

Production optimization example

Cost	LOU Model 2.0A	LOU Model 2.0B	
Materials cost per unit	\$1,000	\$900	dollars
Direct labor man hour per unit	9.7	11.0	hrs
Direct labor cost per man hour	\$60	\$60	dollars
Direct labor cost per unit	\$582	\$660	dollars
Labor overhead cost per unit	\$204	\$231	dollars
Management and sales cost fixed	\$150,000	\$150,000	dollars

Sale price per unit	\$4,300	\$4,500	dollars
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Sales forecast	LOU Model 2.0A	LOU Model 2.0B	
maximum	15000	14000	units
min	10000	9000	units

Resource constrains

Production capacity	23000		units
Labor hour limit	237600		hrs

	LOU Model 2.0A	LOU Model 2.0B	Total
Decision: Units to make	11,847	11,153	23000
Revenue	\$50,942,100	\$50,188,500	\$101,130,600

Cost

Materials cost	\$11,847,000	\$10,037,700	\$21,884,700
Direct labor man hour	114916	122683	237599
Direct labor cost	\$6,894,954	\$7,360,980	\$14,255,934
Labor overhead cost	\$2,413,234	\$2,576,343	\$4,989,577
Management and sales cost fixed	\$150,000	\$150,000	\$300,000

Total cost	\$21,305,188	\$20,125,023	\$41,430,211
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Total profit	\$29,636,912	\$30,063,477	\$59,700,389
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units	<= 23000 units
dollars	

dollars	
hrs	<= 237600 hrs
dollars	

dollars

dollars

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units	<= 23000 units
dollars	

dollars	
hrs	<= 237600 hrs
dollars/hr	
dollars	

dollars

dollars

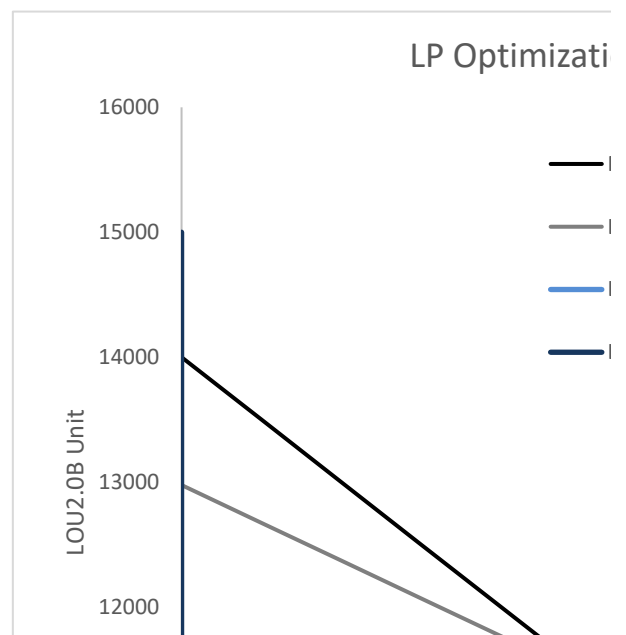
XA	Product #	C	Labor hr	Cc	LOU2.0A Unit	Constrai	Objective f	Objective f	Objective f	Objective f
	9000	14000	12976.74		10000		11349.42	12437.95	12800.8	13889.33
	9500	13500	12674.42		10000		10865.2	11953.74	12316.58	13405.12
	10000	13000	12372.09		10000		10380.99	11469.52	11832.37	12920.9
	10500	12500	12069.77		10000		9896.771	10985.3	11348.15	12436.68
	11000	12000	11767.44		10000		9412.554	10501.09	10863.93	11952.47
	11500	11500	11465.12		10000		8928.338	10016.87	10379.72	11468.25
	12000	11000	11162.79		10000		8444.122	9532.656	9895.501	10984.03
	12500	10500	10860.47		10000		7959.906	9048.44	9411.284	10499.82
	13000	10000	10558.14		10000		7475.689	8564.224	8927.068	10015.6
	13500	9500	10255.81		10000		6991.473	8080.007	8442.852	9531.386
	14000	9000	9953.488		10000		6507.257	7595.791	7958.636	9047.17

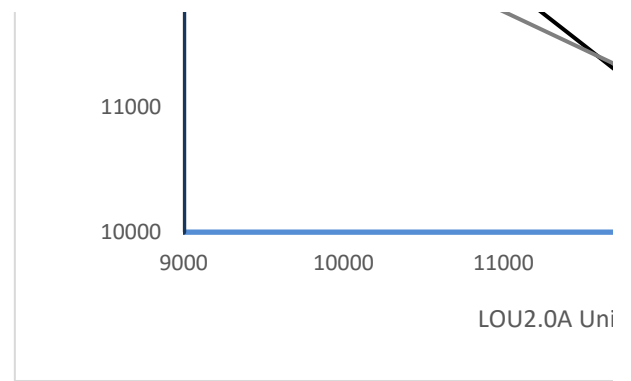
LOU2.0B Unit Constraint

9000	10000
9000	10500
9000	11000
9000	11500
9000	12000
9000	12500
9000	13000
9000	13500
9000	14000
9000	14500
9000	15000

2669

2756





on

Product # Constraint

Labor hr Constraint

LOU2.0A Unit Constraint

LOU2.0B Unit Constraint

