

## LESSON PLAN -- HISTORY OF ORBITAL RENDEZVOUS

This reading lesson is intended to give the student a historical overview of orbital rendezvous, from its earliest concepts in the minds of spaceflight theoreticians through the first attempts to perform it in space through space shuttle operations.

Several purposes are served by this lesson:

1. Appreciate the central role which orbital rendezvous has played in America's successes in space, a role which it can continue to play in the future;

2. Appreciation of thought processes of people who laid foundations of today's routine operations, so that such creativity and imagination may be fostered in today's engineers as they face new challenges

3. Understanding of the evolution of terms, techniques, and technologies in use today, with an appreciation of the factors which forced them to change and which, in the future, may force further change as needed.

4. See how the basic principles of sound engineering and operations have been applied, sometime in conflicting ways, to rendezvous problems.

5. Inspire engineers with the saga of how John Houbolt, armed only with a "better idea" and opposed by intellectual inertia, triumphed despite the odds because the numbers were on his side. It CAN happen!

6. Encourage flexibility in face of different requirements which may occur for future rendezvous operations, so that rendezvous engineers will not themselves get bogged down in intellectual inertia and in the "But-We've-Always-Done-It-THIS-Way" Syndrome.

## Training Plan:

At the introductory level, only a small subset of this document is to be read (although it is expected that the student will browse through the rest of it at liesure). The core requirements for **Introduction to the History of Orbital Rendezvous** (16 hours) are as follows:

The "Overview" section.

In the "Early Space Age", the Hacker sections on "Background of Rendezvous" and "Challenge from the Field".

In the Gemini section, the introduction plus the Hacker sections from the official Gemini history, plus the Evans/Czarnik paper, "Summary of Rendezvous Operations".

In the Apollo section, the two introductory overview papers on "Apollo Experience Report" and "Apollo Program Summary Report".

All the shuttle section *except* "3B"

The follow-on course, **Studies in the History of Orbital Rendezvous** (40 hours), involves the main reading material with at least one of the optional sections:

Houbolt interview

Gemini backup charts

Apollo onboard RNDZ procedures

Etc.