Vedlegg 2.

Utskrift fra møteprotokollen Utdanningsutvalgets møte torsdag 23. mars 2006:

Sak 5 i UU-møtet 23.03.2006; Fellesgrader/Joint degrees ved NTNU (UU-sak 18/06):

"**5. Fellesgrader/Joint degrees ved NTNU** (UU-sak 18/06)
dokumenter:
Notat fra studiedirektøren, Fellesgrader, datert 20.03.2006.
Studiedirektør Hilde Skeie innledet.

fra orienteringen og drøftingene:

- Tilsvarende samarbeid med utenlandske institusjoner har fram til nå foregått gjennom tildeling av doble grader, dvs at hver institusjon har utstedt sitt vitnemål. Med revisjon av lov om universiteter og høgskoler sist sommer er det nå gitt anledning også for norske universitet å tildele fellesgrader ("joint degrees"). Det avføder en del praktiske og formelle problem knyttet til fellesgrader på doktorgradsnivå, som NTNU må finne sin løsning på.

- Dekanmøtet har gitt Utdanningsutvalget oppgaven å se nærmere på
  - hva NTNU ønsker å oppnå med å inngå avtale om fellesgrad
  - hvordan NTNU skal kvalitetssikre et reglement om fellesgrad
  - føringer p hvilke fellesgrader NTNU skal arbeide for å inngå avtale om
  - selve søknadsprosedyren, søknadsfrist for å koordinere søknadene fra NTNU
  - hvordan det skal sees i forhold til NTNUs studieprogramportefølje

- Studieavdelingen kommer til å utarbeide en egen mal for prosedyren for å søke om tildeling av fellesgrader. Søknaden må forankres gjennom vedtak i NTNUs styre.

- NTNU må vurdere om fellesgrader på doktorgradsnivå hører mer naturlig hjemme under Forskningsutvalget.

Vedtak:

1. Utdanningsutvalget ber studiedirektør med utgangspunkt i det framlagte notatet, datert 20.03.06 om å fastsette retningslinjer for utvikling og etablering av fellesgrader som NTNU skal være med å tildele.
2. Utdanningsutvalget anbefaler at Rektor tilrår NTNUs styre å vedta å opprette fellesprogrammet *Master in Security and Mobile Computing* så snart tilstrekkelig søknadsdokumentasjon er kommet fra Fakultet for informasjonsteknologi, matematikk og elektroteknikk."

NTNU
Norges teknisk-naturvitenskapelige universitet

Vedlegg 3.

Fakultet for informasjonsteknologi, matematikk og elektroteknikk

Studieavdelingen
NTNU

Saksbehandler
Astrid Hatlen
Telefon 73 59 42 04
E-post Astrid.Hatlen@ime.ntnu.no

Vår dato:	Vår ref.:	Deres dato:	Deres ref.:
31.03.2006	2006/2638		

SØKNAD OM Å OPPRETTE NYTT 2-ÅRIG INTERNASJONALT MASTERPROGRAM – Erasmus Mundus - NordSecMob – Master`s Programme in Security and Mobile Computing.

Fakultet for informasjonsteknologi, matematikk og elektroteknikk v/Institutt for telematikk og Helsinki University of Technology, TKK, Finland, Danmarks tekniske universitet, DTU, Kungliga tekniska høgskolan, KTH, Sverige og Universitetet i Tartu, UT, Estland inngikk i 2005 et samarbeid om opprettelse av et 2-årig masterprogram i Security and Mobile Computing innenfor Erasmus Mundus Programme i EU, med oppstart høsten 2006. Programmet er listet under EU-kommisjonens oversikt over "Master Courses selected under Action 1".

Kontaktperson ved Inst. for telematikk er professor Svein J. Knapskog. Studieprogrammet finansieres på ordinær måte over instituttets rammemidler.

Studieprogrammet er dimensjonert for 45 studenter pr. år fordelt på samarbeidspartnerne. En felles opptakskommitè velger ut studentene. Opptakskrav er fullført bachelorgrad i Datateknikk eller Informasjonsteknologi, eller tilsvarende. Søkningen til studiet fra land utenfor EU har vært god. 26 studenter ble tatt opp i februar 2006, derav skal 8 til NTNU. Resten av studentene skal rekrutteres fra EU/EØS-land i slutten av april.

Opprettelsen av programmet ble behandlet i møte i Studieutvalget ved IME-fakultetet 27. mars 2006 . Studieutvalget sluttet seg til forslaget.

Programmet på 120 ECTS credit points, er delt inn i to blokker. De første 1-2 semestre (30-60 ECTS) tas ved NTNU, KTH eller TKK. De neste 2-3 semestre tas ved DTU, KTH, NTNU, TKK eller UT. De tre første semestrene skal det tas emner, det fjerde semestret består av en masteroppgave på 30 studiepoeng. Programmet fører frem til en Master of Science (Double Degree).

Følgende emner fra NTNU tilbys i programmet:
Høst 2006:
TTM4105 Aksess- og transportnett
TTM4110 Pålitelighet og ytelse med simulering
TTM4150 Nettarkitektur og internett
TMA4155 Kryptografi, introduksjon

Vår 2007:
TTM4115 Systemering av distribuerte sanntidssystemer
TTM4120 Pålitelige systemer
TTM4128 Tjeneste- og ressursadministrasjon
TTM4135 Informasjonssikkerhet
TIØ4200 Helse-, miljø og sikkerhet – Sikkerhetsledelse

Høst 2007:
TTM4705 Informasjonssikkerhet, fordypningsemne
TTM4137 Informasjonssikkerhet i mobilnett
EVU-kurs: Informasjonssikkerhet
Seminar: Sårbarhet og samfunn

Vår 2008:
TTM4900 Telematikk masteroppgave.

Alle emnene, unntatt EVU-kurs: Informasjonssikkerhet og Seminar: Sårbarhet og samfunn, høst 2007, undervises i de ordinære masterprogrammene i siv.ing.-studiet ved NTNU.

Kari Hag
Fung. Dekanus

Sverre Smalø
Prodekanus undervisning

Education and Culture

Erasmus Mundus

Reserved for the Commission

Number	Date of Postmark

ERASMUS MUNDUS PROGRAMME

Application Form for Action 1:

ERASMUS MUNDUS MASTERS COURSES

You are applying for:

☒ An Erasmus Mundus Masters Course without a preparatory year

☐ An Erasmus Mundus Masters Course including a preparatory year

CLOSING DATE FOR SUBMISSION:

31 MAY 2005
(as per postmark)

Important instructions and information regarding the application and selection procedure

- Before completing the form, please read the relevant sections in the *Erasmus Mundus Call for Proposals EAC/04/05* and the *Administrative and Financial Handbook for Erasmus Mundus Projects*. Further information can be found on the Erasmus Mundus website: http://europa.eu.int/comm/education/programmes/mundus/index_en.html .

- Please note that even if you apply for an Erasmus Mundus Masters Course including a preparatory year, your application – if successful - would be selected for five years. You are therefore required to answer all questions under Section 2 of the application form.

- Your proposal will be assessed on the basis of the elements included in this application only. You can include web site references in your application, but the assessment of your proposal will not be based on additional technical information found on a web site and not contained within the application.

- Applicants should use as application language the operational language of communication between the institutions involved in the Masters Course.

- The application must be typewritten or word-processed using a computer, character size 11 pt minimum.

- The original of the application must bear the original signature of the legal representative of the co-ordinating institution and the original stamp of this institution.

- The application must be accompanied by copies of letters from the appropriate authorities of each institution participating in the Masters Course, confirming their agreement with the application as submitted.

- Applications must be sent by post **and** e-mail by the closing date. The paper copy is authentic. Applications sent by e-mail only or sent by fax will not be accepted. Annexes which are not available electronically need not be sent by e-mail.

- The signed original of the application and 2 copies thereof must be sent in the same envelope **by 31 May 2005 (as per postmark)** to:

European Commission
Directorate-General for Education and Culture
Directorate B – Unit B/6
Bureau: B -- 7 06/32
B-1049 Brussels
E-Mail: EAC-Erasmus-Mundus@cec.eu.int
Fax: (+32) (2) 296.32.33

Because of the tight timing for the assessment of applications, you are requested to send your application **by rapid mail so that it reaches the Commission no later than 7 June 2005**.

- A paper copy **and** an electronic copy of the original application must be sent by 31 May 2005 to the appropriate National Structure in each of the countries which are participating in the Masters Course. The list of National Structures appears in the *Erasmus Mundus Call for Proposals EAC/04/05* and on the website indicated above.

- All applications will receive an acknowledgement slip.

- Applications will be judged against the eligibility, selection and award criteria set out in the *Erasmus Mundus Call for Proposals EAC/04/05.*

- Applicants will be notified about the outcome of the selection in writing in September 2005. A copy of the notification letter will be sent to the National Structures concerned.

- In accordance with standard Commission practice, the information provided in your application may be used for the purposes of evaluating the Erasmus Mundus programme. The relevant data protection regulations will be respected.

- Any questions relating to this proposal should be addressed to the address indicated above.

SECTION 1 - IDENTIFICATION

1. Title of the Masters Course

Please use a maximum of 12 words; start with an acronym or abbreviation, if applicable.

NordSecMob - Master's programme in Security and Mobile Computing

If your title is not in English, French or German, please provide a translation into any of the three languages.

-

2. Summary description of the Masters Course (maximum 500 words)

Please identify clearly the following aspects of your Masters Course:

- Objectives of the Masters Course, qualifications obtained, duration, language(s) of instruction, size of student population, professor / student ratio;
- Summary of study programme;
- List of higher education institutions involved in the Masters consortium[1], including locations and mobility arrangements;
- Precise degree awarded (by which institutions and recognised in which countries);
- Admission criteria.

If your application is successful, this summary will be used as the official description of the Masters Course. It will be part of your grant agreement and published on the internet. You are therefore kindly requested to formulate it very carefully and to provide this summary in English, French or German.

Objectives of NordSecMob - Master's programme in Security and Mobile Computing :

- To strengthen a long term research co-operation between partner universities in the field of Computer science, Data security and Mobile computing by means of structured co-operation i.e. a joint Master's programme within the guidelines of Bologna process
- To combine diversity of expertise at five European universities.
- To enable students to acquire profound and wide knowledge on the field of both in practice and in theory.
- To develop the research skills of students to further studies at the PhD-level and to offer a possibility to gain international research experience in a high-level R&D environment and an access to major international networks.
- The communication, networking and other important professional skills of students will be developed by force of diverse methods of learning and teaching.

Higher education institutions involved/ location/ degree awarded:

The students will receive a degree from each of the universities where they spent a part of their study. This two-year NordSecMob-programme leads to two officially recognized M.Sc.degrees (120 ECTS) issued by the home and host university:

- Helsinki University of Technology TKK (coordinator), Espoo, Finland, Master of Science (Technology)
- Technical University of Denmark DTU, Ljungby, Denmark, Master of Science in Engineering
- The Royal Institute of Technology KTH, Stockholm, Sweden, Master of Science
- The Norwegian University of Science and Technology NTNU, Trondheim, Norway, Master of Science
- University of Tartu UT, Tartu, Estonia, Master of Science in Engineering

Language of instruction is English. The programme is intended for a small number of top level students. The student number will be about 45-60 students of which 25 third country students. Student/staff ratio is around 4-5.

A joint curriculum is defined which involves always two universities. The 120 ECTS credit points will be divided

[1] The consortium is the group of higher education institutions involved in the Masters Course.

into two blocks: 1-2 semesters of teaching (30-60 ECTS credit points) will be provided by home university and 1-2 semesters of teaching (30-60 ECTS credit points) will be provided by host university. The programme includes three semesters of courses followed by a fourth research semester (Master's thesis, 30 ECTS) under supervision and evaluation by both the home and host university. The student takes courses focusing on advanced topics on the selected area of specialization:

TKK: Technical Information Security and Network services
KTH: Communications Systems Design
NTNU: Security in Telematics
DTU: Software security
Tartu: Mathematical foundations of cryptography

The first autumn term studies are taken at one of the three home universities: TKK, KTH or NTNU. Students with the specialization "Software Security" move from home university to DTU for the first spring semester and stay second year at DTU. Students with other specialization tracks move after first year studies to host universities (TKK, NTNU, KTH and Tartu) for the second autumn semester.

Admission criteria: Admission criteria to the program is a high quality Bachelor's degree in Computer Science or Information technology or equivalent studies. Admission on competitive basis. Good knowledge of English: official test report of TOEFL or IELTS test with specified results.

3. Languages

Language in which you would like the grant agreement to be issued and correspondence with the Commission to be conducted. To facilitate co-operation with your partners, you are advised to enter the language most commonly used for communication within the consortium.	
1st preference	2nd preference
☐ German ☒ English ☐ French	☐ German ☒ English ☐ French

4. Financial support from the European Community

Please note that according to the new financial regulation applicable to the general budget of the European Communities, one project may not receive more than one grant from the budget of the European Communities. In other words, if you are to be selected to receive an Erasmus Mundus grant for a given Masters Course, you must not receive a grant from another Community programme for the same Masters Course and funding period.

Is this Masters Course, or any aspect thereof or any larger project to which it may belong, currently being supported under another European Community programme?

☒ No

☐ Yes. *Please specify the programme(s), date(s), type(s) of activity and, if possible, agreement number(s):*

Is this Masters Course, or any aspect thereof or any larger project to which it may belong, currently the subject of any other application for support from the European Community?

☒ No

☐ Yes. *Please specify the programme(s) and provide the amount(s) requested:*

5. Previous applications for Erasmus Mundus Masters Courses

Please provide the following information for statistical purposes.

Are you resubmitting an application which has not been selected under previous Erasmus Mundus calls for proposals?

☒ No

☐ Yes. It was submitted under the first call for proposals (deadline 31 May 2004). Its reference number was: A1&2- -2004

☐ Yes. It was submitted under the second call for proposals (deadline 31 October 2004). Its reference number was: A1- -2005

If yes, has the composition of the consortium changed? ☐ Yes ☐ No. Possible comments:

6. Co-ordinating institution of the Masters consortium

The co-ordinating institution is also the applicant institution. To fill in this part, please use country codes and region codes indicated in Annex 1.

6.1 Legal Representative

This is the person legally authorised to sign the application and the grant agreement on behalf of the co-ordinating institution.

Full legal name of the institution in the national language	Teknillinen korkeakoulu		
Acronym of the institution, if applicable	TKK		
Full name of the institution in English (formal or informal translation)	Helsinki University of Technology		
Country code	FI	Region code	FI12
Type of institution	EDU	Erasmus University Charter N°	29613-IC-I-2002-I-FI-ERASMUS-EUC-1
Website	http://www.tkk.fi		
Legal representative of the institution: Family name First name	Pursula Matti	Title (e.g. Prof., Dr., etc.)	Prof
Department / Unit	Administration		
Official function within the institution	Rector	Sex	☐ F (female) ☒ M (male)
Legal address of the institution: Street & Street Number Post Code & Town Country	Otakaari 1 P.O 1000, 02015 TKK Finland		
Phone (including country and area code)	+358 / 9 / 4512000		
Fax (including country and area code)	+358 / 9 / 4512063		
E-mail	matti.pursula@tkk.fi		
Is the institution able to recover VAT?	yes		

6.2 Co-ordinator

This is the manager of the Masters Course. All correspondence relating to the Masters Course will be addressed to this person.

Family name First name	Kujanpää Eija	Title (e.g. Prof., Dr., etc.)	M.A
Institution (only if different from point 6.1 above) / Department	Department of Computer Science and Engineering		
Official function within the institution	Planning officer - international affairs	Sex	☒ F (female) ☐ M (male)
Correspondence address (only if different from point 6.1 above): Street & Street Number Post Code & Town Country	Konemiehentie 2, Espoo P.O. 5400, 02015 TKK Finland		
Phone (including country and area code)	+358 / 9 / 4514773		
Fax (including country and area code)	+358 / 9 / 4513015		

E-mail	eija.kujanpaa@tkk.fi

6.3 Person in charge of finance

Family name First name	Tuominen Mirja	Title (e.g. Prof., Dr., etc.)	
Department / Unit	Central Office of Finances and Accounting		
Official function within the institution	Financial Manager	Sex	☒ F (female) ☐ M (male)
Correspondence address (only if different from point 6.1 above): Street & Street Number Post Code & Town Country	Otakaari 8 P.O 1400 , 02015 TKK Finland		
Phone (including country and area code)	+358 / 9 / 4514528		
Fax (including country and area code)	+358 / 9 / 4514544		
E-mail	mirja.tuominen@tkk.fi		

6.4 Financial identification

Please complete and sign the form in Annex 2 and attach it to your application.

Partner institution No 1

Full legal name of the institution in the national language	Kungliga Tekniska högskolan				
Acronym of the institution, if applicable	KTH	Erasmus University Charter N°	9371-IC-1-2002-1-SE ERASMUS EUC-1		
Full name of the institution in English (formal or informal translation)	The Royal Institute of Technology				
Type of institution	Public University	Country code	SE	Region code	SE01
Department / Unit	School of ICT				
Contact person	Family Name: Pehrson First Name: Björn	Function: Professor Male x☐ Female ☐			
Address: Street & Street Number Post Code & Town Country	Electrum 229 164 40 Kista Sweden				
Phone (including country and area code)	+46 / 8 / 790 4208. +46 70 625 6140				
Fax (including country and area code)	+46 / 8 / 751 1793				
E-mail	bjorn@it.kth.se				
Website	http:// www.ict.kth.se				
Is the institution able to recover VAT?	yes				

Partner institution No 2

Full legal name of the institution in the national language	Norges teknisk–naturvitenskapelige universitet				
Acronym of the institution, if applicable	NTNU	Erasmus University Charter N°	**29704-IC-1-2002-1-NO-ERASMUS-EUC-1**		
Full name of the institution in English (formal or informal translation)	Norwegian University of Science and Technology				
Type of institution	EDU	Country code	NO	Region code	NO06
Department / Unit	Department of Telematics				
Contact person	Family Name: Knapskog First Name: Svein Johan	Function: Professor Male x☐ Female ☐			
Address: Street & Street Number Post Code & Town Country	NTNU Institutt for telematikk O.S. Bragstads plass 2B N-7491 Trondheim				
Phone (including country and area code)	+47 / 73594328				
Fax (including country and area code)	+47 / 73 59 69 73				
E-mail	svein.johan.knapskog@item.ntnu.no				
Website	http://www.ntnu.no/indexe.php				
Is the institution able to recover VAT?	NO				

Partner institution No 3

Full legal name of the institution in the national language	Danmarks Tekniske Universitet				
Acronym of the institution, if applicable	DTU	Erasmus University Charter N°	29158-IC-1-2002-1-DK-ERASMUS-EUC-1		
Full name of the institution in English (formal or informal translation)	Technical University of Denmark				
Type of institution	University	Country code	DK	Region code	DK002
Department / Unit	Informatics and Mathematical Modelling				
Contact person	Family Name: Stassen First Name: Flemming	Function: Associate Professor Male X Female ☐			
Address: Street & Street Number Post Code & Town Country	Technical University of Denmark Building 321, DTU 2800 Kongens Lyngby, Denmark Denmark				
Phone (including country and area code)	+45 4525 3753				
Fax (including country and area code)	+45 4593 0074				
E-mail	stassen @ imm.dtu.dk				
Website	http:// www.imm.dtu.dk/~stassen				
Is the institution able to recover VAT?	yes				

Partner institution No 4

Full legal name of the institution in the national language	Tartu Ülikool				
Acronym of the institution, if applicable	TU	Erasmus University Charter N°	69935-IC-1-2002-1-EE-ERASMUS-EUC--		
Full name of the institution in English (formal or informal translation)	University of Tartu				
Type of institution	EDU	Country code	EE	Region code	-
Department / Unit	Department of Mathematics and Computer Science				
Contact person	Family Name: Lipmaa First Name: Helger	Function: Professor Male x☐ Female ☐			
Address: Street & Street Number Post Code & Town Country	Institute of Computer Science J.Liivi 2, 50409 Tartu Estonia				
Phone (including country and area code)	+372 / 7 / 375445				
Fax (including country and area code)	+372 / 7 / 375468				
E-mail	Helger.lipmaa@ut.ee				
Website	http:// www.cs.ut.ee				
Is the institution able to recover VAT?	yes				

SECTION 2 - DESCRIPTION OF THE ERASMUS MUNDUS MASTERS COURSE

- Please describe the following aspects of your Masters Course, using the same order and numbering as given in the list of questions.
- You are invited to read the relevant chapters of the *Erasmus Mundus Call for Proposals EAC/04/05* carefully, before filling in this section.
- Please enclose supporting documents only where these have a direct and material bearing on your application.
- Please respect the maximum length of text indicated, excluding supporting documents.

1. GENERAL INFORMATION ON THE MASTERS COURSE

1.1 General discipline

- ☐ Agricultural sciences
- ☐ Architecture, urban and regional planning
- ☐ Art and design
- ☐ Business studies, management sciences
- ☐ Communication and information sciences
- ☐ Education, teacher training
- ☒ Engineering, technology
- ☐ Geography, geology
- ☐ Humanities
- ☐ Languages and philological sciences
- ☐ Law
- ☐ Mathematics, informatics
- ☐ Medical sciences
- ☐ Natural sciences
- ☐ Social sciences
- ☐ Other:

Specific discipline (if further specification is useful): Computer Science and Information technology

1.2 Duration and ECTS credits

The full-degree programme covers:

- ☐ one year (60 ECTS credits)[2]
- ☐ one year and months (ECTS credits)
- ☒ two years (120 ECTS credits)[2]

1.3 **Student population and number of staff** involved in the Masters Course: The student population will be about 45 students in the first year of which 25 third country students. The number of staff involved: TKK: 15, DTU: 21, NTNU: 15 , Tartu: 7, KTH: 20

1.4 Final degree delivered

- ☐ joint
- ☒ double

[2] If your Masters Course carries more than the standard credits, please indicate how many and provide further details under point 2.2.

☐ multiple

2. Detailed description of the NordSecMob – Master's programme in Security and Mobile Computing

2.1 Objectives of the Masters Course and how the Masters Course contributes towards university excellence and European competitiveness.

The main objective of the NordSecMob-programme is to provide a top quality education within the field of Security and Mobile Computing. The program integrates a critical mass of expertise from leading Nordic universities around the ambitious joint goal of creating a specialised education for brilliant and top-talented young people from all over the world. The program is designed to further strengthen the European excellence within security and mobile computing and thereby to establish the necessary background for ensuring European leadership within the area also in the next decades. There is a strong demand for ICT security competence in Europe from overall initiatives such as e-europe, GRID and Lobster. Related projects within this area are working with Public Key Infrastructure (PKI), location based services, secure wireless infrastructure. This Master's programme also supports the recent Communication from the European Commission, Brussels, 20.4.2005 COM(2005) 152 final "Mobilizing the brainpower of Europe: enabling universities to make their full contribution to the Lisbon Strategy", where the Communication stresses as one of the areas of priority "enhancing the quality and attractiveness of Europe's universities". The Bologna process and the new degree structure is implemented in partner universities and our joint programme is functioning as a tool in this process.

The consortium consists of well-known research and educational institutions in Europe and top-ranked Universities of Technology in Nordic countries. The NordSecMob-programme contains complementary academic aspects, thereby offering an integrated program, with strong research connections and access to major international networks. The objective is to enable students to acquire profound and wide knowledge in the study field of data security and mobile computing. The research skills of students are developed to further studies at the PhD-level. The programme offers a possibility to gain international research experience in a high-level R&D environment and to get an access to major international networks. The communication, networking and other important professional skills of students will be developed by force of diverse methods of learning and teaching.

In this program **TKK** contributes in two areas: technical information security and applications and services in mobile networks and Internet in general. Focal areas for both mobile networks and Internet are security, service architectures and subjects related to service management such as mobility, quality-of-service, session management and accounting. In this program, we offer students a view to complete internet-based information systems concentrating, however, on service level communication and security. Our education builds on research portfolio with leading mobile industry stakeholders and research institutes. **KTH** contribution will provide deep understanding of the main concepts behind most of the Internet security protocols and how these protocols are used in communication system design. The students will get both theoretical and practical knowledge about design decisions taken in security standards. The emphasis is on cryptography, authentication systems and security attacks so that someone designing a protocol can specifically check for security flaws. The students will also understand the security uses of secret and public key cryptography, how the advanced encryption standard (AES) works or the principles behind the design of Pretty Good Privacy (PGP) mail encryption. KTH will also cover areas as viruses and computer trojans, intrusion detection systems or data protection policies and European Union regulations. **NTNU** will contribute security in Telematic systems, covering both services and the technical infrastructure. The education is research based. Emphasis is on different security aspects of ICT systems and services design, simulation, development, implementation, analysis and measurements in both fixed and wireless access and transport networks with mobile users. Ad Hoc and sensor networks are studied as well. Theoretical coursework are intermixed with laboratory based teaching modules. **DTU** focuses on Safe and Secure IT-Systems, more precisely theoretically and technologically well-founded methods, tools and techniques for designing, implementing, and validating safe and secure IT-systems. The key areas covered are Network Technology (including privacy and intrusion detection) and Language Based Technology (including program analysis, operational semantics, process calculi, and software validation). DTU will contribute courses within Safe and Secure IT-Systems, in particular within Network Technology and Language. The **University of Tartu** will provide cryptographic courses with mostly theoretical orientation, tightly connected with the competence of the existing staff. Participation in the Masters Course will increase the knowledge of our students in other, mostly practical, aspects of data security. This enables us to transfer modern industrial knowledge to Estonia, with great benefits to our education and industry.

2.2 Structure and the content of the study

A joint curriculum is defined which involves always two universities. The 120 ECTS credit points will be divided into two blocks: 1-2 semesters of teaching (30-60 ECTS credit points) will be provided by home university and 1-2 semesters of teaching (30-60 ECTS credit points) will be provided by host university. The programme includes three semesters of courses followed by a fourth research semester (Master's thesis, 30 ECTS) under supervision and evaluation by both the home and host university. The student takes a minimum of 30 ECTS of courses each semester. The student takes courses focusing on advanced topics on the selected area of specialization:

TKK: Technical Information Security and Network services
KTH: Communications Systems Design
NTNU: Security in Telematics
DTU: Software security
Tartu: Mathematical foundations of cryptography

Details of the courses are in "NordSecMob – study programme" (***Annex 1***).

This is a model programme for students starting in 2006 and a similar programme will be offered for students starting in the following years.

TKK: Technical Information Security and Network services
The focus of the TKK semesters are: First autumn: hands on learning of security and computer networks through laboratory works and with focus on basic courses of security and mobile computing. First spring: advanced courses in mobile computing, security, and services including interactive courses, project works and seminars. Second autumn: advanced courses in mobile computing, security, and services including interactive courses, project works and seminars.

First autumn 2006 - TKK
T-110.4206 Information security technology 3 ECTS
T-110.5100 Laboratory work on Datacommunications software 4 ECTS or T-110.5200 Laboratory works on Information Security 4 ECTS
T-110.5210 Cryptosystems 4 ECTS
T-110.5120 Next generation Wireless Networks 4 ECTS
Language course (compulsory degree requirement) 3 ECTS
Course in scientifique methods 5 ECTS
T-110.6100 Special assignment in datacommunications software 7 ECTS
Total autumn studies minimum 30 ECTS

First spring 2007 - advanced module TKK
T-109.4300 Network services business models 3 ECTS
T-110.5140 Network application frameworks 4 ECTS
T-110.5190 Seminar on Internetworking 4 ECTS
T-110.5230 Special course in Practical Security of Information Systems 4 ECTS
T-106.5300 Embedded Systems 5 ECTS
T-106.4150 Operating systems and concurrent programming 5 ECTS
Total mandatory courses: 25 ECTS, in addition see optionals below, total spring studies miminum 30 ECTS

Second autumn 2007 – advanced module TKK
T-110.5100 Laboratory work on Datacommunications software 4 ECTS or T-110.5200 Laboratory works on Information Security 4 ECTS
T-110.5120 Next generation Wireless Networks 4 ECTS
T-110.5116 Computer networks II advanced features 4 ECTS
T-110.5290 Seminar on Network Security 4 ECTS
Language course or test 3 ECTS + courses in scientific methods max 10 cr
Total: mandatory courses 19-29 ECTS, in addition see optional courses below, total autumn studies miminum 30 ECTS

Optional courses offered autumn / spring
TKK optional courses spring 2007 and autumn 2007
T-110.5220 Information security and usability (spring) 3 ECTS
T-110.7100 Applications and services in Internet (autumn) 4 ECTS

T-110.7110 Internet technologies for mobile computing (spring) 4 ECTS
T-110.6100 Special assignment in datacommunications software 2-10 ECTS
T-110.6200 Special assignment in information security 2-10 ECTS
T-79.5401 Special course in mobility management I (autumn and spring) 2-10 ECTS
T-76.4115 Software development project I (autumn period 2. + period 3. spring) 6 ECTS
T-76.3601 Introduction to Software Engineering 5 ECTS, spring
T-79.5303 Safety critical systems 4 ECTS, spring
Kie-98.7011 Finnish 1A (autumn or spring) 2 ECTS
Kie-98.7012 Finnish 1B (autumn or spring) 2 ECTS

KTH: Communications Systems Design.
The focus of the KTH semesters are: First autumn: Focus on Communication security, including advanced topics in networking and security, theory and laboratory excercices. First spring: problem-oriented, project-driven learning in teams addressing real-life problems in the communication systems area, with external project owners, optionally in parallell with a few technical specialization courses on mobile services. Second autumn: Advanced operator-related topics, including technical network management, technology management and business management/creation.
First autumn 2006 - KTH
2G1701 Advanced Internetworking 9 ECTS
2G1722 Developing Mobile Applications 7.5 ECTS
2G1703 Interdomain Routing 7.5 ECTS
2G1704 Internet Security and Privacy 7.5 ECTS
First spring 2007 - KTH
2G1319 Communication Systems Design Project 15 ECTS
2G1723 GSM Networks and Services 7.5 ECTS
2G1330 Architectures for Wireless and Mobile Networks 7.5 ECTS
General and optionals offered in spring term
2G1711 Communication Systems Design 18 ECTS
2G1712 Communication Systems Design 24 ECTS
2G1741 ICT Systems Design Project 30 ECTS
2G1325 Practical Voice over IP 7,5 ECTS
Second autumn 2007 - KTH
2G1332 Management of Networks and Networked Systems 7.5 ECTS
2G1720 Global Entrepreneurial Leadership 7.5 ECTS
2G1725 Management of ICT-enabled Change 7.5 ECTS
2G1732 Business Opportunities in ICT 7.5 ECTS
2G1731 ICT Venture Creation, 15 ECTS

NTNU: Security in Telematics
The focus of the NTNU semesters are: First fall: basic networking courses, dependability, performance and simulation, basic cryptography First spring: Focus on Communication security, including basic topics in networking and security, theory and laboratory exercises and topics on technology management and business management/creation. Second fall: advanced topics in networking and security with a minor thesis on a specialization topic, security management
First autumn 2006
TTM4105 Access and Transport Networks 7,5 ECTS
TTM4110 Dependability and Performance with Discrete Event Simulation 7,5 ECTS
TTM 4150 Internet Network Architecture 7,5 ECTS
TMA4155 Cryptography, Introduction 7,5 ECTS
Norwegian Course
First spring 2007 - Advanced Courses
TTM4115 Engineering of Distributed Real time systems 7,5 ECTS
TTM4120 Dependable systems 7,5 ECTS
TTM4126 Service and resource management 7,5 ECTS
TTM4135 Information Security 7,5 ECTS
TIØ4200 Safety, Health and Environment - Safety Management 7,5 ECTS

Second autumn 2007 - Advanced Courses
TTM4705 Information Security, Specialization 22,5 ECTS
Cont. Educational Course: Information Security 7,5 ECTS
Seminar: Vulnerability and Society 10 ECTS

DTU: Software security
At DTU, the focus is on Safe and Secure IT-Systems: - methods, tools and techniques for design, implementation, and validation of safe and secure IT-systems, - covering Network Technology (privacy and intrusion detection) as well as Language Based Technology (program analysis, operational semantics, process calculi, and software validation).
First spring 2007 - advanced module DTU
Mandatory (12½ ects):
02244 Language Based Security, 7½ ects
02237 Wireless Security, 5 ects
Optionals (17½ ects):
02141 Computer Science Modelling (or part of this: Semantic analysis), 5+5 ects
02233 Network Security, 5 ects
01259 Error Correcting Codes, 10 ects
02222 Distributed Systems, 10 ects
02224 Real-Time Systems, 5 ects
Extra-curricular (0 ects):
Danish Language Course, 0 ects
Total spring: minimum 30 ECTS
Second autumn 2007 - advanced module DTU
Mandatory (15 ects):
02242 Program Analysis, 7½ ects
02913 Advanced Analysis Techniques, 7½ ects (PhD level)
Optionals (15 ects):
02232 Applied Cryptography, 5 ects
0217x IT Analysis, 5+5 ects
Free choice of course from DTU database, 10 ects
Extra-curricular (0 ects):
Danish Language Course, 0 ects

Tartu: Mathematical foundations of cryptography
The focus of Tartu semester is: strong theoretical foundation on cryptography, cryptographic solutions, construction of secure protocols, and related fields of mathematics (e.g., combinatorics and number theory).
Second autumn 2007
MTAT.07.002 Cryptography I 6 ETCS
MTAT.07.005 Cryptographic Protocols 4.5 ECTS
MTAT.07.005 Research seminar in cryptography 9 ECTS
Supplementary/background courses:
MTAT.07.003 Cryptography II 6 ETCS,
MTAT.03.134 Computer Security 6 ECTS
MTAT.03.146 Operating Systems Structures 6 ECTS
MTAT.05.080 Graph theory 6 ECTS
MTAT.05.005 Combinatorics 6 ETCS
MTAT.07.004 Complexity Theory 6 ECTS
MTAT.05.091 Master seminar 3+3 ECTS
MTAT.05.013 Combinatorial Game Theory, 3 ECTS

The fourth semester is a research semester for writing Master's thesis (30 ECTS) under supervision and evaluation of both home and host university.

2.3 Acquired competencies and the learning outcomes
Building on the basis established by the theoretical curriculum, students are trained in laboratory work, in writing and presenting reports and thesis, in performing exercises and presenting material in colloquia for their supervisors

and fellow students. The students capability to use, produce and evaluate knowledge in the subject is trained and he/she is able to solve problems independently and in teams. The graduates are able to communicate effectively both with oral and written presentations, on the national and international context. In advanced studies work often leads to scientific publication. The two year programme is concluded with a full term thesis which is a independent but supervised work assignment in a relevant area, "bordering on" research, possibly performed in co-operation with an external research group or business. Research and education in data security and mobile networking is critical in the contemporary society, with influences to industry, military and the state. It is not sufficient that say the military uses standard, off-the-shelf, cryptographic and data security mechanisms; it is also necessary that there are local people who cannot only completely understand but also improve on such mechanisms. Therefore, we see that our masters programme in data security and mobile computing is critically important for the whole society. Students get a strong background in both communication and security. They understand the strong relation between these and can design secure mobile systems.

2.4 List of partner institutions and awarded degrees

All successful students (European and third country) will graduate with M.Sc Degree or equivalent from their home university and a MSc degree or equivalent from their host university. All partners are able to provide double degree. Students will receive degrees from those partner universities where they spend their periods of study. The degrees issued are according to national legislation. Degrees will be issued upon successful completion of all elements compulsory for graduation, and the diploma ceremony will be held at least in the institution where the student spends the final period of study.

Name of institution	Title of degree awarded	Type of degree awarded	Date and reference of formal approval of degree
TKK	Master of Science (Technology), Computer Science and Engineering	double	Degree of the Council of State 794/2004 on University Degrees.
KTH	Master of Science with a Major in Information Technology	double	Higher Education Ordinance 2000:1057
NTNU	Master of Science	double	Act relating to University and University Colleges 2005
DTU	Master of Science in Engineering (with specialization in Computer Systems Engineering)	double	Act on Universities, Act.403 of 28 May 2003
University of Tartu	Master of Science in Engineering (Computer Science, with specialization to cryptography)	double	Council for Higher Education Evaluation, June 1st, 1999

2.5 Policy and the legal procedures [3]

TKK: The Master of Science in Technology of Helsinki University of Technology is an official degree accredited and registered in the Degree of the Council of State 794/2004 on University Degrees. The degree requirements of new degree structure (Bachelor + Master /3+2 years) of TKK were confirmed in December 2004. The credits required for the higher degree (Master of Science in Technology) will be 120 ECTS, which will take two years of full-time study to complete. The curriculum of joint Master's programme leading to a double degree must be first recognised by Department Council of Department of Computer Science and Engineering and then also by the Council of TKK. ***Annex 2A.***

KTH: Higher Education Ordinance, 2000:1057. See enclosed excerpt of the HEO, Chapter 1 and Appendix 1. ***Annex 2B.***

NTNU: The MSc degree at NTNU corresponds to the requirements of the "Act relating to University and University Colleges 2005", published by the Norwegian Ministry of Education and Research. Publication Code:F-4186 E. As annex also a statement from The Norwegian Centre for International Cooperation in Higher Education SIU. ***Annex 2C.***

[3] You are advised to check with your Erasmus Mundus National Structure whether they can provide a model for the proof you have to submit in your national context.

DTU: The MSc degree at DTU is recognized by the Danish Ministry of Science, Technology and Innovation. DTU is a university under the Ministry of Science, Technology and Innovation (http://www.videnskabsministeriet.dk/cgi-bin/left-org-institute.cgi), and DTU follows the act on universities (http://www.vtu.dk/fsk/div/unisoejlen/ActofUniversities2003.pdf). DTU's international MSc degrees are seen as a part of our 5 year (3+2) "Civilingeniøruddannelse" which was recognized by the Danish Ministry of Science, Technology and Innovation, May 6th 2004. ***Annex 2D.***

Tartu: The Master Curriculum in Informatics at Tartu University is fully accredited by Council for Higher Education Evaluation, the decision being made on June 1st, 1999. The current accreditation is valid until June 1s 2006. In October 2005 there will be the next accreditation. When this will be passed, no separate acknowledgement of the double degree will be neccessary, it will be automatically recognized as equivalent to the accredited degree. ***Annex 2E.***

The academic supervision of the programme is part of the tasks allocated to the Programme Committee (PC). The final approval of programme components and the programme as a whole is the responsibility of PC. PC consists of all members of the consortium. Each institution appoints a member that is a permanent member of PC. The coordinating institution provides the chairperson of PC. The group will meet twice a year to follow up on procedures, suggested modifications, rules, etc related to the integrated Master's program. The programme is in harmony with local programmes at the participating institutions and all partners recognize all programme components. Since all components are mutually recognized and based on one common design, all partners recognize the programme as a whole, which in turn guarantees that double diplomas will be issued. All issues related to recognition and diplomas are dealt with in the letters of intent and recognition of degrees enclosed as ***annexe 3*** in this application. Proof of official recognition of degree is specified above.

2.6 Diploma Supplement

The consortium uses the Diploma Supplement. The Diploma Supplement will provide information and data on the nature, level, context, content and status of the studies that were pursued and successfully completed by each individual student. The Diploma Supplement will be attached to the degree certificate.

2.7 Masters Course status

The individual, national Master's programs at the participating institution have existed over a number of years. This program is a continuum to international Master's program that TKK/Department of Computer Science and Engineering has organized from 1999 onwards. DTU's Master's programmes exist since 1998. At Tartu, the current incarnation of Master's program (3+2) together with the possible specialization to cryptology exists since 2002. At KTH, the Master program in Internetworking was created in 2001. The key persons in our NordSecMob-network have known each others for years: NordSec - workshops (***Annex 5***) were started in 1996 with the aim of bringing together researchers and practitioners within computer security in the Nordic countries. Most of the academic key persons of NordSecMob -programme are members of the Programme Comittee of NordSec. This NordSec - research collaboration is now strengthened and diversified by developing structured co-operation between partner universities by offering a joint curriculum, Master's programme in Security and Mobile Computing. The NordSecMob -network and the activities related to this network have also been approved by Nordiska Ministerrådet in the framework of Nordplus-programme. The networks (Erasmus, CLUSTER, Nordplus/Nordtek) have provided the basis for cooperation leading to mutual recognition of academic activities, which has been strengthened by bilateral agreements. The individual, national Master's programme courses at each participating institution exist and are ready to run in the academic year 2006-2007 when the NordSecMob -programme starts.

2.8 Teaching staff

The teaching staff in the consortium represents different educational traditions and academic areas, thereby ensuring complementarities and synergy. The staff members have ample experience in the subjects for which they are responsible. Detailed CV's of key staff members are included in the ***Annex 4***.

The Department of Computer Science and Engineering at TKK is responsible for the NordSecMob -programme. This department has altogether 30 professors from which 6 professors from different laboratories take part in teaching for the courses in the NordSecMob programme. In addition, more than 10 lecturers and PhD students are involved in these courses. The established research groups working in NordSecMob domain are actively doing

research in mobile computing, security, services and service management. Key persons at TKK: Prof. Antti Ylä-Jääski (Director of the NordSecMob -programme), Prof. Teemupekka Virtanen, Lic.Sc.(Tech) Sanna Liimatainen, MSc. Timo Kiravuo.

The KTH part of the program is organised under the KTH School of ICT and taught by its Telecommunication Systems Laboratory involving three full professors and ten associate or assistant professors. Key persons at KTH include the professors Björn Pehrson (head of the Telecommunication Systems Laboratory and program director), Gerald Maguire and Rolf Stadler and the associate professors Terrence Brown (coordinator of the ICT Entrepreneurship program), Khurram Khan, Björn Knutsson, Johan Montelius (Coordinator of the Internetworking program), Lena Ramfelt and Jon-Olov Vatn.

The Department of Telematics ITEM at NTNU is responsible for the teaching of "Security in Telematics" module. This ITEM department has 13 professors and 5 adjunct professors. The key person at NTNU is professor Svein J. Knapskog (Information Security).

The Computer Science and Engineering section at the Informatics and Mathematical Modelling department at DTU is responsible for the teaching of the programme. The section holds a teaching staff of 6 full professors, and 15 associate or assistant professors plus a number of Ph.D. students. The teaching in safe and secure IT-systems is an established part of DTU's engineering curriculum and supported by active research at the department. Key persons at DTU are Prof. Hanne Riis Nielson, Prof. Flemming Nielson, Assoc.prof. Christian D. Jensen, Assoc.prof. Flemming Stassen.

The responsibility for the teaching of the programme at Tartu University is on the Institute of Computer Science of the Department of Mathematics and Computer Science. The teaching staff of the Institute comprises of 4 full professors, 10 associate or assistant professors, and 10 junior lecturers or assistants. A number of PhD students are also active in teaching. Among these people, the cryptography group bearing the main teaching load contains 4 members of senior staff, including one full professor. The group has a several years old tradition of mathematically rigorous teaching of cryptography, also supported by active research in that area. Key persons at Tartu: Prof. PhD Helger Lipmaa, Prof. PhD Ahto Buldas), Associate Prof. (Dotsent) PhD Jan Willemson, Senior Researcher PhD Peeter Laud.

2.9 Availability and presence of teaching staff for enrolled students.

All professors and research professionals as teachers as well active in the program delivering lectures provide the students with a significant number of contact hours between academics and students. Students will be in close contact, especially during the period when they work on their Master's Thesis, in seminars or project works, with multinational teams of researchers, thereby guaranteeing natural contact between academics and students. During the last term, a supervisor will be appointed for the Master's thesis from home and host university. At TKK, there's also an instructor (usually from industry) who guides the student in his thesis-work. At NTNU, a tutor will be appointed to every student for the last term thesis work. At DTU, teaching staff is highly visible during office hours in the local labs etc. In addition, teaching staff at DTU follows the open door policy for her students, allowing students to arrange ad-hoc meetings easily, if the professor in question is available. Furthermore, the interaction between teachers and students is supported by the DTU Campusnet. At Tartu, the staff is either full-time or part time and is available for meetings with students. At KTH, all staff members have specified contact hours during which time the students have guaranteed access.

2.10 Admission, application, selection, examination criteria

The Consortium offers one coherent point of entry as regards the Master's course promotion, information regarding all formalities and application for admission. The Program Committee (PC) is responsible for the admission procedure and selection as a whole.

Admission criteria

Admission criteria to the program is a high quality Bachelor's degree encompassing a minimum of 180 ECTS credits in Engineering (Computer Science or Information technology) or equivalent studies. The applicants should have solid knowledge of mathematics (discrete mathematics), programming skills, data structures and algorithms, computer architecture and basics of computer networks. In addition a basic knowledge of following subject areas

will be an advantage: databases and database management, principles of theoretical computer science, logic in computer science, software engineering, operating systems, concurrent programming. Admission to the programme is granted on a competitive basis: the applicants are assessed on the basis of their previous academic record. In addition, good command of English language is required: Requirements for TOEFL or IELTS: TOEFL minimum score 580/237 or higher IELTS score 6,5 or higher. Score reports must be sent directly to Consortium Admissions Office (TKK) from the test center.

Application procedure
An on-line database is under development at TKK under summer 2005 for the reception of applications. The applicants fill in the web-based on-line application form (basic student and B.Sc.-degree information) and then send signed paper copies to the Consortium Admissions Office at TKK, including the following documents:
1. officially (for ex. by a notary / university registrar) attested true copy of original Bachelor of Science degree certificate + translation
2. officially attested true copy of original study transcript (courses in the B.Sc. degree)+ translation
3. officially attested true copy of original secondary school (high school / upper secondary school) leaving certificate + translation
4. motivation letter / statement of purpose
5. CV
6. financial statement form
7. two letters of academic recommendation letter with contact information (email address of referee)
8. language certificate (TOEFL or IELTS from the testing center)
9. course descriptions of certain university courses

All documents must be officially attested copies. Any requested document not written in English must be translated into English. All translations must be officially certified and accompanied by the certified copy of the original. The applicants will apply for admission to one specific consortium institution, denoted as the "home institution" (TKK, NTNU, KTH) and in addition, the student must already in the application specify, which host university (scientifique track) she/he is interested in. The application deadline information will be given on NordSecMob-website. The Consortium Admissions office at TKK will check all applications in order that they follow all formalities related to the selection. The final selection process leading to the final list as well as the reserve list is the responsibility of The Program Committee (PC), and this will be carried out at a meeting with mandatory attendance from all institutions involved. The PC will finalise the list and reserve list of selected students to the Commission before the deadline. The consortium will for the academic year 2006/07 reserve 12 places (this is the minimum required) for third country students on Mundus scholarships and 13 places (this is the maximum allowed and optional) for students receiving Mundus scholarships via the "Asian windows".

The institution offering the course and hosting the student will organize examination of each course. Examination is based on common criteria and values and common examination tools. Examination tools will include: written exams, oral exams, project work and seminars. The two institutions that have hosted the student will supervise the Master's thesis. Approval of the final result is necessary from both prior to issuing the final degree.

2.11 Tuition fees

The consortium collects the tuition fees according to national legislation. One fee will be paid by all third country students admitted to the program, irrespective of the study destination. All third country students will be charged with a common fee per academic year, to cover tuition fees and other administrative costs. No living expenses or course literature, travel expenses or accommodation costs are included in this sum. It is the intention that students from the EU, EEA/EFTA and candidate countries will not be charged any tuition fees, according to bilateral agreements following the Erasmus/Socrates agreements between the consortium members. However, tuition fees are currently under investigation by some of the countries in the consortium, and will most likely be implemented within the next coming year(s). Therefore, the fee will be adjusted every year in accordance to the current tuition fees that is required by the different participants according to the anticipated student flow. Changes to national legislation will be taken into consideration when implementing the tuition fee practices. The sums will then be distributed within the consortium in accordance with national legislation and according to written agreements between the partner institutions. The relevant information concerning tuition fees will be announced on NordSecMob -website and in the application information. The consortium will strive towards a common policy within the consortium on tuition fees and work towards influencing national authorities to adjust the legislation towards a common European context.

2.12 Mobility arrangements

The mobility of students is decided already during the application and selection process, since the students must specify at the time of application, which track they wish to follow (with alternatives in order of priority). The chosen track will influence the number of students at each institution, but the consortium will strive to balance the number of students between each participating institution in order to avoid "sleeping" partners. A joint curriculum is defined which involves always two universities. The 120 ECTS credit points will be divided into two blocks: 1-2 semesters of teaching (30-60 ECTS credit points) will be provided by home university and 1-2 semesters of teaching (30-60 ECTS credit points) will be provided by host university. The programme includes three semesters of taught courses followed by a fourth research semester (Master's thesis, 30 ECTS) under supervision and evaluation by both the home and host university. For the first year 45 students will be selected of which 25 are third country students with scholarships. Each home (TKK, KTH and NTNU) university receives 15 students for the programme for the first semester or year. The first autumn term studies are taken at one of the three home universities: TKK, KTH and NTNU. Students (max 5 from each home university) with the specialization "Software Security" move from home university to DTU for the first spring semester and stay second year at DTU. Students with other specialization tracks move after first year studies to host universities (TKK, NTNU, KTH and Tartu) for the second autumn semester. The numbers are approximate numbers which can be adjusted according to demand.

Table 1: NordSecMob-student flow from home universities to host universities (the number of third country students with scholarship in parentheses)

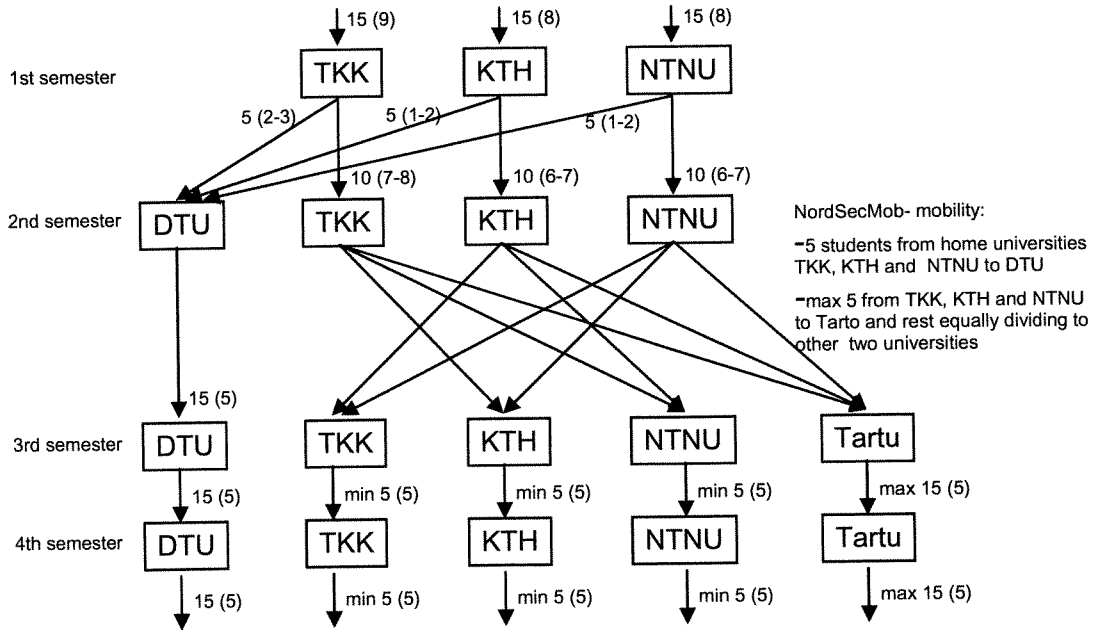

Table 2: Approximate student numbers / university / semester

Students	Sem 1 autumn 30 ECTS	Sem 2 spring 30 ECTS	Sem 3 & 4 (autumn & spring) 30 credits of courses + thesis 30 ECTS	Number of degrees produced/university
TKK	15	10	Min 5	20
NTNU	15	10	Min 5	20
KTH	15	10	Min 5	20
DTU	-	15	15	15
Tartu	-	-	Max 15	15
Total number of students	45	45	45	90

Possible degree combinations produces are (thesis supervised and evaluated always at home university and host university): TKK + DTU, TKK+ KTH, TKK+NTNU, TKK+Tartu, NTNU + DTU, NTNU + KTH, NTNU+Tartu, KTH + NTNU, KTH + DTU, KTH + Tartu

Mobility of scholars is determined by the academic discipline, research interest and availability. All efforts will be made to meet the wishes of qualified scholars. The final decision is made by the Program Committee (PC), which will strive to match the academic profile of the scholars with corresponding suitable profile of the hosting institution, at the same time maintaining an equal distribution of numbers within the consortium.

2.13 The mechanisms to reach out to potentially interested third-country students and scholars.

The consortium will distribute information to prospective students through the following actions:
- A common website with information about the program, admission criteria, information about funding and scholarships, links to the on-line application form.
- Research contacts and networks, e.g. CLUSTER, GE4 with relations established to sister networks in the United States, Latin America, Asia and Russia; Socrates thematic networks.
- Directed marketing efforts where there already are strong links established, e.g. TKK focusing on for ex. China and Mexico, Singapore, Russia, Australia.
- The consortium universities have existing Master's programs which have been advertised for several years by printed and web-material. There are also a group of existing students, previous applicants and their professors. Websites for international students and guides for international students already exist.

2.14 Special conditions applied to third-country students and scholars

No special conditions apply to third country students, other than tuition fee. Third country scholars will submit their application through the same channel as the students, however not through the web-based on-line version but only in paper version. Selection will be made through the Program Committee (PC), based on quality in research and teaching and the mobility will be the decision of the PC.

2.15 Distribution of third-country students and scholars

The PC (Programme Committee) is responsible for maintaining a balanced flow of students in the network. As described in 2.12., the students at the time of application choose which track they want to follow. Every effort will be made to distribute the students according to their wishes. However, all partners should receive a certain minimum/maximum number of third country students, therefore there will be limitations. The students are informed about the limitations in the information material related to the application.

2.16 Services provided

All partner institutions in the consortium have International Offices with experience in working with international students. Descriptions of services offered can be found on the websites of each partner. Links to these websites will be on the main website of the NordSecMob-program. The international offices of the partner institutions will assist NordSecMob -students to find and get accommodation. Information about accommodation offered is to be found on the Master's program website. The International Offices of the institutions in the NordSecMob-network will establish paths of regular communication and means of keeping each other updated on the status of the students and other issues related to the Master's program. This includes the transfer of all information necessary for the administration of the students at the new site.

At TKK the International Office organizes Orientation days before the beginning of autumn semester, including information about all practical matters, health care services, computer facilities etc. The Student Union has a strong collaboration with the International Office. As members of the Student Union (compulsory fee approximately 85 euros/academic year), the students are entitled to daytime low cost health care and to a variety of social activities. Our facilities can easily be reached also by handicapped people. There are dormitories also for families and it is possible for children to get education and day care as the local students. A get-together meeting will be organized in the beginning of studies. We have tutors as advisors and there are also student counselors at department level.

At KTH the International Office organizes an Orientation week before the beginning of semester 1, including arrival service and information about all practical matters. The Student Union has a strong collaboration with the International Office. The Student Union organizes social and cultural activities for students during the whole academic year, thereby establishing a social network for the students. At each School of KTH there are student counsellors with both academic and social counselling roles.

At DTU, the Office of International Affairs is responsible for practical matters such as assisting students in getting accommodation, obtaining residence permits, organizing introduction seminars, organizing Danish classes, etc. An appointed programme co-ordinator is responsible for all academic matters, e.g. tutoring. Students under the NordSecMob -network will be integrated into the international students environment at DTU. At DTU, the international master's programmes have an annual intake of approximately 200 students, of which the MSc in Computer Systems Engineering constitute about 45. Social activities are arranged on a regular basis and are not confined to the individual study programmes. International students study the same classes as resident students and classes are to some extend mixed at singular courses.

NTNU has a central Office of International Relations with a longstanding experience in welcoming students and researchers within various EU programmes. Main items of the welcome structure are: Housing guarantee, buddy system, language summer courses, welfare service, ESN network, counsellor for special needs, large sport facilities, welcome weeks and service for students with families.

University of Tartu offers in the beginning of each semester the International Student Office (Välisüliõpilastalitus) an orientation course for all incoming international students. All newly arrived foreign students are divided into groups (10-15 persons) and each group has 2 tutors. Tutor has passed a special training programme and assists new students during their first semester in Estonia.

Language courses offered within the consortium are:
TKK: A compulsory foreign language (usually English language) test/course is part of TKK degree requirements (3 ECTS) and it will be part of the M.Sc.degree. We offer a course of Finnish I to be integrated into studies and also courses of many other European languages (French, German, Spanish, Italian etc.). There's also a possibility to participate to EILC language course.

KTH: offers all international students Swedish language courses free of charge before Semester 1 commences as well as during the academic year. International students are strongly recommended to attend these. KTH will offer a series of seminars during the academic year, with a requirement of compulsory attendance, covering aspects of Swedish culture, history and social life. KTH will within the framework of the Master's program offer the students a compulsory course in Technical English.

NTNU offers 4 week long intensive course in Norwegian at different levels
http://www.ntnu.no/intersek/intstud/language.html). 3/4 part of the courses are available under the EILC scheme of the European Commission. In addition we offer several courses which can be taken during the semester. All courses are allocated ECTS credits.

Tartu: The Estonian language courses are offered by the University Language Center during the semester (free of charge).

DTU: Students can sign up for a Danish course upon arrival. The Danish courses are taught during the semester (approx. 8-10 weeks) and start in the first week of the semester. The courses will normally be 4 to 6 hours a week and take place at DTU.

2.17 Financial management and payment mechanisms of scholarships for third-country students and scholars

The coordinating institution TKK manages all financial matters through the Central Office for Finances and Accounting. A specially nominated financial group will handle all financial administration within the consortium. The financial group will be responsible for monitoring all issues related to funding at the partner institutions, and will also be present with one representative whenever necessary at the PC meetings. The general yearly flat-rate EU contribution will be distributed by the coordinating institution according to a yearly budget plan drawn up by the financial group and approved by PC. Funding for scholarships will be distributed each semester, based on the student flows, by TKK to the respective hosting institutions. The coordinating institution/financial group will on a semester basis require that consortium institutions provide the financial group with documental proof that the payments have been made and that incurred expenses are eligible under the Erasmus Mundus program. This will be a prerequisite condition in order for the next round of payments to be issued. The scholarship payments for students and scholars will be made according to Financial and Administrative handbook of Erasmus Mundus programme.

2.18 Language policy

The medium of instruction, including lectures and tuition as well as all course material and literature, is in English; Oral and written exams and presentations will be in English; Language and cultural courses will be offered as specified above in 2.16.

2.19 Quality assurance and evaluation

Each institution in the consortium already employs the ECTS credit system including grading scale. The NordSecMob-program follows the requirements specified for ECTS: all individual courses and components are defined by credits including workload and contact hours and the total workload is 120 credits. Students are evaluated by using a common set of examination tools.

Quality assurance will be based on both internal and external assessment measures. E.g. at DTU, courses are evaluated by course evaluation forms using the Campusnet at the end of the lecture terms. The evaluation forms provide feedback to the individual teachers as well as the departmental study committee, who are responsible for the quality of the courses. Evaluation of the entire study programmes is performed at national level at regular intervals by external investigators appointed by the Ministry of Science, Technology and Innovation.

External quality assurance will be guaranteed by arranging periodic global evaluations, under the responsibility of the PC. This evaluation will take place every third year of the program and the PC will ascertain the involvement of extra members not regularly part of the PC. These extra members will be 1-2 representatives from the industry, one representative from the alumni of the program, 2-3 academic representatives from institutions not part of the consortium. Basis for the evaluation will be the collective evaluations of courses (see in 2.20.), the percentage of graduates, the professional position after graduation, the number of students continuing to PhD studies, the number of publicized papers written by students in the program, the academic standard of scholars applying for mobility as well as numbers, etc. The evaluation should result in a plan of action to be carried out under supervision of the PC, with a feedback to the group of evaluators after a defined period of time.

2.20 Evaluation and quality assessment mechanisms within the Masters consortium

Internal quality mechanisms are present at all partners in the consortium. Each single course is evaluated after examination in the form of questionnaires to be filled out. The results from the evaluations are accounted for the meetings of the PC, and suggested adjustments are discussed with the academic staff responsible for the respective courses. In addition, a feed-back seminar is held at the end of each semester, with the participation of students, teachers and administration. In addition to regular course evaluation forms collected at each university, we will develop one joint evaluation form (on-line + joint database) which collects important information concerning the entity of NordSecMob-programme for ex. concerning information distribution, the services provided by universities and availability of teaching staff. Different aspects of collaboration will be evaluated also.

2.21 Co-operation

The consortium members already have a history of cooperation in different research ("NordSec"-conference since 1996) and educational joint ventures (Erasmus, Nordplus), and see the Erasmus Mundus program as a possibility to pursue a deeper and more intensive integration of academic and administrative structures. All matters related to the administrative support of the students will be dealt with by staff from the International offices at the institutions.

Financial matters as well as the smooth running of administrative issues connected to the program will be the responsibility of the financial group mainly staffed by administrative staff from the International offices and/or the Schools/Departments. Academic matters will be the responsibility of the PC, which will have regular meetings during the duration of the Master's program as specified in 2.5. Since PC has many areas of responsibility – admission, study plans, evaluation meetings etc, a plan for suggested meetings and activities for the next three years will be proposed at the first PC meeting. At this time, sub-groups will be elected to perform certain of the tasks allocated to the area of responsibility of PC. These sub-groups will consist of members not part of the original PC, which means that persons in these groups may meet at other times than the ones planned for PC, thereby ensuring continuous involvement and feedback.

2.22 Administrative staffing and the funding of the Masters consortium.

The coordinator of the NordSecMob-program, TKK, will ensure the administration and management of the program in close collaboration with the program managers at the partner institutions, and the financial and administrative staff at the own institution. The Program Manager of NordSecMob-programme is Ms Eija Kujanpää (M.A), planning officer (full-time) of international affairs in the Department of Computer Science and Engineering. The funding of the consortium will be based on the annual flat-rate grant and in addition the regular financing procedures at the institutions. Nordplus-funding has been received for 2005 and 2006 related to the network and planning activities. The annual Mundus flat-rate grant will be distributed amongst the members of the consortium according to number of program management tasks undertaken. In these tasks are included the common website, promotion activities, on-line application, evaluation tasks, PC and sub-group meetings.

2.23 Preparatory year: We are not applying for a preparatory year.

2.24 Explain to which extent the Masters Course is linked to research activities.

Example 1:
At TKK, we are actively doing research in the domains of mobile computing, security, services and service management. Most of the projects are cooperation projects with the leading mobile industry stakeholders also including funding from the National Technology Agency (Tekes). The research projects have also proven valuable in order to defining topics for master's thesis, project works, special works and seminars. In these student assignments, the researchers in the projects take active roles in instructing and tutoring the students. It is worth mentioning, that our industry partners are also actively participating specifically in our seminars as tutors. The current research portfolio includes the following projects: "Infrastructure for Host Identity Protocol (InfraHIP)", "Seamless Service Interworking in Heterogeneous Mobile and Ad-hoc networks (SESSI)" and "Investigating the IP Datacasting Value Chain (INDICA)". There are four research projects under preparation: "Service Reachability between Sensor Networks and Internet", "Network Services Middleware for Home Entertainment Networks", "Mobile Broadcast Services" and "WEB Services in Ad-Hoc Infrastructure". All of the new projects build on the research results of the existing projects expanding to new challenges. There are several common denominators in the research projects, which directly fall into the research and educational domains of the proposed NordSecMob-program. All our research projects have in-build research objectives to analyzing future mobile environments, security considerations, services and service architectures. Our focal research areas are directed into these topic areas, and we focus our educational emphasis on them as well. The match between research and education has proven beneficial into both directions from research to education and from education to research.

Example 2:
NTNU: The topics covered by this NordSecMob-programme is a close match to theoretical basis for the research areas expressed as pivotal by the "EuroNgi", a European Network of Excellence. For ex. at NTNU, the Q2S Centre of Excellence is working closely with a number of European partners at research initiatives within these areas. EuroNgi, workpackage 6.3 Security.

Example 3:
Tartu: The involved staff is doing active research on cryptography; it holds two grants from the Estonian Science Foundation, and in several smaller projects. Helger Lipmaa was previously working as a professor at TKK, where he had a grant ("Cryptology and Data-Mining") financed by the Finnish Academy of Sciences and some other projects.

Example 4:
At DTU, the research group within Software Security is participating in a number of national and international research projects within the area. In particular, we have played a major role in two very successful projects "SecSafe - Secure and Safe Systems based on Static Analysis" (2000-03) and "DEGAS - Design Environments for Global Applications" (2002-05) both funded by the IST programme of the European Union and we are going to play a key role in the upcoming EU-project "SENSORIA - Software Engineering for Service Oriented Overlay Computers" (2005-08) funded as part of the Global Computer initiative. For the DTU partner, the common theme of these three projects (and their Danish counterparts) has been the use of language based technology for validating security properties in mobile systems. Also, the DTU partner has been involved in the EU project "SECURE -

Secure Environments for Collaboration among Ubiquitous Roaming Entities" (2002-05) and it participates in the "Danish Center for GRID Computing" funded by the Danish Natural Science Research Council.

2.25 Distinctive European added value of NordSecMob-programme

The goal is to attract talented students to Europe, which may otherwise be lost from this continent. Education at Master's level provides a meeting point for the two processes stressed at a recent meeting in Berlin of the Education Ministers; namely the European Research Area and the European Higher Education Area. The Master's programs at international level create the sought after Europe of education and training through their very nature; by creating common frameworks for qualification, by providing quality seals with international credibility, by facilitating mobility and by making the European educational systems more coherent and transparent, but at the same time retaining the unique cultural aspects of each individual country.

In our particular Master's program, we unify expertise from Nordic and Baltic universities in order to provide students with this high quality education in our field of study. Projects and research activities will be performed in close cooperation with related industry and research centers. By focusing on providing top-level students top-level education at Master's level, we foresee that we are contributing to the development of European research competitiveness at the forefront of this area. Research cooperation will be boosted between the institutions in the consortium as well as between the institutions of the consortium and third country institutions.

Nordic countries have been very innovative in mobile communication. The first regional cellular network started there giving the telecom industry a very good starting point to the second and third generation networks and devices. They were pioneers in large scale internet-usage, too, in Europe. Probably the biggest on-line banking system in the world has covered the area of Scandinavia ten years. A broadband Internet-connection is even assumed as a public service. The requirements for mobility and security is natural for this kind of services and has created an industrial and scientific cluster in Nordic countries. The participating universities are leading part of this cluster in their own countries in the scientific side.

However, especially security is too large area to be covered totally in one university. There are several disciplines, like cryptology, protocols, statistic, sociology, psychology which can be applied to improve security, reliability, usability and quality of information systems. In the same time there is a solid ethical and social background in participating countries. When security is always based on beliefs what is right and wrong it is difficult to build a solid curriculum if these beliefs are not the same.

2.26 Dissemination of good practices

An example from TKK for dissemination of **good practices in teaching:**
Special course in Practical Security of Information Systems is a course where students search for vulnerabilities in various systems. We get suggestions for target systems from our industry partners. Students develop methods how to break these systems and also test their method in practise. Moreover the students describe and test how to protect the systems against the attacks. Part of the course is also ethical issues to ensure that students understand the right usage of this kind of activity. At the end students write a report of their findings. We have submitted some of these reports to scientific conferences and get many of them accepted with some improvement.

Seminar on Network Security and Seminar on Internetworking are also examples of good practises. We have many post-graduate students working in industry while preparing their PhD thesis. In this seminar these industrial students can define number of topics to be researched. Typically each student defines three topics and gets three undergraduate students to instruct. Postgraduate students work as a tutor to guide undergraduate students through a scientific process. As a result, tutors learn how to manage a research group, students learn scientific process and how to manage their thesis and both can even get a scientific publication and possibility to participate a real scientific conference. In recent years many of these research papers have been accepted to scientific conferences with minor modifications.

At DTU the course "Language based security" has grown out of several research projects with the aim of making the technological achievements applicable to a wider audience. One of the main parts of the course covers automatic validation of security properties for communication protocols - the aim being to make the students aware of not only the problems posed by these protocols but also the formal techniques that may be applied to overcome

some of the problems; as part of the course the students get hands-on experience with a tool developed as part of the EU IST project DEGAS. Further, at DTU, the highly motivated and very good MSc students that have completed the courses on "Program analysis" and "Language based security" are invited to participate in the weekly meetings of the research group on Language Based Technology. Thus they get exposed to research at a very early stage and many of them are keen to continue as PhD students. A result of this early integration into the research environment is that it is not uncommon that students have their first conference papers accepted before they finish their MSc thesis.

An example of dissemination of **good practices concerning administration and the selection process**: The consortium members have had Master's programmes running since years and each of them have developed their own methods of selecting and of evaluating the applications and degrees. The selection process as a whole is a very critical point in this procedure: the goal is to reach and also to get top-students to our programme. The acquired knowledge of foreign degrees produced by higher education institutions inside and outside Europe and good practices of selection procedures can be shared and will be further developed.

2.27 Other aspect s

It is the intention of the NordSecMob- consortium to build an educational programme of a strong academic repute. The common Master of science programme in security and mobile computing will be the foundation of a cooperation which on longer terms may result in joint efforts at PhD level, e.g. a PhD graduate school.

SECTION 3 - GRANT REQUESTED

- Please read the relevant section of the *Erasmus Mundus Call for Proposals EAC/04/05* and the *Administrative and Financial Handbook for Erasmus Mundus Projects.*

- The requested grant of 15,000 € refers to the first year of the five-year period for which an Erasmus Mundus Masters Course will be selected. This amount applies to Erasmus Mundus Masters Courses with or without a preparatory year.

Total grant requested by the Consortium for the academic year 2006/2007	**15,000 €**

SECTION 4 - DECLARATION

To be completed by the legal representative of the co-ordinating institution indicated under Section 1, point 6.1 above.

I, the undersigned, certify that the information contained in this application is correct to the best of my knowledge.

If my institution is private in nature, I declare on my honour that it has the financial and operational capacity to carry out the proposed Masters Course.

I declare on my honour that neither I nor my institution is in any of the situations listed under point 12 of the *Erasmus Mundus Call for Proposals EAC/04/05.*

I am aware that the Erasmus Mundus Masters consortium which submits this application commits itself to participate in Action 1 and Action 2 (scholarships) of the Erasmus Mundus programme for a period of five years, if my application is successful.

I am aware that penalties may be applied in the case of a false declaration.

In the event that my application is successful, I authorise the Commission to publish on its internet site or in any other appropriate medium:

- The name and address of the beneficiary of the Erasmus Mundus grant;
- The subject of the grant;
- The amount awarded to the approved Masters Course.

Place: Espoo

Date: 30 / 05 / 05 (day/month/year)

Signature:

Stamp of the co-ordinating institution:

Name and position in capitals:

Checklist

The application is completed in full. All questions have been answered.	☒
Each page has been numbered.	☒
The application has been typewritten or word–processed.	☒
The original application has been signed by the legal representative of the co-ordinating institution and stamped.	☒
Copies of letters from the appropriate authorities of each institution participating in the Masters Course, confirming their agreement with the application as submitted are attached.	☒
Proof of the official recognition of the degree(s) is attached.	☒
The financial identification form has been filled in and duly signed in original (see Annex 2).	☒
The original application and 2 copies thereof are being sent to the address indicated on page 2 of the application form by rapid post and e-mail, in the same envelope and before the closing date.	☒
Paper and electronic copies of this application are being sent to the National Structures in the countries of each of the participating institutions before the closing date.	☒

SECTION 4 - DECLARATION

To be completed by the legal representative of the co-ordinating institution indicated under Section 1, point 6.1 above.

I, the undersigned, certify that the information contained in this application is correct to the best of my knowledge.

If my institution is private in nature, I declare on my honour that it has the financial and operational capacity to carry out the proposed Masters Course.

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I am aware that the Erasmus Mundus Masters consortium which submits this application commits itself to participate in Action 1 and Action 2 (scholarships) of the Erasmus Mundus programme for a period of five years, if my application is successful.

I am aware that penalties may be applied in the case of a false declaration.

In the event that my application is successful, I authorise the Commission to publish on its internet site or in any other appropriate medium:

- The name and address of the beneficiary of the Erasmus Mundus grant;
- The subject of the grant;
- The amount awarded to the approved Masters Course.

Place: Espoo

Date: 30/05/05 (day/month/year)

Signature: Matti Pursula

Stamp of the co-ordinating institution:

Name and position in capitals: MATTI PURSULA RECTOR

Checklist

The application is completed in full. All questions have been answered.	☒
Each page has been numbered.	☒
The application has been typewritten or word-processed.	☒
The original application has been signed by the legal representative of the co-ordinating institution and stamped.	☒
Copies of letters from the appropriate authorities of each institution participating in the Masters Course, confirming their agreement with the application as submitted are attached.	☒
Proof of the official recognition of the degree(s) is attached.	☒
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Paper and electronic copies of this application are being sent to the National Structures in the countries of each of the participating institutions before the closing date.	☒

NTNU
Norges teknisk-naturvitenskapelige universitet

Vedlegg 4.

Studieavdelingen

Notat

Til:	Utdanningsutvalget
Fra:	FUS
Kopi til:	FUS
Saksbehandler:	Åge Søsveen
Dato:	20.04.2006 Signatur:

Arkiv: Mobile Computing. Vedtak

2 årig Internasjonal masterprogram Erasmus Mundus NordSecMob Master's programme in Security in Mobile Computing. Vedtak I FUS.

IME fakultetet har i brev av 31 mars 2006 oversendt søknad om opprettelse av graden

Master of Science in Security in Mobile Computing

Dette er et Erasmus Mundus program utviklet i samarbeid mellom NTNU, Helsinki University of Technology, TTK, Finland, Danmarks tekniske universitet, DTU, København, Danmark; Kungliga tekniske høgskolen, KTH, Stockholm, Sverige, og Universitetet i Tartu, UT, Estland. Studieprogrammet er annonsert for gjennomføring allerede studieåret 2006/2007, men har ikke vært fremlagt for formell godkjenning i noen av NTNUs styringsorganer. Saken krever derfor rask behandling. Forslaget har vært behandlet på sirkulasjon ved e-mail i FUS. I FUS-sak 10/2006, Studieplan 2006/2007, delegerte FUS til FUS-leder å gjøre endelig vedtak på grunnlag av det saksframlegget som var forvarselet.

Vedtak:

1. Etablering av "Double degree" slik som det foreliggende Master of Science in Security in Mobile Computing, støttet av Erasmus Mundus - programmet i EU, er et viktig virkemiddel for økt internasjonal synliggjøring og markedsføring av studietilbudet ved NTNU.

FUS vil oppfordre også andre fagmiljøer til å utvikle slike studieprogram for derved å bidra til internasjonal synliggjøring og markedsføring av den teknologiske studieporteføljе ved NTNU.

2. FUS anbefaler at den omsøkte grad etableres av NTNU

Under forutsetningen av at den omsøkte graden etableres av NTNU, vedtar FUS den foreliggende studieplan, men med den endring at emnet TTM4705 for høsten 2007 følger den ordinære strukturen for sivilingeniørstudieprogrammene.

NTNU
Norges teknisk-naturvitenskapelige universitet

Fakultet for informasjonsteknologi, matematikk og elektroteknikk

Studieavdelingen
NTNU

Saksbehandler
Astrid Hatlen
Telefon 73 59 42 04
E-post Astrid.Hatlen@ime.ntnu.no

Vår dato:	Vår ref.:	Deres dato:	Deres ref.:
31.03.2006	2006/2638		

SØKNAD OM Å OPPRETTE NYTT 2-ÅRIG INTERNASJONALT MASTERPROGRAM – Erasmus Mundus - NordSecMob – Master`s Programme in Security and Mobile Computing.

Fakultet for informasjonsteknologi, matematikk og elektroteknikk v/Institutt for telematikk og Helsinki University of Technology, TKK, Finland, Danmarks tekniske universitet, DTU, Kungliga tekniska høgskolan, KTH, Sverige og Universitetet i Tartu, UT, Estland inngikk i 2005 et samarbeid om opprettelse av et 2-årig masterprogram i Security and Mobile Computing innenfor Erasmus Mundus Programme i EU, med oppstart høsten 2006. Programmet er listet under EU-kommisjonens oversikt over "Master Courses selected under Action 1".

Kontaktperson ved Inst. for telematikk er professor Svein J. Knapskog. Studieprogrammet finansieres på ordinær måte over instituttets rammemidler.

Studieprogrammet er dimensjonert for 45 studenter pr. år fordelt på samarbeidspartnerne. En felles opptakskommitè velger ut studentene. Opptakskrav er fullført bachelorgrad i Datateknikk eller Informasjonsteknologi, eller tilsvarende. Søkningen til studiet fra land utenfor EU har vært god. 26 studenter ble tatt opp i februar 2006, derav skal 8 til NTNU. Resten av studentene skal rekrutteres fra EU/EØS-land i slutten av april.

Opprettelsen av programmet ble behandlet i møte i Studieutvalget ved IME-fakultetet 27. mars 2006 . Studieutvalget sluttet seg til forslaget.

Programmet på 120 ECTS credit points, er delt inn i to blokker. De første 1-2 semestre (30-60 ECTS) tas ved NTNU, KTH eller TKK. De neste 2-3 semestre tas ved DTU, KTH, NTNU, TKK eller UT. De tre første semestrene skal det tas emner, det fjerde semestret består av en masteroppgave på 30 studiepoeng. Programmet fører frem til en Master of Science (Double Degree).

Følgende emner fra NTNU tilbys i programmet:
Høst 2006:
TTM4105 Aksess- og transportnett
TTM4110 Pålitelighet og ytelse med simulering
TTM4150 Nettarkitektur og internett
TMA4155 Kryptografi, introduksjon

Vår 2007:
TTM4115 Systemering av distribuerte sanntidssystemer
TTM4120 Pålitelige systemer
TTM4128 Tjeneste- og ressursadministrasjon
TTM4135 Informasjonssikkerhet
TIØ4200 Helse-, miljø og sikkerhet – Sikkerhetsledelse

Høst 2007:
TTM4705 Informasjonssikkerhet, fordypningsemne
TTM4137 Informasjonssikkerhet i mobilnett
EVU-kurs: Informasjonssikkerhet
Seminar: Sårbarhet og samfunn

Vår 2008:
TTM4900 Telematikk masteroppgave.

Alle emnene, unntatt EVU-kurs: Informasjonssikkerhet og Seminar: Sårbarhet og samfunn, høst 2007, undervises i de ordinære masterprogrammene i siv.ing.-studiet ved NTNU.

Kari Hag
Fung. Dekanus

Sverre Smalø
Prodekanus undervisning

Vedlegg 5.

Utskrift fra møteprotokollen i Utdanningsutvalgets møte torsdag 20. april 2006:

Sak 8 i UU-møtet 20.04.06:

8. Søknad om å opprette internasjonalt masterprogram under Erasmus Mundus

fra Fakultet for informasjonsteknologi, matematikk og elektroteknikk, studieprogrammet Master in Security and Mobile Computing
dokument:
mottatt sakspapir fra fakultetet 7. april, sendt ut sammen med innkalling
På grunn av påskeferie ble det ikke tid til å utarbeide saksnotat til Utdanningsutvalget.

Notat fra FUS, datert 20.04.06 delt ut under møtet.

fra orienteringen og drøftingene:

- På grunn av en del misforståelser om hvordan program innenfor avtalen om doble grader skal opprettes, har ikke fakultetet sendt søknad om å opprette programmet før nå. FUS har behandlet saken som sirkulasjonssak. Studieavdelingen vil derfor utarbeide retningslinjer for hvordan det skal gjøres.

- Det kan bli et problem hvordan Eksperter i team skal integreres i masterprogram som gis i samarbeid med andre universitet og som fører til dobbel grad.

- Det er uklart om det er, og i så fall hva forskjellen er på "double degree" og "joint degree". Gjennom universitetsloven er det nå gitt anledning for norske universitet å inngå samarbeid med utenlandske universitet om å tildele fellesgrader ("joint degrees"). NTNU bør derfor bruke den betegnelsen, uansett hva de samarbeidende utenlandske universitetene bruker. Fellesgrad ("joint degree") indikerer et samarbeid om en felles grad som fører til ett vitnemål utstedt av alle deltakende universitet. Dobbel grad fører til et sett med vitnemål, utstedt av hvert enkelt universitet som deltar.

- Her i Norge har Universitetet i Bergen tatt et initiativ for å samkjøre den nasjonale praksisen for og forståelsen av bruk av fellesgrader.

- På grunn av kort tidsfrist og at det ikke lå klart noe vedtaksforslag før møtet, avgjøres denne saken som sirkulasjonssak i Utdanningsutvalget.

vedtak:

1. Utdanningsutvalget vil understreke betydningen av at NTNU inngår samarbeid med utenlandske universitet om å etablere studieprogram som gir fellesgrader ("joint degrees"). Det er et viktig virkemiddel for å gjøre NTNU synlig internasjonalt og en god markedsføring av NTNUs studietilbud. Utdanningsutvalget vil derfor oppfordre NTNUs fagmiljø til å utvikle studieprogram i samarbeid med utenlandske universitet, der programmet leder fram til en fellesgrad.

2. Utdanningsutvalget vil anbefale at NTNU etablerer masterprogrammet Master in Security and Mobile Computing, slik det er foreslått fra Fakultet for informasjonsteknologi, matematikk og elektroteknikk.

3. Utdanningsutvalget vil be studiedirektøren om å utarbeide retningslinjer for NTNUs søknadsprosedyre for studieprogram som skal føre til en fellesgrad.