Course Description
We offer a PhD course on Iterative Methods for Large Linear Systems.

The course is offered with support from the DTU Compute Graduate School (ITMAN) and the Danish Center for Applied Mathematics and Mechanics (DCAMM) at Technical University of Denmark.

The aim of the course is to introduce the students to some of the most widely used techniques for solving large linear systems of equations, and let the students get some practical experiences working with the methods.

The PhD course covers several widely used numerical linear algebra techniques for solving problems in a number of different scientific areas with focus on the methods and illustrated with Matlab examples. The goal is to give the student a set of " tools" that may be tried as they are, and also can be modified to be useful for particular applications.

Course Homepage
http://www2.compute.dtu.dk/~apek/ITSOL2014/

Organizers and Lecturers
Drexel Professor of Mathematics C. T. Kelley
Department of Mathematics
North Carolina State University

Associate Professor Allan P. Engsig-Karup
DTU Compute
Technical University of Denmark.

This course is offered as part of the activities of the DTU Compute Graduate School (ITMAN) and of the DCAMM International Graduate Research School, see www.dcamm.dk.

Participants
The course is intended for PhD students and MSc students with a fundamental knowledge of numerical analysis and linear algebra and must be able to program Matlab. They are expected to read the first five chapters of the book before participating in the course.

Work Load
Approximately 35 scheduled hours (lectures, discussions and computer exercises) during the course and approximately 40 hours for the completion of an assignment problem after the duration of the course. Also, to prepare for the course it is required that participants read the first few chapters of the course literature.

Course Contents
The following topics will be covered in the course

1. Introduction and Fundamentals
2. Krylov Methods
3. Projection Methods and Domain Decomposition
4. Multigrid Solvers and Preconditioners
5. Applications, Newton-Krylov Methods for Nonlinear Problems

See the course homepage for more details.

Course Literature
C. T. Kelley (1995) Iterative Methods for Linear and Nonlinear Equations. SIAM.

Language
All lectures will be given in English.

Evaluation and Diplomas
To pass the course, active participation and the satisfactory completion of an assignment problem after the duration of the course are required. ETCS points: 5.

Registration
Ask for a registration form from the DCAMM-course secretariat, attn.: Kari Haugland, Department of Applied Mathematics and Computer Science, Technical University of Denmark, Building 322, DK-2800 Lyngby, Denmark. Tel.: (+45) 45253033, Fax: (+45) 45881399, E-mail: dcamm@dcamm.dk (also CC to apek@dtu.dk).

Registration Fee
There is no registration fee for students enrolled at universities and public research institutions. For researchers employed at universities and public research institutions the registration fee is €500. For all other participants the registration fee is €1500. Payment information will be given upon signing up for the course.

Deadline
The submitted request for registration must be received by the course secretariat no later than **March 1st, 2014.** Information on enrollment will be posted within a week after this date.

Lunch
The ITMAN and DCAMM schools are sponsoring a daily lunch for participants that are enrolled at universities and public research institutions.

Housing
Accommodation in hostels/hotels can also be arranged by the participants themselves, see e.g. the Wonderful Copenhagen website at www.woco.dk and course webpage.

Internet Resources
For facts on the Technical University of Denmark and visitors' information: See http://www.dtu.dk. Information about teaching and research at DTU Compute can be found at http://www.compute.dtu.dk, and for DCAMM at http://www.dcamm.dk.

About ITMAN

The DTU Compute Graduate School ITMAN (IT MAN) administers the PhD program at DTU Compute. ITMAN promotes cross-disciplinary research, matching information technology and mathematical modelling with other disciplines, often in collaboration with external collaborators: Other research institutions and private companies.

ITMAN is based on the idea of optimizing the relationship man - knowledge - IT as a key to growth for Danish companies in the global innovation and productivity competition. If one is to understand the role of IT, it is essential to view IT as more than "computers and software": IT is always a factor in the intricate net of machine, man and market.

ITMAN aims to strengthen research education through a series of initiatives: Specialized PhD courses and summer schools, quality assurance of supervision, PhD processes and procedures, research environment, implementation of a mentor program, help with IPR, social activities, etc.

DANISH CENTER FOR APPLIED MATHEMATICS AND MECHANICS

The Danish Centre for Applied Mathematics and Mechanics, DCAMM, is an informal framework for internationally oriented scientific collaboration between staff members at a number of departments at the Technical University of Denmark (DTU), Aalborg University (AAU), Aarhus University (AU) and University of Southern Denmark (SDU). The Departments cooperating within DCAMM are:

- Dept. of Applied Mathematics and Computer Science, DTU
- Dept. of Civil Engineering, DTU
- Dept. of Mechanical Engineering, DTU
- Dept. of Wind Energy, DTU
- Dept. of Civil Engineering, AAU
- Dept. of Mechanical and Manufacturing Engineering, AAU
- Dept. of Engineering, AU
- Dept. of Mathematics and Computer Science, SDU

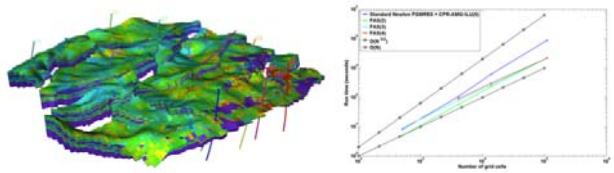
DCAMM is an informal construction that was founded October 27, 1969. The day to day activities are coordinated by the chairman of the Center (pt. associate professor Christian Niordson, Department of Mechanical Engineering, Solid Mechanics), while the formal governing body of DCAMM is the Scientific Council.

The Technical University of Denmark
DTU Compute

Section for Scientific Computing

&

DTU Compute Graduate School (ITMAN)



Ph.D.-course / Advanced school

Iterative Methods for Large Linear Systems

Kgs. Lyngby, Denmark

March 10th to March 14th, 2014

DTU Compute
Department of Applied Mathematics and Computer Science