

# Section 1

MANE 6313

## Subsection 1

Week 13, Module B

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# Student Learning Outcome

- Select an appropriate experimental design with one or more factors,
- Select an appropriate model with one or more factors,
- Evaluate statistical analyses of experimental designs,
- Assess the model adequacy of any experimental design, and
- Interpret model results.

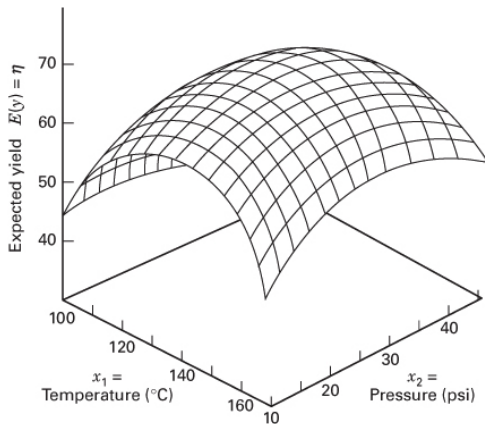
# Module Learning Outcome

*Introduce graphical analysis in rsm.*

# Types of Graphs used in RSM

- Contour plot
- 3D plot

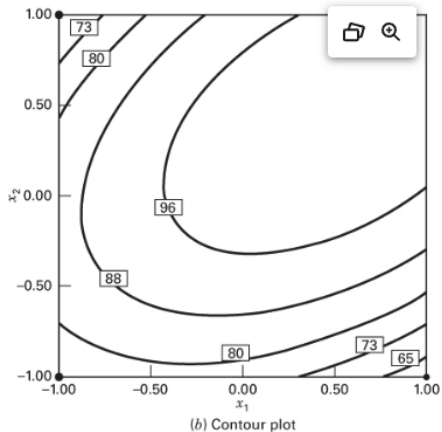
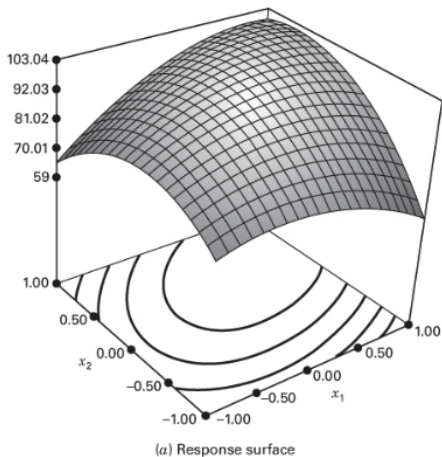
## 3D Plot



**FIGURE 11.1** A three-dimensional response surface showing the expected yield ( $\eta$ ) as a function of temperature ( $x_1$ ) and pressure ( $x_2$ )

Figure 1: Textbook Figure 11.1

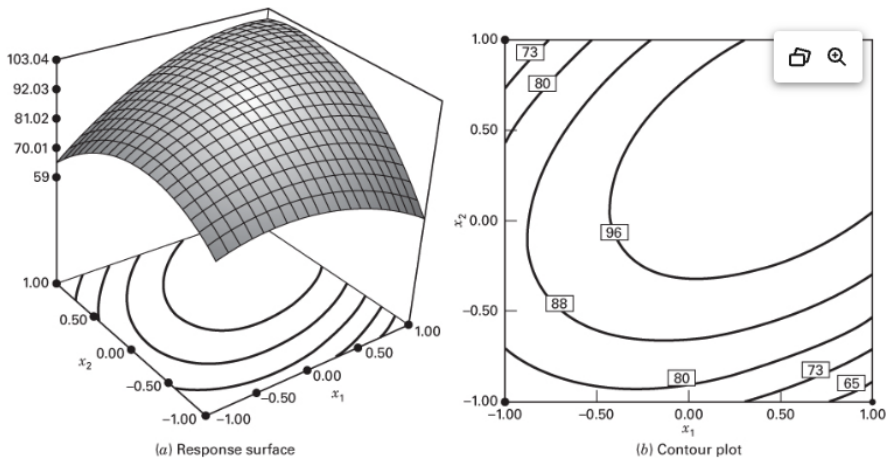
## Contourplot



**FIGURE 11.6** Response surface and contour plot illustrating a surface with a maximum

Figure 2: Textbook Figure 11.6

## Function with a Maximum

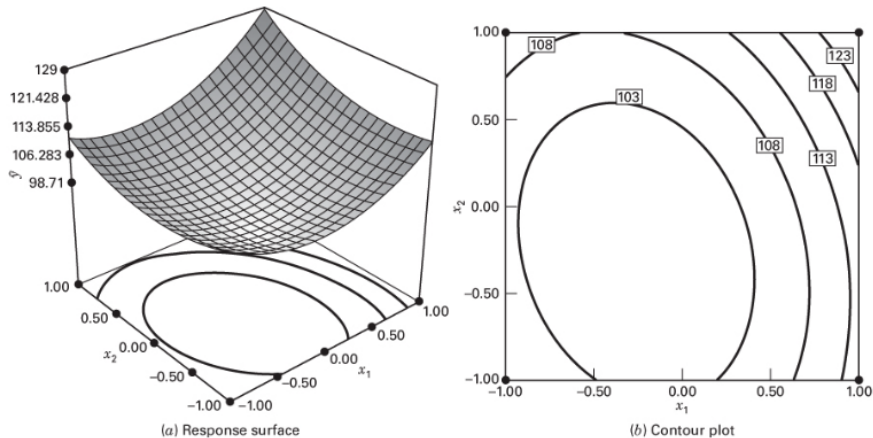


**FIGURE 11.6** Response surface and contour plot illustrating a surface with a maximum

Figure 3: Textbook Figure 11.6



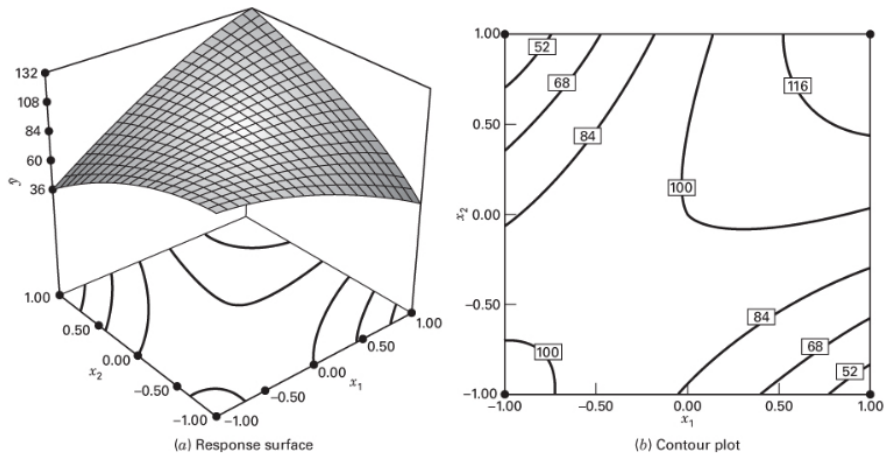
## Function with a Minimum



**FIGURE 11.7** Response surface and contour plot illustrating a surface with a minimum

Figure 4: Textbook Figure 11.7

## Function with a Saddle Point



**FIGURE 11.8** Response surface and contour plot illustrating a saddle point (or minimax)

Figure 5: Textbook 11.8