LIST OF TABLES

Number	Name	Page
Table 1.1	The simulation process	2
Table 1.2	The aggregated simulation process	3
Table 1.3	Success factors in simulation	7
Table 1.4	Strategic, tactical and operational use of simulation in manufacturing	12
Table 1.5	Computer software systems for manufacturing simulation	12
Table 2.1	The SIMMEK research programme	16
Table 2.2	Findings from The UK Simulation Study Group	20
Table 2.3	Future general research areas of DES in manufacturing	21
Table 2.4	Future detailed research areas of DES in manufacturing	22
Table 2.5	Main goals of follow-up project of the SIMMEK programme	23
Table 3.1	The SIMMEK system's major advantages	25
Table 3.2	Resource type; Machine - attributes	34
Table 3.3	Resource type; Operators - attributes	34
Table 3.4	Resource type; Requisites - attributes	35
Table 3.5	Resource type; Stores - attributes	36
Table 3.6	Resource type; Transport units - attributes	37
Table 3.7	Plant operation rules - part one	38
Table 3.8	Priority rules	38
Table 3.9	Plant operation rules - part two	39
Table 3.10	Order data	40
Table 3.11	Cost data	41
Table 3.12	Process plan for a machine step	44
Table 3.13	The attributes for the entire experiment	45
Table 3.14	Reasons for choosing the Finder of Macintosh as media	51
Table 3.15	The major advantages of SIMMEK	56
Table 3.16	The major disadvantages of SIMMEK	57
Table 3.17	The new SIMMEK-II versions	58
Table 4.1	User caused reasons for invalidity	63
Table 4.2	Simulator package caused reasons for invalidity	63
Table 4.3	SIMMEK; How validity is secured in modelling	65
Table 4.4	SIMMEK; How validity is secured in experimenting and analysis	65
Table 5.1	Critical success factors in result presentation	71
Table 5.2	Skill factors	72
Table 5.3	Calculations of throughput time	73
Table 5.4	Using Excel spreadsheet for result presentation	74
Table 5.5	Results along the category axis	75
Table 5.6	Results along the time scope axis	76
Table 5.7	Economical and market service results. Model totals	77

Table 5.8	Economical and market service results. Product type details	78
Table 5.9	Technical results. Production order details	79
Table 5.10	Product type results	80
Table 5.11	Resources results	81
Table 5.12	Estimated expected results. Resources	82
Table 5.13	Estimated expected results. Products	83
Table 5.14	Detailed results from one replication. Products and resources	84
Table 6.1	Main result factors to be studied at Raufoss	89
Table 6.2	Number of different types of entities	91
Table 6.3	First operations machines	92
Table 6.4	Models in phase 1	93
Table 6.5	Main results from phase 1	93
Table 6.6	Main results from phase 2	95
Table 6.7	Throughput times	96
Table 6.8	Total hours spent on the Raufoss case	96
Table 6.9	Conclusions from the Raufoss case study	98
Table 6.10	Case studies with SIMMEK	99
Table 7.1	Characteristics of simulation models and experiments	102
Table 7.2	Assumptions and conditions	111
Table 7.3	The outer algorithm	112
Table 7.4	The inner algorithm	113
Table 7.5	Further developments of algorithms	114
Table 9.1	Success factors in simulation, ref. Table 1.3	125
Table 9.2	Strategic, tactical and operational use of simulation in manufacturing, ref. Table 1.4	126
Table 9.3	The SIMMEK system major advantages, ref. Table 3.1	127
Table 9.4	The major disadvantages of SIMMEK, ref. Table 3.16	128
Table 9.5	SIMMEK; How validity is secured in modelling, ref. Table 4.3	129
Table 9.6	SIMMEK; How validity is secured in experimenting and analysis, ref. Table 4.4	129
Table 9.7	Results along the category axis, ref. Table 5.5	130
Table 9.8	Results along the time scope axis, ref. Table 5.6	130
Table 9.9	Conclusions from the Raufoss case study, ref. Table 6.8	131
Table 9.10	The new SIMMEK versions	132
Table 9.11	Future detailed research areas of DES in manufacturing, ref. Table 2.4	133