

COURSE INFORMATION					
Course Title	Code	Semester	L+P Hour	Credits	ECTS
Climate Change and Sustainable Development	CHBE 591	1 or 2	3 + 0	3	10

<b>Prerequisites</b>	None
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<b>Language of Instruction</b>	English
<b>Course Level</b>	Graduate Degree
<b>Course Type</b>	Technical Elective
<b>Course Coordinator</b>	To be announced
<b>Instructors</b>	To be announced
<b>Assistants</b>	To be announced
<b>Goals</b>	This course aims to provide a general concept within the dimensions of climate change and challenges to sustainable development to equip the learners with appropriate tools and techniques for interpreting the impacts of climate change, evaluating & implementing measures that reduce vulnerability of systems, empowering the learners with the mitigation and adaptation strategies against climate changes in future.
<b>Content</b>	Global Climate System, Climate Change: Causes and Consequences, Sustainable Development: Scope and Emerging Trends, Climate and Sustainable Development: An Interface, Sustainable Development Goals: An overview, Climate Change and Sustainable Development: National and State Policies, Achieving Sustainable Development Goals: Role of Various Stakeholders, Building Partnership for Climate Change and Sustainable Development

Learning Outcomes	Program Learning Outcomes	Teaching Methods	Assessment Methods
General concept within the dimensions of climate change and challenges to sustainable development	3,7,8,10	1,2,3	A,B,C
Develop a basic understanding of the appropriate tools and techniques for interpreting the impacts of climate change	3,7,8,10	1,2,3	A,B,C
Develop a basic understanding of the measures that reduce vulnerability of the systems	3,7,8,10	1,2,3	A,B,C
Develop a basic understanding of the mitigation and adaptation strategies against climate change	3,7,8,10	1,2,3	A,B,C

Acquire basic knowledge about the national policies about climate change and sustainable development	3,7,8,10	1,2,3	A,B,C
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<b>Teaching Methods:</b>	1: Lecture, 2: Discussion, 3: Case Study
<b>Assessment Methods:</b>	A: Exams, B: Project, C: Homework

<b>COURSE CONTENT</b>		
<b>Week</b>	<b>Topics</b>	<b>Study Materials</b>
1	1) Global Climate System	Lecture Notes
2-3	2) Climate Change: Causes and Consequences	Lecture Notes
4-5	3) Sustainable Development: Scope and Emerging Trends	Lecture Notes
6-7	4) Climate Change and Sustainable Development: An Interface	Lecture Notes
8	MT-1	
8-9	5) Sustainable Development Goals: An overview	Lecture Notes
10-11	6) Climate Change and Sustainable Development: National Policies	Lecture Notes
12-13	7) Achieving Sustainable Development Goals: Role of Various Stakeholders	Lecture Notes
14	8) Building Partnership for Climate Change and Sustainable Development	Lecture Notes

<b>RECOMMENDED SOURCES</b>	
<b>Textbook</b>	
<b>Additional Resources</b>	<p>FU Hagen / Lund University, Climate Change – A Question of Justice? Massive Open Online Course (MOOC),</p> <p>Spencer Weart (2008). The Discovery of Global Warming, Harvard University Press, Revised and Expanded Edition</p> <p>Crane, Andrew / Matten, Dirk (2010): Business Ethics: Managing Corporate Citizenship and Sustainability in the Age of Globalization, 3rd ed., Oxford (Oxford University Press)</p>

<b>MATERIAL SHARING</b>
<b>Documents, Assignments, Lecture Notes</b>

<b>ASSESSMENT</b>		
<b>IN-TERM STUDIES</b>	<b>NUMBER</b>	<b>PERCENTAGE</b>
Mid-term	1	20
Homeworks	3	30
Term Project	1	20
<b>Total</b>		<b>70</b>
<b>CONTRIBUTION OF FINAL EXAMINATION TO OVERALL GRADE</b>		30
<b>CONTRIBUTION OF IN-TERM STUDIES TO OVERALL GRADE</b>		70
<b>Total</b>		<b>100</b>

<b>COURSE CATEGORY</b>	Expertise/Field Courses
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<b>COURSE'S CONTRIBUTION TO PROGRAM</b>						
No	Program Learning Outcomes	Contribution				
		1	2	3	4	5
1	Acquire expanded and in-depth information via performing scientific research in the field of Chemical Engineering, evaluate, interpret and implement knowledge.					
2	Be knowledgable in the contemporary techniques and methods applied in Chemical Engineering and their respective constraints.					
3	Be cognizant of the novel and developing applications of his/her profession, study and learn them as required.					X
4	Formulate Chemical Engineering problems, develop methods to solve them and implement innovative techniques in solutions					
5	Design and conduct analytical modeling and experimental research, analyze and interpret complex problems encountered in this process.					
6	Develop novel and/or original ideas and methods; conceive innovative solutions in systems, component and process design.					
7	Complete information via processing limited or incomplete data by the use of scientific methods and implement it; integrate knowledge from different disciplines.					X
8	Communicate in at least one foreign language at the level of European Language Portfolio B2 orally and in writing.					X
9	Communicate stages and results of his/her studies in a systematic and clear manner orally or in writing in intra or interdisciplinary national and international settings.					
10	Defines societal and environmental aspects of Chemical Engineering applications					X
11	Observe social, scientific and ethical values during collection, interpretation, and dissemination of data and in all professional activities.					
12	Lead multidisciplinary teams, develop solution methodologies for complex problems and take responsibility					

<b>ECTS ALLOCATED BASED ON STUDENT WORKLOAD BY THE COURSE DESCRIPTION</b>			
Activities	Quantity	Duration (Hour)	Total Workload (Hour)
Course Duration (Excluding the exam weeks: 13x Total course hours)	13	3	39
Hours for off-the-classroom study (Pre-study, practice)	14	7	98
Midterm examination	1	3	3
Term Project	1	70	70
Homework	3	9	27
Final examination	1	3	3
<b>Total Work Load</b>			240
<b>Total Work Load / 25 (h)</b>			9.6
<b>ECTS Credit of the Course</b>			10