



TP 03

```
function [k,f]=calculelementaire(E,I,L,t1,m1,t2,m2)
k=(E*I/L^3)*[12, 6*L,- 12,-6*L;6*L,4*L^2,- 6*L,2*L^2;-12,-6*L, 12,-
6*L;
6*L,2*L^2,-6*L,4*L^2];
f=[t1,m1,t2,m2];
end
```

"Application au exercice 01 série 03"

```
[k1,f1]=calculelementaire(200000, 10^-6,1.7,-0.017,-0.005,-
0.017,0.005)
[k2,f2]=calculelementaire(200000, 10^-6,1.7,-0.017,-0.005,-
0.017,0.005)
```

```
function [K,F]=assemblage(k,f,i,j,n)
K=zeros(n,n);
K(2*i-1,2*i-1)= K(2*i-1,2*i-1)+k(1,1);
K(2*i-1,2*i)= K(2*i-1,2*i)+k(1,2);
K(2*i-1,2*j-1)= K(2*i-1,2*j-1)+k(1,3);
K(2*i-1,2*j)= K(2*i-1,2*j)+k(1,4);
K(2*i,2*i-1)= K(2*i,2*i-1)+k(2,1);
K(2*i,2*i)= K(2*i,2*i)+k(2,2);
K(2*i,2*j-1)= K(2*i,2*j-1)+k(2,3);
K(2*i,2*j)= K(2*i,2*j)+k(2,4);
K(2*j-1,2*i-1)= K(2*j-1,2*i-1)+k(3,1);
K(2*j-1,2*i)= K(2*j-1,2*i)+k(3,2);
K(2*j-1,2*j-1)= K(2*j-1,2*j-1)+k(3,3);
K(2*j-1,2*j)= K(2*j-1,2*j)+k(3,4);
K(2*j,2*i-1)= K(2*j,2*i-1)+k(4,1);
K(2*j,2*i)= K(2*j,2*i)+k(4,2);
K(2*j,2*j-1)= K(2*j,2*j-1)+k(4,3);
K(2*j,2*j)= K(2*j,2*j)+k(4,4);
```

```
for h=1:n
```

```

    F(h)=0;
end
F(2*i-1)=F(2*i-1)+f(1);
F(2*i)=F(2*i)+f(2);
F(2*j-1)=F(2*j-1)+f(3);
F(2*j)=F(2*j)+f(4);
end

```

```

-----
[K1,F1]=assemblage(k1,f1,1,2,6)
[K2,F2]=assemblage(k2,f2,2,3,6)
K= K1+ K2
F=F1+F2
-----

```

```

function [A,B]=cal(K,F,n)
for i=1:n
B(i)=F(i);
for j=1:n
A(i,j)=K(i,j);
end
end
nc=input('donner le nombre des noeuds bloque nc :');
for i=1:nc
cd(i)=input('donner le numero du noeud bloque cd :');
A(cd(i),:)=0;
A(:,cd(i))=0;
A(cd(i),cd(i))=1;
B(cd(i))=0;
end
end

```

```

-----
[A,B]=cal(K,F,6)
donner le nombre des noeuds bloque nc :3
donner le numero du noeud bloque cd :1
donner le numero du noeud bloque cd :2
donner le numero du noeud bloque cd :3
-----

```

```

function [u]=resolution(A,B)
F=B';
u=linsolve(A,F);
end

```