

Closed Book Vs. Open Book Tests and Examinations in Statics

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Statics, an engineering mechanics course, is an essential introductory course in many engineering curricula including, civil, mechanical, architectural, and aerospace engineering. Many subsequent courses depend on statics in these programs. Statics is used as an elective course in other engineering curricula like electrical and chemical engineering.

On one hand, engineering students learn basic theories and formulas in this fundamental course. Students have to solve problems from scratch without external aids like formulas and examples. That is, closed book tests policy seems to be the needed mode of testing in this course. On the other hand, the focus of the education process should be on understanding instead of memorizing. Engineering students should understand the concepts and know how to use them in solving practical technical problems rather than remembering formulas. That is, open book tests policy seems to be the means of testing students in statics. This is the norm in many and almost all advanced courses in all engineering fields in general. Looked at it from another angle though, advanced engineering courses have long and difficult to memorize formulas while statics has very few and easy to remember formulas.

How to balance the above two arguments is the topic of this presentation. The paper intends to outline the advantages of having a closed book test policy over an open book tests practice in the subject of statics and vice-versa. It will outline the experience of the author in regard to this issue as an instructor for statics and many other courses at Penn State Fayette as an assistant professor of engineering and previously as faculty assistant at Duke University. This will also include his experience as a bridge designer with the North Carolina Department of Transportation, and as a structural engineer with a consulting engineering firm. It will compare the two policies and conclude with recommendations.