Exercise 7	**Harmonic oscillator – the spring**		*Theory:*
Team:	Name:		*Experiment:*
Date:	Weeks day and hour:	Major, group:	*Remarks*

1. Determination of the elasticity modulus using the static method.

- *Hooke's law: .....*

- *Equation of the one parameter linear regression including its uncertainty:*

....

No.	Mass *m* [ ]	Force *F* [ ]	Elongation *x* [ ]

Slope of *F(x)* = ... ± ..... [ ]

Elasticity modulus *k* = ... ± ..... [ ]

2. Determination of the elasticity modulus using the dynamic method.

- *Equation of the two parameter linear regression including its uncertainty:*

....

....

- *Dependence of the oscillation period on mass and elasticity modulus:*

.....

No.	Mass m [ ]	20 · period T [ ]	Period square T^2 [ ]

Slope of $T^2(M)$ = ... ± ..... [ ]

Elasticity modulus k = ... ± ..... [ ]

3. Determination of the spring rigidity modulus

Equation of the spring rigidity modulus G dependence on spring's number of turns n, spring radius R and wire radius r:

G=.....

Equation of the rigidity modulus uncertainty from the propagation of uncertainty principal:

ΔG= .....

Measured values:

n = ...

2r = ... ± ..... [ ] r = ... ± ..... [ ]

2R = ... ± ..... [ ] R = ... ± ..... [ ]

k = ... ± ..... [ ]

G = ... ± ..... [ ]

4. Conclusions