# CURV1™ *Version 2*

is a new release of the unique learning curve application package from Production Technology, a premier supplier of cost control software and learning curve training programs. **CURV1** is a tool for cost estimators, Industrial and Manufacturing engineers, program managers, and buyers. Over more than two decades and several software versions, it has been a unique aid to estimating, program and production management, and the bid and proposal process. **CURV1** is also used by US government auditors and other personnel. There's simply nothing better for the cost control professional who needs a quick and accurate learning curve tool. **CURV1** incorporates the learning curve terminology, definitions, and formats to help even novices better understand the technique.

**CURV1** was designed and developed by a cost control and proposal specialist from the aerospace and electronics industry. Years of cost estimating experience are incorporated into this tool.

## **CURV1 System Requirements**

**Y**our Windows computer can run **CURV1** if it has the following features:

✓ A 486 CPU (processor) or faster.

✓ 32 megabytes RAM memory.

✓ A hard drive with approximately 4 megabytes available space.

✓ A CD-ROM drive (for program installation).

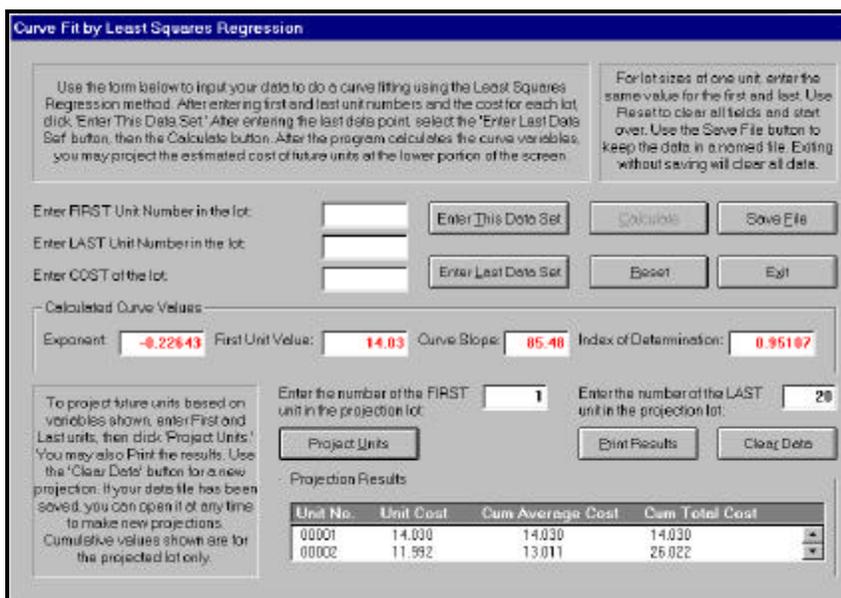✓ A pointing device (mouse or equivalent).

✓ A color display.

**T**his version of **CURV1** installs easily on any computer with a Windows operating system (9X, NT, 2000, Me, XP). **CURV1**'s *Main Menu* in Windows offers several choices and tools, including *Regression, Calculator,* and *Curve Tutor* "drop-down" menus. You can fit curves easily, make future estimates from curve information on file, solve for any curve variable, access a complete curve *Glossary of Terms*, pick up quick tips, explain formulae, or use many
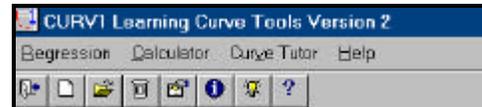


**T**he *Regression Menu* allows you to construct a new curve, open a existing regression to make new projections, or delete old information. After fitting your data to a curve, you can save the file and print *slope, exponent, T1 value, Index of Determination ("goodness of fit"), and Unit, Cumulative Average, and Cumulative Total* values for any number of future units.

**T**he *Calculator Menu* solves the learning curve equation for any variable, given the values of others. For example, you can solve for the first unit (*T1*) if you know the *curve slope* and the value for any unit in the build. You can solve for an *Nth Unit* if you know (or can estimate) *T1* and the *slope*. And, you can solve for *slope* if you know an *Nth Unit* and *T1*. Finally, you can easily calculate True Lot Midpoints

**T**he *Curve Tutor menu* provides a comprehensive *Technical Glossary*, a *Curve Factor Calculator* you can use to construct and print curve tables, a list of common *formulae*, and *curve exponent values.* These features, plus a new "Tips on Using Curves" screen, provide an excellent "mini-tutorial" on learning curve application.

## **T**he *Curve Fit by Least Squares Regression screen*

(below) is the main screen in the **CURV1** program. Here, you input actual data to the program, fit a trend line to the data, and compute curve parameters. You can enter lot sizes of one unit (the first and last unit numbers are equal), multiple unit lots, or intermixed lot sizes. When data is input, simply click on "Calculate" for all factors to appear. Following the calculation, you can save the data, project additional unit values, clear the form and restart, or print results. In the view shown, an existing file has been opened and projection data input to the program. The resulting follow-on unit values are calculated by the program (bottom right on



**CURV1** data files are saved in a sequential text file format. The data can be readily cut and pasted to other applications.

**W**hen you wish to project future unit values from the constructed curve, scree n). simply enter the numbers of the first and last units in the follow-on lot, and select "Project Units." **CURV1** will compute unit and cumulative total values for the units in the projected lot.

**T**here are several other screens not shown in this summary of features. These include a comprehensive Windows Help screen with search and find utilities, and user dialog screens for file operations. All program screens are intuitive and easy-to-use.

**T**he **CURV1** Calculator screen (below) displays four tabs. Choose a tab to show the required data input fields to solve for a missing parameter. Solve for the Theoretical First Unit (T1), an Nth Unit value, or Slope of the learning curve. Calculate True Lot Midpoint (algebraic midpoint) instantly for any lot size. See results immediately, then reset the fields to do another problem!

**O**n the *Curve Tutor* screen below, choose from four tabs. Each tab displays another facet of curve data and formulae. The first tab displays an extensive *Glossary of Terms* for learning curves. Select a term and the definition appears. Scores of terms are explained.

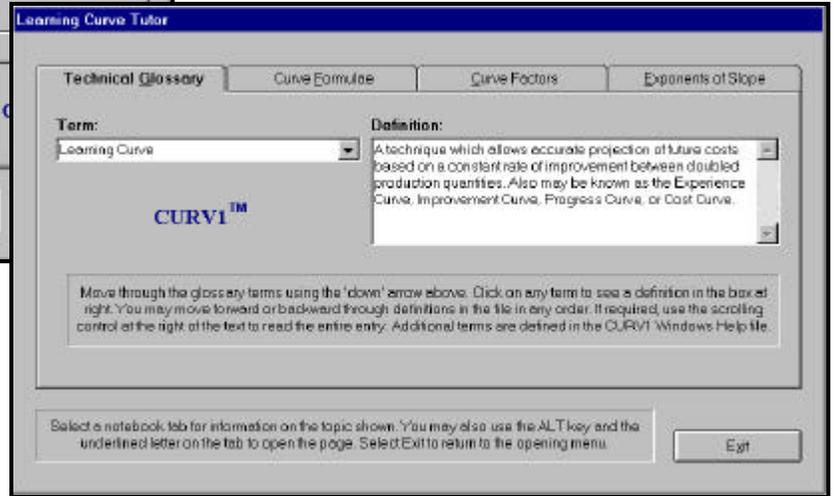The next tab shows several *curve formulae*, including the basic learning curve expression, True Lot Midpoint formula, and Slope Exponent derivation.
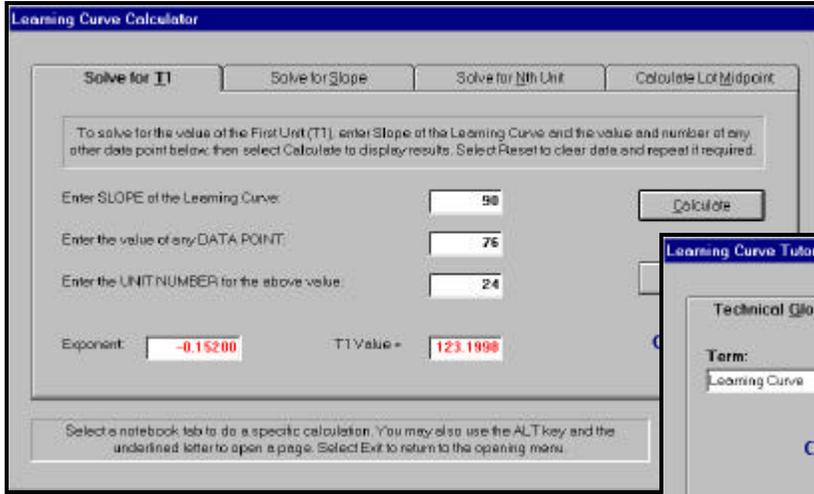
Select the third tab to access **CURV1's** utility feature that generates *curve factor tables.* Input any beginning and ending unit numbers and a curve slope, and the program will calculate tables for you! View or print the results, then Reset if desired to generate factors for another slope or range of units.



**Learning Curve Calculator**

| Solve for T1 | Solve for Slope | Solve for Nth Unit | Calculate Lot Midpoint |

To solve for the value of the First Unit (T1), enter Slope of the Learning Curve and the value and number of any other data point below, then select Calculate to display results. Select Reset to clear data and repeat if required.

Enter SLOPE of the Learning Curve: 90    Calculate

Enter the value of any DATA POINT: 76

Enter the UNIT NUMBER for the above value: 24

Exponent: -0.15200    T1 Value = 123.1998

Select a notebook tab to do a specific calculation. You may also use the ALT key and the underlined letter to open a page. Select Exit to return to the opening menu.



**Learning Curve Tutor**

| Technical Glossary | Curve Formulae | Curve Factors | Exponents of Slope |

Term: Learning Curve

Definition: A technique which allows accurate projection of future costs based on a constant rate of improvement between doubled production quantities. Also may be known as the Experience Curve, Improvement Curve, Progress Curve, or Cost Curve.

**CURV1**™

Move through the glossary terms using the 'down' arrow above. Click on any term to see a definition in the box at right. You may move forward or backward through definitions in the file in any order. If required, use the scrolling control at the right of the text to read the entire entry. Additional terms are defined in the CURV1 Windows Help file.

Select a notebook tab for information on the topic shown. You may also use the ALT key and the underlined letter on the tab to open the page. Select Exit to return to the opening menu.    Exit

**O**ther **CURV1** features and information

✓ A comprehensive User Guide (in Adobe PDF and Microsoft Word DOC formats) and on-line context sensitive Windows Help files, including Glossary, Search/Find, and How to Use Help selections.

✓ Technical support from Production Technology, a supplier of management and engineering services since 1983. Your satisfaction with **CURV1** is guaranteed.

✓ Cost-effective site license agreements are available for **CURV1.** The cost for organization-wide use of this unique set of learning curve tools is reasonable, and assures your legal use of this product. Contact Production Technology for a quotation.

**CURV1**™ *for Windows*
*is priced at $119*
*plus $7 shipping ($12 international)*

# CURV1™

## *Learning Curve Application Tools*

**SOFTWARE ORDER FORM**

☐ Check or money order for $119 (add $7 domestic shipping, $12 international) enclosed. Payable to Production Technology, PO Box 24261, Tampa, FL 33623-4261 USA.

☐ Invoice company PO # _____Signature:_____

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You may also order via e-mail (protec99@cs.com), or on Production Technology's web page at http://www.protech-ie.com