



## Simulation Insight Series

Videos were developed and produced

- By Dr. Malcolm Beaverstock & Dr. Allen Greenwood; they cannot be used without their permission.
- in support of the textbook, *Applied Simulation Modeling and Analysis Using FlexSim* (Beaverstock, Greenwood, Lavery, & Nordgren)

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SIS No.	Title	Book Chap.	Focus <sup>1</sup>	Time M:S	Add/Update Date	Topics and key words
2.0	<a href="#">Queuing Systems Basics</a>	2	GS	6:29	28 Jan 2013	Basic definitions and operations of waiting-line systems, examples, discussion of time versus rate.
2.1	<a href="#">Queuing Systems Components</a>	2	GS	6:29	28 Jan 2013	Basic modeling considerations for the arrival process, service process, queue characteristics, customer behaviors, states & performance measures.
3.0	<a href="#">Getting Started</a>	3	FS	2:35	30 Dec 2012	Student activation code; book downloads; online forum.
3.1	<a href="#">Opening a Model</a>	3	FS	3:05	30 Dec 2012	Using book downloads; preferences, graphic card issues; model interface (Controls).
3.2	<a href="#">Chapter 3 – The Exercises</a>	3	FS	3:35	30 Dec 2012	Roller Coaster model; model interface (Parameters, Statistics, Report); mouse navigation in 3D.
5.0	<a href="#">System Definition (SimpleFinish)</a>	5	GS	8:30	28 Feb 2013	Abstracting salient behaviors and characteristics of a system; uses the SimpleFinish example
5.1	<a href="#">Object Flow Diagram (SimpleFinish)</a>	5	GS	9:22	24 March 2013	Construction of an object flow diagram (OFD) to represent a system' conceptual modeling; uses the SimpleFinish example

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6.0	<a href="#">The FlexSim Environment</a>	6	FS	4:09	6 Jan 2013	Units; modeling surface; toolbars (File, Edit, Statistics, Tools, Help); Logic Builder setting; model controls.
6.1	<a href="#">Placing Objects</a>	6	FS	4:58	10 Jan 2013	Library objects (fixed resources, task executers, special functions); flowitems and Flowitem Bin; adding objects to the model, connecting objects for flow; Source object (arrival style, interarrival time distributions).
6.2	<a href="#">Object Functions</a>	6	FS	4:54	15 Jan 2013	Object naming; object-specific functions/properties (tabs) – Queue, Processor, Conveyor, (time, virtual distance, shape ); common object functions/properties (tabs) – Flow, General, Statistics; simple “study” models.
6.3	<a href="#">Lucky Air</a>	6	FS	4:59	15 Jan 2013	Object placement on grid, object sizing; person flowitem; Queue versus Conveyor versus FlowNode objects; changing an object’s visual – shape, texture – e.g. Conveyor.
7.0	<a href="#">Data Management</a>	7	FS	4:49	24 Jan 2013	Defining itemtypes, creating labels, creating global tables for input and output, copying & pasting data from MS Excel.
7.1	<a href="#">Triggers</a>	7	FS	4:18	28 Jan 2013	Using triggers to customize model behavior, including triggers for process time, setup time, flow, those on the Trigger tab, changing label values; order of trigger execution; customizing trigger logic through templates and menus and by using code; editing logic templates; description of commands in Help.

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7.2	<a href="#">Model Logic</a>	7	FS	5:20	28 Jan 2013	Building an example model. Multiple products, multiple sources; using labels; push & pull logic; case construct; global table for setup times; state statistics; sorting items in queue; setting model stop time.
7.3	<a href="#">Even More Lucky Air</a>	7	FS	5:51	28 Jan 2013	demperical command, colorarray command, script window for command entries, routing by itemtype, changing the 3D image of an object, changing the position of a flowitem in an object, adding an object to a user library.
7.4	<a href="#">Helpful Tips</a>	7	FS	5:30	29 Jan 2013	Quickly placing multiple object instances; highlighting versus selecting objects; editing selected objects to duplicate them, change names, or copy variables; creating named groups of objects; current versus item; changing the color of an object by state, creating views for a simulation; and using the Dashboard for displaying performance measures.
8.0	<a href="#">Grouping Part 1</a>	8	FS	3:20	12 Feb 2013	Concept of grouping flowitems, using the queue to group a specified number of flowitems, putting spacing between groups, using a maximum wait time to override desired group size.
8.1	<a href="#">Grouping Part 2</a>	8	FS	6:55	14 Feb 2013	Combiner functions, packing, joining, batching, dynamic grouping.
8.2	<a href="#">Separator</a>	8	FS	4:50	22 Feb 2013	Separator functions, unpacking entire contents, unpacking specific amount, designating output ports, splitting/copying items.
8.3	<a href="#">Creating Containers</a>	8	FS	6:50	5 March 2013	Creating container objects that can hold flow items when placed by a combiner, visual tool object, importing 3D objects, modifying object position, rotation, and size values, creating new flow item in Flow Item bin, modifying object shape factors, saving new flow item, modifying objects to hide or change their location.



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8.4	<a href="#">Examples</a>	8	FS	6:20	19 March 2013	Simulating loading and unloading operations, distributing container contents at stations, physically splitting items, “unpacking” items that weren’t packed in the simulation, changing the imported3d shape for a flow item, using people as processors, making containers when imported shape has to be rotated. Loading people on a bus.
8.5	<a href="#">Task Executors 1</a>	8	FS	6:20	12 June 2013	Basic concepts for using task executor objects, fork truck, operator, crane, robot, executor parameters, setting priorities, using triggers, setting material flow logic.
8.6	<a href="#">Task Executors 2</a>	8	FS	6:59	3 July 2013	Using network nodes, path variables, modifying paths, offsets, hiding paths, using dispatcher objects
8.7	<a href="#">Visual Tool</a>	8	FS	5:59	14 July 2013	Visual Tool functionality, changing shapes, displaying text, displaying time, importing 3D objects, creating a presentation slide, dynamically displaying object statistics, creating a container for objects, saving a container in a library, hiding objects in a container.
8.8	<a href="#">Time Tables</a>	8	FS	5:59	21 July 2013	Time Table functionality, Planned down times, creating a down time table, selecting down function and state, understanding the impact of downtime, using the graphical editor for complex downtime schedules.
11.0	<a href="#">Reliability Part 1</a>	11	FS	6:30	20 Aug. 2013	Setting MTBF, MTTR functions, validating downtime functions, failure clock time, competing failures, downtime triggers
11.1	<a href="#">Reliability Part 2</a>	11	FS	6:00	26 Sept. 2013	Estimating surge size, using operators for repairs, pre-empting repair jobs, similar down time functions on multiple machines, calling maintenance department personnel for repairs.

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12.1	<a href="#">The Tree</a>	12	FS	5:20	13 Jan. 2014	Customizing object behavior, hierarchical software structure, the tree in FlexSim, locating object information

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