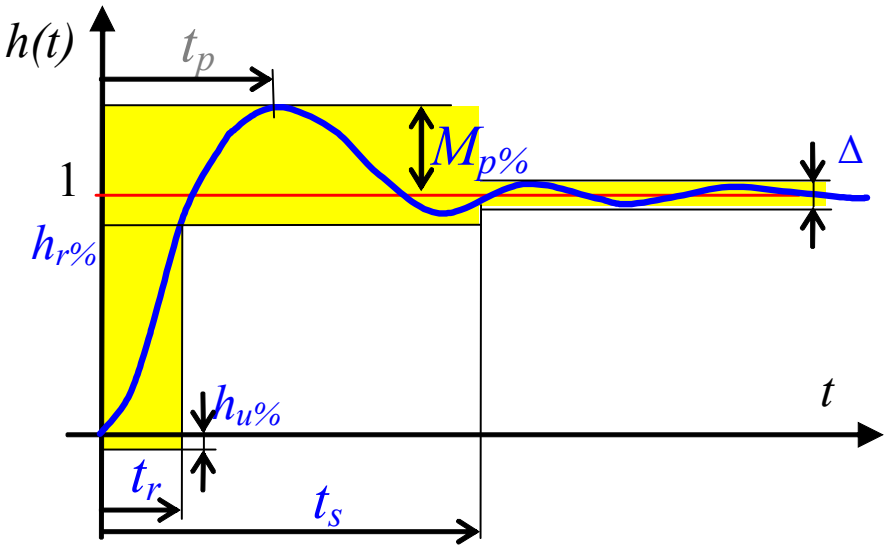
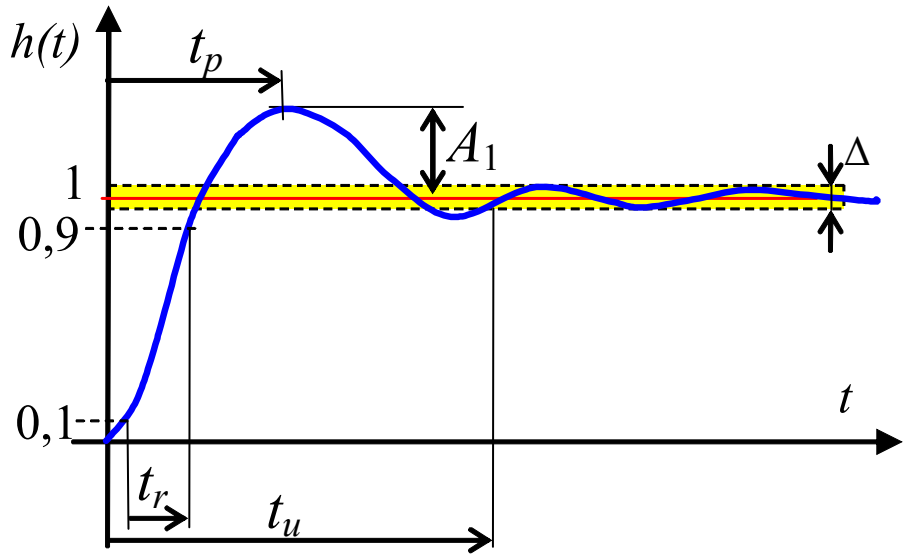
Bezpośrednie wskaźniki jakości





e_s , e_k - uchyb ustalony (końcowy); Δ – tolerancja uchybu

A_1 - przeregulowanie (e_1 - max uchyb dynamiczny)

t_p - czas pierwszego przeregulowania; t_r - czas narostu; t_u - czas regulacji (czas ustalania)

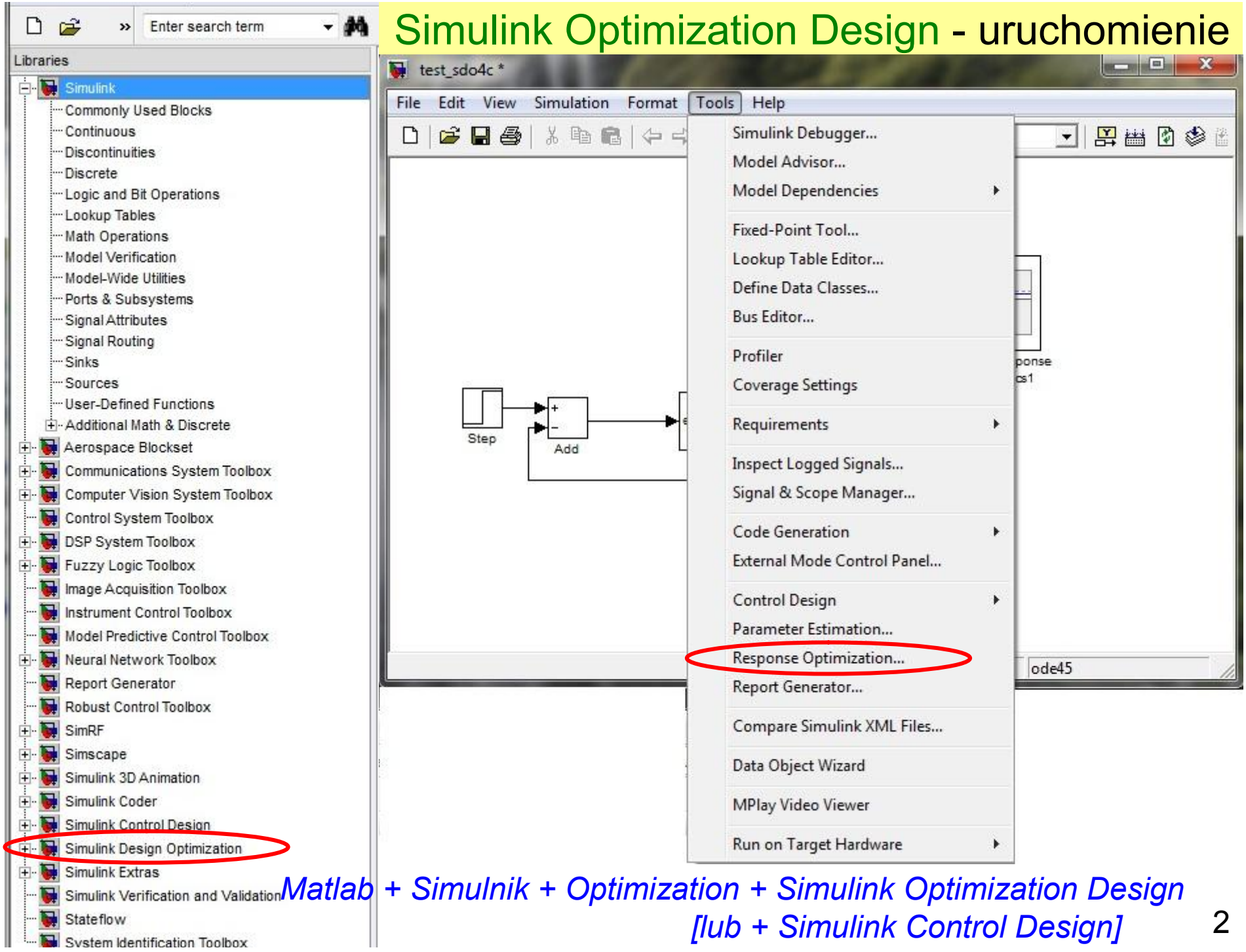
e_s – steady-state error; Δ - precent settling, e.g.=±1% (±5%)

M_p – overshoot ($M_{p\%}$ - precent overshoot, e.g.=20%);

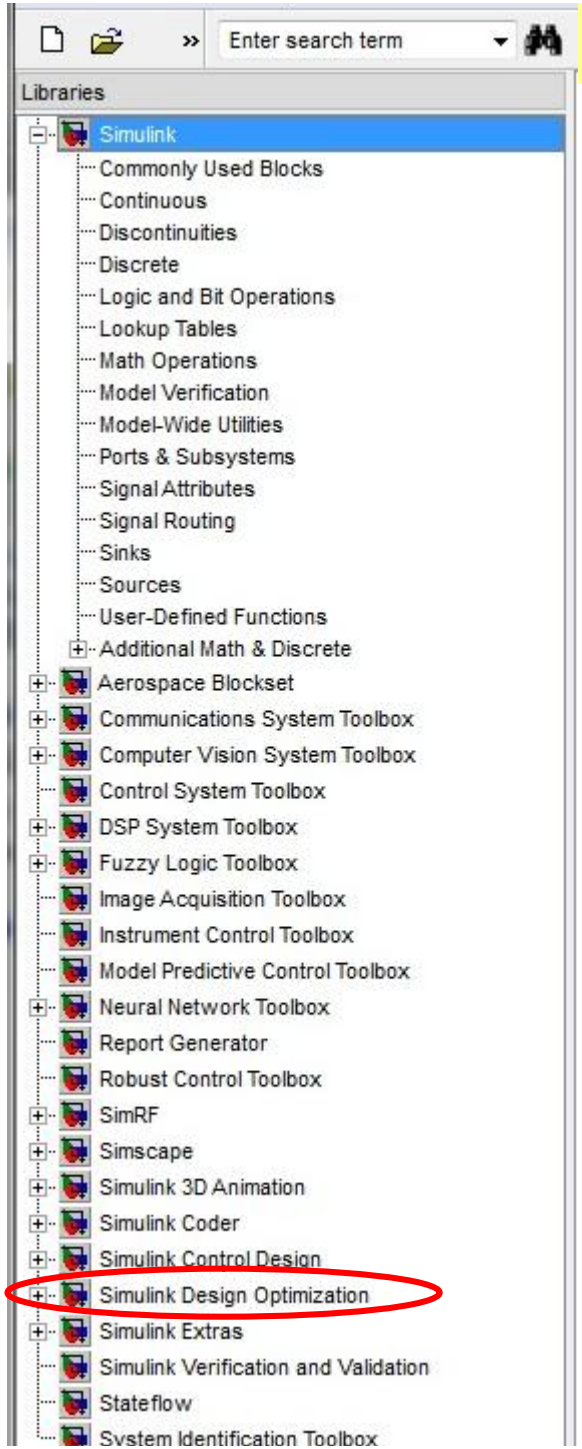
t_p - peak time; t_r – rise time; t_s – settling time

$h_{r\%}$ - precent rise, e.g.=90%; $h_{u\%}$ - precent undershoot, e.g.=1

Simulink Optimization Design - uruchomienie

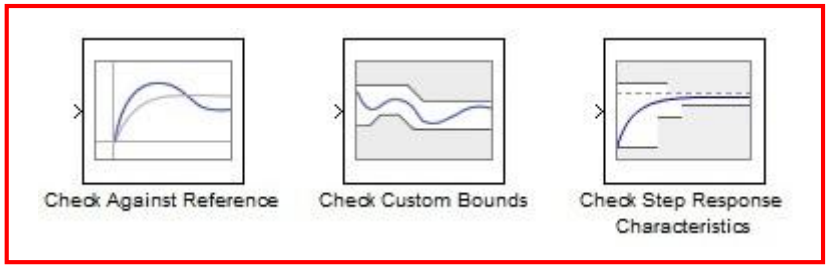


Matlab + Simulnik + Optimization + Simulink Optimization Design
[lub + Simulink Control Design]

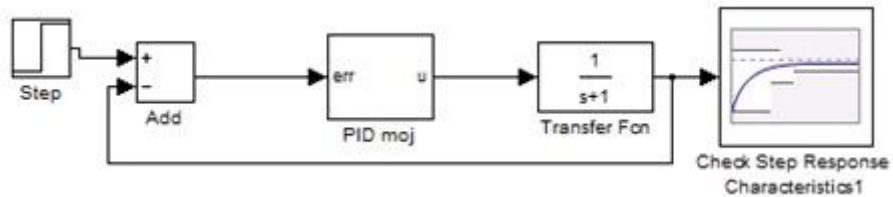


Simulink Optimization Design - bloki

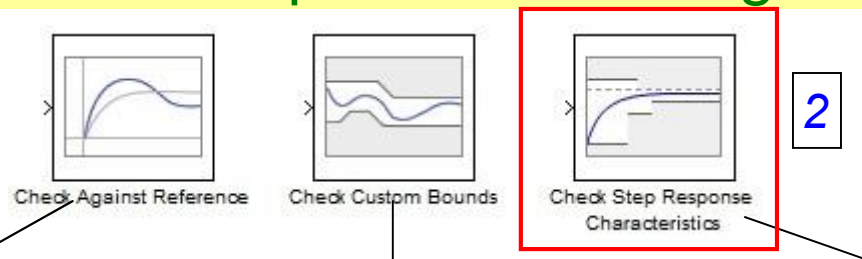
Model Verification



1) Wybór bloku
2) Podłączenie sygnału

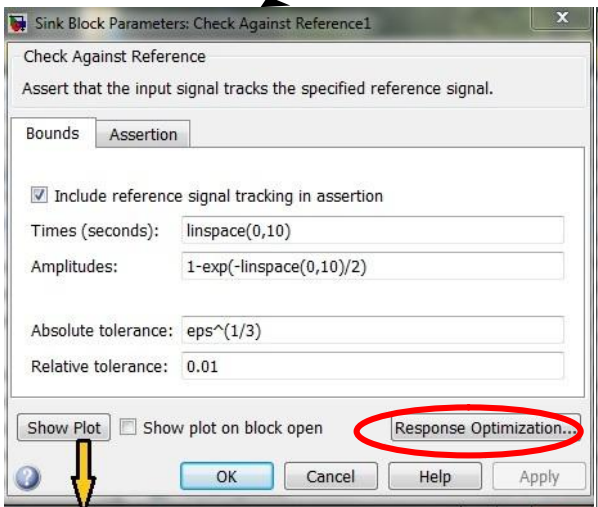


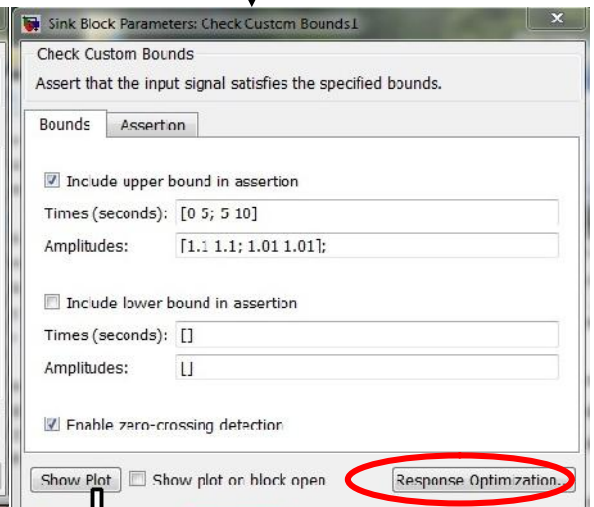
Simulink Optimization Design - bloki

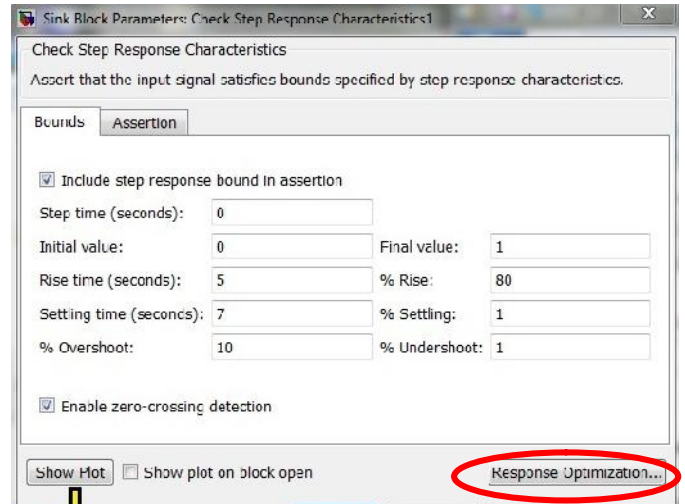


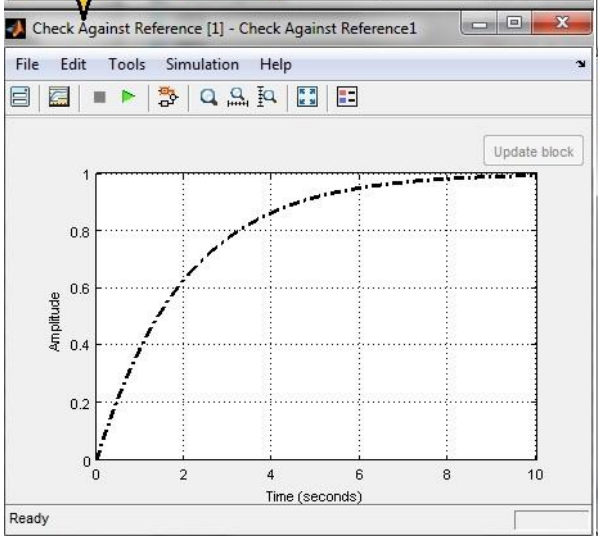
2) Podłączenie sygnału
3) Definicja wskaźników

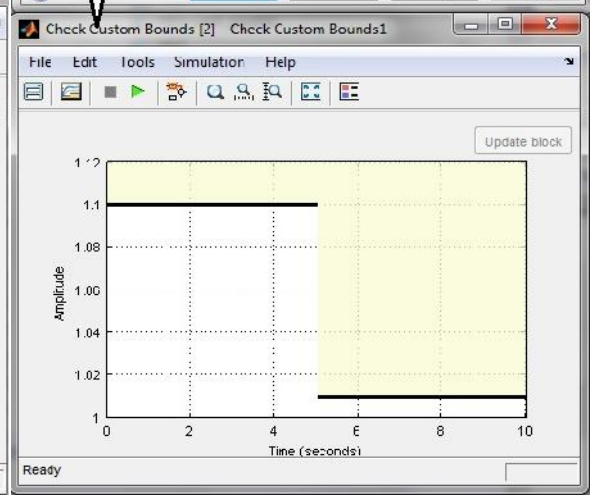
3

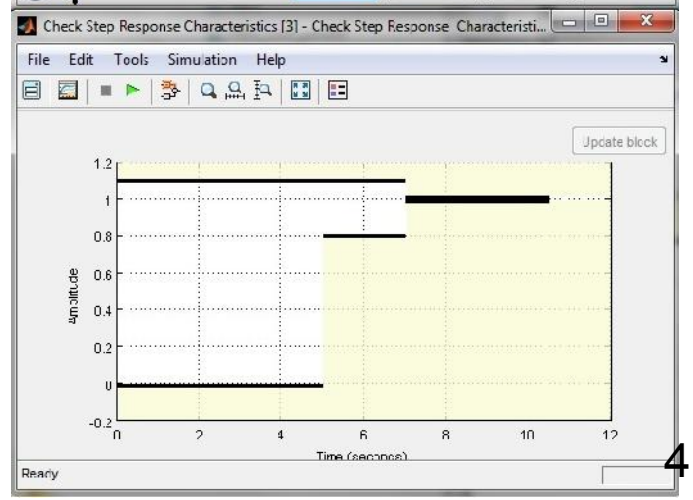




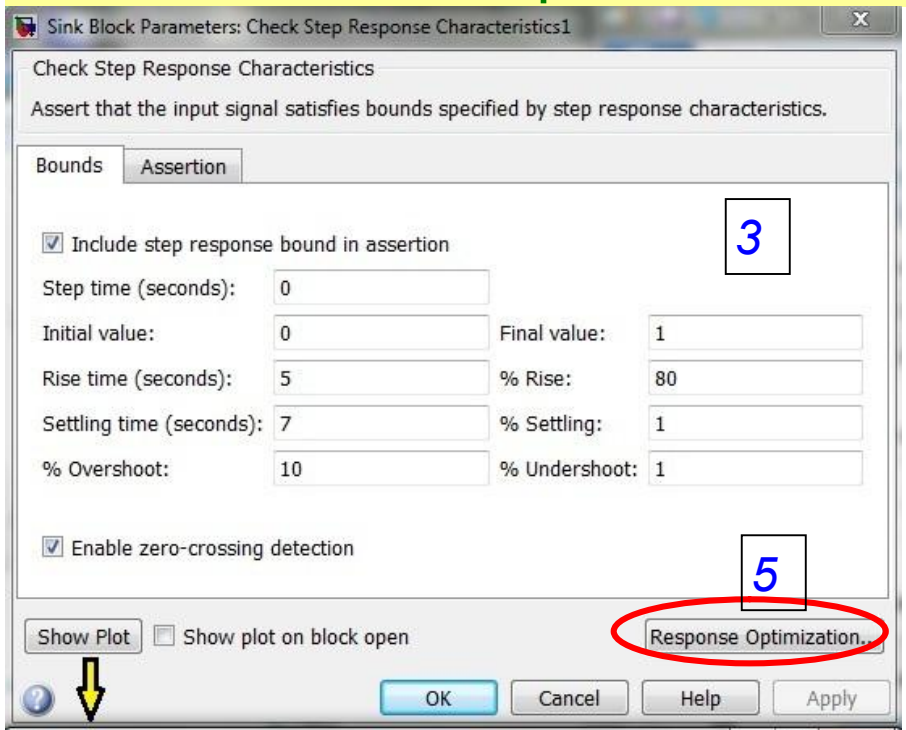


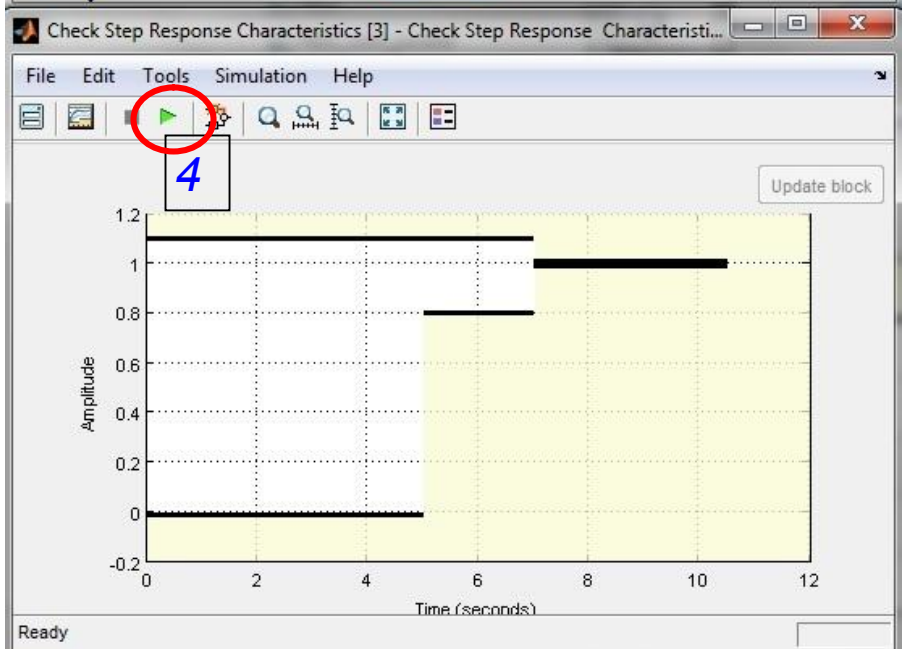






Simulink Optimization Design – blok Step Response



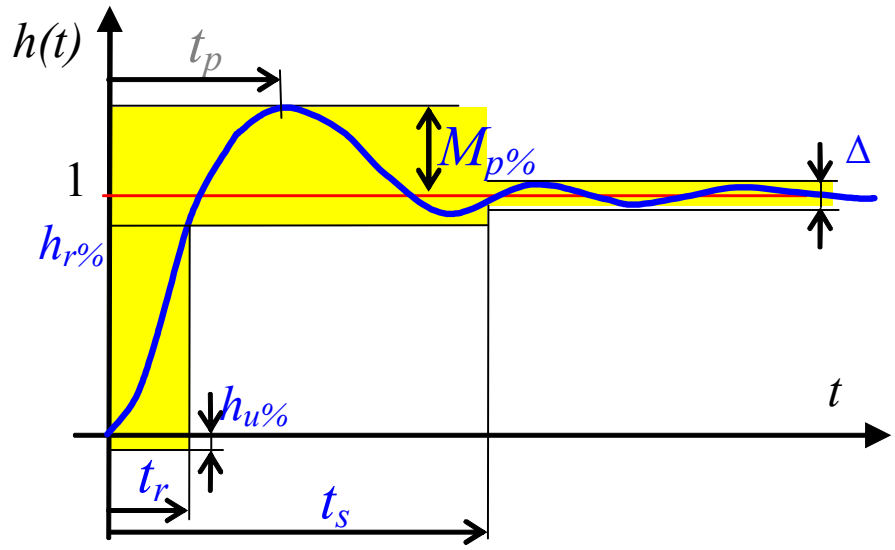


3) Definicja wskaźników
4) Sprawdzenie

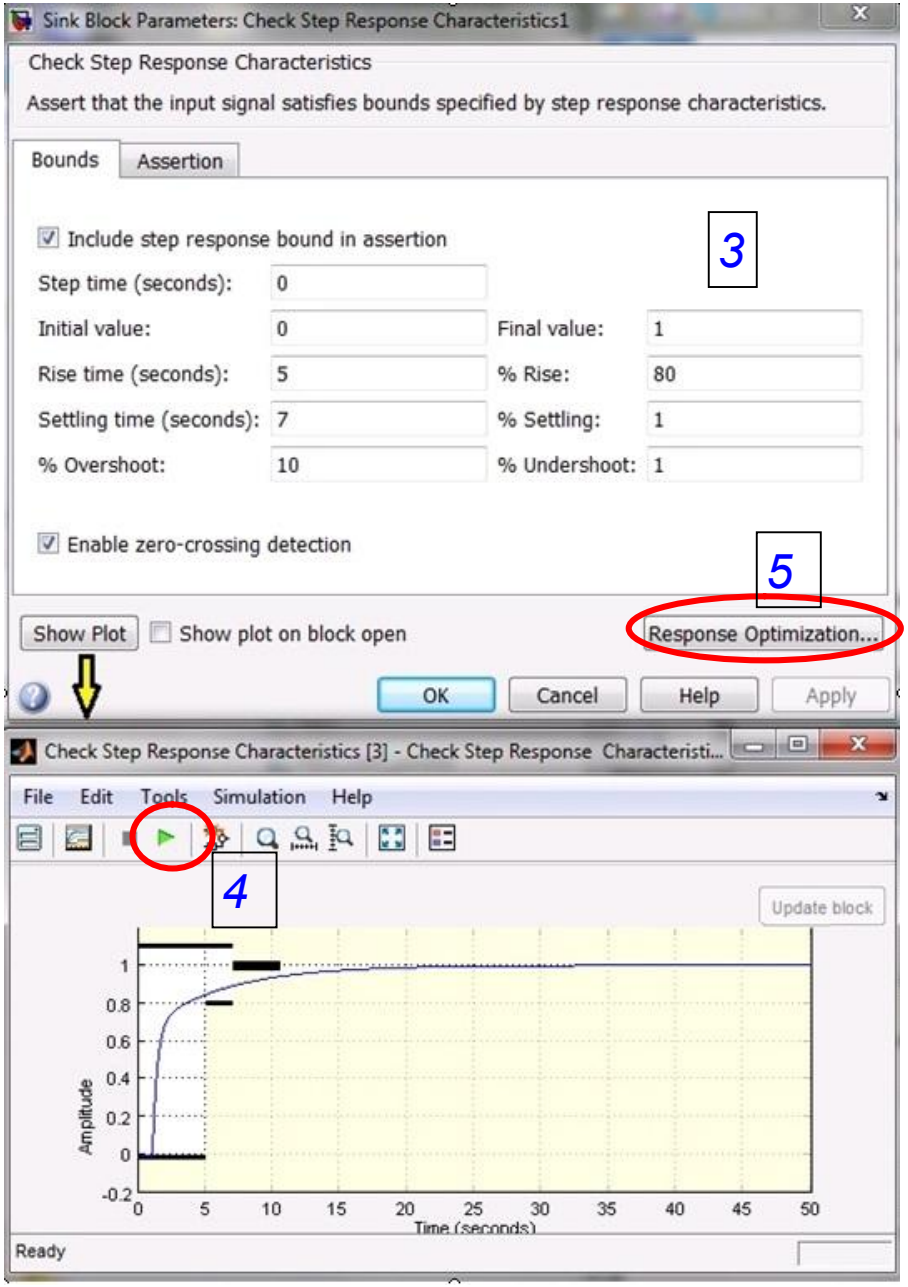
Settling time t_s=3
Precent settling Δ =1
Precent overshoot $M_{p\%}$ =20

Rise time t_r =1
Precent rise $h_{r\%}$ =90
Precent undershoot $h_{u\%}$ =1

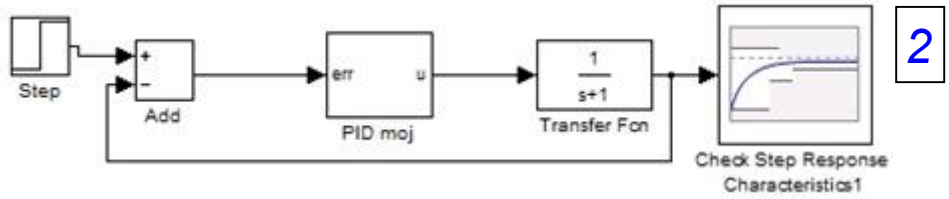
Step time = t_0 Final time = t_k
Initial output = h_0 Final output = h_k



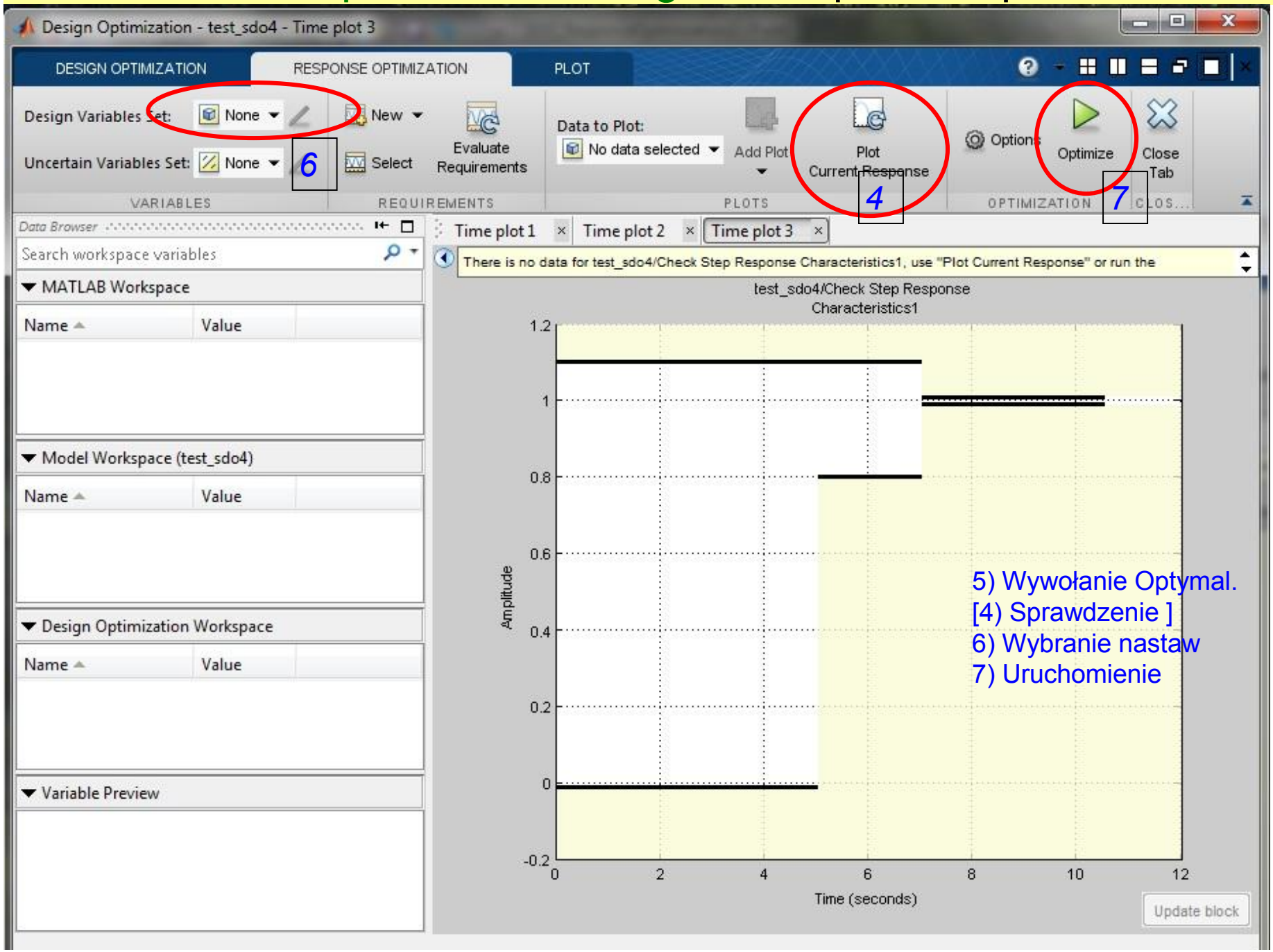
Simulink Optimization Design – Response Optimization



4) Sprawdzenie
5) Wywołanie Optymal.

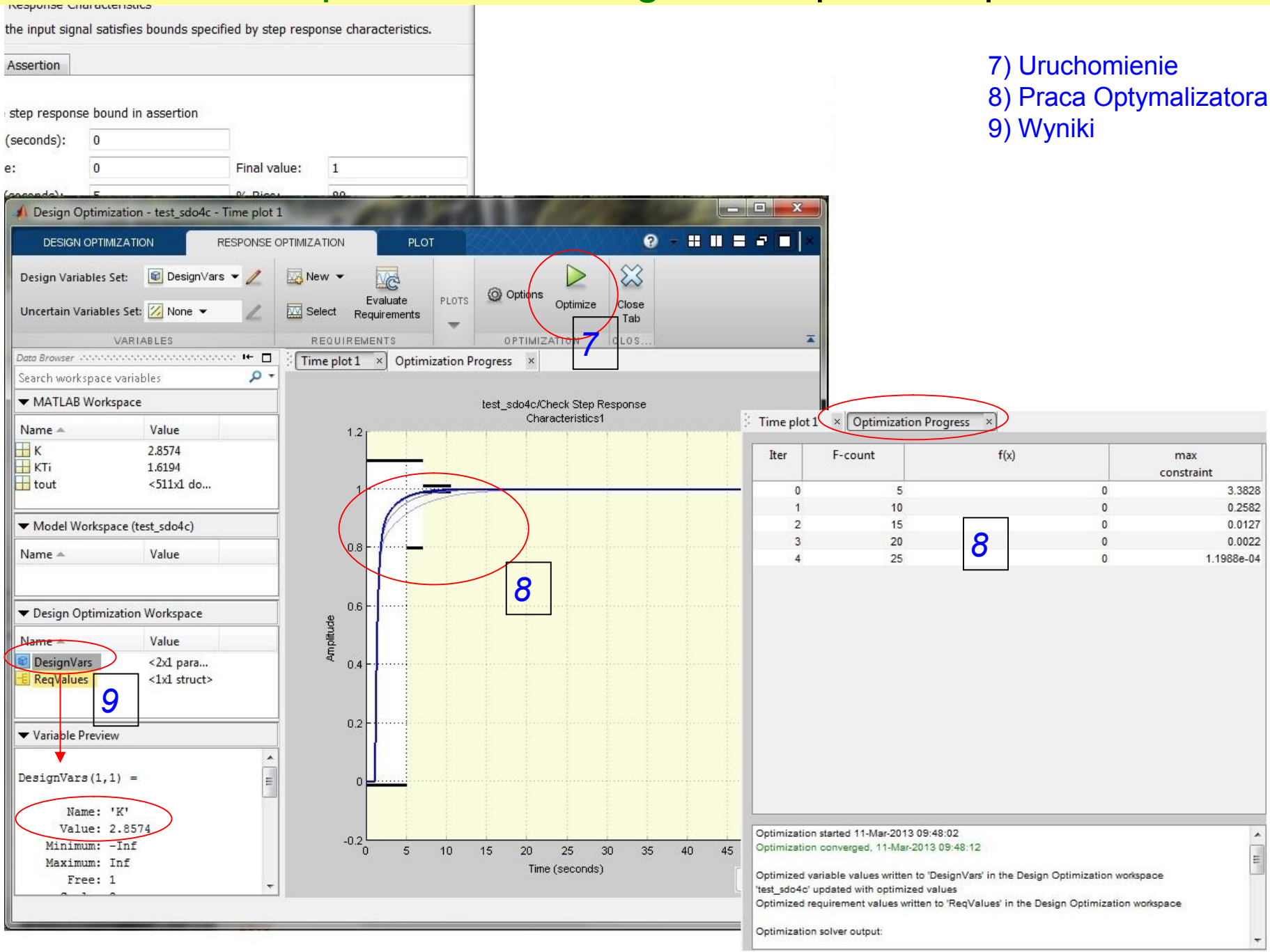


Simulink Optimization Design – Response Optimization



Simulink Optimization Design – Response Optimization

7) Uruchomienie
8) Praca Optymalizatora
9) Wyniki



Simulink Optimization Design – Response Optimization