Course in Digital Economy and Policy

Course Code:	TEK320
Credits	7.5
Department	Technology Management and Economics
Study Programme	Master Programme: Management of Economics and Innovation
	Humans, Technology, Society (MTS)
Language:	English
Examiner	Erik Bohlin
	erik.bohlin@chalmers.se

MTS requirement for all students

According to Decision 2002-12-11/C889-02 of the vice president for graduate studies, all students have to achieve credits in the study programme Humans, Technology, Society (Människa, Teknik, Samhälle) in order to obtain the degree of graduate engineer (civilingenjör). The course TEK320 is part of the MTS curriculum.

TEK320 - Course Description

AIM

The course *Digital Economy and Policy* introduces students to one of the most dynamic sectors of the economy, namely the Information and Communication Technology (ICT) sector. The aim of the course is to provide tools for analysing the complex dynamics of the ICT sector, by taking both a historical and forward-looking perspective on key strategic and policy issues, as well as their underlying economic logic.

CONTENT

The course *Digital Economy and Policy* addresses ICT issues from different angles, which include:
- Key policy and strategic issues in the ICT industry;
- Overview of tools to understand institutional change, regulation, policy, industry change and corporate strategy;
- Investment, costing and demand;
- Foresight and future issues relating to the ICT sector;
- Interaction between government actions and strategic decision making;
- User perspectives of technology change and development;
- Identification and analysis of the particular ethical dilemmas that the ICT sector poses, related to privacy, inclusion, and sustainability.

LEARNING OUTCOMES

By the end of the course students will be able to:
1. Apply theories, frameworks, conceptual tools and methods related to institutions, policy, regulation, strategy, industry and innovation dynamics in relation to the complex interplay between technology and society;
2. Analyze policies and regulations relevant for ICT industries and markets, in an international perspective, and address ethical and social dilemmas, such as sustainable development;
3. Identify main policy, regulatory and strategic issues;
4. Apply conceptual tools, methods and framework for analyzing policy dynamics and for taking strategic decisions.

COURSE MATERIAL

Course literature is available on the course homepage at the start of the course. Lecture slides will be uploaded on the course homepage after each lecture.

Group Registration

Group registration opens at the start of the course. Group registration provides access for the two group-based course assignments (project outline and project report). Each group has maximum of four students, and only one group slot is open per student. The students pick themselves which group they want to join.

Examination

In order to pass this course, students are required to complete five assignments:
1. Project outline;
2. Project report;
3. Individual reflection;
4. Take-home exam 1;
5. Take-home exam 2.

All five assignments are compulsory, which means that only students that deliver all five assignments can pass the course. Students are asked to complete the first four assignments while the course lectures are ongoing. Only the deadline for take-home 2 is usually placed after the last course lecture. Project outline and project report are group-based assignments, while individual reflection, take-home exam 1 and take-home exam 2 are individual assignments.

These five assignments are described below in this document. Furthermore, handouts with additional instructions regarding take-home exam 1 and 2 will be distributed during the lectures and later uploaded on the course homepage.

Written assignments have to be uploaded on the course homepage, using their specific assignment slots. Deadlines for uploading assignments on the course homepage are mandatory. It is not possible to upload documents after deadlines are passed.

Grading

Each assignment gives students a certain amount of points. Students have to earn a minimum amount of points per assignment in order to pass the course. Minimum and maximum points per assignment are illustrated in Table 1. There are no points associated with the project outline, which, however, needs to be approved by the examiner.

Table 1. Minimum and Maximum amount of points per assignment

ASSIGNMENT	MIN AMOUNT OF POINTS	MAX AMOUNT OF POINTS
Project Outline	Approval	Approval
Project Report	20	50
Individual Reflection	4	10
Take-Home Exam 1	8	20
Take-Home Exam 2	8	20
Total	40	100

The sum of all points earned gives the final grade. The final grade can be FAIL, 3, 4 or 5. The amounts of points which correspond to the various grades are illustrated in Table 2.

The sum of all points earned gives the final grade. Please have a look at the table below:

Table 2. Final Grade

SUM OF POINTS	FINAL GRADE
Below 40	FAIL
Between 40-59	3
Between 60-79	4
Between 80-100	5

Group-based Assignments

1. PROJECT OUTLINE

In the course *Digital Economy and Policy*, students have to build groups of maximum 4 students. Each group has to write a project report. A good report is structured to support a main theme, which has to be related to the following areas:

- ICT Policy Challenges e.g. institutional analysis, problems and challenges in fixed/mobile telecommunication, spectrum management, broadband policy, ICT and globalization, green ICT and digital divide;
- ICT Economy e.g. relationship between ICT ecosystem, demand and costing in ICT, network externalities and switching cost in ICT, corporate strategy and innovation and company case study.

Before starting to write the project report, each group needs to get the project outline approved by the examiner. The project outline is approximately 1-2 pages long and should consist of:

- project topic;
- purpose of the project;
- scope of the project;
- data sources;
- expected outcomes.

Students should use the materials presented during the course whenever this is possible. Moreover, students ought to use library web sites i.e. Chalmers library, IEEE Explore, SCOPUS, Science Direct and Springer LINK to find relevant literature to develop their project reports.

Project Outline Presentation
All members of each group are required to attend the Project Outline Presentation Day, and at least one student per group should be ready to present the project outline for about 5 minutes (no slide presentation needed). After the presentation, the examiner and other students can ask questions.

Deadlines
Both the written project outline and attendance to the Project Outline Presentation Day are compulsory. The written project outline must be handed-in no later than 16 November. Please, upload your file on the Course homepage by using the "Project outline" slot in the assignment menu and name your file TEK320_SP2_ProjectOutline_groupXY.doc or .pdf (XY is your group number). The oral presentation will be held on 18 November.

Assessment
The assessment of the project outline will be either *pass or fail*. If the project outline is positively assessed, the group can continue to work on the project report. If the project outline is negatively assessed, the group has to submit a new project outline. A new project outline must be uploaded on the Course homepage by using the "Project outline re-submission" slot in the assignment menu no later than 22 November.

Practical Information
Please indicate group number and group members' names on the first page of your project outline.

2. PROJECT REPORT

In the course Digital *Economy and Policy*, students have to build groups of maximum 4 students. Each group has to write a project report. A good report is structured to support a main theme, which has to be related to the following areas:

- ICT Policy Challenges e.g. institutional analysis, problems and challenges in fixed/mobile telecommunication, spectrum management, broadband policy, ICT and globalization, green ICT and digital divide;
- ICT Economy e.g. relationship between ICT ecosystem, demand and costing in ICT, network externalities and switching cost in ICT, corporate strategy and innovation and company case study.

The report should be based on relevant literature (course literature or other sources). The length of the report cannot exceed 3000 words (figures, tables and list of references are excluded from the word counting). Furthermore, students will present their report during the last lecture.

The report should include the following parts:
1. Title page (title of the report, course code and course name, student group number, group member names)
2. Table of contents
3. Abstract
4. Introduction and aims (this part includes: background/context; a general description of the literature used, the approach adopted to investigate the topic and the rationale for writing the report)
5. Analysis (in this section you are asked to adopt a critical perspective on the knowledge you have gained about the topic. It is not sufficient to describe the situation: what are the implications of your findings?)
6. Conclusions and recommendations (you should draw conclusions out from the implications of your findings. You may want to suggest actions to be taken to change/improve a situation).
7. References (APA referencing system is preferable)

Students should use the materials presented during the course whenever this is possible. Moreover, students ought to use library web sites i.e. Chalmers library, IEEE Explore, SCOPUS, Science Direct and Springer LINK to find relevant literature to develop their project reports. Furthermore, it is recommended to include illustrations (pictures, diagrams, tables, etc.) to further explain the content of the report.

Before starting the project report, each group needs to get approval on their project outline (proposal). See above description of the project outline assignment for further information.

Project Report Presentation
Each group has to present its project report in during the last lecture. The oral presentation has to be based on a PowerPoint presentation (any other slide show presentation programme can be used, for instance Prezi). Other supporting media (videos, pictures, sound files, writing on the whiteboard, using an overhead projector etc.) can be used as complementary.
The oral presentation is mandatory: all group members have to participate in the preparation of the presentation and have to be present on the presentation day, although not all members of the group need to act as presenters. The group decides on who will be presenting the project report. Furthermore, all members of each group have to listen to the other groups' presentations and are encouraged to ask questions or make reflections.
A laptop will be made available on the presentation day. In addition, it is recommended to save the presentation file(s) in an off-line device (e.g. memory stick or laptop). Each group usually has 10 minutes to present the project. A brief Q&A session will follow each presentation, during which the examiner and other students can ask questions.

Deadline
The written part of the project is compulsory and must be handed-in no later than 17 December. Please, upload your file on the Course homepage by using the "Project report" slot in the assignment menu and name your file TEK320_SP2_ProjectReport_groupXY.doc or .pdf. (XY is your group number). The oral presentation is compulsory and will be held on 19 December.

Assessment
The project report counts for maximum 50 points (50%) of the total grade of this course. A minimum of 20 points on the project report is required to pass the course.

Practical Information
Please, indicate group number, group members' names and word count on the first page of your project report.

1. INDIVIDUAL REFLECTION

In the course *Digital Economy and Policy*, students are asked to write an individual reflection on an article chosen from the course literature.

A good individual reflection should be critical. This assignment gives students an opportunity to go beyond the content of the article and include their individual perspective and experience related to the topic.

In order to complete this assignment, students have to:
- Choose one article from the course literature. The article's title and author(s) should be stated in the heading of your assignment;
- A summary of the article is appreciated, but it is not compulsory. If provided, the summary should be placed in the beginning of the introductory section;
- Present and explain personal ideas on the content of the article chosen. This essay should be cohesive and refer directly to the specific passage or quote in the material that has inspired personal ideas;
- By comparing and/or contrasting, students can refer to other scientific publications for the analysis. References of all scientific publications used have to be provided;
- End the individual reflection with concluding remarks on the main implications of the analysis.

Practical Information
The length of the individual reflection should be between 800-1200 words (figures, tables and list of references are excluded from the word counting);

Please, indicate name and word count on the top right-hand corner of every page of the individual reflection.

Deadline
Deadline for the individual reflection is 5 December. Upload your individual reflection in the Course homepage. Please, upload your file on the Course homepage by using the "Individual reflection" slot in the assignment menu and name your file IndividualReflection_ID.doc or .pdf (ID is your birthday).

Assessment
The individual reflection is compulsory. It counts for maximum 10 points (10%) of the total grade for this course. A minimum of 4 points is required in order to pass the course.

2. TAKE-HOME EXAMS

Handouts describing the take-home exams will be distributed during one of the lectures. Each handout contains two questions: question A and question B. Students are asked to choose a question and provide a written essay. Altogether, students are asked to answer two questions: one question for take-home exam 1 and one question for take-home exam 2. Answers should include the corresponding question code (in the right-hand side of the document): for example, if you choose question A in take-home exam 1, the question code is 1A; if you choose question B in take-home exam 2, the question code is 2B.

The assays should primarily be based on the course literature and relevant information from the lectures. Students are asked to provide a brief summary of the literature used. This summary should be one paragraph long (maximum 200 words) and it should be the first paragraph of your essay. Please, provide references of any source used outside the course readings.

Handouts will be distributed on the following dates:
- Take-home exam 1: 18 November;
- Take home exam 2: 12 December.

Practical Information
Each take-home exam essay should be between 1000-1200 words long (including the literature summary). Figures, tables and list of references are excluded from the word counting.

Please, indicate name, question code and word count on the top right-hand corner of every page of the take-home exams.

Assessment
Take-home exams' assessment is based on students' capability to deal with the following aspects:
- Language, clarity and organisation of the answer;
- Capacity to apply concepts from the literature and lectures;
- Capacity of problem analysis and critical assessment.

Take-home exams are compulsory and determine 40% of the overall grade of this course. Each take-home exam counts for maximum 20 points (20%) of the course grade. A minimum of 8 points on each take-home exam is required to pass the course.

Take-home exam 1 must be handed-in no later than 10 December. Upload your file on the course homepage by using the "Take-home exam 1" slot in the assignment menu. Please, name your file TH1A or TH1B_ID.doc or .pdf (ID is your your birthday).

Take-home exam 2 must be handed-in no later than 10 January. Upload your file on the course homepage by using the "Take-home exam 2" slot in the assignment menu. Please, name your file TH2A or TH2B_ID.doc or .pdf (ID is your birthday).

Mandatory Assignments, Deadlines and Max Points

Group-based Assignments	Start Date	Deadline	Oral Part	Max Points
Group Registration	4 November	16 November		Approval
Project Outline	4 November	16 November	18 Nov	Approval
P. Outline Re-sub.		22 November		
Project Report	4 November	17 December	19 Dec	50
Individual Assignments	Start Date	Deadline	Oral Part	Max Points
Individual Reflection	4 November	5 December		10
Take-home exam 1	18 November	10 December	No oral pres	20
Take-home exam 2	12 December	10 January		20

Make-up Assignment

In order to pass this course, all five assignments have to be completed. For the individual assignments, written texts have to be submitted via the course homepage. If one of the written texts is not delivered, students cannot pass the course.

For the group-based assignments, both the written and the oral parts are mandatory for all students. Written texts have to be submitted via the course homepage. If one of the written texts is not delivered, students cannot pass the course. Students who cannot participate in the presentation of the project outline or project report are asked to deliver an additional assignment. Make-up assignments are available on the course homepage, in the folder "Make-up assignments". Deadline for uploading make-up assignments on the course homepage is 10 January.

Lecturers

Erik Bohlin (EB), Professor, Chalmers University of Technology, (examiner)
Teodosio Pérez Amaral, Professor, Universidad Complutense Madrid
Peter Altmann (PA), PhD, Senior researcher, RISE
Anwesha Chakraborty (AC), PhD, Bologna University
Simon Forge (SF), SCF Associates
Maude Hasbi (MH), PhD, Chalmers University of Technology
Maria Massaro (MM), Chalmers University of Technology
Harald Øverby (HÖ), Professor, NTNU Norwegian University of Science and Technology

Guest Lectures

At least one guest lecture is usually included in the *Digital Economy and Policy* course's programme. Students are kindly invited to participate in guest lectures, for two main reasons: firstly, for the sake of students' own learning process, which can benefit from experiences and expertise of guest lecturers, and, secondly, as a form of respect towards time and effort of lecturers and administrators of this course. Furthermore, one or more of the six assignments of this course might be centered on the content of guest lectures. Extra guest lectures might be included in the course programme, in addition to the ones already indicated in the course schedule. In case of an additional guest lecture, the schedule will be modified accordingly and students will be informed using the Course homepage.

This year we have the pleasure to ask the students to join the public defense of Ph.D. dissertation by Maria Massaro, entitled "Radio Spectrum Management in the European Union". Maria has been a very much appreciated teacher in this course, and the public seminar is directly relevant to the course. You will learn a lot! This will be an opportunity to learn from science in action and also to deepen your knowledge in a specific field.

Course Evaluation

At the end of the study period, the course will be evaluated by an evaluation group. The group evaluation is formed by the examiner and two or three students. Students can voluntarily propose themselves as potential evaluators. A course evaluation meeting is usually held at lunch time (12-13) at the Department of Technology Management and Economics. The aim of the course evaluation is to improve and further content and structure of the course.