**IE-341**

**Section 1, CRN: 30512/513/514**

**Section 2, CRN: 30515/516/517**

**Section 3, CRN: 46950/951/952**

**First Semester 1435-36 H (Fall-2014) – 3(2,1,2)
“HUMAN FACTORS ENGINEERING**

**Wednesday, Sep 17, 2014 (22/11/1435H)**

**Quiz 1 ANSWERS**

|  |  |  |
| --- | --- | --- |
| **Name:**  | **Student Number:****4** | **Section:****Sun / Mon / Wed** |

**Answer the following questions briefly.**

1. **Define human factors engineering in your own way.**
* **Human Factors Engineering is the systematic application of information about human capabilities, limitations, and characteristics to the design of objects and procedures that people use, and the environment in which they use them**
* **Human Factors Engineering discovers and applies information about human: behavior, abilities, limitations, and other characteristics to the design of tools, machines, systems, jobs, tasks, and environments for productive, safe, comfortable, effective human use.**

***See slide 4*. Note, any similar answer of your own will be considered correct.**

1. **Mention any two objectives of human factors.**
* **To increase work efficiency**
* **To study the influence of design on people**
* **To change designs to suit human needs, limitations**
* **To increase human values**

***See slide 3***

1. **What is a mechanical human machine system? Give an example.**
* **A mechanical (or semiautomatic) system must consist of an operator for control in addition to integrated physical parts.**
* **Examples: power drill; vacuum cleaner; batter-operated toothbrush; etc.**

***See slide 9***

1. **What is meant by “success ratio”? Give an example.**
* **Success ratio is the ratio of successes to total attempts, i.e.** $SR =\frac{success}{success+failure}$
* **Example: SR of ATM machine:**$ SR\_{ATM} =\frac{good transaction}{bad transaction+good transaction}$

***See slide 13***

1. **Calculate the reliability of a system with,**
	* **2 components in series**
	* **reliability of 80% for each component**

Since system is connected in series ⇒

$$Rel\_{sys}=product of Rel.of all components=\prod\_{i=1}^{n}Rel\_{comp,i}=\prod\_{i=1}^{n=2}(Rel\_{comp}=0.8)=0.8^{2}=0.64$$

**Thus, the reliability of the system is 64%.**