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Book of Interest

Michael Florian,

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Book of Interest

Traffic Flow on Transportation Networks, G. F. Newell, The MIT Press Series in Transportation Studies, 1980, 276 pp.

This interesting book, based on lecture notes for a course offered at the Institute of Transportation Studies at the University of California, Berkeley, “discusses and analyzes various issues that are relevant to the traffic assignment problem” and is suggested “for use as a primary text for first—or second—year graduate courses in transportation engineering and as a supplementary reading for other courses in transportation.”

The contents of the book include an introduction to transportation planning which reflects the author’s views on the practice of large scale transportation studies, graph and network models of transportation infrastructure, finding shortest routes on networks and on idealized networks, flows on networks and flows on a continuum, the traffic assignment problem on networks and idealized networks, the related problems of traffic assignment with nonidentical travelers and optimal network geometry.

The text is written in a very pleasant style and its strong points are, in my opinion, the presentation of the basic mathematical material that is useful for modeling networks, the treatment of approximations and idealizations of networks and the useful parallels drawn with other branches of science, such as the similarity between the “label setting” shortest route algorithm and Huygen’s principle of wave propagation.

The book reflects the unique perspective that Professor Newell has on this subject, and, as such, it is not addressed to the interests or needs of a particular academic or professional group. The treatment of the assignment problem in this book does not reflect the latest advances in the field for a mathematically oriented transport planner, nor are the computational techniques presented up to date; on the other hand, the practicing traffic engineer or transportation planner is unlikely to find in this book detailed description of the methods imbedded in some of the computer codes that he is likely to use. Although the author manages to convey many useful insights related to the use of networks models in transportation planning, such as his discussion of network design problems, it is unlikely that an attentive reader will find suggestions that will guide his choice of a solution method when faced with a particular problem.

In summary, this is a book which provides interesting supplementary reading for students, academic personnel, transportation planners and engineers interested in the traffic assignment problem and contains material that is not likely to be found in books that have or will be written on this topic. It should be part of the reference books of any student and practitioner of this field.

MICHAEL FLORIAN
Université de Montréal
Montréal, Quebec