Module Coverage on ESI Curriculum

TLI 522 Perencanaan Sistem Persampahan

(Solid Waste System Planning) (Elective)

TLI 522 Perencanaan Sistem Persampahan (Solid Waste System Planning)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
Week 1	Introduction to source and classification of solid waste	Students are able to explain the source and classification of solid waste, the impact of solid waste on the environment	2 x 50 minutes	
Week 2	Analysis of generation, composition, and characteristic of solid waste	Students are able to analyze solid waste generation, composition, and characteristic	2 x 50 minutes	
Week 3	Introduction to the management system of municipal solid waste (MSW) and minimization of solid waste	Students are able to explain the management system of solid waste and minimization od solid waste	2 x 50 minutes	
Week 4	Analysis of MSW storage and collection system	Students are able to analyze the MSW storage and collection system	2 x 50 minutes	
Week 5	Analysis of MSW transfer and processing system	Students are able to analyze the MSW transfer and processing system	2 x 50 minutes	
Week 6	Scenario planning of MSW management	Students are able to explain scenarios planning in municipal solid waste management	2 x 50 minutes	
Week 7	Planning of MSW storage, collection, and processing system	Students are able to plan the MSW storage, collection, and processing system	2 x 50 minutes	
Week 8	Mid-term examination			
Week 9	Analysis of MSW transport system	Students are able to analyze MSW transport system disposal	2 x 50 minutes	
Week 10	Analysis of MSW disposal system	Students are able to analyze MSW disposal system	2 x 50 minutes	

Week 11	Introduction to non-technical aspects of MSW management	Students are able to explain the non-technical aspects of MSW management	2 x 50 minutes	
Week 12	Planning of MSW transport system	Students are able to plan the MSW transport system	2 x 50 minutes	
Week 13	Planning of MSW disposal system	Students are able to plan the MSW disposal system	2 x 50 minutes	
Week 14	Planning of MSW non-technical aspects of MSW management	Students are able to plan the non-technical aspects of MSW management	2 x 50 minutes	
Week 15	Planning of MSW non-technical aspects of MSW management	Students are able to plan the non-technical aspects of MSW management	2 x 50 minutes	
Week 16	Final examination			

TLI 528 Teknologi Sanitasi Lingkungan

Sanitation Technology (Required)

TLI 528 Sanitation Technology (Required)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
Week 1	Decentralized wastewater management systems	Students understand the decentralized wastewater management systems	2 x 50 minutes	Module 5-Introduction to decentralized wastewater management systems Decentralized Wastewater Management Systems (DWMS): concept, DWMS Development Model
Week 2	Urban Drainage and Sewerage	Students understand the basic approaches to urban drainage and sewerage	2 x 50 minutes	Module 5 Slum Drainage (Armitage): challenge, WASH to WASHed, Flow pathing, Hydrology, Hydraulics, Alternative sewerage
Week 3	Toilets and pre-treatment components	Students understand how toilet selection influences the onsite wastewater management technologies.	2 x 50 minutes	Module 5- A Collection of Contemporary Toilet Designs - the various sources and compositions of wastewater - determining the daily design flow for DWMS; - The concepts of wastewater strength and contaminant loading
Week 4	Urine treatment	Students understand how the separate collection of urine and alternative urine treatment technologies	2 x 50 minutes	Urine chemistry and treatment - the separate collection of urine - reduce the volume of the urine storage system - the urine chemistry and - select alternative urine treatment technologies
Week 5	Primary treatment components	Students understand to size and design proper septic tanks, ABRs, and others	2 x 50 minutes	Module 5 - Septic tanks, anaerobic baffled reactors (ABRs), biodigester systems, and anaerobic lagoons. - Design Strategy for Septic Tanks and ABRs
Week 6	The alternative higher level of onsite treatment technologies	Students understand when a higher level of treatment will be required to meet onsite requirements	2 x 50 minutes	Module 5 Secondary treatment - soils-based dispersal technologies, including leach

TLI 528 Sanitation Technology (Required)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
				trenches, similar alternatives, mounds and drip-effluent systems; - constructedwetlands; - sewage lagoons (waste stabilization ponds); - biofilter systems; and - aerobic treatment systems.
Week 7	The alternative higher level of onsite treatment technologies	Students understand the tertiary treatment and determining the level of wastewater treatment	2 x 50 minutes	Module 5: Tertiary treatment: - Tertiary Filtration - Disinfection Determining the level of wastewater treatment
Week 8	Mid-term examination			
Week 9	Evaluating the site	Students understand to evaluate sites where onsite systems are proposed	2 x 50 minutes	Module 5: determine limiting conditions including i) land area, ii) slope, iii) soils permeability, depth to groundwater or bedrock, and other factors
Week 10	FS Collection and Transportation	Students understand the feces collection and transport value chain and make technology selection based on the type of containment tank, access to the site, and distance from the treatment plant.	2 x 50 minutes	Module 5: Emptying and Transport of Fecal Sludge (Robbins) - the proper procedures for hygienically desludging tanks and pits - the different types of transfer stations - Feces Collection and Transport in Indonesia (SLJJ)
Week 11	Technology Selection for Wastewater Management Technologies	Students understand to determine Technology Selection Strategies for Wastewater Management Technologies	2 x 50 minutes	Module 5: - Interpreting the data collected from the source and site, - Flow to Land Availability Ratio Concept, - Technology selection strategies
Week 12	Anaerobic wastewater treatment	Students understand the principles of anaerobic wastewater treatment (AWWT)	2 x 50 minutes	Module 5 (Van Lier) - Energy calculations linked to anaerobic treatment - Making a COD balance

TLI 528 Sanitation Technology (Required)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
				- Anaerobic high-rate reactors - UASB reactors design - Novel reactor systems - Anaerobic sewage treatment
Week 13	Alternatives fecal sludge treatment and co-treatment	Students understand to determine Alternatives fecal sludge treatment, co-treatment and effluent treatment of faecal sludge	2 x 50 minutes	Module 5 (Strande) - Anaerobic digestion with faecal sludge as feedstock - Co-treatment and effluent treatment of faecal sludge
Week 14	Case Study on selection of appropriate sanitation technology for various sanitation conditions	Students able to critically discuss input and output of common sanitation decision support tools and to successfully carry out a decision support analysis	2 x 50 minutes	
Week 15	Continue the case study	Students able to create a complete and sustainable sanitation chain for a variety of situations and make informed choices	2 x 50 minutes	
Week 16	Final examination			

TLI 557 Teknik Analisis Pencemar Lingkungan
(Technique Analysis of Environmental Pollutants)

(Required)

TLI 557 Teknik Analisis Pencemar Lingkungan (Technique Analysis of Environmental Pollutants)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
Week 1	The concept of analytical chemistry	Students be able to explain the concept of analytical chemistry	3 x 50 minutes	Module 4 – Analysis of Sanitation Flow
Week 2	The concept of environmental monitoring	Students be able to explain the concept of environmental monitoring	3 x 50 minutes	Module 4 – Analysis of Sanitation Flow
Week 3	The sampling of water	Students be able to demonstrate the ability to conduct the sampling of environmental pollutants (water)	3 x 50 minutes	Module 4 – Analysis of Sanitation Flow
Week 4	The sampling of air and soil	Students be able to demonstrate the ability to conduct the analysis of environmental pollutants (water)	3 x 50 minutes	Module 4 – Analysis of Sanitation Flow
Week 5	The analysis of water quality parameters	Students be able to demonstrate the ability to conduct the analysis of environmental pollutants (water)	3 x 50 minutes	Module 4 – Analysis of Sanitation Flow
Week 6	The analysis of air quality parameters	Students be able to demonstrate the ability to conduct the analysis of environmental pollutants (air)	3 x 50 minutes	Module 4 – Analysis of Sanitation Flow
Week 7	The analysis of parameters of soil	Students be able to demonstrate the ability to conduct the analysis of environmental pollutants (soil)	3 x 50 minutes	Module 4 – Analysis of Sanitation Flow
Week 8	Mid-term examination			
Week 9 Week 10 Week 11	• Waste classification including the waste hierarchy • Typical sanitation streams and their characteristics • Why the characteristics vary	Students be able to compare the characteristics of different sanitation streams and assess their potential pollution and health impacts	3 x (3 x 50) minutes	Module 4 – Analysis of Sanitation Flow

TLI 557 Teknik Analisis Pencemar Lingkungan (Technique Analysis of Environmental Pollutants)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
	from stream to stream • Potential pollutions issues association with sanitation streams • Potential public health issues associated with sanitation streams • Review sanitations streams as a raw material			
Week 12	Review current legislation in relation to sanitation streams via reviewing Shit Flow Diagrams	Students be able to evaluate the legislation in relation to these sanitation streams	3 x 50 minutes	Module 4 – Analysis of Sanitation Flow Sanitation Law
Week 13 Week 14 Week 15	• Laboratory induction • Test to be undertaken parameters including chemical, physical and biological parameters	Students be able to evaluate the results gained from laboratory test of to identify samples taken from various sanitation streams	3 x (3 x 50) minutes	Module 4 – Analysis of Sanitation Flow
Week 16	Final examination			

TLI 559 Perencanaan Infrastruktur Pemukiman (Settlement Infrastructure Planning) (Required)

TLI 559 Perencanaan Infrastruktur Pemukiman (Settlement Infrastructure Planning)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
Week 1	Introduction to sanitation	Students able to explain about the importance of sanitation for development of settlement and municipality	2 x 50 minutes	Module 1 – Introduction to Sanitation
Week 2	Water supply system and services	Students are able to to explain the basic theory of water supply system and services	2 x 50 minutes	Module 2 – Sanitation System and Services
Week 3	Water supply system planning: transmission and distribution	Students are able to explain the framework of water supply system planning on transmission dan distribution system	2 x 50 minutes	Module 2 – Sanitation System and Services
Week 4		Students are able to explain the use of computer model application on waster distribution system	2 x 50 minutes	Module 2 – Sanitation System and Services
Week 5		Students are able to explain the water supply system planning for the region of municipality and case studies	2 x 50 minutes	Module 2 – Sanitation System and Services
Week 6	Wastewater management problems in developing countries	Students are able to explain the wastewater management problems in developing countries	2 x 50 minutes	Technical Guidance for Centralized Domestic (SPAL) Operation and Maintenance, March 5, 2018
Week 7	Slum drainage: greywater in developing countries	Students are able to explain the slum drainage: greywater in developing countries and understand success and failure factors in a developing country from the case study	2 x 50 minutes	Module 5 – Sanitation Technology
Week 8	Mid-term examination			
Week 9	Concept of the sewerage system	Students are able to explain the concept of the sewerage system	2 x 50 minutes	Sustainable Sanitation, Water Management material

TLI 559 Perencanaan Infrastruktur Pemukiman (Settlement Infrastructure Planning)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
Week 10	Alternative sewerage	Students are able to explain the alternative sewerage in dense informal settlements: advantage and disadvantage	2 x 50 minutes	Module 5 – Sanitation Technology: Slum drainage
Week 11	Current issues in sewerage systems	Students are able to explain the current problems in sewerage systems through discuss the journal articles	2 x 50 minutes	Module 5 – Sanitation Technology: Mumbay Case Study
Week 12	Case Study on tracing the problem to origins for various sanitation conditions	Students are able to trace the problem to origins and successfully analyze the root cause of common sewer problems	2 x 50 minutes	Case Study
Week 13	Solid waste management system	Students are able to explain the basic theory on the solid waste management system	2 x 50 minutes	Module 2 – Sanitation System and Services
Week 14	Solid waste management system planning	Students are able to apply the solid waste management system planning for a settlement of the municipality	2 x 50 minutes	Module 2 – Sanitation System and Services
Week 15		Students are able to explain the non technical aspects of solid waste management system and study cases	2 x 50 minutes	Module 2 – Sanitation System and Services
Week 16	Final examination			

TLI 561 Sanitasi dan Kesehatan Lingkungan
(Sanitation and Environmental Health)

TLI 561 Sanitasi dan Kesehatan Lingkungan (Sanitation and Environmental Health)						
Week	**Indicator of Learning Achievements of Subjects**	**Topics**	**Method of Learning**	**Course Time**	**Assignment and evaluation**	**Reference**
1	Students are table to explain about public health via the work of John Snow and the relationship between public health and sanitation.	Introduction of Public Health and Sanitation	Lecture and discussion	3x50 minutes	work individual and / in groups	Snow J. On the mode of communication of cholera. London: John Churchill, 1855.
2	Students are able to descibe the concept of hazards and risk, what types of risks exist and how they are classified, what is a public health risk.	Human Health Hazards and Waste	Lecture and discussion	3x50 minutes	work individual and / in groups	Waldbott, G.L. Health effects of environmental pollutions
3	Students are able to explain about classification of waste and how wastes are defined	Human Health Hazards and Waste	Lecture and discussion	3x50 minutes	work individual and / in groups	Waldbott, G.L. Health effects of environmental pollutions
4	Students are able to explain about pathogen and the different type of organisms that cause diseases	Human Health Hazards and Waste	Lecture and discussion	3x50 minutes	work individual and / in groups	Waldbott, G.L. Health effects of environmental pollutions
5	Students are able to explain about classification of environmental transmitted diseases in relation to sanitation	Transmission Routes Disease Cycles – Lifecycles & Vectors	Lecture and discussion	3x50 minutes	work individual and / in groups	Waldbott, G.L. Health effects of environmental pollutions
6	Students are able to explain about specific examples of the lifecycles of pathogens and how this affects control mechanisms	Transmission Routes Disease Cycles – Lifecycles & Vectors	Lecture and discussion	3x50 minutes	work individual and / in groups	Moe, Christine L Classification and Transmission of Water- and Sanitation-related Disease

TLI 561 Sanitasi dan Kesehatan Lingkungan (Sanitation and Environmental Health)						
Week	**Indicator of Learning Achievements of Subjects**	**Topics**	**Method of Learning**	**Course Time**	**Assignment and evaluation**	**Reference**
7	Students are able to explain about global and national disease burdens of sanitation related disease	Transmission Routes Disease Cycles – Lifecycles & Vectors	Lecture and Individual/ Group Presentation	3x50 minutes	work individual and / in groups	International Journals
8	Mid-term Examination					
9	Students are able to explain about sanitation related patogens	Sanitation - Related Patogens	Lecture and discussion	3x50 minutes	work individual and / in groups	International Journals
10	Students are able to explain about persistence of enteric pathogens (enteric bacteria, enteric virus, enteric protozoa, helmintes)	Persistence of Enteric Pathogens	Lecture and discussion	3x50 minutes	work individual and / in groups	Remais and Eisenberg (2012) Balance between clinical and environmental responses to infectious diseases
11, 12	Students areable to analyze Non-technical principles of control which are related to lifecycles explore current outbreaks via case studies	Control Measures	Lecture and Individual/ Group Presentation	3x50 minutes	Work individual	International Journals
13	Students are able to explain about Sanitation Savety Planning	Risk Evaluation Tools	Lecture and discussion	3x50 minutes	work individual and / in groups	1. WHO 2006 Guidelines for the safe use of wastewater, excreta and greywater

TLI 561 Sanitasi dan Kesehatan Lingkungan (Sanitation and Environmental Health)						
Week	**Indicator of Learning Achievements of Subjects**	**Topics**	**Method of Learning**	**Course Time**	**Assignment and evaluation**	**Reference**
						2. WHO 2016 Sanitation safety palnning manual 3. http://brown.gatech.edu
14	Students are able to explain about Introduction to SaniPath Exposure Assessmen and sanitary survey	Risk Evaluation Tools	Lecture and discussion	3x50 minutes	work individual and / in groups	Moe, Christine L. Introduction to SaniPath Exposure Assessmen
15	Students are able to assess using Quantitative Microbial Risk Assessment (QMRA)	Risk Evaluation Tools	Lecture and Individual/ Problem solving	3x50 minutes	Work individual	QMRA wiki (qmrawiki.canr.msu.edu)
16	Final Examination					

TLI 562 Research Theory and Practice
(Teknik Penulisan dan Praproposal)

TLI 562 Research Theory and Practice (Teknik Penulisan dan Praproposal)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
Week 1	Referencing guidelines	Students are to explain about plagiarism awareness and basics of literature search Using Endnote for referencings	3 x 50 minutes	
Week 2	Critical reading and academic writing, presenting	Students are able to critical reading and academic writing, presenting	3 x 50 minutes	
Week 3	Research ethics	Students are able to explain about reflection on ethics in own research work	3 x 50 minutes	
Week 4, 5	Research	Students are table to develop a research proposal and protocol	3 x 50 minutes	
Week 6,7	Research	Students are able to establish links between theory and methods within the field of study	3 x 50 minutes	
Week 8	Mid-term examination			
Week 9	Research	Students are able to select from different methodologies, methods and forms of analysis to produce and justify a suitable research design	3 x 50 minutes	
Week 10	Research	Students are able to demonstrate an understanding of the ethical issues associated with practitioner research	3 x 50 minutes	
Week 11	Research	Students are able to carry out a substantial research-based project	3 x 50 minutes	
Week 12, 13	Research	Students are able to analyse data and synthesize research findings	3 x 50 minutes	
Week 14, 15	Research	Students are able to report findings in written and verbal forms	3 x 50 minutes	
Week 16	Final examination			

TLI 564 Infrastruktur Air Minum dan Sanitasi Daerah Rawan Bencana (Water Supply and Sanitation Infrastructure in Disaster-Prone Areas) (Required)

TLI 564 Infrastruktur Air Minum dan Sanitasi Daerah Rawan Bencana (Water Supply and Sanitation Infrastructure in Disaster-Prone Areas)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
Week 1	Humanitarism; History of humanitarian action; Humanitarian principles & dilemma's; Principle of 'doing no harm',	Students are able to explain about the key elements of the term humanitarianism, key events that have impacted humanitarian action, the main humanitarian principles, examples of the possible negative impact humanitarian aid	3 x 50 minutes	Module 9 – WASH in emergencies Humanitarism History of humanitarian action Humanitarian principles & dilemma's
Week 2	The legal framework; International Relief System; Key actors in humanitarian relief; code of conduct and guiding principles of humanitarian action	Students are able to overview of the international legal framework (Refugee law, International Humanitarian Law-IHL, International Disaster Relief Law-IDRL), code of conduct and guiding principles of humanitarian action;	3 x 50 minutes	Module 9 – WASH in emergencies The legal framework International Relief System Key actors in humanitarian relief; code of conduct and guiding principles of humanitarian action
Week 3	Humanitarian contexts; Humanitarian reform and standards; Cluster approach	Students are able to explain standards applied by relief agencies and global cluster, Sphere, WASH cluster	3 x 50 minutes	Module 9 – WASH in emergencies Humanitarian contexts Humanitarian reform and standards Cluster approach
Week 4	Emergency response phases and relief organizations and mandates; type disaster, risk analysis and disaster vulnerability	Students are able to explain disaster cycle, risk reduction/ response/ recovery/ development, emergency response phases. Students are able to overview of relief organizations, their mandates, their commitments and priorities in emergencies	3 x 50 minutes	Module 9 – WASH in emergencies Emergency response phases and relief organizations and mandates
Week 5	Post-Disaster Waste Management in Developing Countries		3 x 50 minutes	Module 9 – WASH in emergencies Emergency response phases and relief organizations and

TLI 564 Infrastruktur Air Minum dan Sanitasi Daerah Rawan Bencana (Water Supply and Sanitation Infrastructure in Disaster-Prone Areas)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
				mandates
Week 6	Introduction to the WASH cluster; SPHERE handbook; Standar Minimum (WASH) (Water and Sanitation Standards in Humanitarian Action) dan SPHERE	Students are able to explain about WASH (Wash, Sanitation, and Hygiene) and SPHERE	3 x 50 minutes	Module 9 – WASH in emergencies Introduction to the WASH cluster
Week 7	Sanitation-related diseases in emergencies; Communicable disease control in emergencies; Pedoman dan aplikasi sanitasi air limbah di daerah bencana Sanitation System Template and Technology Selection.	Students are able to select vector control and surface water drainage	3 x 50 minutes	Module 9 – WASH in emergencies Sanitation-related diseases in emergencies
Week 8	Mid-term examination			
Week 9	Excreta management in emergencies; Technical options for excreta disposal in emergencies; Aplikasi ECOSAN	Students are able to select options for the provision safe excreta disposal	3 x 50 minutes	Module 9 – WASH in emergencies Excreta management in emergencies
Week 10	Solid waste management in emergencies	Students are able to select option solid waste management in emergencies	3 x 50 minutes	Module 9 – WASH in emergencies Solid waste management in emergencies
Week 11	Sanitation planning; Design	Students are able to arrange a development	3 x 50 minutes	Module 9 – WASH in emergencies

TLI 564 Infrastruktur Air Minum dan Sanitasi Daerah Rawan Bencana (Water Supply and Sanitation Infrastructure in Disaster-Prone Areas)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
	criteria for water supply infrastructure planning; component analysis in water supply technology (simple/appropriate)	of a sanitation plan for a specific situation including budgeting (contingency planning, acquisition, management, use of information for decision making, monitoring and reporting)		Sanitation planning
Week 12	City planning analysis for water supply infrastructure design; Water supply planning in emergencies		3 x 50 minutes	Module 9 – WASH in emergencies Sanitation planning
Week 13	Contingency Planning of Disaster Waste Management (DWM) in Developing Countries.		3 x 50 minutes	Module 9 – WASH in emergencies Sanitation planning
Week 14, 15 Week 15	Evaluation on existing condition and development of sanitation plan for Sanitation-related diseases in emergencies, excreta management in emergencies, solid waste management in emergencies/Disaster Waste Management (DWM)	• Students are able to understand complexity of sanitation plan, including understanding principle of Sanitation safety planning, key stakeholder analyses, environmental and cultural consideration • Students are able to draft sanitation plan for an emergency setting, three different settings will be discussed • Students are able to conduct evaluation on some case studies on different stakeholders in a humanitarian emergency context • Students are able to	6 x 50 minutes	Module 9 – WASH in emergencies Local conditions shaping the implementation Examples of relief solutions

TLI 564 Infrastruktur Air Minum dan Sanitasi Daerah Rawan Bencana (Water Supply and Sanitation Infrastructure in Disaster-Prone Areas)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
		explain an example about humanitarian organizations adapting their practices (and responses) to the local context (local resources, local practices, etc.) • Students are able to explaing applied approaches bringing theory into practice (good and bad experiences, lessons learnt)		
Week 16	Final examination			

TLI 611 Pencemaran Tanah dan Air Tanah
(Soil and Ground Water Pollution)
(Elective)

TLI 611 Soil and Ground Water Pollution (Elective)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
Week 1	Characteristics and sources of soil and groundwater pollution	Able to explain the characteristics and sources of soil and groundwater pollution.	2 x 50 minutes	Elective course
Week 2	Contaminant transport in soil and groundwater	Understand the contaminant transport in soil and groundwater	2 x 50 minutes	
Week 3	Risk assessment for soil and groundwater pollution	Understand the Risk assessment for soil and groundwater pollution	2 x 50 minutes	-
Week 4	Site investigation, sampling analysis and monitoring.	Understand the principle of the site investigation, sampling analysis and monitoring.	2 x 50 minutes	–
Week 5	Method of remediation of polluted soils and groundwater	Able to explain the method of remediation of polluted soils and groundwater	2 x 50 minutes	–
Week 6	Discuss the case study of soil and groundwater pollution issues and propose a remediation method	Able to present a remediation method for polluted soil and groundwater	2 x 50 minutes	–
Week 7	Cont'd case study	Cont'd case study	2 x 50 minutes	
Week 8	Mid-term examination			
Week 9	Bioremediation Design Concepts and Bioremediation Techniques	Understand the Bioremediation Design Concepts	2 x 50 minutes	–

TLI 611 Soil and Ground Water Pollution (Elective)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
Week 10	Managing a bioremediation project	Understand managing a bioremediation project	2 x 50 minutes	Defining the project goals, performing site characterization, screening and selecting remediation alternative, designing and conducting laboratory treatability and pilot testing, performing field remediation activities, obtaining site closure
Week 11	Microbial Systems of bioremediation	Understand the Microbial Systems of bioremediation and optimizing microbial transformation of the hazardous chemical	2 x 50 minutes	–
Week 12	Risk assessment in the remediation of hazardous waste sites	Understand the Risk assessment in the remediation of hazardous waste sites	2 x 50 minutes	– Hazzard evaluation, expossure asessment, risk characterization
Week 13	Practical considerations during bioremediation soil, maintenance	Understand the Practical considerations during bioremediation	2 x 50 minutes	– microbe isolation and identification, selection bacteria, biomass, application of the biomass to the contaminated
Week 14	Engineering Aspect of bioremediation	Able to explain Engineering Aspect of bioremediation	2 x 50 minutes	Engineering Aspect of bioremediation – goals and advantage of bioremediation, common source of contaminants, tratment alternative
Week 15	Application in situ and ex situ bioremediation with a case study	Understand the Application in situ and ex situ bioremediation with a case study	2 x 50 minutes	In-situ bioremediation – Bioventing, biosparging, bioagumentation Ex-Situ Bioremediation – Biopiling, Landforming,

TLI 611 Soil and Ground Water Pollution (Elective)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
				Compositing, Bioremediation of Heavy Metals, Limitation of Bioremediation
Week 16	Final examination			

TLI 613 Manajemen Sistem Air Bersih
(Water Supply Management)
(Required)

TLI 613 Water Supply Management (Required)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
Week 1	Concept of water supply component and system design	Understand the concept of water supply component	2 x 50 minutes	Elective course, complementary sanitation service module Water supply component, water requirement, system design and system requirement,
Week 2	Supply management and water cost	Understand how the correlation of the supply management and water cost	2 x 50 minutes	the supply cost of water, pumping system optimization, the efffect of scale, the effect of obtaining water from further afield, the economics of alternative water supplies, optimum pumping system pipe and reservoir sizes
Week 3	Demand management, price and reliability	Understand the interaction between demand management, price and reliability.	2 x 50 minutes	- – the ownership issue, water charges for redistribution of wealth, benefits and costs of water supply, water consumption management
Week 4	The use and basis of water tariffs	Understand concept of the use and basis of water tariffs	2 x 50 minutes	– Theory of supply and demand, management by use of water tariff, other types of water tariffs
Week 5	Reliability of supply and factors cause the failures	Understand concept of Reliability of supply and factors cause of failures, system evaluation, water pollution risk	2 x 50 minutes	– – Reliability of supply – Factors cause of failures, – system evaluation, – water pollution risk
Week 6	Drought management of reservoirs	Understand how Drought management of reservoirs, basis of rationing, reservoir yield analysis, operating rules, case study	2 x 50 minutes	Drought management of reservoirs, – basis of rationing, reservoir yield analysis, operating rules, case

TLI 613 Water Supply Management (Required)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
				study
Week 7	Case study of the water supply management	Able to prepare a case study of the water supply management	2 x 50 minutes	
Week 8	Mid-term examination			
Week 9	The conjunctive use of alternative sources	Understand to determine the conjunctive use of different sources of water	2 x 50 minutes	Conjunctively use different sources. - the conjunctive operation, optimization of conjunctive source use, artificial recharge, the simulation model
Week 10	Loss control and Rehabilitation	Understand to determine the Unaccounted for water and Factors influencing total water losses	2 x 50 minutes	Loss control and Rehabilitation - Unaccounted for water, Monitoring program, Economic assessment, - Recommendations regarding standards, Factors influencing total water losses, Water audits, Water loss control, Rehabilitation of pipelines
Week 11	Integration of water and wastewater utilities	Understand the Integration of community water supply and sanitation services	2 x 50 minutes	- the Integration of water and wastewater utilities - mergers of water and wastewater utilities
Week 12	Asset management and computer technology	Understand the concept of management principles and strategy in water authority	2 x 50 minutes	Asset management and computer technology - management principles, information systems, financial management, benefits of asset management, information technology, continuous simulation of flow in pipe networks
Week 13	Water supply for developing	Understand the water supply for developing	2 x 50 minutes	Water supply for developing communities

TLI 613 Water Supply Management (Required)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
	communities	communities and requirements for a viable water supply		- Water supply needs in developing communities, Community participation, Technical aspects, Problems relevant to developing areas, Affordability
Week 14	Institutional and legal in water supply management:	Understand the role of Institutional and legal in water supply management	2 x 50 minutes	Institutional and legal in water supply management - Privatization, Regulation, Water law
Week 15	Presentation of the proposed case study by the group	Able to present the proposed case study by the group	2 x 50 minutes	
Week 16	Final examination			

TLI 653 Proposal dan Seminar Tesis
(Thesis Proposal and Seminar)

TLI 653 Proposal dan Seminar Tesis (Thesis Proposal and Seminar)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
Week 1	Referencing guidelines	Students are to explain about plagiarism awareness and basics of literature search Using Endnote for referencings	3 x 50 minutes	
Week 2	Critical reading and academic writing, presenting	Students are able to critical reading and academic writing, presenting	3 x 50 minutes	
Week 3	Research ethics	Students are able to explain about reflection on ethics in own research work	3 x 50 minutes	
Week 4, 5	Research	Students are table to develop a research proposal and protocol	3 x 50 minutes	
Week 6,7	Research	Students are able to establish links between theory and methods within the field of study	3 x 50 minutes	
Week 8	Mid-term examination			
Week 9	Research	Students are able to select from different methodologies, methods and forms of analysis to produce and justify a suitable research design	3 x 50 minutes	
Week 10	Research	Students are able to demonstrate an understanding of the ethical issues associated with practitioner research	3 x 50 minutes	
Week 11	Research	Students are able to carry out a substantial research-based project	3 x 50 minutes	
Week 12,	Research	Students are able to analyse	3 x 50	

TLI 653 Proposal dan Seminar Tesis (Thesis Proposal and Seminar)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
13		data and synthesize research findings	minutes	
Week 14, 15	Research	Students are able to report findings in written and verbal forms	3 x 50 minutes	
Week 16	Final examination			

TLI 661 Manajemen Proyek Infrastruktur Sanitasi (Project Management for Sanitation Infrastructure)

TLI 661 Manajemen Proyek Infrastruktur Sanitasi (Project Management)				
Week	**Topics**	**Outcomes.** **Student are able to:**	**Course time**	**Modules Coverage**
Week 1	• **Project management cycle**. Introduction to project management in sanitation: • **Introduction to key (universal) elements of developing a project proposal**, core baseline analyses: context, stakeholder and problem analysis.	• Name the principles and elements of the project management cycle and explain the difference between operational and project management • Give examples for different types of projects and matching project management approaches. • Understand the need, the process and the elements of a systematic, facts-based and results-oriented approach to project development	3 x 50 minutes	Module 11 – Project Management 1.1 Project management cycle 1.2 Key elements of project planning
Week 2	• **Context analysis and tools to carry out context analysis**.	• Understand the purpose and elements of a context analysis tool and application. • Apply the context analysis tool to the case study	3 x 50 minutes	Module 11 – Project Management 2.1 Context Analysis
Week 3	• Workshop - Explain the theory and approaches used **stakeholder analysis**. • Group work - provide clarifications as required, monitor the group work and summarize the outcomes in plenary.	• Summarize the purpose and generic elements of a project stakeholder analysis. • Execute a basic stakeholder mapping and ranking. • Attribute project-relevant characteristics to stakeholders based on background information	3 x 50 minutes	Module 11 – Project Management 2.3 Stakeholder Analysis
Week 4	• Workshop - Provide information and tools for carrying out **problem analysis**. • Group work - provide clarifications as required,	• Understand the purpose and elements of a problem analysis tool and application. • Apply the problem analysis tool to the	3 x 50 minutes	Module 11 – Project Management 2.4 Problem Analysis

TLI 661 Manajemen Proyek Infrastruktur Sanitasi (Project Management)				
Week	**Topics**	**Outcomes.** **Student are able to:**	**Course time**	**Modules Coverage**
	monitor the group work and summarize the outcomes in plenary.	case study.		
Week 5	• Introduction and approaches of **results-based project management**.	• Name and give examples for types of project results and types of project goals. • Explain the relationship between the nature of a project and the type of goals that should be set.	3 x 50 minutes	Module 11 – Project Management 3.1 Results-based Project Management
Week 6	• Workshop - Explain elements of "**theory of change**", mapping conditions and approach to be used in the exercise. • Group work - Give instructions and feedback, summarize outcomes in plenary	• Summarize the notion of conditions and interim results as formative elements of a Theory of Change in projects involving social and behavioural changes. • Compile a basic conditions map for a sanitation project under consideration of context factors. • Discuss the usefulness of indicators identified in the planning stage for project progress and outcome monitoring at later stages.	3 x 50 minutes	Module 11 – Project Management 3.2 Theory of Change - Map Conditions
Week 7	**Theory of Change - select a path of change**: • Workshop - Explain the theory "path of change" and approach "to be used in the exercise Group work - Give instructions and feedback, summarize outcomes in plenary	• Illustrate how the link between project activities and outcomes can be modelled using a causal (visual) pathway • Select a path of change from a conditions map and make explicit which outcomes and	3 x 50 minutes	Module 11 – Project Management 3.3 Theory of Change - Select a path of change

TLI 661 Manajemen Proyek Infrastruktur Sanitasi (Project Management)				
Week	**Topics**	**Outcomes.** **Student are able to:**	**Course time**	**Modules Coverage**
		interventions are part of the path of change and which are not.		
Week 8	**Theory of Change - Assumptions and justifications**: • Workshop - Explain the theory and approach to be used in the exercise. • Group work - Give instructions and feedback, summarize outcomes in plenary.	• Recognize the role of assumptions in planning processes and the importance of making assumptions explicit as precondition to effective learning. • Check causal links in a path conditions map for hidden assumptions. • Construct a basic narrative to link project interventions to intended outcomes.	3 x 50 minutes	Module 11 – Project Management 3.4 Theory of Change - Assumptions and justifications
Week 9	**Options Analyses, Multi-Criteria Analyses**: • Workshop - Introduce options analysis and multi-criteria assessment and tools. • Group work - Give instructions, monitor the group work and summarize outcomes in plenary.	• Understand the purpose and elements of **the options analysis and multi-criteria assessment tools and application**. • Apply the risk assessment and mitigation framework to the case study.	3 x 50 minutes	Module 11 – Project Management 3.5 Options Analyses, Multi-Criteria Analyses
Week 10	**Stakeholder management:** • Activating lecture – introduction to stakeholder/change management and strategies. • Group work - Give instructions and feedback, summarize outcomes in plenary	• Reframe a sanitation project as social intervention and explain the related need for stakeholder engagement, change management and acceptance strategies for sanitation projects. • Prioritize stakeholders in a stakeholder map and construct basic engagement strategies	3 x 50 minutes	Module 11 – Project Management 3.6 Stakeholder management

TLI 661 Manajemen Proyek Infrastruktur Sanitasi (Project Management)				
Week	**Topics**	**Outcomes.** **Student are able to:**	**Course time**	**Modules Coverage**
		based on existing context information.		
Week 11	**Risk assessment and mitigation**: • Workshop - Explain risk analysis, planning risk response strategies as summary check for project planning. • Group work - Give instructions and feedback, summarize outcomes in plenary	• Understand the purpose and elements of a risk assessment and mitigation framework and how to apply this. • Apply the framework to the case study	3 x 50 minutes	Module 11 – Project Management 3.7 Risk assessment and mitigation
Week 12	**Finalise project plan**: • Workshop - Explain importance and how to make a consistent project plan and set up M&E system and explain exercise. • Group work - Facilitate in group work.	• Understand the importance of a coherent and consistent project plan, meaning that consistency exists between narratives and schematics describing the project (the results based management frameworks, like ToC and log frame) and the tools to track progress within those frameworks (the M&E system). • Apply coherence / consistency check.	3 x 50 minutes	Module 11 – Project Management 3.8 Finalise project plan
Week 13	**Project Human Resources**: • Workshop - Explain the theory and approach to be used in the exercise. • Group work - Give instructions and feedback, summarize outcomes in plenary.	• Select an organizational model for a project based on criteria. • Describe the responsibilities of generic project roles. • Implement basic team management techniques in a	3 x 50 minutes	Module 11 – Project Management 4.5 Project Human Resources

TLI 661 Manajemen Proyek Infrastruktur Sanitasi (Project Management)				
Week	**Topics**	**Outcomes. Student are able to:**	**Course time**	**Modules Coverage**
		working context.		
Week 14	**Introduction to monitoring, evaluation and learning (MEL) frameworks** and explain differences between monitoring for results and implementation	• Explain how monitoring relates to evaluation and learning towards operational excellence on the one hand and to learning towards more effective and efficient achievement of development results on the other (including reconsideration of TOC components) Distinguish monitoring at different project management levels (results vs implementation)	3 x 50 minutes	Module 11 – Project Management 5.1 Monitoring, evaluation and learning (MEL) frameworks Monitoring for Results vs Implementation
Week 15	• Activating lecture - Provide an overview of MS project and various toolbar/tabs/commands of MS Project. • Exercise - Demonstrate and work with project tasks and linking tasks. • Exercise - Demonstrate and work with assigning resources and costs for a project. • Exercise - Demonstrate and work with creating project timeline, milestones, summary task and sub task. • Assignment - Introduce a case (previously worked out) to develop a sanitation project plan and giving instructions to carry out the exercise	• Explain the MS Project software. • Use the tool to develop a project plan. • Apply the tool to develop a project plan.	3 x 50 minutes	Module 11 – Project Management 6.2 Microsoft Project
				Local conditions

TLI 661 Manajemen Proyek Infrastruktur Sanitasi (Project Management)				
Week	**Topics**	**Outcomes. Student are able to:**	**Course time**	**Modules Coverage**
				shaping the implementation
				Examples of relief solutions
Week 16	Final examination			

TLI 663 Aspek Kelembagaan dan Finansial Sanitasi (Governance and Sanitation Financing) (Required)

TLI 663 Governance and Sanitation Financing (Required)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
Week 1	Introduction to leadership concepts	Students understand the introduction to leadership concepts, differentiate inter- vs. intra-development and management vs. leadership	2 x 50 minutes	Module 10 - Leadership
Week 2	Vision and Strategy	Students understand how to develop a vision and translate it into a plan, and Giving and receiving feedback	2 x 50 minutes	Module 10 - Leadership
Week 3	Change Management and Theory of Change frameworks	Students understand the concept of Change Management and Theory of Change frameworks	2 x 50 minutes	Module 10 - Leadership
Week 4	Intercultural Leadership	Students understand leading in inter-cultural settings	2 x 50 minutes	Module 10 - Leadership
Week 5	Communication skills	Students understand several aspects of the team and inter-personal communication: Building and maintaining trust, Active listening, Consensus-building	2 x 50 minutes	Module 10 - Leadership
Week 6	Conflict management, negotiate and Emotional Intelligence	Students understand conflict management, negotiation, and emotional intelligence	2 x 50 minutes	Module 10 - Leadership
Week 7	Self-reflection and Way forward. Contrast failures, successes, and journeys of sanitation histories and regulatory frameworks around the world	Students are able to carry out self-assessment to prepare an individual leadership development plan	2 x 50 minutes	Module 10 - Leadership
Week 8				
Week 9	Sanitation financing	Students understand to differentiate between various options for sanitation financing	2 x 50 minutes	Module material 7 Sanitation Financing

Week 10	Financing at the national context: Decentralisation and Local Authority Finance	Students understand to assess the impact of service financing on the municipal budget	2 x 50 minutes	Module material 7 Sanitation Financing
Week 11	Principles FSM Technical and Finacial Assessment Tool	Students understand Innovative Financing for Sanitation Saniplan Tool - financing model	2 x 50 minutes	Module material 7 Sanitation Financing
Week 12	Business in sanitation	Students understand the principles of sanitation service and value chain, sustainability in sanitation, Business Models in Sanitation, and Financial Flow in Business Models	2 x 50 minutes	Module material 7 Sanitation Financing
Week 13	Sanitation Financing Modalities	Students understand Sanitation Financing Modalities and Challenges Post Business Canvas and Public-Private Partnership (PPP) in sanitation	2 x 50 minutes	Module material 7 Sanitation Financing
Week 14 and Week 15	Sanitation project financing	Students understand to introduce and demonstrate to work with “FSM Technical and Financial Assessment Tool” and use the tool to develop a financially viable FSM project	2 x 50 minutes	
Week 16	Final examination			

TLI 665 Pembangunan Berbasis Masyarakat
(Society-based Development)

TLI 665 Pembangunan berbasis Masyarakat (Society-based Development)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
Week 1	• Introduction to module. • Leading and Managing.	Students are able to: • Explain the structure and learning objectives of the module; • Discuss the differences between a leader and a manager; • Self-assess their natural leadership styles; • Identify six different leadership styles; • Discuss the importance of reflection and self-awareness.	2 x 50 minutes	Module 10 – Leadership Introduction to module Leading and managing
Week 2	• The difference between a leader and leadership. • Competencies relevant for establishing an enabling leadership environment. • Emotional intelligence.	Students are able to: • Discuss the difference between developing a leader and leadership; • Explain how competencies and an enabling environment relate to leadership. • Explain the concept and aspects of emotional intelligence; • Discuss how emotional intelligence can be relevant for a leader; • Reflect on own emotional intelligence.	2 x 50 minutes	Module 10 – Leadership The difference between a leader and leadership Competencies relevant for establishing an enabling leadership Emotional intelligence
Week 3	• Giving and receiving feedback. • Vision and strategy.	Students are able to: • Discuss why feedback is important to improve performance of leaders and provide tips for giving and receiving feedback; • Practice giving and receiving feedback; • Present a vision towards a sanitation issue; • Apply a theory of change framework to develop a plan for disseminating their vision.	2 x 50 minutes	Module 10 – Leadership Giving and receiving feedback Vision and strategy
Week 4	• Building and maintaining trust. • Active listening.	Students are able to: • Describe how trust can shape working relationships and impact outputs; • Identify behaviours that	2 x 50 minutes	Module 10 – Leadership Building and maintaining trust Active listening

TLI 665 Pembangunan berbasis Masyarakat (Society-based Development)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
		influence trust and personal attitudes and skills to buid and maintain trust in the short and long-term; • Describe the active listening cycle; • Discuss the importance of active listening for leaders; • Identify techniques for implementing active listening.		
Week 5	• Communication for leadership. • Consensus building.	Students are able to: • Explain why effective communication is essential for leading teams; • Discuss the communication feedback loop to interpret messages and respond appropriately; • Select and appropriate communication style and channel for different situations; • Discuss potential advantages and challenges of using consensus to make decisions; • Identify the eight steps for setting up and running a consensus-based decision making process.	2 x 50 minutes	Module 10 – Leadership Communication for leadership Consensus building
Week 6	• Leadership in inter-cultural setting. • Conflict management.	Students are able to: • Discuss the impact of culture in understanding leadership; • Discuss sources of conflict for leaders working with teams; • Discuss the importance of conflict management for leaders; • Identif different conflict management approaches.	2 x 50 minutes	Module 10 – Leadership Leadership in inter-cultural setting Conflict management
Week 7	• Negotiation. • Self-reflection and the way forward.	Students are able to: • Identify different negotiation approaches; • Discuss the concept of principled negotiation; • Implement the four phases of negotiation; • Articulate what leader(ship) aspects they want to improve and how.	2 x 50 minutes	Module 10 – Leadership Negotiation Self-reflection and the way forward

TLI 665 Pembangunan berbasis Masyarakat (Society-based Development)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
Week 8	Mid-term examination			
Week 9	• What is behavior?: Behaviour science consepts (behaviors vs habits and drivers vs reinforcements) ; behavior and sanitation programming; key behavior change actors' roles and responsibilities. • Sanitation behavior change and advocacy (setting the scene: defining behaviors across the sanitation chain and the importance of behavior change in urban sanitation programming).	Students are able to: • Explain what behaviours and habits are; • Explain how people's views inform constructions of what behaviours are bad and good; • Explain key actors in sanitation changes; • Understand and appreciate the importance of behavioral change interventions for sustainable city wide sanitation services; • Appreciate that there are several behaviors of users, service providers (and officials) which are key for improved sanitation services; • Appreciate that the drivers for behaviors go beyond knowledge and awareness.	2 x 50 minutes	Module 8 – Behavior change and advocancy What is behavior? Sanitation behavior change and advocancy
Week 10	• Behavior change strategies (promoting change via persuasion and policy vs education/awareness raising). • Behavior change frameworks (what is a theory of change? Behavior	Students are able to: • Appreciate that recurrent programing that persuade behavioral changes and public policy establishing and reinforcing behaviors are more effective than once-off communication; • Understand what a theory of change is and how it is applied in various behavioral change frameworks and tools.	2 x 50 minutes	Module 8 – Behavior change and advocancy Behavior change strategies Behavior change frameworks

TLI 665 Pembangunan berbasis Masyarakat (Society-based Development)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
	change frameworks and approaches).			
Week 11	• Behavior change intervention design-formative research (behavior change intervention process and prioritization; embedding behavior change interventions; what is formative research and why it is needed?). • Case example applications (in class exercises and discussions over hypothetical behavior change teory of change (BCTOC)/methods selection, implementation and evaluation of real-life case).	Students are able to: • Move from understanding to intervention in behaviors, seeing key decisions/steps; • Understand the basis for prioritization; • Importance of leadership buy-in and understanding extent programs/campaigns; • Explain why formative research is needed when designing behavior change programs/campaigns; • Experience behavior change design and limitations of different conceptual models for urban sanitation behaviors (beyond the personal hygiene domain).	2 x 50 minutes	Module 8 – Behavior change and advocancy Behavior change intervention design-formative research Case example applications
Week 12	• Monitoring behavioral change (whether/how it ocured; strategy	Students are able to: • Understand the different levels of monitoring behavioral change, how it fits in the overall behavioral change process and	2 x 50 minutes	Module 8 – Behavior change and advocancy Monitoring behavioral change

TLI 665 Pembangunan berbasis Masyarakat (Society-based Development)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
	including objectives; theory of change validity and tracking change [planning: indicators, information and cost, data sources and collection tools, challenges]).	how it fits within the overall urban sanitation monitoring system; • Strengthen their understanding of the different levels of objectives in behavior change and their interconnection; • Plan for monitoring and evaluation; • Use of monitoring in ongoing projects and sustaining change; • Understand key challenges in data quality.		
Week 13	• Occupatioanl health and safety spotlight. • Review: what works and what does not work in behavior change based on scientific evidence. • Designing behavior change package. • Maintaining behavior change design fidelity and integrity in different contexts and settings. • Advocacy component.	Students are able to: • Familiarize with real life cases of OHS from Asia and Africa.	2 x 50 minutes	Module 8 – Behavior change and advocancy Occupational health and safety spotlight Review: what works and what does not work in behavior change Designing behavior change package Maintaining behavior change design fidelity and integrity in different context and design Advocancy component
Week 14	• Community-led total sanitation (CLTS). • Urban CLTS.	Students are able to: • Gain knowledge and understanding about the development principles, methodology and applicability of CLTS in rural sanitation; • Appreciate the attitude required	2 x 50 minutes	Module 8 – Behavior change and advocancy CLTS U-CLTS

TLI 665 Pembangunan berbasis Masyarakat (Society-based Development)				
Week	**Topics**	**Outcomes**	**Course time**	**Modules Coverage**
		to implement behavior changes; • Understand the application of CLTS as compared to other approaches; • Reviewed the differences between individual vs collective behavior change; • Expose the methodology of triggering local rural communities to plan and achieve ODF status through collective local action; • Understand the complexities of UCLTS; • Develop a clear understanding on the areas of conflicting interest and synergies required between relevant stakeholders; • Understand the significance of formal and informal insitutions, and community participation.		
Week 15	• Policy and institutional triggering (institutional vs community triggering; MDG lessons and scale-up lessons; methods and way forward for SDGs; cases). • Public policy and behavior. • Media and advocacy.	Students are able to: • Gain knowledge of institutional triggering methodology of local, national, international stakeholders; • Appreciate the significance of an enabling environment when scaling up; • Understand the lessons from MDG success and failures towards ODF world; • Understand the link between sanitation behavior and public policy; • Appreciate how public policy can influence behavior at scale and over time; • Examine the critical role the media can play in breaking and forming new norms/habits.	2 x 50 minutes	Module 8 – Behavior change and advocancy Policy and institutional trigeering Public policy and behavior Media and advocancy
Week 16	Final examination			