Vehicle Dynamics 4L150 – 2012
version: 20121112

time table: **location:**
Tuesday   hours 1 and 2 (8:45 – 10:30)   Auditorium 14
Wednesday   hours 1 and 2 (8:45 – 10:30)   Helix collegezaal 1

	when		Subject
1	Tuesday 13 November	lecture	Introduction to vehicle dynamics
2	Wednesday 14 November	exercise	
3	Tuesday 20 November	lecture	Single track vehicle model
4	Wednesday 21 November	exercise	
5	Tuesday 27 November	lecture	Single track vehicle model
6	Wednesday 28 November	exercise	
7	Tuesday 4 December	lecture	Assessment of tyre characteristics
8	Wednesday 5 December	exercise	
9	Tuesday 11 December	lecture	The brush tyre model
10	Wednesday 12 December	exercise	
11	Tuesday 18 December	lecture	The Magic Formula
12	Wednesday 19 December	exercise	
13	Tuesday 8 January	lecture	Two track vehicle model
14	Wednesday 9 January	exercise	
15	Tuesday 15 January	lecture	Two track vehicle model
16	Wednesday 16 January	exercise	

exercises:
For the exercises a laptop + MATLAB/Simulink are needed.
MATLAB/Simulink 2011A is recommended, for details see next pages.

exam:
1. written exam, no books or hand-outs are allowed at the exam
2. written report on the exercise, to be finalised before <u>February 4 2013</u> latest
   there is no second chance to redo this report in the academic year 2012/2013!

The final note will be a combination of 1 (2/3) and 2 (1/3)
To pass: 1 & 2 have to be $\geq$ 5.5 in any case!

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MATLAB installation

software:
http://w3.tue.nl/nl/diensten/dienst_ict/services/services_wins/campussoftware/matlab/

<u>Windows 32:</u>
please make sure that at least the following toolboxes are installed ("ver" command):

```
ver
--------------------------------------------------------------------------------
MATLAB Version 7.12.0.635 (R2011a)
MATLAB License Number: 284992
Operating System: Microsoft Windows XP Version 5.1 (Build 2600: Service Pack 3)
Java VM Version: Java 1.6.0_17-b04 with Sun Microsystems Inc. Java HotSpot(TM) Client VM
mixed mode
--------------------------------------------------------------------------------
MATLAB                                        Version 7.12      (R2011a)
Simulink                                      Version 7.7       (R2011a)
Control System Toolbox                        Version 9.1       (R2011a)
Fixed-Point Toolbox                           Version 3.3       (R2011a)
MATLAB Coder                                  Version 2.0       (R2011a)
MATLAB Compiler                               Version 4.15      (R2011a)
Optimization Toolbox                          Version 6.0       (R2011a)
Signal Processing Toolbox                     Version 6.15      (R2011a)
SimMechanics                                  Version 3.2.2     (R2011a)
Simscape                                      Version 3.5       (R2011a)
Simulink 3D Animation                         Version 5.3       (R2011a)
Simulink Coder                                Version 8.0       (R2011a)
Stateflow                                     Version 7.7       (R2011a)
Symbolic Math Toolbox                         Version 5.6       (R2011a)
```

To activate the compiler ("mex –setup" command)

```
>> mex -setup

Welcome to mex -setup.  This utility will help you set up
a default compiler.  For a list of supported compilers, see
http://www.mathworks.com/support/compilers/R2011a/win32.html

Please choose your compiler for building MEX-files:

Would you like mex to locate installed compilers [y]/n? y

Select a compiler:
[1] Lcc-win32 C 2.4.1 in C:\PROGRA~1\MATLAB~1\sys\lcc

[0] None

Compiler: 1

Please verify your choices:

Compiler: Lcc-win32 C 2.4.1
Location: C:\PROGRA~1\MATLAB~1\sys\lcc

Are these correct [y]/n? y

Trying to update options file: C:\Documents and Settings\ibesseli\Application
Data\MathWorks\MATLAB\R2011a\mexopts.bat
From template:              C:\PROGRA~1\MATLAB~1\bin\win32\mexopts\lccopts.bat

Done . . .
```

<u>Windows 64:</u>
please make sure that at least the following toolboxes are installed ("ver" command):

```
>> ver
--------------------------------------------------------------------------------
MATLAB Version 7.12.0.635 (R2011a)
MATLAB License Number: 284992
Operating System: Microsoft Windows 7 Version 6.1 (Build 7601: Service Pack 1)
Java VM Version: Java 1.6.0_17-b04 with Sun Microsystems Inc. Java HotSpot(TM) 64-Bit
Server VM mixed mode
--------------------------------------------------------------------------------
MATLAB                                        Version 7.12       (R2011a)
Simulink                                      Version 7.7        (R2011a)
Control System Toolbox                        Version 9.1        (R2011a)
Fixed-Point Toolbox                           Version 3.3        (R2011a)
MATLAB Coder                                  Version 2.0        (R2011a)
MATLAB Compiler                               Version 4.15       (R2011a)
Optimization Toolbox                          Version 6.0        (R2011a)
Signal Processing Toolbox                     Version 6.15       (R2011a)
SimMechanics                                  Version 3.2.2      (R2011a)
Simscape                                      Version 3.5        (R2011a)
Simulink 3D Animation                         Version 5.3        (R2011a)
Simulink Coder                                Version 8.0        (R2011a)
Stateflow                                     Version 7.7        (R2011a)
Symbolic Math Toolbox                         Version 5.6        (R2011a)
```

For the compiler: http://www.mathworks.nl/support/compilers/R2011a/win64.html
install:
- Microsoft Visual C++ 2010 Express
- Microsoft Windows SDK 7.1

Details on this installation:
http://www.mathworks.nl/support/solutions/en/data/1-ECUGQX/index.html

To activate the compiler ("mex –setup" command)

```
>> mex -setup

Welcome to mex -setup.  This utility will help you set up
a default compiler.  For a list of supported compilers, see
http://www.mathworks.com/support/compilers/R2011a/win64.html

Please choose your compiler for building MEX-files:

Would you like mex to locate installed compilers [y]/n? y

Select a compiler:
[1] Microsoft Visual C++ 2010 Express in C:\Program Files (x86)\Microsoft Visual Studio
10.0

[0] None

Compiler: 1

Please verify your choices:

Compiler: Microsoft Visual C++ 2010 Express
Location: C:\Program Files (x86)\Microsoft Visual Studio 10.0

Are these correct [y]/n? y

Trying to update options file:
C:\Users\igo\AppData\Roaming\MathWorks\MATLAB\R2011a\mexopts.bat
From template:
C:\PROGRA~1\MATLAB\R2011a\bin\win64\mexopts\msvc100freeopts.bat

Done . . .
```