6.5.1: Using Minitab

Minitab has a separate program just for this type of analysis for our example (Quality Data), under:

`Stat` > `ANOVA` > `Fully Nested ANOVA`

and you specify the model in the boxes provided:

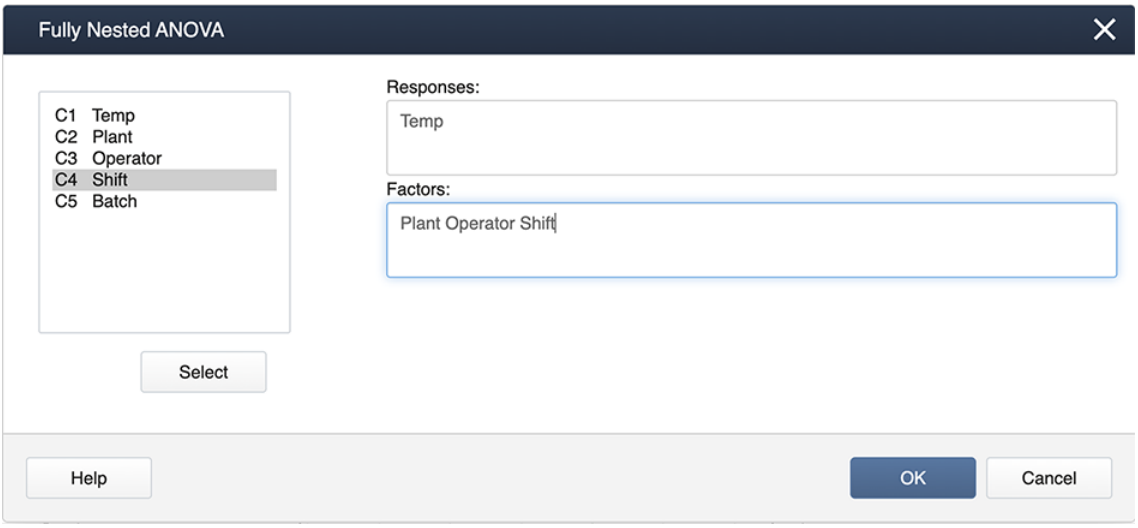

Figure 6.5.1.1: Fully Nested ANOVA pop-up window.

The output you get is very comprehensive and includes the variance components expressed as percentages.

Nested ANOVA: Temp versus Plant, Operator, Shift

Analysis of Variance for Temp

Source	DF	SS	MS	F	P
Plant	3	731.5156	243.8385	5.854	0.011
Operator	12	499.8125	41.6510	1.303	0.248
Shift	48	1534.9167	31.9774	2.578	0.000
Error	128	1588.0000	12.4062		
Total	191	4354.2448			

Variance Components

Source	Var Comp.	# of Total	StDev
Plant	4.212	17.59	2.052
Operator	0.806	3.37	0.898
Shift	6.524	27.24	2.554
Error	12.406	51.80	3.522
Total	23.948		4.894

Expected Mean Squares

1	Plant	1.00(4) + 3.00(3) + 12.00(2) + 48.00(1)
2	Operator	1.00(4) + 3.00(3) + 12.00(2)

3	Shift	1.00(4) + 3.00(3)
4	Error	1.00(4)