DAFTAR LAMPIRAN

Data *m.file* simulasi *simple pendulum*

```
m1 = 0.46;            %mass parameter upper leg (kg)
m2 = 0.31;            %mass parameter lower leg (kg)
L1 = 0.42;            %length of upper leg (m)
L2 = 0.42;            %length of lower leg (m)
I1 = 0.13;            %inertia parameter of upper leg (kg.m^2)
I2 = 0.0095;          %inertia parameter of lower leg (kg.m^2)
b1 = 0.21;            %distance to link centre of mass (m)
b2 = 0.21;            %distance to link centre of mass (m)
g  = 9.81;
```

Data *m.file* simulasi *double pendulum massless*

```
m1 = 2;               %mass parameter upper leg (kg)
m2 = 3;               %mass parameter lower leg (kg)
L1 = 1.2;             %length of upper leg (m)
L2 = 1.6;             %length of lower leg (m)
g  = 9.81;
theta1_0 = 0.3927;
theta2_0 = 0;
```

Data *m.file* simulasi *double pendulum* SimMechanics dan Simulink

```
m1 = 0.46;            %mass parameter upper leg (kg)
m2 = 0.31;            %mass parameter lower leg (kg)
L1 = 0.42;            %length of upper leg (m)
L2 = 0.42;            %length of lower leg (m)
I1 = 0.13;            %inertia parameter of upper leg (kg.m^2)
I2 = 0.0095;          %inertia parameter of lower leg (kg.m^2)
b1 = 0.21;            %distance to link centre of mass (m)
b2 = 0.21;            %distance to link centre of mass (m)
g  = 9.81;
J0 = 0.1503;          %J0 = m1*b1^2+I1
J1 = 0.0273;          %J1 = m2*L1*b2
J2 = 0.1534;          %J2 = m2*L1+m2*b2^2+I2
J3 = 0.0232;          %J3 = m2*b2^2+I2
G1 = 2.2249;          %G1 = (m1*b1+m2*L1)*g
G2 = 0.6386;          %G2 = m2*b2*g
theta1_0 = 0.3927;
theta2_0 = 0;
```

Data *m.file* simulasi *swing leg* dengan *adaptive control* Simulink

```
m1 = 0.46;          %mass parameter upper leg (kg)
m2 = 0.31;          %mass parameter lower leg (kg)
L1 = 0.42;          %length of upper leg (m)
L2 = 0.42;          %length of lower leg (m)
I1 = 0.13;          %inertia parameter of upper leg (kg.m^2)
I2 = 0.0095;        %inertia parameter of lower leg (kg.m^2)
b1 = 0.21;          %distance to link centre of mass (m)
b2 = 0.21;          %distance to link centre of mass (m)
g  = 9.81;
J0 = 0.1503;        %J0 = m1*b1^2+I1
J1 = 0.0273;        %J1 = m2*L1*b2
J2 = 0.1534;        %J2 = m2*L1+m2*b2^2+I2
J3 = 0.0232;        %J3 = m2*b2^2+I2
G1 = 2.2249;        %G1 = (m1*b1+m2*L1)*g
G2 = 0.6386;        %G2 = m2*b2*g
a1 = J0+J2-J3;      %J0+J2-J3;
a2 = J1;            %J1;
a3 = J3;            %J3;
a4 = G1;            %G1;
a5 = G2;            %G2;
```

Data *m.file* Simulasi variasi m_1 30%

```
m1 = 0.598;             %mass parameter upper leg (kg)
m2 = 0.31;              %mass parameter lower leg (kg)
L1 = 0.42;              %length of upper leg (m)
L2 = 0.42;              %length of lower leg (m)
I1 = 0.13;              %inertia parameter of upper leg (kg.m^2)
I2 = 0.0095;            %inertia parameter of lower leg (kg.m^2)
b1 = 0.21;              %distance to link centre of mass (m)
b2 = 0.21;              %distance to link centre of mass (m)
g  = 9.81;
J0 = m1*b1^2+I1;        %J0 = m1*b1^2+I1
J1 = m2*L1*b2;          %J1 = m2*L1*b2
J2 = m2*L1+m2*b2^2+I2;  %J2 = m2*L1+m2*b2^2+I2
J3 = m2*b2^2+I2;        %J3 = m2*b2^2+I2
G1 = (m1*b1+m2*L1)*g;   %G1 = (m1*b1+m2*L1)*g
G2 = m2*b2*g;           %G2 = m2*b2*g
a1 = J0+J2-J3;          %J0+J2-J3;
a2 = J1;                %J1;
a3 = J3;                %J3;
a4 = G1;                %G1;
a5 = G2;                %G2;
```

Data *m.file* Simulasi variasi m_2 30%

```
m1 = 0.46;              %mass parameter upper leg (kg)
```

```matlab
m2 = 0.403;             %mass parameter lower leg (kg)
L1 = 0.42;              %length of upper leg (m)
L2 = 0.42;              %length of lower leg (m)
I1 = 0.13;              %inertia parameter of upper leg (kg.m^2)
I2 = 0.0095;            %inertia parameter of lower leg (kg.m^2)
b1 = 0.21;              %distance to link centre of mass (m)
b2 = 0.21;              %distance to link centre of mass (m)
g  = 9.81;
J0 = m1*b1^2+I1;        %J0 = m1*b1^2+I1
J1 = m2*L1*b2;          %J1 = m2*L1*b2
J2 = m2*L1+m2*b2^2+I2;  %J2 = m2*L1+m2*b2^2+I2
J3 = m2*b2^2+I2;        %J3 = m2*b2^2+I2
G1 = (m1*b1+m2*L1)*g;   %G1 = (m1*b1+m2*L1)*g
G2 = m2*b2*g;           %G2 = m2*b2*g
a1 = J0+J2-J3;          %J0+J2-J3;
a2 = J1;                %J1;
a3 = J3;                %J3;
a4 = G1;                %G1;
a5 = G2;                %G2;
```

Data *m.file* Simulasi variasi l_1 30%

```matlab
m1 = 0.46;              %mass parameter upper leg (kg)
m2 = 0.31;              %mass parameter lower leg (kg)
L1 = 0.542;            %length of upper leg (m)
L2 = 0.42;              %length of lower leg (m)
I1 = 0.13;              %inertia parameter of upper leg (kg.m^2)
I2 = 0.0095;            %inertia parameter of lower leg (kg.m^2)
b1 = 0.21;              %distance to link centre of mass (m)
b2 = 0.21;              %distance to link centre of mass (m)
g  = 9.81;
J0 = m1*b1^2+I1;        %J0 = m1*b1^2+I1
J1 = m2*L1*b2;          %J1 = m2*L1*b2
J2 = m2*L1+m2*b2^2+I2;  %J2 = m2*L1+m2*b2^2+I2
J3 = m2*b2^2+I2;        %J3 = m2*b2^2+I2
G1 = (m1*b1+m2*L1)*g;   %G1 = (m1*b1+m2*L1)*g
G2 = m2*b2*g;           %G2 = m2*b2*g
a1 = J0+J2-J3;          %J0+J2-J3;
a2 = J1;                %J1;
a3 = J3;                %J3;
a4 = G1;                %G1;
a5 = G2;                %G2;
```

Data *m.file* Simulasi variasi l_2 30%

```matlab
m1 = 0.46;              %mass parameter upper leg (kg)
m2 = 0.31;              %mass parameter lower leg (kg)
L1 = 0.542;            %length of upper leg (m)
L2 = 0.546;            %length of lower leg (m)
I1 = 0.13;              %inertia parameter of upper leg (kg.m^2)
I2 = 0.0095;            %inertia parameter of lower leg (kg.m^2)
```

```matlab
b1 = 0.21;                 %distance to link centre of mass (m)
b2 = 0.21;                 %distance to link centre of mass (m)
g  = 9.81;
J0 = m1*b1^2+I1;           %J0 = m1*b1^2+I1
J1 = m2*L1*b2;             %J1 = m2*L1*b2
J2 = m2*L1+m2*b2^2+I2;     %J2 = m2*L1+m2*b2^2+I2
J3 = m2*b2^2+I2;           %J3 = m2*b2^2+I2
G1 = (m1*b1+m2*L1)*g;      %G1 = (m1*b1+m2*L1)*g
G2 = m2*b2*g;              %G2 = m2*b2*g
a1 = J0+J2-J3;             %J0+J2-J3;
a2 = J1;                   %J1;
a3 = J3;                   %J3;
a4 = G1;                   %G1;
a5 = G2;                   %G2;
```