



## Balancing Training Planning

For planning purposes, the following guidelines should be used.

Course length (days)	Basic plus ____ from list A.
1	1
2	2
3	4
4	5
10	7

The basic modules include Objectives 1 thru 4 on the next page. Prerequisites for the basic module include basic industrial math including solving formulas, ratio problems, vectors and graphing. A module covering these can be included. To cover the math will take an added \_ day.

### List A

	Module	Prerequisites
1	Single plane balancing including graphing	Basic
2	4-run balancing	Basic
3	Dual plane balancing including graphing	Single plane balancing
4	Static-couple balancing	Single plane balancing
5	Overhung rotor balancing	3, 4
6	Rotor dynamics (counts as 2 selections)	3, 4
7	Flexible rotor balancing (counts as 3 selections)	3, 4, 6

# **Balancing Objectives**

At the completion of this course, the student who actively participates will:

- 1. Understand the importance of correct machine balance, including the answers to the following questions:**
  - 1.1. What is Unbalance?
  - 1.2. What causes unbalance?
  - 1.3. What are the effects of unbalance?
  
- 2. Describe how unbalance is measured:**
  - 2.1. What is unbalance?
  - 2.2. What are the Mass and Rotational Centers?
  - 2.3. What is Static Unbalance?
  - 2.4. What is dynamic unbalance?
  - 2.5. How do we correct for unbalance?
  - 2.6. How is a rigid rotor different from a flexible rotor?
  
- 3. Have performed the necessary preliminary checks and answered the following questions:**
  - 3.1. What Preliminary checks should be made before balancing?
  
- 4. Have performed 4-run balance job using the graphical method, including answering the following:**
  - 4.1. What data is collected on the initial run and subsequent runs?
  - 4.2. How is the correction weight and location calculated?
  
- 5. Have performed a basic single plane balance job using the graphical method, including answering the following:**
  - 5.1. What is the Trial Weight method?
  - 5.2. What data is collected on the initial run?
  - 5.3. How large should the trial weight be? Where should it be located?
  - 5.4. How is the correction weight and location calculated?
  
- 6. Have performed 2-plane balance job using the graphical method, including answering the following:**
  - 6.1. What data is collected on the initial run?
  - 6.2. How large should the trial weight be? Where should it be located?

**6.3. How is the correction weight and location calculated?**

**7. Optional modules requiring extra time:**

**7.1. Overhung balancing**

**7.2. Static-couple balancing**

**7.3. Multiple plane balancing**

**7.4. In-shop balancing**

**7.5. Rotor dynamics**

**7.6. Balancing calculations**