

KCSE Graduate School



KTH Computational
Science and
Engineering Centre



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Annual Meeting

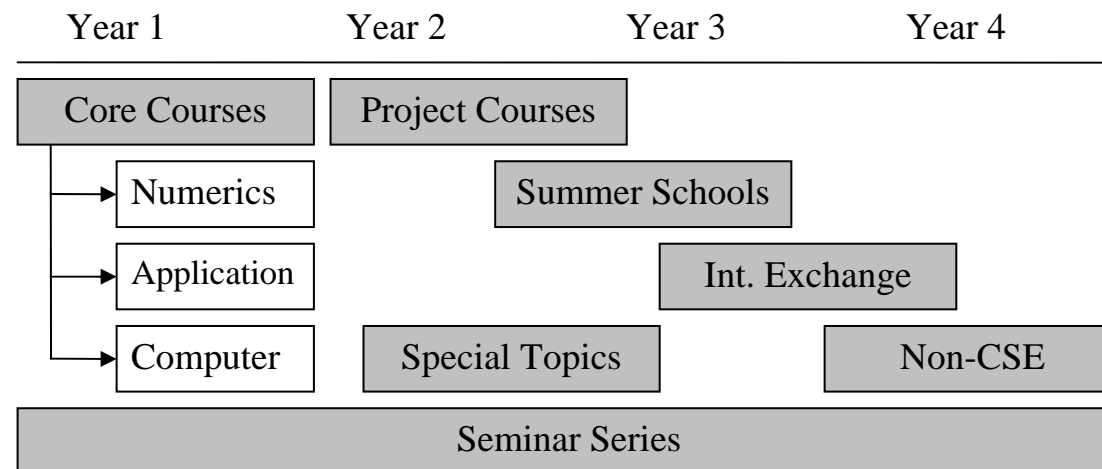
December 11, 2008

KCSE Graduate School: Curriculum

- **Core courses:** Numerics, Applications, Computer
- **Project/Short courses:** 1-2 weeks, hands-on experience
- **Special topics courses / Tutorials:** 1-2 days
- **Summer schools:** 1-2 weeks workshops, solving problems
- **Complementary / Non-CSE courses:** Language, management
- **Seminar series / Colloquia:** Senior people and students
- **International / National exchange**



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Formalia



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- **Admission Requirements:**
 - Admitted as PhD student (not necessarily KTH)
 - first or second year
 - compatibility with department rules
- **Formal Application:**
 - Study plan + description of research plan: computational profile
 - Motivation (why, expectations)
 - form on homepage
 - see homepage: www.kcse.kth.se/graduateschool/admission.html
 - interdisciplinary advisors
- **KCSE Requirement:**
 - Total of 30 ECTS Points
 - one core course from each category (application course from other discipline than one's own research area)
 - Active participation in seminar series
- **Advisory Group**
 - Oversees the course selection and feedback

Core Courses



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- Numerical background
 - Parallel computing for large-scale problems
 - Advanced numerical analysis
 - Numerical solution of differential equations I/II
 - Finite Element Method
- Application background
 - Computational Physics
 - Computational Chemistry
 - Computational Fluid Dynamics
 - Computational Techniques in Materials Science
 - Computational Aerodynamics
 - Numerical Methods in Nuclear Engineering
- Computer background
 - PDC Summer School / PRACE Summer School
 - GPU Workshop
 - Visualisation

Course Development



KTH Computational
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- **Development of new (core) CSE courses**
 - Computational content
 - Suitable for PhD students from several departments
 - Teachers from more than one department
 - Preferably no one-time courses
- **Improvement and coordination** of existing core courses
- **Summer schools / Project courses**
- **KCSE can support:**
 - Development costs, external lecturers, (teaching costs), computer resources, hosting/travel etc.
- **Contact us with proposals!**

New/Extended Courses 2008/2009



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- PDC
 - **PDC Summer School*, NA/PDC, 7.5 ECTS, annual
- Basic Core Courses
 - *Computational methods from micro to macro scale*, NA/TC/MSE, 7.5 ECTS, bi-annual
 - **Computational electromagnetics and photonics*, NA/EE, 7.5 ECTS, annual
 - **Computational fluid dynamics*, MEK, 7.5 ECTS, annual
 - *Numerical methods in nuclear engineering*, NPS, 6 ECTS
- Advanced Core Courses
 - *Advanced simulation methods in statistical physics*, TP, bi-annual

* existing course, to be updated and extended

Summer School 2009



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- KCSE "Summer"/"Winter" School
- Planned in connection with Nordita's program for multiscale modelling.
- Collaboration with Nordita and NGSSC
- Time: November 2009, Albanova
- Main leading department: TC (Hans Ågren)
- Multiscale Modeling with topics in Chemistry, Biology, Material Science, Numerical Analysis