






Ergonomics Laboratories

The following laboratories exist in the department of Ergonomics:

(1) Cognitive laboratory

This laboratory is equipped with the following apparatus (Table 5):

Table 5. Cognitive ergonomics laboratory's apparatus

| Name/ Description and Application | Image |
|--|--|
| <p>Electroshock</p> <p>For performing conditioning experiments and clinical applications such as negative thought cessation or drug withdrawal.</p> |  |
| <p>Dual temperature biofeedback</p> <p>Presents differences in body temperature with accuracy of 0.1 centigrade in digital format with two separate channel, for monitoring temperature differences of two points of body, for example: between skull and fingers.</p> |  |
| <p>GSR biofeedback</p> <p>Has LCD monitor and digital monitors for GSR/ TEMP/ HR, presenting visual and audio feedback of changes of stimulation in simpatico system, in heart rate and in temperature between two points of body to control mental workload and causing relaxation</p> |  |

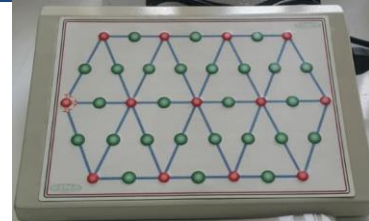


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Register maze

For studying learning through trial and error and evaluating spatial incarnation



Metronome

It's an electronic visual-audio pendulum, which applies to determine the response rate or perception and to regulate the rhythm



Reaction timer

Has LCD monitor, three audios and three optical stimuli and enables to save the results and calculate mean values with accuracy of 0.001 second. It's appropriate to assess time and reaction time.



Tachistoscope

Enables planning time-related tests for performing experiments related to motivation, perception, memory, personality.



Memory and learning speed evaluator

Has various level of difficulty and programs appropriate for doing learning experiments through trial and error method and evaluating memory and learning speed.





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Electronic flicker fusion

Has a LCD monitor Measures threshold of perceiving a flicker optical stimuli and enables to save the results and calculate mean values. It's appropriate to perform experiment of absolute and differential threshold.



Color mixer

Has rotatory plate with capability to regulate rotation speed and angle of color interferences. The rotation of plate can create deductive or additive color combination which is applied for determining color perception threshold.



Tapping tester

Has 3-digit counter and applies in measuring fingers tapping speed during typing a text.



Digital counter and timer

It applies in counting the number of special function and time of doing the task.



Weight estimation

Has 12 canisters in same shape and size with different weights which applies in assessing weight estimation ability and absolute and differential threshold of weight estimation of the subject.





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Purdue pegboard test

Has different pins and washers with various shapes which applies in determining fine motor coordination of hand and fingers in doing fine and gross activities in one or two-way manner.



2 point aesthesiometer

This caliper applies in assessing differential threshold of feeling two points on the skin



Tower of London Test + software

Model: RT-871

It applies in assessing strategic planning and problem solving skills. It has a software, too, but it's possible to use it without its software, independently.

Its software enables calculating personal or group results, printing the results and data transition.



Wechsler working memory software (WAIS-R)

Is based on Wechsler memory test and enables calculating personal or group results, printing the results and data transition. It applies in assessing numeric memory and capacity of short-term memory of children and adults.



Various psychological tests to evaluate psychosocial work factors







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(2) Physical laboratory

This laboratory is equipped with the following devices and tools (Table 6):

Table 6. Physical laboratory's tools and devices

| Name/ Description and application | Image |
|--|---|
| Hand, Leg & Back Dynamometer It applies in measuring forces exerted from hand, leg and back muscles. It enables judging these forces are below the recommended values or beyond, so, diagnosing the necessity of interventions. |  |
| Electromyography There is a portable and wireless Biometric electromyography which is made in England and has surface electrodes and 8 channels. Also, it has electrogoniometer sensors to measure angular dynamics. It applies in measuring exerted compression and tensile forces. |  |
| Ergo cycle There is a MONARK ergo cycle which is made in Sweden and applies in performing aerobic capacity fitness tests and measuring V_{O_2} Max with famous protocols like Bruce, Naughton, WHO, ASTRAND and YMCA. It also enables measuring time, velocity, calorie, RPM, distance and heart rate. |  |
| Spirometer It applies in measuring respiratory and expiratory gas volumes and enables diagnosing any respiratory dysfunction in the subject. |  |



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Audiometer

It applies measuring auditory threshold and enables presenting audio stimuli in different frequencies and intensities.



Anthropometry room with a complete set of anthropometry

It comprises different types of caliper, goniometer and meter. It applies in measuring static dimensions of body in sitting and standing postures.



Castle vibrometer

Its portable and applies in measuring vibration.



Hanger light meter

It applies in measuring the light intensity in the environment.

