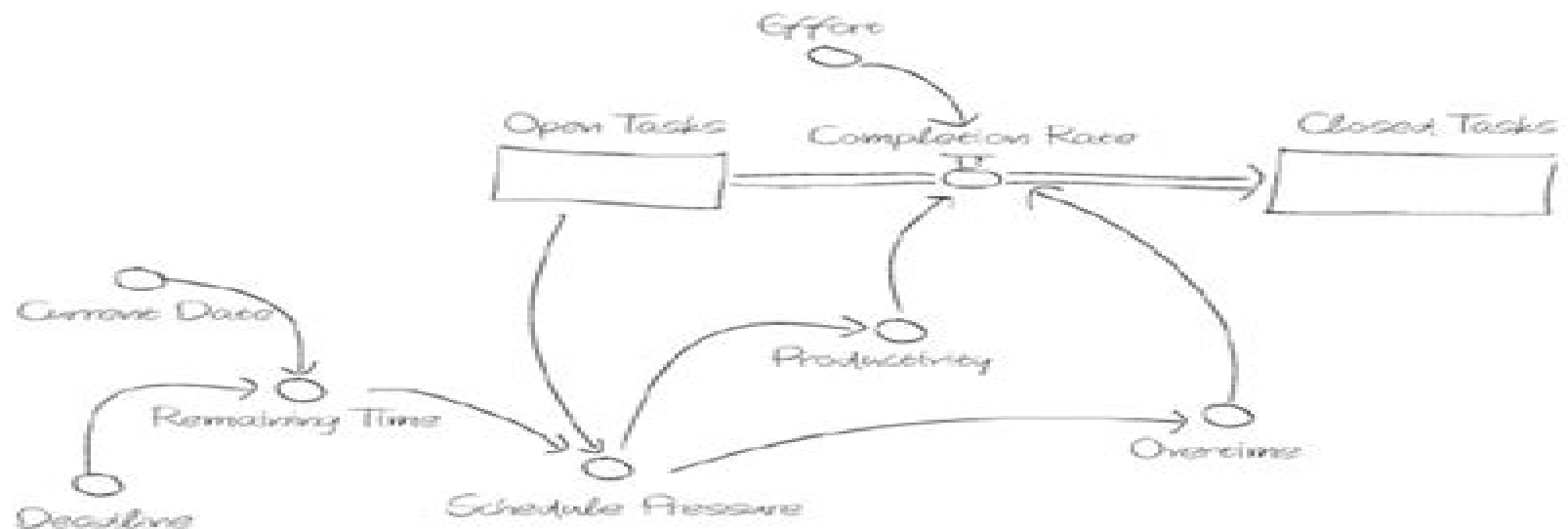


System Dynamics Simulation

In this section, we will create a simulation model based on the stock and flow diagram we developed in the previous section on [stock and flow diagrams](#). For ease of reference, we have included the diagram here:



As noted in the [previous section](#), this stock and flow diagram is just a visual notation for a mathematical model of the system that can be used to simulate the system's behavior using computer software. In these mathematical models, stocks and flows are represented by integral equations, converters are represented by functions of their input and/or time. In most cases, these integral equations cannot be solved analytically but instead are approximated using numerical integration.

Elements Of System Dynamics Simulation

Babak Badrzadeh,Zia Emin



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Introduction to System Dynamic Modelling and Vensim Software Hasimah Sapiri, Jafri Zulkepli, Norazura Ahmad, Norhaslinda Zainal Abidin, Nurul Nazihah Hawari, 2017-01-01 System dynamics simulation modelling technique is taught to students at undergraduate and graduate levels The students are taught how to develop a system dynamics model of the system under study This book is written to help students understand the concepts and fundamental elements of system dynamics simulation and provide a step by step guide in conducting a system dynamics study This book is suitable for students who are studying system dynamics simulation modelling at undergraduate and graduate levels It offers the concepts and application of system dynamics as well as provides an approach for modelling effectively Having read this book the reader will be able to Learn the concept of system dynamics simulation and its application Understand the important steps of modelling process and Conduct a system dynamics study successfully

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Safety Causation Analysis in Sociotechnical Systems: Advanced Models and Techniques Esmaeil Zarei, 2024-07-22 This book provides a comprehensive view on theories models and techniques used to investigate and analyze incidents and safety causalities occurring in sociotechnical systems Consisted of intricately interconnected components sociotechnical systems are always prone to incidents These incidents can ensue with adverse effects on employees and the public the environment and company s properties and reputation Sometimes a single incident has the potential to terminate the operation of a business forever As incidents are multi factorial and not easy to comprehend they should be investigated systematically in a structured way so as to find their root causes and prevent them from recurring Consequently there have been developed many theories models and techniques aimed at accomplishing this goal However each approach has its own upsides and downsides and there is no universal one applicable to all cases Therefore researchers and practitioners may sometimes find it difficult to select the most appropriate approach for the given case After introducing theories models and techniques pertaining to incident investigation and safety causalities modeling this book explains each one in details and discusses their pros and cons The book aims to provide the audience with a step by step guidance for performing incident investigation and analysis At the end of each chapter an example is analyzed by the introduced tool Finally the book offers criteria based on which an incident analysis technique can be selected

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