

**HUMAN FACTORS ENGINEERING**  
**IE 442**  
**LABORATORY MANUAL**

LAB – 1

**DETERMINATION OF REACTION TIME UNDER NOISE**



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### **Objective:**

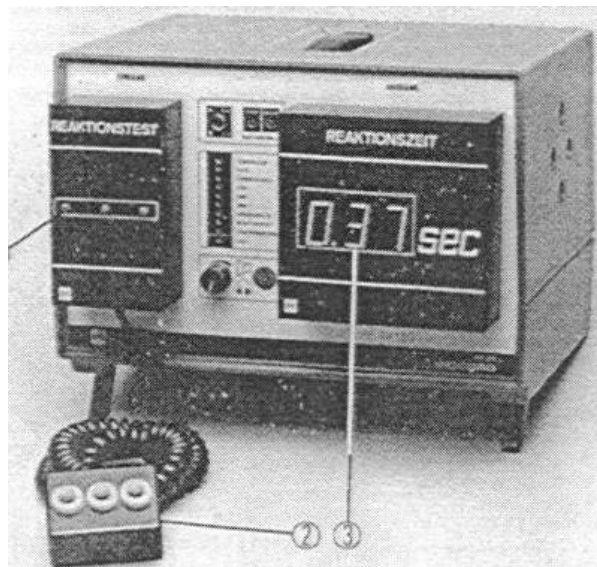
The objective of this Experiment is to test effect of noise on reaction time.

### **Experiment description**

Reaction time is composed the speed of nervous signal transmission and reaction speed of muscle. The reaction time can be determined only if there are several alternatives to decide between (in Biocord: three different LEDs and the equivalent push buttons), otherwise some kind of reflex arc between nervous system and muscle would establish after a short period of exercise, causing reaction times similar to the times of true reflex arcs.

### **Equipment list**

1	Basic Unit	662100
2	Reaction Test module	662141
3	Reaction Time module	662142



**Figure 1.1** Experimental setup for measuring Reaction time

### **Experiment setup (see figure 1.1)**

Basic unit: equipped with Reaction Test module and display Reaction time module.

Reaction test module: Three LEDs 1, different in color are operated by chance (random generator). Upon lamination of one of the LEDs the push button 2 has to push. The delay time between lamination of the LED and pushing the button is displayed by the reaction time module as 1/100 sec.

Reaction time module: Red, 26-mm, 3-digit LED display 3 (1/100) that can be read from a distance of 10 m.

### **Carrying out the experiment**

- Determination of the Reaction time at rest

Determine the mean value of 10 reaction time measurements of a test person that was allowed to relax just before the experiment.

- Determination of the Reaction time under stress

Determine the mean value of 10 reaction time measurement of test person while playing very loud noise.

- Compare the mean value at rest with the mean value under stress.

### **Evaluation**

The individual mean reaction time determined at rest can be changed drastically under stress. Especially noise increases the reaction time significantly. As the reaction time is, at least with certain restrictions, a measure for the ability to concentrate, the experiments demonstrate that noise considerably affect the ability to concentrate.