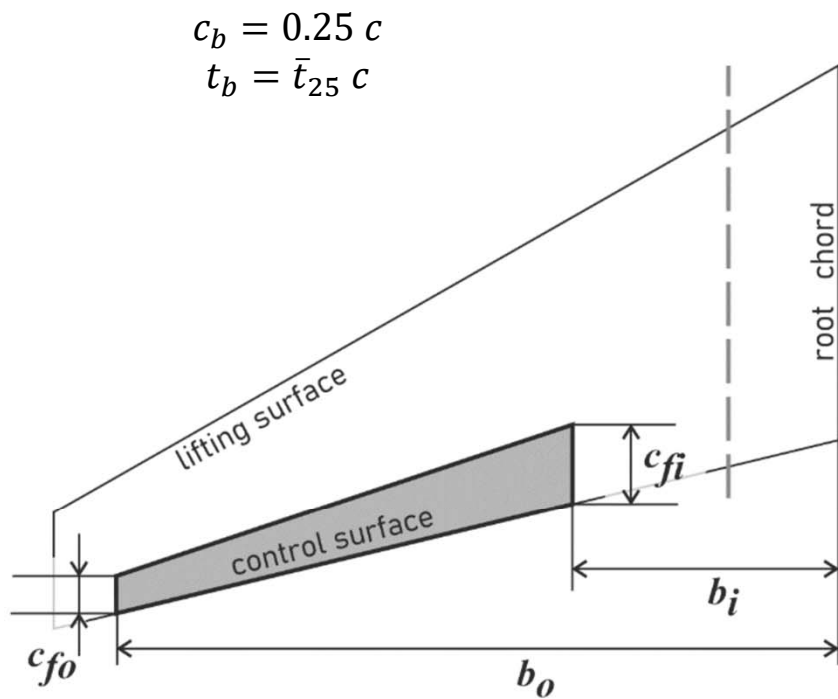


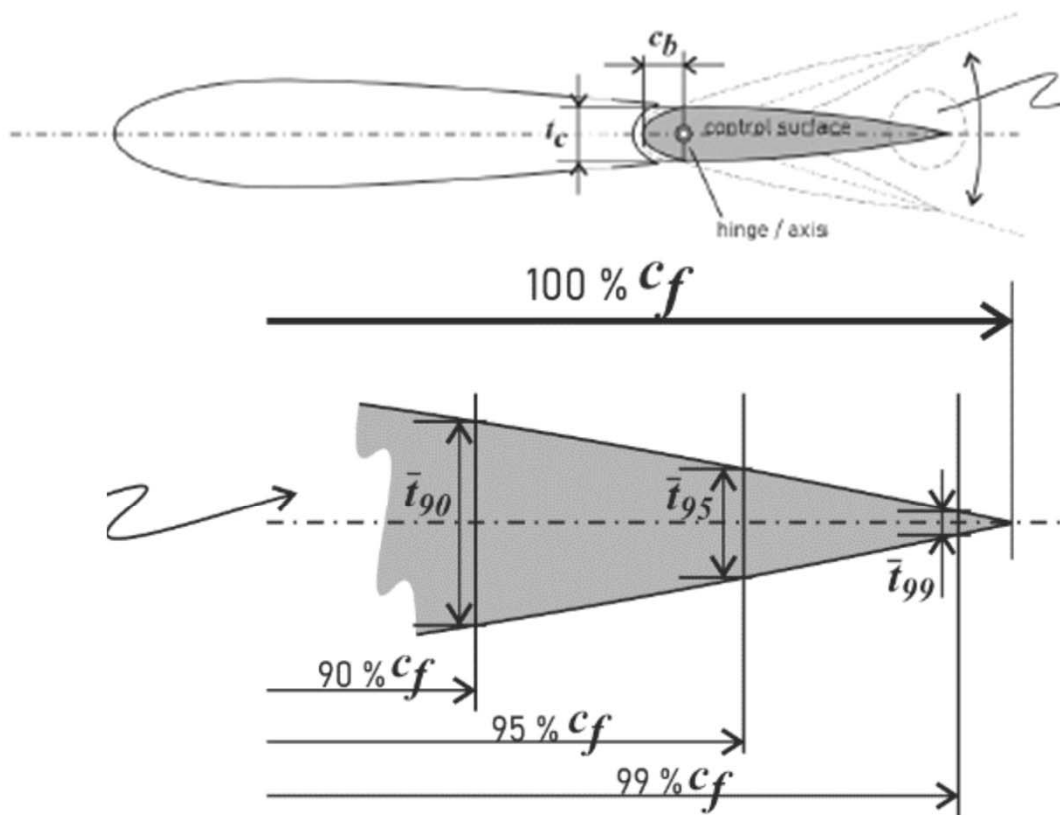
Tutorial Modul 3

AE3220 Dinamika Terbang

1 April 2021



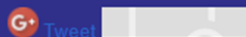
ELEVATOR	
Chord Inboard (C_f):	[m]
Chord Outboard (C_{fo}):	[m]
Chord rata-rata (C):	[m]
Semispan Inboard (b_f):	[m]
Semispan Outboard (b_{fo}):	[m]
Axis Hor-pos (C_b):	[m]
Tebal airfoil pada pos. axis (t_b):	[m]
Tebal airfoil (per c) pada 90% chord (\bar{t}_{90}):	[-]
Tebal airfoil (per c) pada 95% chord (\bar{t}_{95}):	[-]
Tebal airfoil (per c) pada 99% chord (\bar{t}_{99}):	[-]
Kemiringan profil airfoil antara 90% - 99% →	
$\tan\left(\frac{\phi_{rx}}{2}\right) = \frac{1}{2} \left[\frac{\bar{t}_{90} - \bar{t}_{99}}{0.09} \right]$:	[-]
Kemiringan profil airfoil antara 95% - 99% →	
$\tan\left(\frac{\phi_{rx}}{2}\right) = \frac{1}{2} \left[\frac{\bar{t}_{95} - \bar{t}_{99}}{0.04} \right]$:	[-]



ELEVATOR	
Chord Inboard (C_{fi}):	[m]
Chord Outboard (C_{fo}):	[m]
Chord rata-rata (C):	[m]
Semispan Inboard (b_{fi}):	[m]
Semispan Outboard (b_{fo}):	[m]
Axis Hor-pos (C_b):	[m]
Tebal airfoil pada pos. axis (t_b):	[m]
Tebal airfoil (per C) pada 90% chord (\bar{t}_{90}):	[-]
Tebal airfoil (per C) pada 95% chord (\bar{t}_{95}):	[-]
Tebal airfoil (per C) pada 99% chord (\bar{t}_{99}):	[-]
Kemiringan profil airfoil antara 90% - 99% →	
$\tan\left(\frac{\phi_{rx}}{2}\right) = \frac{1}{2} \left[\frac{\bar{t}_{90} - \bar{t}_{99}}{0.09} \right]$:	[-]
Kemiringan profil airfoil antara 95% - 99% →	
$\tan\left(\frac{\phi_{rx}}{2}\right) = \frac{1}{2} \left[\frac{\bar{t}_{95} - \bar{t}_{99}}{0.04} \right]$:	[-]

Airfoil Tools

Search 1638 airfoils



You have 0 airfoils loaded.
Your Reynold number range is 50,000 to 1,000,000. (set)

ENHANCED BY Google

Search

Applications

- [Airfoil database search](#)
- [My airfoils](#)
- [Airfoil plotter](#)
- [Airfoil comparison](#)
- [Reynolds number calc](#)
- [NACA 4 digit generator](#)
- [NACA 5 digit generator](#)

Information

- Airfoil data
- Lift/drag polars
- Generated airfoil shapes

Searches

- Symmetrical airfoils
- NACA 4 digit airfoils
- NACA 5 digit airfoils
- NACA 6 series airfoils

Airfoils A to Z

A a18 to avistar (88)
B b29root to bw3 (22)
C c149a to curv32 (40)
D dae11 to du861372 (28)
E e1098 to esa40 (209)
F falcon to fsx21158 (121)
G geminism to gu255118 (419)
H hh02 to ht23 (63)
I isa571 to isa962 (4)
J j5012 to joukowski0021 (7)
K k1 to kenmar (11)
L l1003 to lwk80150k25 (24)
M m1 to mue139 (95)
N n009sm to npix (174)
O oa206 to oaf139 (9)
P p51nd1 to pu82md (16)

NACA 2414

1.000000	0.001470	0.000000	0.000000
0.997390	0.002100	0.003790	-0.010310
0.989290	0.003960	0.012930	-0.019560
0.975870	0.007000	0.027300	-0.027700
0.957290	0.011120	0.046690	-0.034710
0.933720	0.016200	0.070870	-0.040540
0.905420	0.022070	0.099570	-0.045160
0.872670	0.028570	0.132460	-0.048580
0.835820	0.035520	0.169180	-0.050820
0.795270	0.042740	0.209370	-0.051950
0.751430	0.050040	0.252600	-0.052080
0.704800	0.057230	0.298440	-0.051330
0.655860	0.064120	0.346440	-0.049870
0.605150	0.070530	0.396110	-0.047870
0.553240	0.076290	0.447390	-0.045370
0.500690	0.081200	0.499310	-0.042320
0.448080	0.085120	0.551290	-0.038860
0.395980	0.087870	0.602760	-0.035160
0.344540	0.089130	0.653160	-0.031320
0.294820	0.088660	0.701940	-0.027450
0.247400	0.086450	0.748570	-0.023650
0.202850	0.082550	0.792520	-0.019980
0.161690	0.077070	0.833310	-0.016500
0.124400	0.070140	0.870480	-0.013280
0.091410	0.061980	0.903600	-0.010350
0.063100	0.052810	0.932300	-0.007760
0.039770	0.042890	0.956260	-0.005570
0.021650	0.032450	0.975180	-0.003810
0.008920	0.021710	0.988860	-0.002520
0.001690	0.010850	0.997130	-0.001730
0.000000	0.000000	1.000000	-0.001470

Axis Hor-pos (C_b):

[m]

Tebal airfoil pada pos. axis (t_b):

[m]

Tebal airfoil (per C) pada 90% chord (\bar{t}_{90}):

[-]

Tebal airfoil (per C) pada 95% chord (\bar{t}_{95}):

[-]

Tebal airfoil (per C) pada 99% chord (\bar{t}_{99}):

[-]

Kemiringan profil airfoil antara 90% - 99% \rightarrow

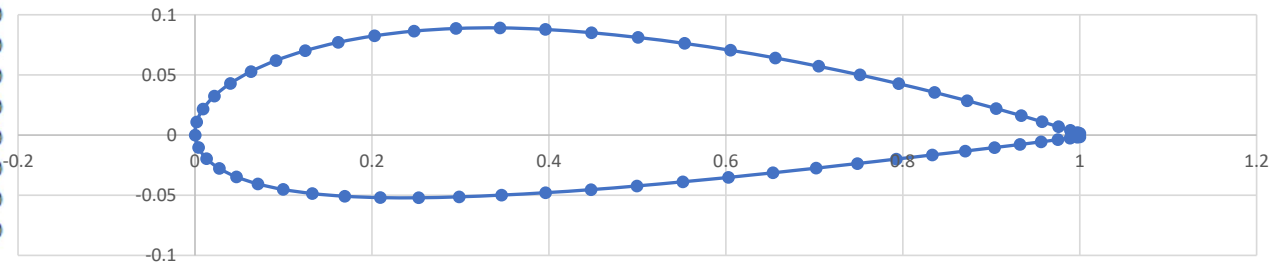
$$\tan\left(\frac{\phi_{TX}}{2}\right) = \frac{1}{2} \left[\frac{\bar{t}_{90} - \bar{t}_{99}}{0.09} \right]:$$

[-]

Kemiringan profil airfoil antara 95% - 99% \rightarrow

$$\tan\left(\frac{\phi_{TX}}{2}\right) = \frac{1}{2} \left[\frac{\bar{t}_{95} - \bar{t}_{99}}{0.04} \right]:$$

[-]



Geometry | Modify | Design | Velocity | Flowfield | Boundary Layer | Polar | Aircraft | Options

Airfoil Geometry

Name: NACA 2414

Coordinates:

1.00010	0.00147
0.99908	0.00170
0.99604	0.00241
0.99097	0.00357
0.98391	0.00519
0.97488	0.00723
0.96392	0.00967
0.95105	0.01248
0.93635	0.01564
0.91986	0.01910
0.90164	0.02283
0.88177	0.02679
0.86033	0.03094
0.83740	0.03523
0.81307	0.03963
0.78745	0.04408
0.76062	0.04855
0.73271	0.05299

Clear

decimal digits:
5

Create an Airfoil:

Family: NACA 4-digit (e.g. 2412)

Number of Points: 99 [-]

Thickness t/c: 14 [%]

Thickness Location xt/c: 30 [%]

Camber f/c: 2 [%]

Camber Location xf/c: 40 [%]

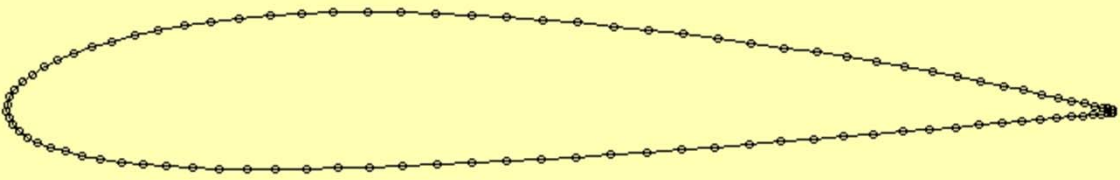
0 [%]

☐ Modify NACA section to have closed trailing edge

This is a general purpose airfoil series

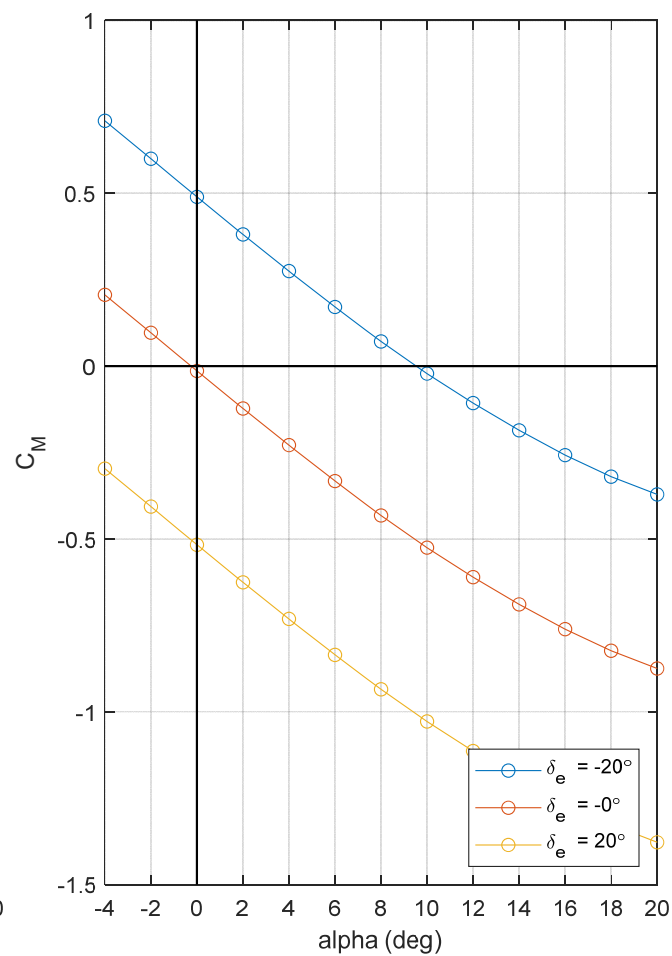
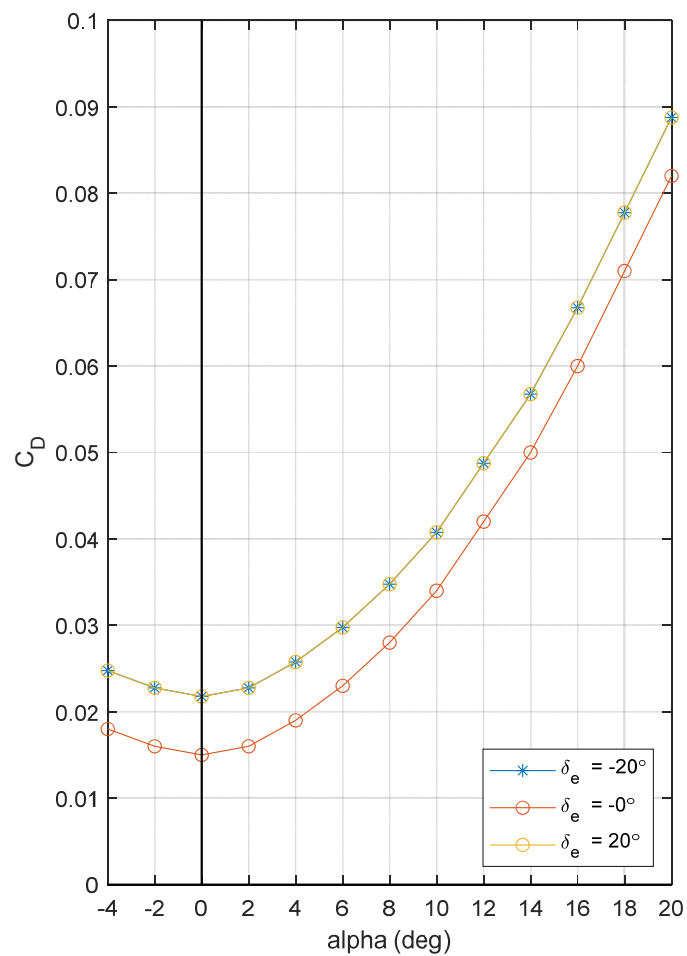
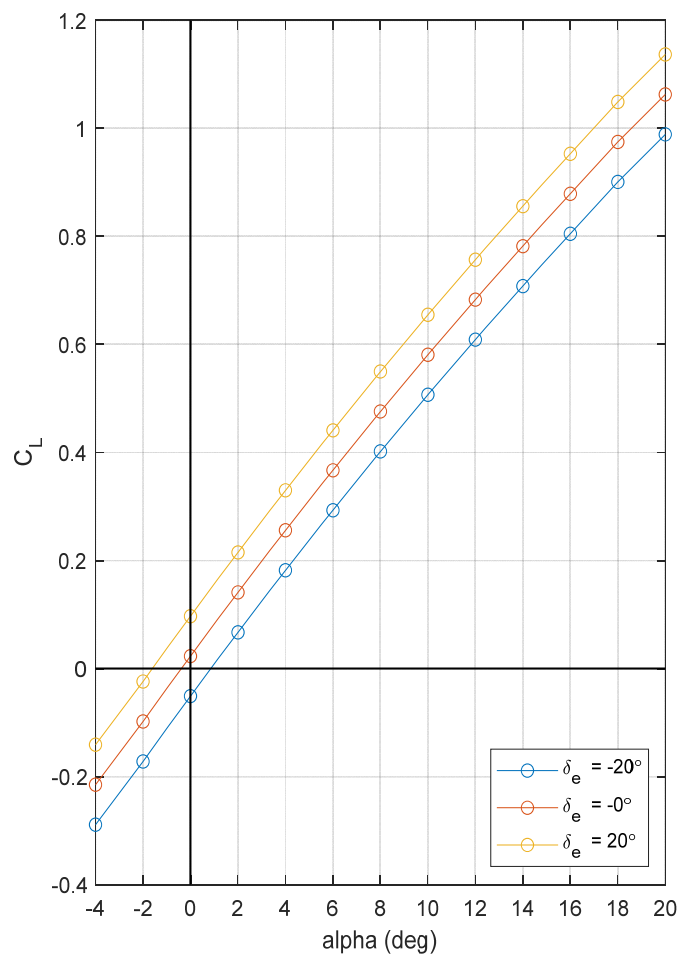
Create Airfoil

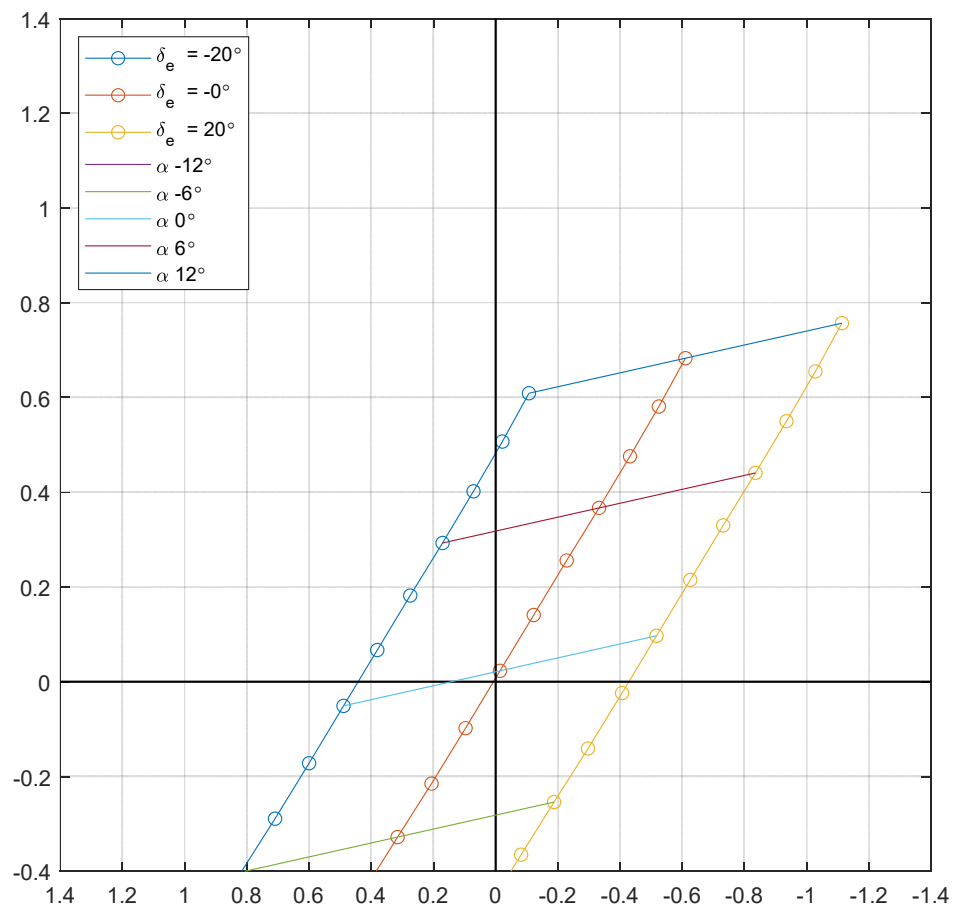
NACA 2414



For later analysis the trailing edge should be closed

DEMO DATCOM





	80% MTOW			MTOW		
C_{L1}						
CG	Most Aft	Design	Most Forward	Most Aft	Design	Most Forward
α_{trim}						
$\delta_{e trim}$						

