (air, land and water); contaminant transport through air, water and solids; application of environmental engineering principles to water and wastewater treatment, water resources management, environmental impact assessment; environmental ethics; greenhouse effect; ozone depletion; acid precipitation; sustainable development and life cycle assessment; overview of environmental quality objectives, standards and guidelines. Prerequisites: LE/ESSE 1012 3.00, SC/CHEM 1100 4.00.	en	**SDG 6 Clean Water and Sanitation**		

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Hydrology	Lassonde School of Engineering	CIVL	3220	3	The course introduces basic hydrological processes such as precipitation and abstractions. It also covers engineering applications such as statistical hydrology, regional frequency analysis, water balance methods, the unit hydrograph and rainfall-runoff processes, flow routing techniques, and urban hydrology. Prerequisites: SC/MATH 2930 3.00, LE/CIVL 2210 4.00.	en	SDG 6 Clean Water and Sanitation		
Sanitary and Environmental Engineering	Lassonde School of Engineering	CIVL	3240	3	Topics in this introductory sanitary and environmental engineering course include: environmental regulations; general wastewater quality parameters; the design of municipal water distribution and wastewater collection systems; basic water chemistry and water quality assessment; physical and chemical treatment processes involved in water and wastewater treatment; brief overview of urban storm water collection systems and the integration of unit processes and operations into a treatment system. Prerequisites: LE/CIVL 2240 3.00, LE/CIVL 3120 3.00 or LE/CIVL 3120 4.00.	en	SDG 6 Clean Water and Sanitation		
Environmental Impact Assessment and Sustainability	Lassonde School of Engineering	CIVL	4042	3	The course introduces the process of environmental impact assessment (EIA) in the context of sustainable development in Canada. The role of the EIA process in engineering design and control of adverse environmental effects is illustrated using a number of case studies. Regulations such as Clean Water Act, Safe Drinking Water Act, Environmental Assessment Act, and Environmental Protection Act will be discussed. Prerequisites: LE/CIVL 2240 3.00, LE/CIVL 3210 3.00	en	SDG 6 Clean Water and Sanitation		
Environmental Geotechnics	Lassonde School of Engineering	CIVL	4044	3	This course provides essential geotechnical engineering concepts and their applications in the analysis and design of environmental system, with particular focus on waste containment facilities. Topics include: variably-saturated flow in soils; nature of contaminants and the contaminant transport processes; engineered barrier, drainage and cover systems; geosynthetic barriers; remediation of contaminated ground; geotechnical aspects of mine waste management and rehabilitation. Prerequisite: LE/CIVL 3210 3.00.	en	SDG 12 Responsible Consumption and Production	SDG 6 Clean Water and Sanitation	
Hydraulic Structures	Lassonde School of Engineering	CIVL	4021	3	This course covers the advanced principles and theory of fluid mechanics pertaining to hydraulic structures. Topics include: analysis, evaluation and design of various hydraulic structures including: channel regulation structures, flood control structures; flow measurement structures; dams and spillways; energy dissipation structures; conveyance and water supply structures; drainage and watershed structures; hydropower generation; coastal engineering. The applications of the state-of-the-art numerical models in the design of hydraulic structures are also covered. Prerequisite: LE/CIVL 3120 4.00	en	SDG 11 Sustainable Cities and Communities	SDG 6 Clean Water and Sanitation	

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Survey Law	Lassonde School of Engineering	ESSE	4670	3	Registering rights to land including land registration systems, the concept of indefeasibility and title insurance, modern registration using databases. Descriptions of land. Natural Boundaries, Water boundaries; Riparian and littoral rights; High and low water mark; Ad medium filum aquae: Erosion, accretion and avulsion; Excavation and fill adjacent to natural boundaries; Navigable waters and determination of navigability; Boundaries defined by artificial lines; Subdivisions; Condominiums (including boundaries, common property, administrative framework, structure, fees and governance); Strata plans; Air Space plans; Mineral interests, Mining, placer claims and claim staking; Petroleum and natural gas interests, Well site leases; Special surveys. Function of professional regulators; Purpose of codes of ethics and standards; Negligence; Disciplinary process; Common causes for disciplinary actions. Role of coordinates in retracement and as evidence; Surveys of parcelsunder a land registry system and under a land titles system. Offshore boundaries and maritime zones; Leases at sea. The offshore including maritime zones and international boundaries and the law of the sea. The Cadastre. Indigenous title and land claims. Prerequisites: LE/ESSE 4660 3.00	en	**SDG 6 Clean Water and Sanitation**		
Geomorphology I	Faculty of Environmental & Urban Change	GEOG	2600	3	This course concentrates on basic principles and fundamental concepts in geomorphology, including energy flows in geomorphic systems, hill slope forms and materials, weathering and landforms, and drainage basin geomorphology and hydrology (with a particular emphasis on Canadian examples).Prerequisite: AP/GEOG 1400 6.00 or SC/GEOG 1400 6.00 or LE/EATS 1010 3.00.PRIOR TO SUMMER 2013: Prerequisite: AP/GEOG 1400 6.00 or SC/GEOG 1400 6.00 or SC/EATS 1010 3.00.	en	**SDG 6 Clean Water and Sanitation**		
Rivers: Environment and Process	Faculty of Environmental & Urban Change	GEOG	4600	3	Provides fundamental knowledge of river mechanics and related environmental conditions. It provides an integration of physical, environmental and spatial aspects of river behaviour. The course involves the application of principles of hydrology, geomorphology, sedimentology and fluid mechanics.	en	**SDG 6 Clean Water and Sanitation**		
Biogeochemistry of Stream Ecosystems	Faculty of Graduate Studies	GEOG	5610	3	An examination of major aspects of mineral element transport and transformation in stream environments. Topics considered include interactions between hydrology and water chemistry, impacts of human activities on water quality, nitrogen and phosphorus cycling in rivers and the effects of pollution on stream organisms. Prerequisite: Consent of the instructor. Integrated with the undergraduate course Geography 4200.03.	en	**SDG 6 Clean Water and Sanitation**		

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Science, Technology and the Environment	Faculty of Science	NATS	1840	6	Environmental issues, how they arise, and an exploration of possible solutions to present and future problems. Topics include pollution, water quality, biodiversity, resource usage, population, global warming, and medical consequences of environmental changes. NCR: No credit will be retained for any student who has passed or is taking SC/NATS 1512 3.00, SC/NATS 1515 3.00, EN/ENVS 1500 6.00. Note: Not open to any student enrolled in an Environmental Studies program.	en	**SDG 6 Clean Water and Sanitation**		
Water Pollution	Faculty of Science	NATS	1516	3	Although water is a necessity for human life, there are many populations in the world who do not have access to a clean water source. Human activities, such as washing clothing, applying fertilizer to agricultural crops, and operating powerplants can all be important sources of pollution to Earth's aquatic systems. During this course, students explore the major contributors to water pollution globally (e.g. pesticide pollution, thermal pollution), explain their source and transport through the Earth's systems and examine their impact on aquatic ecosystems. Students also investigate the control of water pollution as well as the treatment of waste water prior to human consumption. New government policies and technologies that can be used to minimize the damaging effects of water pollution will be discussed. Prerequisites: NATS1512: Environmental Pollution Co-requisites: None NCR: No credit will be retained for any student who has passed or is taking SC/CHEM 1000 3.00 or SC/CHEM 1001 3.00. Not open to any students enrolled in a Chemistry program.	en	**SDG 6 Clean Water and Sanitation**		
Environmental Impact of Industrial Processes	Faculty of Science	SENE	3072	3	This subject provides an overview of environmental pollution concepts as they apply to the treatment of wastewater for discharge to a receiving water body, and the treatment of source water for drinking water purposes. The laboratory component of this course will provide experience in the standard testing methodologies used to quantify the types of contaminants present (physical, chemical and bacterial), with emphasis on water and wastewater characterization. Not open to students having completed Seneca College course EII533. Prerequisites: SC/CHEM 1001 3.00, SC/MATH 1014 3.00 and one of SC/PHYS 1410 6.00, SC/PHYS 1420 6.00 or SC/PHYS 1010 6.00 (or Seneca courses OCC433, MTH173 and one of PHY273 or PHY353).	en	**SDG 6 Clean Water and Sanitation**		