

## ASSESSMENT OF KNOWLEDGE ON RADIATION PHYSICS PRIOR TO EXPOSURE TO THE MODULE ON RADIATION PHYSICS AMONG RADIOGRAPHY STUDENTS

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### Introduction

Radiation protection plays an important role in the field of radiography and radiotherapy. In order to implement radiation safety procedures and for the better practice of radiography and radiotherapy there should be a sound knowledge about radiation physics. Researchers have consistently attempted to understand the major predictors of student's prior knowledge before being exposed to further education, but we failed to find local data on this subject.

### Objectives

Objective of this study was to assess the prior knowledge among first year radiography students on radiation physics before being exposed to lectures on radiation physics.

### Materials and Methods

This was a descriptive study conducted at the Department of Radiography/Radiotherapy, Faculty of Allied Health Sciences, University of Peradeniya. Study sample was all first year radiography students of 2008 new intake. A questionnaire was prepared based on advanced level (A/L) physics syllabus. Twenty five True/False type radiation physics questions were given to be answered within one hour. Their z-score values and A/L grades on physics were also obtained.

### Results

There were 20 students [M – 7(35%) : F – 13(65%)]. Average of their marks was 52.70 and 10(50%) students were below the average. There were 2(10%) students having marks in the range from 31 – 40, 7(35%) from 41 – 50, 7(35%) from 51 – 60 and 4(20%) students having marks above 60. Student's z-score was also analyzed and the average value of z-score was 1.4201. There were 9 (45%) students below average value. Advanced level grade on physics also was analyzed. There were no A grades among the study group. There were 3 (15%) S grades, 8 (40%) C grades and 9 (45%) B grades. The raw marks of radiation physics was compared with their z-score and advanced level grade on physics.

### Frequency distribution of A/L results

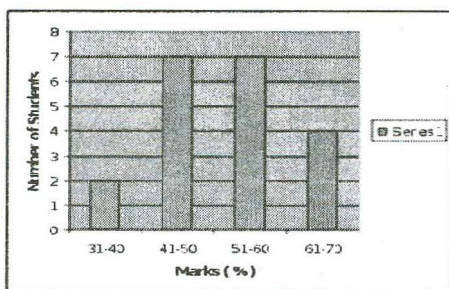
A/L grade	Number of students
A	0
B	9
C	8
S	3
Total	20

### Mean and standard deviation of marks and A/L z-score

	Marks	Z score
Mean	52.7	1.420
SD	8.02	

Correlation coefficient between marks of students and z-score = 0.145  
 With a p value of 0.541

### Frequency distribution of marks among study group



Standard deviation=8.02, Median=53

### Discussion

Knowledge on radiation physics is of paramount importance to follow a course on radiography and to practice radiography as a level.<sup>1, 2, 3</sup> This study reveals that significant number of students (50 %) were unable to get 50 % marks on radiation physics which was tested at advanced level knowledge. Also this study shows that there is no significant correlation between marks obtained and their advanced level performance as indicated by the grade obtained on physics and Z score (correlation coefficient of marks student performance = 0.145 and p = 0.541). Literature review failed to identify similar studies for comparison.

### Conclusion

This study concludes that the prior knowledge on radiation physics acquired at advanced level is insufficient among the students following the radiography course and further input is required at undergraduate level.

### Recommendations

The radiation physics module should contain basics on radiation physics.

### References

- Sutton, R.A. (1977). Diagnosing prior knowledge levels of first year university physics students. *Programmed Learning and Educational Technology*, 14: 92-5
- Sutton, R.A.(1977) . The interface between school and university. *Phys. Educ*, 12: 304-311
- Sutton, R.A.(1972). School University Physics interface project; *Physics Education*, 7: 212 – 214
- Çonell, S.O, Wilson, A.W. and Elton, L.R.B.(1977). Pre-knowledge Survey for University science entrants. *Nature*, 222: 526-8.