With this letter, we wish to welcome you to the Ph.D.course *Differential Geometry – as you need it in engineering and science*, that takes place at Aalborg University in the period September 13 – September 27.

Aims and Goals

A rough overview of the aims and goals for this course has been given in the course catalogue of the doctoral school of technology and science.

Litterature

We ask you to purchase the textbook *An Introduction to Manifolds* by Loring W. Tu. 2008, Springer-Verlag, ISBN -13:978-0-387-48098-5. Since the publisher is preparing a new edition of this book, we are not (yet) sure whether you can acquire it through the university bookshop – or online. If that should be a problem, we refer you to the e-book version that you can access through the university library.

We plan to go through substantial parts of the book, essentially Part I to Part IV. At some instances, we might have to supplement with handouts. The book is suitable for self-study, there are many examples and exercises.

All course schedules and plans for the sessions will be made available from this web-page. Please have a look at this web-page for suggestions for supplementary reading.

Overall plan for a session

The course consists of six work days starting at 8:45am and ending at 3:30pm at lecture room G5-109 at the Department of Mathematical Sciences, Fredrik Bajersvej 7G.

Every session will consist of a mixture of lectures and exercise sessions, including illustrations by plots; sometimes supplemented by counselling on an individual basis.

The overall plan for one course unit (day) is as follows:

08:45 – 09:45	Lecture 1
09:45 – 10:45	Exercise session 1
10:45 – 11:45	Lecture 2
12:00 – 12:30	Lunch break
12:30 – 13:30	Lecture 3
13:30 – 14:30	Exercise session 2
14:30 – 15:30	Lecture 4

Software

For illustrations, it is sometimes advisable to use plotting software (MAPLE, MATLAB,...). Several Java based geometry packages are available on the internet; please

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consult the webpage.

What we expect from the participants

In order to make you benefit from the course as much as possible, we ask you to prepare for every session. We will clearly indicate, which parts of the textbook and/or of handouts we would like you to have looked at. Having your comments before or at the beginning of a session will make it easier for us to focus on the really interesting or really difficult parts.

Usually, the best spinoff from a course comes from your own activities. It is very hard to grasp theoretical concepts without "getting your hands dirty". This is why we will ask you to work on a range of exercises – some of them quite dull with the only purpose to train the use of concepts or results, others more advanced needing active reasoning.

A few exercises will be given as homework. We ask you to hand in your homework (in groups of 1 – 3 people) at a date to be fixed yet. Satisfactory answers to these homework sets are a prerequisite for passing this course.

Please have a look at the course web page at regular intervals. We will post the plans for the sessions at this page soon. The course starts on Monday, September 13 at the Department of Mathematical Sciences, Fredrik Bajersvej 7G, room 5-109.

Looking forward to meeting you,

Lisbeth Fajstrup Martin Raussen Rafael Wisniewski

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