

# Guidebook ESST

TIK4000 AUTUMN 2005  
Version **28th November**

## Welcome to first semester of the ESST MA programme!

This guidebook serves as your detailed lecture- and reading guide through the first semester. Please accept that changes to the plan are likely to occur during the semester. You will be alerted by e-mail, and updated schedules are regularly published the ESST programme pages <http://www.uio.no/studier/program/esst-master/>

## A note on the literature

References to literature in this guide are listed under each week. Author references with **(B)** means that it is a book or a long excerpt from a book. This is not available in the compendiums, and the book should be bought or borrowed. Books are available at Akadmika bookstore Blindern, and some copies in the University- and TIK libraries. **(Core)** refers to Core Literature (se last pages in Guidebook), and **(C)** refers to compendium. These texts are available in compendiums at Akademika bookstore (in Kopiutsalget – at the ground floor) and available for ESST students only; please bring semester card or letter of acceptance when buying theses compendiums:

ESST Core literature (part 1-3)  
ESST Module 1 & 2  
ESST module 2-5

Several other articles will be made available electronically, and some articles are hand-outs from lecturers. Please address questions regarding the reading list to [hakon.skogli@tik.uio.no](mailto:hakon.skogli@tik.uio.no), and we will do our best to make texts available to you.

## **Module 1: The emergence of a knowledge society**

Module tutor: [Associate Professor Olav Wicken](mailto:olav.wicken@tik.uio.no) [olav.wicken@tik.uio.no ;]

The module explores some key developments in the history of science and technology in modern Western societies. It examines two episodes considered crucial in the making of these societies: The Scientific Revolution of the 17<sup>th</sup> century when the most important features of present-day science were introduced (experiments, laboratories, mathematical and mechanistic ways of explanation). The Industrial Revolution of the late 18<sup>th</sup> and early 19<sup>th</sup> centuries created modern industrial societies (labour relations, consumer products, classes, politics). Both of these developments had deep consequences for long-term development of Western societies, and they were also highly localised and complex phenomena as well as geographical diverse. In course of the module students will learn about how some historians have analysed these processes, and how historical facts and interpretations is challenged by other historians. The remaining of the module will focus on how science and other types of knowledge have become integrated parts of economic and social development, and also how there has been opposing political attitudes to the role S&T should have in the society. The emergence of STS and Innovations studies (including the ESST program itself) is presented as part of this wider role of S&T in our society.

Within the module there are included lectures, seminars and workshops, and there will in addition to emphasis on the theoretical and empirical issues mentioned above, be skills training in archival studies and writing skills.

*Skills training* is organised partly as integrated into teaching, and in addition as two separate seminars on primary sources/archives for studies of S&T and innovation. The intention is to make students aware of:

- how historians use primary sources
- information on historical existing sources
- critical interpretation of sources

**Week 1: The emergence of science**

Day	Hours	Activity	Title	Responsible	References	Note
Mon. 22.8	09.15- 11	Lecture	Introduction to ESST: Understanding knowledge	Olav Wicken	Kuhn (Core) Merton (1996) (C)	
	11.15- 12.00	Presentation	Practical information.	Håkon Skogli	Guidebook too autumn 2005	
	12.30- 13.30	Social get together –	Lunch - meet tutors and last years students	Håkon Skogli		
	14.15- 16	Lecture	Knowledge in action: Non-scientific knowledge	Olav Wicken		
Tue 23.8	10.15- 12	Seminar	Early scientific organizations: academy, university	Olav Wicken		
Wed.						
Thu. 25.8	10.15- 12	Lecture	Emergence of science	Olav Wicken	Shafin (1996)(B) Shafin & Shaffer (B)	
Fri. 26.8	14.15- 16	Workshop	Knowledge and learning in industry			

**References:**

*Merton, Robert Ch. 18: The Rise of Modern Science*

i: **On Social Structure and Science** 1996 ss.223 – 240

Shapin, Steven (1996) *The scientific revolution*

Chicago: University of Chicago Press, c1996. Intro + ch. 1-2 (pp. 1-117) [117 p]

Shapin, S. and S. Schaffer (1985). "Seeing is Believing" (Ch. 2) in *Leviathan and the air-pump: Hobbes, Boyle, and the experimental life*, Princeton, N. J. : Princeton University Press, pp. 22-80 (58 pages).

**Week 2: Knowledge in the Industrial Revolution**

Day	Hours	Activity	Title	Responsible	References	Note
<b>Mon. 29.8</b>	<b>09.15- 11</b>	Lecture	Understanding the Industrial Revolution	Olav Wicken	Mokyr (1990) <b>(B)</b>	
	<b>14.15- 16</b>	Seminar	Knowledge and learning in industry	Olav Wicken	Landes (1998) <b>(C)</b> Berg & Bruland (1998) <b>(B)</b>	
<b>Tue. 30.8</b>	<b>09.15- 11</b>	Lecture	Technological change during Industrial Revolution	Olav Wicken	Bruland (1982) <b>(Core)</b>	
	<b>14.15- 16</b>	Skills Training	Use of sources	Olav Wicken	Kjeldstadli <b>(C)</b>	
<b>Wed.</b>						
<b>Thu. 1.9</b>	<b>10.15- 12</b>	Seminar	Knowledge in Scandinavian industrialization	Olav Wicken	Bruland (1998) <b>(B)</b>	
<b>Fri. 2.9</b>	<b>10.15- 12</b>	Workshop	The Role of Knowledge in the Industrial Revolution	Olav Wicken		

**References:**

Berg, M. and Bruland, K. (1998), *Technological Revolutions in Europe*, ch. 1 (Berg and Bruland), ch. 5 (Fox), ch. 8 (Berg) and ch. 9 (Bruland), pp. 3-18, 86-96, 138-188  
O'Brian [75p]

Mokyr (1990), *The lever of Riches: technological creativity and economic progress*, New York: Oxford University Press, ch 5 and 6 pp. 81-148 [66p]

**Bruland, Tine**, *Industrial Conflict as a Source of Technical Innovation: The Development of the Automatic Spinning Mule* i: **Economy and Society**

**Kjeldstadli, Knut** Forf Kap. 12: *Kildegransking*

i: **Fortida er ikke hva den en gang var. En innføring i historiefaget** 1992

ss.161 – 173

**Landes, David S.** Ch. 13: *The Nature of Industrial Revolution*

i: **The Wealth and Poverty of Nations. Why Some Are So Rich and Some So Poor** 1998  
ss.186 – 199

### Week 3: Science and Technology in the 2<sup>nd</sup> Industrial Revolution

Day	Hours	Activity	Title	Responsible	References	Note
<b>Mon. 5.9</b>	<b>09.15- 11</b>	Lecture	2 <sup>nd</sup> IR: systems, professions, science and organizations	Olav Wicken	Hughes (1984) Chandler	
	<b>13.15- 15</b>		New professions of knowledge: engineers and industrial scientists	Olav Wicken		
<b>Tue. 6.9</b>	<b>10.15- 12.00</b>	Seminar	Science in industry: The laboratory	Olav Wicken	Mowery & Rosenberg <b>(C)</b>	
	<b>14.15- 16</b>	Skills Training	Using primary and secondary sources	Olav Wicken	Bruland (1998) <b>(B)</b>	
	<b>15.00</b>	Meeting	Presentation of InterESST	InterESST		
<b>Wed.</b>						
<b>Thu. 8.9</b>	<b>10.15- 12</b>	Drøbak-seminar 2 dager	How history matters: trajectories and paths in industrial development	Olav Wicken	Handout	HANDOUT SMALL ESSAY
<b>Fri. 9.9</b>	<b>10.15- 12</b>	Workshop	Understanding today as part of historical processes	Olav Wicken		

Berg, M. and Bruland, K. (1998), Technological Revolutions in Europe, ch. 1 (Berg and Bruland), ch. 5 (Fox), ch. 8 (Berg) and ch. 9 (Bruland), pp. 3-18, 86-96, 138-188  
O'Brian [75p]

**Mowery, David C., & Rosenberg, Nathan; Ch. 2: The Growing Role of Science in the Innovation Process i: Technology and the Pursuit of Economic Growth 1989**  
ss.21 – 34

Hughes T., (1984), "Large technological systems", in Bijker et al (eds.) *The Social construction of technological systems: new directions in the sociology and history of technology* , pp. 51 – 82

**Week 4: The 3<sup>rd</sup> Industrial Revolution: The emergence of a knowledge economy**

Day	Hours	Activity	Title	Responsible	References	Note
Mon. 12.9	10.15-12	Lecture/ seminar	From industrial to post-industrial society	Govindan Parayil	Daniel Bell (1976), chapters 1 and 2 <b>(B)</b>	
	14.15-16	Lecture/ seminar	Structure of knowledge society	Govindan Parayil	Daniel Bell (1976) ch. 3 and P. Drucker (1998) (Kneef ch. 2) <b>(B)</b>	
Tue. 13.9	10.15-12	Lecture/ seminar	Globalisation & knowledge capitalism	Govindan Parayil	Manuel Castells (1996) ch. 1 &2 <b>(B)</b>	
	14.15-16		How do historians use sources and write texts?	Kristine Bruland		
Wed.						
Thu. 15.9	10.15-12	Lecture/ seminar	Transition to knowledge capitalism	Govindan Parayil	Parayil (2005) & Burton-Jones (1999) ch 1 & 11 <b>(B)</b>	HAND IN SMALL ESSAY
Fri. 16.9	10.15-12	Lecture/ seminar	Human capital, Social capital, Creative capital	Govindan Parayil	Richard Florida (2002) ch. 2,3,14, 15 <b>(B)</b>	

**References:**

Bell, Daniel (1976). *The Coming of Post-Industrial Society: A Venture in Social Forecasting* (New York: Basic Books) chapters 1,2,3

Burton-Jones, Alan (1999) *Knowledge Capitalism: Business, Work, and Learning in the New Economy*. New York: Oxford University Press. (chapters 1,11)

Castells, Manuel (1996). *The Rise of the Network Society* (Oxford: Blackwell) chapters 1,2

Drucker, Peter 'From Capitalism to Knowledge Society' in Dale Neef (ed), *The Knowledge Economy*, Boston: Butterworth-Heinemann, 1998, Chapter 2.

Florida, Richard. *The Rise of the Creative Class and How It's Transforming Work, Leisure, Community and Everyday Life*, New York: Basic Books, 2002. Chapters 2,3,14,15.

Parayil, Govindan (2005). ['The Digital Divide and Increasing Returns: Contradictions of Informational Capitalism'](#). *The Information Society* Vol. 21(1): 41-51

## **Modul 2: The knowledge economy**

Module tutor: [Professor Jan Fagerberg](#)

The aim of this module is to provide the student with an introduction to some of the key concepts, ideas and insights that have been developed in the scholarly literature on innovation. Central issues are

- definition and measurement of innovation,
  - the emergence of innovations,
  - the spread (diffusion) of innovations,
  - the geography of innovation,
  - innovation systems,
  - the consequences of innovation (with respect to economic growth, economic development, competitiveness etc)
- and policy issues that arise.

The student will be presented with different perspectives on these issues (some times complementary, some time conflicting). In addition the student will learn about the different data sources and methods that have been used to gain knowledge about innovation, including its wider impacts, and questions relating to innovation and technology policy will be addressed.

The first two weeks will focus mainly on theory/literature. The third week will be mainly focused on applications and skills-training.

**Week 5: Perspectives on innovation and growth**

Day	Hours	Activity	Title	Responsible	References	Note
Mon. 19.9	10.15- 12.00		Innovation – concepts and approaches	Jan Fagerberg	Handbook ch 1&4 Kline & Rosenberg, Cohen & Levinthal	
	14.15- 16		Schumpeter – the innovation theorist	Jan Fagerberg	Fagerberg 2003(C)	
Tue. 20.9	10.15- 12.00		Neoclassical, Neo-Schumpeterian and Evolutionary perspectives, Part I	Jan Fagerberg	Fagerberg 2003, (C) Freeman & Perez (Core) Nelson & Winter(C) Stiglitz	
	14.15- 16		Part II	Jan Fagerberg	As above	
Wed.						
Thu. 22.9	10.15- 12		Technology, growth and development I	Jan Fagerberg	Abramovitz, (C) Handbook 17,18,19 Fagerberg 2002	
Fri. 23.9	10.15- 12		Technology, growth and development II	Jan Fagerberg	As Above	

**References**

**Abramowitz, Moses (1994) *The Origins of the Postwar Catch-up and Convergence Boom in The Dynamics of Technology, Trade and Economic Growth*, ss.21 – 52**

**Nelson, Richard and Winther, R. Sydney: *Ch. 1 & 2 An Evolutionary Theory of Economic Change* .ss.3 - 48**

Kline, S.J. and N. Rosenberg (1986) “An Overview of Innovation”, in R. Landau and N. Rosenberg (eds) *The Positive Sum Strategy: Harnessing Technology for Economic Growth*, Washington D.C.: National Academy Press, pp. 275-304

Stiglitz, J. (1996). *Economics*. New York and London: W.W. Norton & Company, Pp. 9-24, 27-46, 52-65, 335-358 & 411-428 (appr 90 pages) **Book**

Cohen, W. and Levinthal, D. (1990) Absorptive Capacity: A New Perspective on Learning and Innovation, *Administrative Science Quarterly*, 35:128-52

Fagerberg, J. (2002) *Technology, Growth and Competitiveness*, Elgar, chp. 6, 11 &16 **Book**

Chapters in Fagerberg, J, R. Nelson and D. Mowery: *Oxford Handbook of Innovation*, OUP, 2004:  
Fagerberg, Jan, *Innovation: A Guide to the Literature*, ch 1,  
Pavitt, Keith, *Innovation Processes*, ch 4,  
Hall, Bronwyn. *Diffusion of Innovation*, ch. 17,  
Verspagen, B.: *Innovation and economic growth*, ch. 18,  
Fagerberg, Jan and Manuel M. Godinho: *Innovation and catching-up*, ch, 19



**Week 6: Systems of innovation**

Day	Hours	Activity	Title	Responsible	References	Note
<b>Mon. 26.9</b>	<b>10.15- 12.00</b>		Systems- perspectives on technology and innovation: From technological systems to triple- helix	Govindan Parayil	Handbook ch. 7	
	<b>14.15- 16</b>		Innovation at the industry level: Sectoral innovation systems	Govindan Parayil	Handbook ch 14	
<b>Tue. 27.9</b>	<b>10.15- 12.00</b>		Innovation in space: Regional Innovation systems	Govindan Parayil	Handbook ch 11	
	<b>14.15- 16</b>		National innovation systems: The role of the R&D infrastructure	Govindan Parayil	Handbook ch 8	
<b>Wed.</b>						
<b>Thu. 29.9</b>	<b>10.15- 12</b>		Globalization of innovation	Govindan Parayil	Handbook ch 12 Narula 2003	
<b>Fri. 30.9</b>	<b>10.15- 12</b>		Science, Technology and Innovation Policy	Govindan Parayil	Handbook ch 22 Metcalfe <b>(Core)</b> Smith <b>(Core)</b>	

**References:**

Narula, R. (2003) Globalization and technology , Polity: London, Introduction, chapter 1 and 3 (appr 80 pages)

Chapters in Fagerberg, J, R. Nelson and D. Mowery: Oxford Handbook of Innovation, OUP, 2004:

Edquist, Charles: Systems of innovation – perspectives and challenges, ch 7

Mowery, David C, Sampat, Bhaven N, Universities in National Innovation Systems, ch 8,

Asheim, B. and M. Gertler: The geography of innovation: regional innovation systems, ch. 11

Narula, Rajneesh, Antonello Zanfei, Globalization of Innovation: The Role of Multinational Enterprises, ch 12,

Malerba, Franco: Sectoral systems of innovation, ch. 14

Lundvall, Bengt Å. And Susanne Borrás: Science, Technology and Innovation Policy, ch. 22

**Week 7: Innovation research: Topics and applications**

Day	Hours	Activity	Title	Responsible	References	Note
Mon. 3.10	10.15- 12.00	Skills training	Measuring Innovation: Data and approaches	Martin Srholec	Handbook ch 6	
	14.15- 16		Analysing the Norwegian NSI: Report from a project	Svein Erik Moen	Handbook 4, 7	
Tue. 4.10	10.15- 12.00		Patents – exploring their secrets ...	Bart Verspagen	Handbook ch 3, 6, 10	
	14.15- 16	Skills training	Network analysis	Bart Verspagen	Handbook ch 3, 6, 10	
Wed. 5.10	12.00					HANDOUT ESSAY 1
Thu. 6.10						Essay writing
Fri. 7.10						Essay writing
			InterESST høstfest			

**References:**

Chapters in Fagerberg, J, R. Nelson and D. Mowery: Oxford Handbook of Innovation, OUP, 2004:  
 Powell, W.W. and Stine Grodal: Networks of innovators, ch. 3,  
 Pavitt, Keith, Innovation Processes, ch 4,  
 Smith, Keith, Measuring Innovation, ch 6,  
 Edquist, Charles: Systems of innovation – perspectives and challenges, ch 7,  
 Granstrand, Ove, Innovation and Intellectual Property Rights, ch 10

**Week 8: Writing Essay no 1 and more**

<b>10.10</b>						Essay writing
<b>11.10</b>						Essay writing
<b>12.10</b>	<b>12.00</b>					HAND IN ESSAY 1
<b>Thur 13.10</b>	<b>12.15-14</b>	Skills training	Entrepreneurship – theory & practical applications	Tommy Clausen	Nelson and Winter (C) Aldrich	Note hours!
<b>Fri 14.10</b>	<b>10.15-12</b>		Innovation in firms - theory & practical applications	Tommy Clausen	Greve Katila Katila & Ahuja	

**Other literature for this week and the module:**

**Nelson, Richard and Winther, R. Sydney: Ch. 1 & 2 An Evolutionary Theory of Economic Change .ss.3 – 48**

Katila & Ahuja (2002). Something old, something new. Academy of management.

Katila (2002). New product search over time. Academy of management .

Aldrich (1999) Organizations Evolving, ch 2, 3 Sage Publications.

Greve (1998). Performance, aspirations and risky organizational change. Administrative Science Quarterly.

Smith, Keith, Measuring Innovation, ch 6,

Lam, A. Organizational Innovation, ch. 5 in Fagerberg, J, R. Nelson and D. Mowery: Oxford Handbook of Innovation, OUP, 2004

Porter, M. E. (1990) The Competitive Advantage of Nations, *Harvard Business Review* 68: 73-93

### Module 3: Knowledge Production

Module tutor; [Post.doc. Beate Elvebakk](#)

The aim of this module is to give an introduction to, and provide the students with basic knowledge of the field known as STS, or science and technology studies. The module will give a brief overview of the history and theoretical roots of the field, and will introduce central problems, theories and concepts. The module literature introduces the students to key theories and persons, and to past and current debates. The module will show how the field draws on several disciplines and theoretical traditions, and will also seek to give the students the basic skills and understanding necessary to carry out work within this field.

#### Week: 9 STS in the 80's: standardization.

*The goal of this week is to give the students an overview of the state of STS in the 1980s, and basic knowledge of "laboratory studies".*

Day	Hours	Activity	Title	Responsible	References	Note
Mon. 17.10	10.15- 12	Lecture	Introduction: Structure of the module, and first approach to concept of construction.	Beate Elvebakk		
	14.15- 16	Lecture	Construction of the STS-field	Beate Elvebakk	Knorr-Cetina/ Shapin & Schaeffer	
Tue. 18.10	10.15- 12	Lecture	Construction as agreement	Beate Elvebakk	Leigh Star/ Collins & Pinch <b>(C)</b>	
	14.15- 16			Beate Elvebakk	Bijker <b>(Core)</b> , Hughes and Pinch/ Latour <b>(Core)</b>	
Wed.		Readingday				
Thu. 20.10	10.15- 12	Skills training	Types of Construction Writing skills	Beate Elvebakk.& Irene. Olaussen	Bijker, <b>(Core)</b> Hughes and Pinch/Latour <b>(Core)</b>	
Fri. 21.10	10.15- 12	Seminar + interviews	Interviewing scientists	Beate Elvebakk		

#### References;

Knorr-Cetina, Karin: 1979 "[Tinkering toward Success: Prelude to a Theory of Scientific Practice](#)", Theory and Society, 8.

Leigh Star, Susan (2001): Om å være allergisk mot løk. I Asdal, Brenna, Moser. **Book**

Shapin, S & S. Schaeffer (1985): "Seeing is Believing" (ch. 2) in Leviathan and the Air-Pump: Hobbes, Boyle and the Experimental Life. Princeton, NJ: Princeton University Press.

## Week 10: Pre-histories and disciplinary backgrounds

The goal of this week is to give the students an idea of the various disciplinary traditions that have influenced the STS-field.

Day	Hours	Activity	Title	Responsible	References	Note
Mon. 24.10	10.15-12	Lecture	Introduction: Overview of disciplines and traditions, "the standard view".	Beate Elvebakk	Asdal, Brenna, Moser, English Edition.	
	14.15-16	Lecture	Thomas Kuhn's revolutions	Beate Elvebakk	Kuhn <b>(Core)</b>	
Tue. 25.10	10.15-12	Skills training	Writing skills	Elvebakk & Irene Olausen	Bijker, Hughes and Pinch/Latour, as in week 1.	
	14.15-16	Lecture	Sociology of science: Merton to Edinburgh	Beate Elvebakk	Merton, Shapin	
Wed.		Reading day				
Thu. 27.10	10.15-12		The French Connection + Feminism	Beate Elvebakk	Foucault/Bourdieu/Haraway	
Fri. 28.10	10.15-12	Seminar/textual analysis	The scientific paper	Beate Elvebakk		

### References

Asdal, Brenna, Moser (forthcoming, to be distributed): "Introduction", in *Technosocial Cultures*.

Bourdieu, Pierre (1999): "The Specificity of the Scientific Field and the Social Conditions of the Progress of Reason", reprinted in Mario Biagioli (ed.): *The Science Studies Reader*. London, Routledge, pp 31-50.

Foucault, Michel: *Fra Klinikkens Fødsel*, forord, kap. 7.

Haraway, Donna (1999): "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective", reprinted in Mario Biagioli (ed.): *The Science Studies Reader*. London, Routledge.

Merton, Robert (1996): "The Rise of Modern Science", reprinted in Sztompka, P. (ed) *On Social Structure and Science*, Chicago, The University of Chicago Press.

Shapin, Steven (1995): "[Here, There and Everywhere: Sociology of Scientific Knowledge](#)". *Annual Review of Sociology*, vol. 21.

### Week 11: Prehistories and disciplinary backgrounds

*The goal of this week is to introduce the students to some of the more recent directions and developments in the STS-field*

Day	Hours	Activity	Title	Responsible	References	Note
Mon. 31.10	10.15-12	Lecture	Introduction:	Beate Elvebakk	Wyatt/ Hacking	
	14.15-16	Lecture	Bodies and subjectivities	Ingunn Moser,	Moser & Law	
Tue. 1.11	10.15-12	Skills training	Writing skills	Beate Elvebakk/Irene Olausen	Bijker, Hughes and Pinch/Latour, as week 1	
	14.15-16	Lecture	STS on politics and economics	Kristin Asdal, researcher TIK	Latour,/Callon	
Wed.						
Thu. 3.11	10.15-12	Museum visit		Ingunn Moser, Kristin Asdal		
	14.15-16	Lecture	Science Wars	Vidar Enebakk	Sokal,	
Fri. 4.11	10.15-12	Lecture			Summing up	
	14.15-16		Situated knowledge's and modest interventions, cyborg subjects and embodiments	Ingunn Moser,	Haraway Heath Cussins	

#### References:

Charis Cussins, *Ontological Choreography: agency for women patients in an infertility clinic*, in Berg and Mol, *Differences in Medicine*.

Annemarie Mol and John Law *Embodied Action*, [Enacted Bodies: The Example of Hypoglycaemia](#) in *Body and Society* 2004 Vol 10 (2-3) 43-62

Deborah Heath, *Modest interventions*

Callon, Michel (1999): "Actor-Network Theory – the Market Test", in Law and Hassard (eds.) *ANT and After*, London, Blackwell.

Latour, Bruno (1998): *ecologize "To modernize or to ecologize? That's the question."* In *Remaking reality: nature at the millennium*, edited by B. Willems-Braun and N. Castree. London, Routledge,

Moser, Ingunn & John Law (1999): "Good passages, bad passages", in Law and Hassard (eds.) *ANT and After*, London, Blackwell.

Sokal, Alan (1996): "Transgressing the Boundaries: Toward a Transformative Hermeneutics of Quantum Gravity" *Social Text* no 46/47,

**Week 12 (week 45 – 7.11 to 11.11)**  
**READING WEEK**

**Possible for various activities – students initiate/ organize**

## **Module 4**

### **ORGANIZATIONS AND KNOWLEDGE**

Module tutor: Research fellow Jon Vatnaland

Understanding science and technology in modern day society inherently rests on an acknowledgment of organization. Most human activity, and in particular that which engages in knowledge creation takes place within and between the boundaries of distinguishable organizations. It is therefore imperative to understand what organizations are and how they work as arenas and vehicles for the creation and utilization of knowledge.

This module provides insight into the complex world of organizations, and specifically organizations that are "knowledge-intensive". The module comprises three parts (weeks). The first part provides a basic understanding of organizations and organization theory. The goal is to familiarize students with organization studies as a field of inquiry as well as organizations as relevant and interesting empirical phenomena. The second part addresses knowledge-intensive organizations more specifically. The objective here is for students to gain an understanding of the specific challenges such organizations face as well as essential literature on topics such as knowledge-based firms, innovation management, organizational routines, corporate failure etc. The third part constitutes a collective empirical assessment of two case organizations. The goal is to gain a practical grasp of how the theoretical perspectives of the first two parts may be applied to real life contexts.



**Week: 13 Organizations and organization theory**

*The goal of this week is to get familiar with the different strands of organization theory. The week ends with an application of organization theory to a real life case (The 9/11 attacks on the US).*

Day	Date	Hours	Activity	Title	Responsible	References
Mon.	14.11	10.15-12	Lecture	Organizations: An introduction	Jon Vatnaland	Scott (2003) ch 1. <i>In particular pages 17-24.</i>
		14.15-16	Lecture	Rational, natural and open perspectives	Jon Vatnaland	Scott (2003) ch 2, 3, 4. <i>In particular pages 25-38, 53-60, 78-92, 101</i>
Tue.	15.11	10.15-12	Lecture	Environments	Jon Vatnaland	Scott (2003) ch 6, 8 <i>In particular pages 123-149, 197-229</i>
		14.15-16	Lecture	Goals, power and control	Jon Vatnaland	Scott (2003) ch 11.
Wed.	16.11		Reading day			
Thu.	17.11	10.15-12	Lecture	Organizational structure	Jon Vatnaland	Scott (2003) ch 9, 10 <i>In particular pages 230-261, 263-272, 281-290</i>
Fri.	18.11	NB! 09.15-12	Skills training Case studies	9/11 and organization theory	Jon Vatnaland	Stake (1996) The 9/11 commission report, ch 1

**References (full list for this week) including [core literature](#)**

Scott WR (2003): *Organizations. Rational, Natural and Open Systems*. 5<sup>th</sup> Edition ch 1-4,6, 8, 9, 10, 11 (In particular pages: 17-38, 53-60, 78-92, 101, 123-149, 197-229, 230-261, 263-272, 281-290, 291-324)

Stake RE (1996): "Case Studies", Ch. 14 in Denzin, N.K. & Lincoln, Y.S. (eds.) *Handbook of Qualitative Research*, London: Sage 12 p. **Comp 2-5**

*The 9/11 commission report*. Chapter 1: "We have some planes" pp. 1-46, Available at: <http://www.gpoaccess.gov/911/> 46p.

**Week: 14 Knowledge-intensive organizations**

*The goal of this week is to give the students an understanding of the specific challenges facing knowledge-intensive organizations.*

Day	Date	Hours	Activity	Title	Responsible	References
Mon.	21.11	10.15-12	Lecture	Knowledge intensive org: An overview	Jon Vatnaland	Alvesson (2001)* Nurmi (1998) Ditillo (2004)
		14.15-16	Lecture	Knowledge based theories of organization	Jon Vatnaland	Grant (1996) Nonaka (1991)* Nonaka (1994) Spender (1996)
Tue.	22.11	10.15-12	Lecture	Capabilities and routines	Jon Vatnaland	Becker (2004) Teece et al (1997)*
		14.15-16	Lecture	The innovative firm	Jon Vatnaland	Lazonick (2005)* Lazonick and Prencipe (2005) Background: Lam (2005) Pavitt (2005)
Wed.	23.11		Reading day			
Thu.	24.11	10.15-12	Lecture	Innovation management and failure	Jon Vatnaland	Finkelstein and Sanford (2000)*, Van de Ven (1986)
Fri.	25.11	10.15-12	Lecture	Interorganizational relations and networks	Jon Vatnaland	Leblebici et al (1991)* Background: Powell and Grodal (2005)

\* indicates the text with highest priority

**References;**

Alvesson M (2001): "[Knowledge work: Ambiguity, image and identity](#)" in *Human Relations*. Vol. 54(7): 863-886. 24p.

Becker MC (2004): "[Organizational routines: a review of the literature.](#)" in *Industrial and Corporate Change*. Vol. 13,4: 643-677. 35p.

Ditillo A (2004): "[Dealing with uncertainty in knowledge-intensive firms: the role of management control systems as knowledge integration mechanisms.](#)" in *Accounting, Organization and Society*, Vol 29: 401-21. 21p.

Finkelstein S, Sanford, SH (2000): "[Learning from corporate mistakes: The rise and fall of Iridium.](#)" In *Organizational Dynamics*, vol. 29, 2: 138-148. 11p.

Grant RM (1996): "Toward a knowledge-based theory of the firm" in *Strategic Management Journal*, vol.

17 (Winter Special Issue): 109-122. 14p.

**Lam A (2005): "Organizational innovation" ch. 5 in Fagerberg J, Nelson R, Mowery D: *Oxford Handbook of Innovation*. Pp. 115-147. OUP 2005 33p.**

**Lazonick W (2005): "The innovative firm" ch. 2 in Fagerberg J, Nelson R, Mowery D: *Oxford Handbook of Innovation*. Pp. 29-55 OUP 2005. 28p.**

Lazonick W, Prencipe A (2005): "[Dynamic capabilities and sustained innovation: strategic control and financial commitment at Rolls-Royce plc.](#)" in *Industrial and Corporate Change*. Vol. 14,3: 501-542. 42p.

Leblebici H, Salancik GR, Copay A, King T (1991): "Institutional change and the transformation of interorganizational fields: An Organizational History of the U.S. Radio Broadcasting Industry." In *Administrative Science Quarterly*. Vol. 36, Sept: 333-363. 31p. **Comp 2-5**

Nonaka I (1991): "The knowledge-creating company" in *Harvard Business Review*. Vol. 69, 6: 96-106 11p. **Comp 2-5**

Nonaka I (1994): "A Dynamic Theory of Organizational Knowledge Creation." In *Organization Science*. Vol. 5,1: 14-37. 25p.

Nurmi R (1998): "[Knowledge-intensive Firms](#)". in *Business Horizons*, May-June 1998: 26-32. 7p.

**Pavitt K (2005): "Innovation process" ch. 4 in Fagerberg J, Nelson R, Mowery D: *Oxford Handbook of Innovation*. Pp. 86-114 OUP 2005 29p.**

**Powell WW, Grodal S (2005): "Networks of innovators." ch. 3 in Fagerberg J, Nelson R, Mowery D: *Oxford Handbook of Innovation*. Pp. 56-85 OUP 2005 30p.**

Spender JC (1996): "Making Knowledge the Basis of a Dynamic Theory of the Firm" in *Strategic Management Journal*, vol. 17 (Winter Special Issue): 45-62. 18p.

Teece DJ, Pisano G Shuen A (1997): "[Dynamic capabilities and strategic management.](#)" in *Strategic Management Journal*, Vol. 18, 7: 509-533 25p.

Van de Ven AH (1986): "Central Problems in the Management of Innovation" in *Management Science*, vol. 32: 590-607. 18p.

**TIK4000 – ESST, 1<sup>st</sup> semester Oslo autumn 2005****Module:** 4 – Jon Vatnaland**Week: 15 Knowledge-intensive organizations as comparative cases**

*The goal of this week is to give the students an opportunity to apply theoretical perspectives to empirical material. The week comprises both on-site seminars with relevant organizations as well as collective analysis in groups.*

Day	Date	Hours	Activity	Title	Responsible	References
Mon.	28.11	<b>NB!</b> <b>09.00-12</b>	Excursion Case study 1	Telenor Research and Development	Jon Vatnaland	
		<b>14.15-16</b>	Group work		Jon Vatnaland	
Tue.	29.11	<b>10.15-12</b>	Excursion Case study 2	Opera Software	Jon Vatnaland	
		<b>14.15-16</b>	Group work		Jon Vatnaland	
Wed.	30.11		Writing day			
Thu.	01.12	<b>10.15-12</b>	Presentations	Organizing knowledge: comparative perspectives	Jon Vatnaland	
Fri.	02.12	<b>10.15-12</b>	Plenary discussion	Closing remarks and Lunch	Jon Vatnaland	

**Room 504 (if otherwise this is stated)****References (full list for this week) including [core literature](#)**

**Modul 5: Politics of knowledge  
Technology, Science and Politics in the 20<sup>th</sup> Century.**

**Module tutor;** [Torben Hviid Nielsen](#)

This module will give an extensive overview of technology, science and politics in the 20. Century culminating in a discussion of how Sept. 11 and the War on Terror might have changed the relation between technology, science and politics.

The readings are partly recent classics, partly a re-reading of already known texts in a new context, partly contemporary polemics. It is an aim to present a variety of approaches, and prepare the participants to understand their context and argue about their validity.

**Week: 16 (49) 5 – 9 /12 - 05**

	Mandag	Tirsdag		Torsdag	Fredag
10.15 – 12.00	Bioteknologi som mulighed. v. THN	Naturen som grænse. v. THN		Det sårbare samfund som samtidsdiagnose. v. Gruppe I	Globalisering og multikulturalisme som samtidsdiagnose. v. Gruppe III
14.15 – 16.00		En ny etikk og/eller en bærekraftig politik. v. THN		Risikosamfundet som samtidsdiagnose. v. Gruppe II	Sammenfattende diskussion af de tre samtidsdiagnoser. V. THN

**Week 17: 50. 12 – 16/12 - 05**

	Mandag	Tirsdag	Onsdag	Torsdag	Fredag
10.15 – 12.00	Krig og fred i det 20. Århundrede. Oversigt ud fra Glover. v. THN	.		* I. VK og skyttegravene * II. VK og de store lejrer.	* Tilbage til de tre samtidsdiagnoser. og afrunding/evaluering. * eksamensopgaver utdeles
14.15 – 16.00			12.30-18.00. Religion og bioteknologi i et flerkulturelt samfunn. Thon Hotel Opera. www.bion.no	* The "clean war". * Sept 11, 2001 - and after.	

Beck, Ulrich: Risk Society. Towards a New Modernity. London. 1992

[History and Technology. An International Journal. Special issue on 9/11.](#) Edited by John Krige. Vol 19, No 1, March 2003.

### Readings for the two weeks

#### “Teknologi - natur og krig ved indgangen til det 21. århundred”

Tre diagnoser

#### 1. Det sårbare samfund.

**NOU 2000:24.** Et sårbart samfunn. Udfordringer for sikkerhets- og beredskapsarbeidet i samfunnet. Titelblad & Kapitel 1. Sammendrag, pp. 13-19

**St. meld. Nr. 17 (2001-2002).** Samfunnssikkerhet. Veien til et mindre sårbart samfunn. 1. Innledning & 2 Sammendrag. Pp. 7-13.

#### 2. Risikosamfundet.

Ulrich Beck. 2002. “The Terrorist Threat. World Risk Society Revisited”. *Theory, Culture & Society*. Vol. 19 (4) Special Section on State of Emergency: 39-55.

### **3. Globalisering og multikulturalisme.**

Benjamin R. Barber. 1996. "Introduction", pp. 3-20 i *Jihad vs. McWorld*. Ballantine Books. New York.

## Natur og omverden

### **1. Bioteknologi som mulighed.**

Gregory Stock. 2002. "The Last Human", Chap I, pp. 1-18 (notes pp. 215-217) in *Choosing Our Children's Genes. Redesigning Humans*. Profile Books. London.

### **2. Økologi som grænse.**

The World Commission on Environment and Development. 1987. "From one Earth to one World". Pp. 1-23 in *Our Common Future*. Oxford University Press.

### **3. En ny etik?**

Hans Jonas. 1984. "Preface", pp. ix-xii & "The Altered Nature of Human Action." Chap. I, pp. 1-24 (notes p. 233) in *The Imperative of Responsibility. In Search of an Ethics for the Technological Age*. The University of Chicago Press.

### **4. En bærekraftig politik?**

"Rio Declaration on Environment and Development." Pp. 9-11 in *Earth Summit, Agenda 21*. The United Nations Programme of Action from Rio. 1992.

## Krig og fred

### **Oversigt.**

Jonathan Glover. 2001. *Humanity. A Moral History of the Twentieth Century*. "Never Such Innocence Again" (Chap. I. pp. 1-7, References p. 415), "The Moral Psychology of Waging Wars" (Part II. pp. 45-116, References pp. 417-422) and Epilogue (pp. 411-414, References p. 447). Pimlico. London.

### **Første Verdenskrig og skyttegravene.**

Erich Maria Remarque. 1955. Cap. I, pp. 7-18 og Cap. 11, pp. 176-190 in *Intet nyt fra Vestfronten*. Oversat af Tom Kristensen efter *Im Westen nichts neues*.

### **Anden Verdenskrig og de store lejrer.**

1. Zygmunt Bauman. 1991. "The Uniqueness and Normality of the Holocaust." Cap. IV, pp. 83-116 (notes pp. 231-232) in *Modernity and the Holocaust*. Polity Press. Cambridge UK.

2. Alexander Solsjenitsyn. 1973. *GULAG øhavet 1918-1956*. Bind I, pp. 209-214. Oversat af Ole Husted Jensen. Gyldendal. København. 1974.

### **The "clean" War.**

Jean Baudrillard. 2001. "The Gulf War Did Not Take Place." Pp. 231-253 in *Selected Writings*. Second edition. Stanford University Press.

### **11. Sept. 2001 - og efter.**

1. George W. Bush. 2001. *President Declares "Freedom at War with Fear"*. Address to a Joint Session of Congress and the American People. [www.whitehouse.gov/news/releases/2001/09](http://www.whitehouse.gov/news/releases/2001/09).

2. American Forces Press Service. *Rice Defends Pre-emption as Security Policy*. Oct. 8. 2003. [www.defenselink.mil/news/Oct2003](http://www.defenselink.mil/news/Oct2003).

3. Susan Suntag. "Comment. Tuesday, and after." *The New Yorker*. September 24, 2001:32.

4. Paul Keeling. "The Bush Disjunction." *Philosophy Now*. August/September 2005: 29-31.

5. Wiebe E. Bijker. 2003. "The need for Critical Intellectuals: A Space for STS." *History and Technology*. Vol 19(1). Special Issue on 9/11:78-82.

### Other Texts:

**Comp 2-5:** Latour, Bruno: Give Me a Laboratory and I Will Raise the World. In K. D. Knorr-Cetina and M. Mulkay (eds): *Science Observed*. Sage. 1983. 141-170.

**Core:** Pinch and Bijker: Pinch, T. J and Bijker, W. E. "The Social Construction of Facts and Artifacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other." Pp. 1-50 in W. E. Bijker, T. P. Hughes and T. Pinch (eds), *The Social Construction of Technological Systems*. Cambridge & London: The MIT Press.

**Core:** Winner, Langdon. *The Whale and the Reactor. A Search for Limits in an Age of High Technology*. University of Chicago Press. 1986



## Learning goals ESST semester 1

The curriculum for Semester A introduces key current issues, debates, conceptual perspectives and methodological approaches which provide a basis for the research project in Semester B. Upon successful completion of Semester A curriculum, you will be able to:

- engage in informed debate about issues of SST in Europe;
- analyse such issues from a variety of perspectives;
- investigate in depth a selected issue and produce a substantial commentary/report upon it.
- identify the scientific and technological dimensions of many key issues facing the European Community;
- recognise the complex interplay of the social, scientific and technological in current public debate, research and development programmes and social policy formation;
- trace the development and growing awareness of that interplay in the 20th Century;
- deploy in outline interdisciplinary approaches to understanding such issues (drawing, for example, upon aspects of philosophy, sociology, anthropology and [multi]cultural studies).
- survey the inter-relationship of science, technology and economic development from a historical perspective;
- give an account of the main developments in Europe and related spheres from the first scientific and industrial revolutions to the present;
- evaluate critically competing accounts of the innovation process and techno-social-economic transitions;
- position current issues and debates in a broader historical perspective.
- comment critically upon current concerns with globalisation;
- analyse examples of the shifting spatial and organisational structuring of high technology industries;
- identify the key interests groups and their roles and tactics;
- evaluate Europeanisation as a response to globalisation;
- contextualise the economic issues in the context of broader debates about, for example, the risk society, the information superhighway or global sustainable development.
- refer to a range of accounts of the making of science and technology in practice;
- evaluate critically accounts given by scientists and technologists of what they do;
- discuss critically the claim that scientific knowledge is socially constructed.
- articulate your own values in relation to issues of society, science and technology in Europe;
- engage in critical dialogue about the political and ethical issues;
- discuss the relative merits of competing epistemological stances, with particular reference to issues of gender and Euro-centrism;
- analyse the political issues involved in a current social/scientific/technological controversy;
- offer appropriate options for negotiating the political agendas of different interest groups in such controversies.

### **Essay no. 1. Week 41**

Essays are written on an individual basis. An accurate word count at the bottom of the last page of your paper is required. Each essay should take careful measure of the topic. An essay might concern itself with identifying recurrent themes or concerns that links articles or books on the reading list, making illuminating contrasts or connections between them. The key to doing a good job on these assignments is to compose not a mere summary, but a creative, probing, illuminating, synthetic critical analysis of the literature. The text for each of the essays will be communicated ca. 10 days before submission date. You will get several alternatives to choose amongst. The specific form of the essay is open to various solutions. It is, however, advisable to design a conventional piece with an introduction (introducing the topic), a main bulk of the essay (presenting the issue and discussing it), and a conclusion. In any case each essay should take careful measure of the topic. Note that the provided essay texts should be considered carefully before actual writing starts up. In other words, although the essay texts suggest the overall topic of the essay to be written it is more often than not necessary to narrow down and specify the way you intend to attack this task by way of constructing a problem formulation. An essay might concern itself with identifying recurrent themes or concerns that link articles or books on the reading list, making illuminating contrasts or connections between them. The key to doing a good job on these assignments is to compose not a mere summary, but a creative, probing, illuminating, synthetic critical analysis of the literature. Both essays are written on an individual basis.

The first essay may be maximum 4000 words (ca. 12 pages with 12 point fonts and 1 1/2 line space), and the second 6000 words (ca. 18 pages). These word counts are excluding bibliographical references. An accurate word count at the bottom of the last page of your paper is required. Note that we have prepared a separate web page with style recommendations, <http://www.esst.uio.no/stylesheet.html>

We believe strongly in an emphasis on what is generally referred to within the educational sciences as “formative evaluation” of your efforts within this first semester of the ESST-study. This means that feedback and comments throughout the semester will not influence your final mark, but rather serve to act as guidelines for doing better and better (cf. presentations), and in the final instance provide a basis for carrying through the M.A.-thesis work during the second semester.

In the case of the essays there is formative evaluation of the first of the two essays. This means that there will be provided detailed individual comments as soon as possible after the essay has been submitted. The ESST marks will be suggested on a guideline basis in order to indicate the level of the essay.

### **Essay 2. Week 51**

The second essay may be maximum 6000 words (ca. 18 pages). These word counts are excluding bibliographical references. An accurate word count at the bottom of the last page of your paper is required. Note that we have prepared a separate web page with style recommendations, <http://www.esst.uio.no/stylesheet.html>.

The second essay will be evaluated according to summative principles using a basic pass - fail scale. This is because the second essay serves, in addition to its training function, as the formal evaluation between the first and second semesters of the ESST course. In addition each essay will be commented upon according to formative principles.

## **Practical tasks part of your commitment**

*Seminar during first part of September (5-6 or 8-9 to be decided):*

The items which need to be organised are: transportation (public or private), food and drink for 22-23 persons during two days, financial matters, any extra equipment such as music or video player and tape in the case one would like to arrange for the viewing of a movie. TIK sponsors parts of the expenses for overnight stay, transportation and food, so those responsible for this task will have to set up a budget together with Håkon Skogli.

*Practical task II, pre-Christmas get-together - Julebord.*

A TIK tradition consists of the current class of ESST-students (you!) arranging for the diploma ceremony for last year's graduates. After the ceremony there is a dinner/Christmas party. The julebord is open for all previous ESST-students, and must be coordinated with interESST (ALUMNI) and TIK. Thus the task includes: find a suitable place which then has to be booked, catering, and invitations. There is no University sponsoring of this event, so all participants including graduating students as well as any teaching staff invited must pay for attendance. Contacts: Håkon Skogli .

**Core literature: (aprox. 872 pages)**

Bijker, W.E., Hughes T.P.& Pinch, T., *The Social Construction of Technological Systems. New Directions in the Sociology and History of Technology* (1987), Cambridge MA.: MIT Press

-Part 1: 'Common themes in sociological and historical studies of technology' (pp. 1-50)

Bruland, K.(1982) Industrial conflict as a source of technological innovation In: *Economy and Society* Vol 11 p.91-121

Collins, Harry & Trevor Pinch (1993) *The Golem:What everyone should know about Science.*, Cambridge University Press.

-Introduction (pp.1-3)

-Chpt 5 'A new window on the universe: the non-detection of gravitational radiation' (pp.91-107)

- Conclusion (pp.141-151)

Freeman, C. and Perez C. (1988). Structural Crises of Adjustment. In Dosi, G. et al. eds. *Technical Change and Economic Theory*. London: Pinter (pp.38-66)

Hacking, Ian.(1999) *The Social Construction of What?* London: Harvard University Press.

-Chpt 3 'What about the natural sciences?' (pp.63-99)

-Chpt 6 'Weapons research' (pp.163-185)

Köhn, J., Gowdy, J., Hinterberger, F. & van der Straaten, J. *Sustainability in question. The search for a conceptual framework*. 1999

-Introduction (pp.3-15)

-Chpt 2 Sustainability Concepts: from theory to practice, Melinda Kane (pp.15-31)

-Chpt 6 System hierarchy, change and sustainability, Jörg Köhn (pp.85-100)

-Chpt 12 Firms and Dematerialisation, Julia Haake et al. (pp.193-207)

-Chpt 14 Consumer behaviour, a modelling perspective in the context of integrated assessment of

global change, Wander Jager et al (pp.229-246)

Kuhn, T. (1977). The Historical Structure of Scientific Discovery. In: *The Essential Tension*, Chicago: The University of Chicago Press (pp.165-177)

Latour, B. (1987). *Science in action: how to follow engineers and scientists through society*. Cambridge: Cambridge University Press.

-Introduction (pp.1-17)

-Appendix 1 and 2. (pp 1+1)

Lyon, D (1999), *Postmodernity*, 2nd edition, Buckingham: Open University Press.

-Chapter 4 "From Postindustrialism to Postmodernity (pp.46-68)

Metcalf, J.S. (1994), Evolutionary Economics and Technology Policy, *Economic Journal*, 104, pp. 931-41.

Mitcham, Carl. (1994) *Thinking through Technology*, Chicago: The University of Chicago Press.

-Introduction (pp.1-15)

-Chpt 6 'From philosophy to technology' (pp.137-160)

-Chpt 7 'Types of technology as object' (pp.161-191)

-Conclusion' (pp.267-274)

Mokyr, J. (1990). *The lever of riches: technological creativity and economic progress*. New York: Oxford University Press.

-Chpt 5 'The years of iracles: the industrial revolution 1750-1830' (pp.81-112)

-Chpt 6 'The later nineteenth century: 1830-1914' (pp.113-148)

Mumford, L. 1934. *Technics and civilisation*. New York: Harcourt Brace.

-Objectives (pp.3-7)

- Chpt 1 'Cultural preparation' (pp.9-59)

Nelkin D., (1995) *Selling Science. how the press covers science and technology* Freeman & Comp.  
(rev.ed.)

-Chapter 1 'Science and technology in the media' (pp.1-13)

-Chpt 5 'Media messages, media effects' (pp.62-77)

-Chpt 9 'How scientists control the news' 9 (pp.144-158)

Nelson, R.R. and Winter, S. (1977) Search for Useful Theory of Innovation, *Research Policy*, 6, pp.  
36-76. Nonaka, I. (1991) The knowledge creating company In: *Harvard Business Review*. Vol. 69  
(Issue 6), 96-106

Pack, Howard, "Learning and Productivity Change in Developing Countries", in G. Helleiner (ed.),  
*Strategic Trade Theory and Market Structure in Developing Countries*, Oxford University Press, 1992.  
(pp. 21-45)

Rip, Arie. & Thomas Misa, Johan Schot (eds.) (1995) *Managing Technology in Society. The approach  
of Constructive Technology Assessment*. London: PinterThomas.

-Introduction (pp.1-15)

Smith, K. (1991). Innovation Policy in and Evolutionary Context. In: Saviotti. P and Metcalfe, J.S. eds.  
*Evolutionary theories of economic and technological change: present status and future prospects*.  
Chur: Harwood Academic Publisher (pp. 256-275)

Stewart, F. (1977) *Technology and Underdevelopment*, London, Mac Millan Press,

-Chpt 3 'Inappropriate Technology' (pp.58-94)

Wajcman, J. (2000) Reflections on Gender and technology Studies: in what state is the art? In: *Social*

*Studies of Science*, vol 30, 3, pp.447-464

Webster, Frank (2002) *Theories of the Information Society*. 2nd edition. London Routledge.

-Introduction (pp.1-7)

-Chpt 2 The idea of an information society (pp.9-29)

-Chpt 10 Conclusion (pp.263-273)

Winner, L. (1986). *The Whale and the Reactor. A search for Limits in an Age of High Technology*,  
Chicago: The University of Chicago Press

-Chpt 1 Technologies as forms of life (pp.3-18)

-Chpt 2 Do artifacts have politics? (pp.19-39)

Wyatt, Sally (1998). *Technology's Arrow. Developing information networks for public administration in Britain and the United States*. Maastricht: UMP

-Introduction (pp.1-4)

-Chpt 1 Technology & society n- a false dichotomy (pp.4-24)

-Chpt 3 Studying the society-technology relationship (pp.53-69)

-Chpt 6 Conclusion: technological determinism is dead; long live technological determinism (pp.137-155)

## Students ESST Oslo 2005-2006

Name	Sirname	Background (very roughly)
Mette	Andersen	Informatics
Siri Brorstad	Borlaug	Social anthropology
Christina	Bu	Political science
Lars Øystein	Eriksen	Economics
Jens	Hanson	Psychology
Erlend Andre Tveiten	Hermansen	Sociology and media science
Sunniva Flakstad	Ihle	Political science
Kjell Kåre	Knudsen	Humanities
Steinar	Kåsin	Social anthropology/geography
Elisabeth	Lervik	Economics and it
Siv Gotland	Lien	Film/TV media
Øystein	Luktvasslimo	Engineering
Sigurd Harnæs	Lund	Informatics
Benjamin	Myklebust	Engineering/humanities
Karl-Wilhelm <u>Daniel</u>	Ras-Vidal	Social anthropology/geography
Marianne	Stuen	Economics – marketing
Fredrik	Thele	Political science/media
Siri	Zimarseth	Psychology
Lars	Ødegaard	Marketing/communication
Solveig Kristine	Østby	Psychology