ENGINEERING MANAGEMENT COURSE

January 24 - February 3, 1966

Managing the Use of Value Analysis and Value Engineering Techniques

L. D. Miles

I Establishing of course objectives
Understanding the "Value" environment

II Understanding the technology being managed - I

III Understanding the technology being managed - II

IV Understanding the technology being managed - III

V Understanding the present "Value" Climate

VI Setting operating objectives
Organizing
Staffing

VII Programming
Measuring

VIII Communicating to others
Relations with other work

IX Management Problems

X Summaries and Conclusions
1966

DAY ONE

FAIR

The men not ready

for end of workday

8:10 PM

with
done
OPEN DAY I 1966

MY BOSS AT STAFF HQ THINKS

THERE IS SOMETHING IN THIS
THAT WILL HELP US IN THE
TIGHT MKT AHEAD - SO I'VE
INVITED YOU TO THIS ALL DAY
MEETING ON THE SUBJECT.

I THINK IT'S A BUNCH OF "STUFF"
NEVER THELESS LISTEN TO IT AND
DECIDE WHAT POSITION YOU WANT
TO TAKE ON IT.

SEMILLAR SITUATION - 5 DAYS
3 men pay business
ONE DEPT INSISTED ON A SWAT TEAM
HEADED BY THE ASST ENG MGR
WHO ATTENDED ONLY THE OPENING
AND CLOSING HOUR OF 5A DAYS

AS CONTRASTED -
1 GEN MGR 100 MEN OF 1000
HAD A MAJOR
ONE NEW DESIGN
CHANGE OF LIFE
600 MORE AS SOON AS PRACTICAL

ANOTHER - BROAD RESP
15 min apt at 4:30 pm
There until 7:00 -
said "Train 2000 -"
"Tell me what you need to do"
Assign

1. Each hand in written answers to two questions
   - A - WHAT WOULD HELP ME MOST?
   - B - MY NEAREST BELIEFS NOW CONCERNING IT (should have been feelings)

2. READ Chapter 1
It's difficult to "feel".
Have you gotten what you want -
Have you developed solid "feel" for it?
Japanese - German - Dutch
Identify those

LDM - Sweden - England this country crossing
Waste or -
Others - identify those
What do they want to get from it
Use blackboard - tally up -

Tonight write down:
What would help me most

My nearest beliefs now are to work
Concerning it:
One or two - England folk - report day 4 in 10 min.

Attitude screens

What is UA -
Well - what was the need that grew it?
1 Feeling that lower costs req'd
2 Belief in much lower costs available
3 A unit of measure to indicate degree

First - unit
Timer stud (start wits stud)
Switch blade (start with mountings)

Second beliefs

Third feeling - comes from elsewhere -

Environment reactions
"Men or boys?"
"Why not before molds?"

Handee feelings 75%
Learn to do technical 25%
DAY II

EXCELLENT
Communication - Bear -

WHAT IT IS

THEN WHAT IT DOES

PICTURE MANY DAUBS OF PAINT
(VS I SWIPE OF BRUSH)

WHAT IS DIFF BETWEEN FIGHTING A FIGHT -
AND WINNING IT? A LITTLE BETTER TIMING
COACHING FOR CHAMPIONS -
VALUE

VALUE (COST) WORK IS ART
IS EMOTIONAL PROBLEM
DECREASE IT WHAT DON'T UNDERSTAND
FEELING OF FEAR OF EMBARRASSMENT
WARM BLOOD
READ NEGATIVE COMMENTS
POSITIVE STATEMENT WHO LEARNED TECH

FUNCTION
ASSIGN
4 PAPERS FOR DAY 3 # 5 MIN
1 PAPER # 4 20-30 MIN # 10 MIN
VE IS LIKE
(FROM ARMY PAPER)
auto
plane
jet
Piano
Telephone

VE IS ARRANGEMENT OF TECH

MAKE CLEAR FUNCTIONS CUSTOMER WANTS
SWITCH BAR
BRASS SPOT FOCUSER
COLD CONTROL

ESTABLISH APPROPRIATE COST BY COMPARISONS
TIE - CLASP - BUTTON NAIL
SWITCH BLADE STUD & NUT 32 - TO SWITCH

REVIEW SYSTEM FOR EFFICIENTLY IDENTIFY UNNEC. COST
FOR THAT ONE PURPOSE ONLY
IF DON'T NEED LOWER COSTS, DON'T USE IT
IF YOU DO IT WILL GET THEM
MUST DEAL WITH FEELINGS
SINCE IT IS A DIFFERENT APPROACH
IT IS "FELT" AS AN ATTACK ON SECURITY AND
WILL BE BITTERLY OPPOSED BY PEERS AND
MANAGEMENT - EXPECT NOTHING ELSE
PROBLEM SOLVING SET

INTRODUCTIONS

Information Step
Analysis Step
Creativity Step
Judgment Step
Development Step

This approach organized all resources for problem solving - whether large or small - It is repeated until the needs of any situation have been met.

DESCRIPTION

Information Step

What is the starting point? What is known? What is believed? What is done? Why is it done? Where? By whom? When? For what cost? What are service factors? What are maintenance factors? What are other customer factors? Why done this way? What changes recently made? Etc.? Etc.?

100% information finding - no interpretation, no analysis, no idea generating now -- what are the facts? If not absolutely sure that a statement is true, write it as a "belief".

Analysis Step

What are the meanings? What are the total problems? The individual problems? The reasonable goals and plans? What are the key problems to be first solved? What solutions seem reasonable? What end result is reasonable? What steps--1st, 2nd, 3rd--are indicated? What additional information is required? Etc.? Etc.?

Creativity Step

More completely described elsewhere--hence not duplicated here.

Judgment Step

What approaches show promise, what are cost advantages of each? What are advantages and disadvantages? Which is ready now for development? Which should be referred back to another Information and/or Analysis and/or Creativity cycle? What disadvantage becomes the new problems? Etc.? Etc.?
Development Step

The "better answer" is usually 50% to 90% ready to use when it arrives here. Make it 100%. Get firm quotations, get material technical data. Make and test specific principles when necessary. Establish three alternative means of solving any remaining problem that appears difficult. Get others with different fields of knowledge to working on the key problem.
(Textbook "Techniques of Value Analysis and Engineering" - page 26, phases 5 and 6; page 31, items 5, 6.)

RELATIONSHIPS

All parts are interdependent.

Information is useless unless we have a plan to use it to meet a need.

Analysis is worthless unless we have an objective, a plan and valid and complete information.

Creativity is economically valueless unless we have a need, a plan, essential information, analyzed for understanding, stated as a precise problem, to be followed by judgment and development.

The benefits of judgment (if any) are limited by the substance which is to be judged.

Development is "busy work" unless the alternatives meet the need.

These five pieces constitute a "system" which experience has proven produce superior results.

This system will be repeated in many variations and accomplish surprising results for all of you.

L. D. Miles
Copyright 1965
DAY III

GOOD
FAST EMPLOYER DOES NOT WITHHOLD COST RED.
ANY PROBLEMS OF A BUSINESS ARE IN AREAS OF
PRODUCT, COSTS OR SALES

PRODUCT - FIX IT
SALES - FIX SALES (competitor price)
COSTS - FIX THEM

REGULATOR
NEED
ACTION
RESULTS

Like a painting - many daubs of color -
Review - System to establish meas or indicators
All based on function
First identify area of needed action
Show what costs are required
When nec. give approaches of
First steps toward the result

System must be
Some modified
A few new

Required Thoro training
Don't need as much as talk
(b) different environment

What is more of the system -

Each step one purpose
Don't judge a step
Surgeon
Judge results from plan
When patient is sewed up.

Now 4 reports
DAY III

DEFINITION

MAKE JOB SOLVABLE -- SOLVE IT

JOB PLAN

FUNCTION
ASTH
USE

BASIC
SECONDARY

GROUPING
REFMG

DISPOSAL

SOLVE
LAT A TIME

GRIND 3 (2)
ENERGIZE 8 (8)
MOUNT 1 (1.5)
CONTAIN 3 (2)
CONTROL 1 (1.5)
ASTHETIC 1 (1.1)

17 12

ASSIGN

Chop III 3 6 7 8 9 10 11 12

perume chapter 5

Book for 30 min report on day 8

NEXT TUES report day 7"measuring" 8 min

inputs to a system must be crisp and right

generic
Cost
Best
Worst
DAY 4

VERY GOOD

1969
PRODIGIOUS AMOUNT - LAST DAY OF WHAT IT IS

DAY 16

1966

10

PRODIGIOUS LEARNING

4 STEPS FOR LEARNING

- AWARENESS
- RECOGNITION
- USE
- SIGN

CHAPTER 6 - SHORT BUT VITAL

REPORT ON VE IN ENGLAND

SOMEONE WE RECOGNIZED

SOMEONE WE VISITED

DAY 19

ILLUSTRATE USE - AESTHETIC

BOOK

EIGHT - SIGNIFICANT

GOOD TO KNOW - REFUSAL

80% OF CASES - SEE DEGREE

NAMING FUNCTION - REFUSAL

FUNCTION IN MIND - OTHERS

TWO KNOBS

HOW TO USE
DAY IV 1906

Must BE AWARE of potential 1 & check
XHIDULL
Large Synch motor
CANTEDDECK CARRIER
BOM. COWDREY

Military 3 x reg cost

Industrial 2 x "

Consumer 25% higher -

EFFICIENCY - increasing

no relation between cost & price -

price may levels

Cost our skill in all matters

Always negatives
Cost too much to do
injure &
Hoist up production -
Increas maintenance
Destroy reesehenility -
require in possible Tests

Always overcome stoppers
Generat or job
- shaft
- hole
- outside mach
- waterwheel mount
- conductor -
- Oil cooling system

Always facts + assumptions -
Cold control -
- Fund areas
- Cover
- Mech motion -

"One of many asked to home work stopped" show most problems

[Note: The handwriting is quite legible, but the content is not clearly written. The text is a mix of technical and possibly military terms, with some abbreviations and acronyms. The document appears to be a brainstorming or strategy session, discussing potential approaches and issues.]
PRODIGIOUS AMT OF MATH TO COVER TODAY

4 STEPS OF LEARNING

<table>
<thead>
<tr>
<th>AWARENESS</th>
<th>RECOGNITION</th>
<th>UNDERSTANDING</th>
<th>USE</th>
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- Zoo
  - Enol Scott
  - Portmeyn
  - Alberton
  - Usefulites
  - Particle Air
  - Some coarse for H cost
  - Some causes for H cost
  - Quality first
  - Mean second
  - Stopper elements (not from any closed system)
  - New approaches come
  - Current regard
  - Negatives
  - ad of multiple functions
  - Honest wrong beliefs

- Job Plan
  - Weight complex
  - Eval by comp -
  - Divide function area
  - Explain
  - Aesthetic
  - Rec. beh. checks
  - Process service one sheet organization
  - Training regard
  - More problem solvable
  - Unidentified regard

- System notes
  - How to staff system
  - Measure
  - Mean when time is sept.

- Harmon part
  - How results achieved by techniques
  - Environment regard
  - Use exact problems
D A Y 5

Q U I T E  G O O D

A  L I T T L E  E X O T I C

S P O O T  D E E M  G O Y S
DAY 5

WIND UP WHAT IS VA @ VE SYSTEM
PREPARE FOR - HOW STAFF IT
   HOW ORG. IT
   HOW STAFF IT
   HOW MEAS IT

GIVE OUT
"APPROACH & PHILOSOPHY OF VE+VA"
   DISCUSS
"METHODS USED IN VE+VA"
   DISCUSS
"TECH. OF VA=XE"
   DISCUSS

NOW TEST FOR ARMY TEXT

ASSIGN 2 PAPERS

FUNDAMENTALS OF VE
NEW - WILL BE GIVEN IN APR

UNDERSTANDING MGT OF
VA=XE
JUST PREPARED FOR ARMY -
5 MIN REVIEW THUR

FROM TEXT - NOT
1841-190
C1840-9-10-11

TOMORROW NO ASSIGNMENTS FROM TEXT
VALUE ANALYSIS DARES TO DEAL WITH REALITY

1 - 1/2 of the decisions are not heavily influenced by objective data.

2 - 1/2 of the people are not accomplishment oriented or motivated.

3 - 1/3 of the actions are not the result of an independent thinking analysis.

4 - 1/2 of the work is not being done the way the people on the job believe it best.

5 - Reports do not show realities

   Reports are by instruction
      A certain length
      A certain format
      Include certain things (necessarily exclude others)

6 - Every report must as carefully as possible conceal deficiencies as they would be interpreted by higher levels as critical to the report writer's boss.

When this kind of objective thinking can temporarily control the thought environment as in a Value Analysis Seminar or Task Force, of course, twenty to forty per cent of cost can readily be identified to be unnecessary... but the most stalwart leaders, who have created and flourished in the past environment won't like it--and will, as soon as politically expedient, purge out this new thought freedom and, with the purge, any significant believers.
II. Solving the Problem

The Job Plan.

Now with the basic functions to be accomplished in mind, with a good understanding of precisely the degree and under what conditions each is to be accomplished, with a good basic consideration of the objective situation, with an idea of the precise specific problems which, if solved, would provide lower cost, better solutions, the five step approach of the Job Plan is used. This approach organizes all resources for problem solving, whether the problem is large and involved or small and specific. The steps of the Job Plan are repeated until the needs of any situation are met.

Step 1 -- Information step.

What is the starting point? What is known? What is believed? What is done? Why is it done? Where? By whom? When? For what cost? What are service factors? What are maintenance factors? What are other customer factors? Why done this way? What changes recently made? Etc.? Etc.?

100% information finding -- no interpretations, no analysis, no idea generating now -- what are the facts? If not absolutely sure that a statement is true, write it as a "belief".

Step 2 -- Analysis step.

What are the meanings? What are the total problems? The individual problems? The reasonable goals and plans? What are the key problems to be solved first? What solutions seem reasonable? What end result is reasonable? What steps -- first, second, third, -- are indicated? What additional information is required? Etc.? Etc.?

Step 3 -- Creativity step.

The vital process of creative thinking has been given the treatment it deserves and requires by Alex Osborne and associates during the past fifteen years. Books and training are available to the reader, hence will not be elaborated here. It proceeds by jelling up the precise problems which require better answers, then by deferring judgment, establishes many new relationships between elements of pertinent knowledge. Its definable and teachable procedures result in far more effective thinking toward the solution of the problem.

Step 4 -- Judgment step.

What approaches show promise, what are cost advantages of each? What are advantages and disadvantages? Which is ready now for development? Which should be referred back to another information and/or analysis and/or creativity cycle? What disadvantage becomes the new problem?
Step 5 -- Development step.

The "better answer" is usually 50% to 90% ready to use when it comes out of the "Judgment step". Make it 100%. Get firm quotations, get material, technical data. Make and test specific principles when necessary. Establish three alternative means of solving any remaining problem that appears difficult. Get others with different fields of knowledge to work on the key problems.

Recycling.

Specific problems which, when solved, will allow significantly better cost oriented decisions, have now been brought into clear view. The Job Plan has been used. As a result of the Creativity and the Judgment, solutions which would be excellent excepting for one or two specific precise details have been found. These precise points then become the new problem and are recycled through a problem solving Job Plan.

End generalities.

It has been found that probably the greatest reason for stopping beneficial cost oriented decision making is the general statement. General statements must be given "zero" credence. What is the specific situation? What precisely does this do? Under what precise conditions? Precisely how often? Precisely what metal did not work under precisely what conditions? Generalities maintain the status quo. Specifics support new and better solutions.

Recognize and end roadblocks.

The definite and proper treatment of roadblocks is just as vital as the proper treatment of the technical factors involved. One roadblock or stopper anywhere in the entire process can greatly reduce or end the possibility of results. These roadblocks or stoppers appear in securing and understanding of the problem, in securing information, in learning what the customer really wants, in learning how to bring the best out of specific materials or specific processes, in getting good, creative ideation, in getting samples, in getting tests, in getting interpretations of test material.

Roadblocks which stop the small, individual steps are just as damaging as the roadblocks which stop approval. Each must be recognized and dealt with in a manner that ends or minimizes its destructive potential.
Seminar cost was $30,000 - cost removed $75,000 - but cost prevented from next production $200,000.

Psychic reasons for cost -

There were no decisions

By senior leadership of thinking -

Importance of right climate

Write green for copy to various -

Drug vs decision center.
what is my current.

move to box

2. Protect Box

3. Air structure
   Power structure

4. Medium mobility down - protect each other
   on edge furthest

5. Dynamic force system

1. New where to put
   learn really new skills -
Value Engineering is one of the newest methodologies available to management. Its purpose is the efficient identification of unnecessary cost. It is a system which delves to the root of function and then devises the simplest, easiest and least costly ways in which the essential function can be performed. Its targets are products of all kinds, services of all types, and the procedures employed in providing them. Its potentials for cost reduction and increased effectiveness of performance are universally accessible.
Dear [Author's Name],

I am writing to express my gratitude for your [specific action or event]. Your [description] has been truly inspiring and has [positive impact]. Thank you for your dedication and effort.

Best regards,

[Your Name]
**Type of situation**

Small or large govt or Industry

**Objectives**

- Save money?
- Help who?
- How, however?
- Help who - how much?
- What will be their input?
- What help in preventing accidents?
- What help in supervising effort?
- What help in supporting effort?
- What help in communication?

Some examples:


**Organization**

- How many?
- What structure (parallel)
- Report where
- Included by whom
- Meets by whom

**Staffing**

- Qualify
- Training
- Where find them
- How work relation to each other
Day 7 1966

Definition paper

Assignment

Chap 7 - 8

Make Questions - echo clarified

Pay out work to do as given out - set dates for it to be done

Means whether it is show J & P means sheet

Tell of project with

| Budget | One or ea
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<td>Communication</td>
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Call for paper to be reported Day 7

President's Concepts
10+1/2 Good
2 nd 1/2 Poor
Day 8
DAY 8 1966

ASSIGNMENT
WRITE 5 REASONS WHY

VE PROCEEDINGS (2) SCAN - COMMENT tomorrow?
FROM BOOK (AMA) FOUND PERTINENT IDEAS LIKE TO
COMMENT TOMORROW?

REPORTS -
R&D

USE VE ON OTHER THAN PRODUCT
COLLECT TAXES

POLICE SERVICE
CHECK DOORS
SCAN STREET
INDICATE LOCATION OF CARS

DEPT OF HEALTH
FUNCTION OF NURSE?
WHAT DOES SHE DO

FUNCTION OF OTHERS
WHAT DOING?

MISFITS?
CREATIVITY
KNOWLEDGE
ABILITY TO ASSOCIATE
Relations are proper relations

To PACE

Engage


to

Sales

Boss

Engage

What is your job? What's your communication?

Starting
To whom?

What?

Boss?

Peer?

Others

Value

Example:

Understanding is what makes experience.

"Understanding is what makes experience.

"Understanding cannot be presented.

"Understanding is not necessary if used.

"Understanding is great.

"D"
DAY 9
EXCELLENT
Tomorrow

Glen Hart
Henry Pardo

your witnesses - ask them anything
your available contacts in this area -

Give out "Decision Making" stuff
1. Then read it
2. Give examples

Creativity - dead-end judgment
lack of willingness - money -
what might we put on the table -
associate knowledge differently -
no - again - items not usually put on table -
IDEA DEVELOPE RIN IT
HANG IT WITH ROPE

Honest wrong beliefs -
handle with care -
meld segment

Report fundamentals above
if any on book
if any on court proceedings -

Questions -

Give out "one man system"
Give out Rating Sheet
Now you are knowledgeable - you answer them
DAY 9

GET TO DO

1. Report
2. Save mutes - report if adds
3. Grade 4.2
4. Give out night problems

LIKE TO

Tell some stories
- Someone not been people
- Insulation - #14 - 6V
- Born Street site
- Weld segment
- Kirkstall site
- Edison 7 yrs
- Dust cover?
- Sales rep.
- Carry all the way to the bower
- Show - eat 30 or 40 pieces over (some moved on other items)
- Transistors broken
Applying to paper work
chores Bills

Rules -

V.A.T. food Industry?

Cooking
Stirring

(Chem.-mills, -cement, etc.)
DAY 10
1966

Quite Good

From 1963

How we the solid basis for what is needed?

Intro

H. Pardo

Glen Hart

Paper - Fund A VAT
MGF of VAT

Discuss one-year system

Iron, present viewpoint

Discussion

Any subject
With anyone
Inc. HP & GH

Important that we come as near as possible to providing to you what you need.

How can we home in on it closer?
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Value Engineering & Analysis

1. What did you like about the content of this class?
The handouts present were very informative and helpful.

2. What did you like about the instructor?
The subject matter was quite repetitive and the course could be shortened if no additional material is added.

3. What did you like about the instructor?
An excellent instructor whose manner of presentation was very good.

4. What did you like about the instructors?
N/A

In comparison with my other instructors, this instructor did well in terms of content and presentation. I would rate

Please check:

[ ] Yes above
[ ] No above
[ ] No improvement
1. How did you like the content of this class?
Excellent development of the subject

2. How did you like the instructor?
down to earth, world of experience

To remember with my former instructors and recommend these classes and laboratories. I would come.

Please initial this form in the space provided.
1. What did you like about the content of this class?
   New concept to me

2. What did you not like about the content of this class?
   Too long student reports on outside reading assignments

3. What did you like about the instructor?
   Sincerity + very likable personality

4. What did you not like about the instructor?
   Nothing, - A real gentleman.

In comparison with my other Engineering and Management Course classes and instructors, I would rate:

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Managing the Use of V.A.

1. What did you like about the content of this class?
   - The class text was well organized and very pertinent. The content of the course was somewhat less organized the first few days.

2. What did you not like about the content of this class?
   - The class started very slow. I felt more enthusiasm could have been developed using examples, exercises, and techniques.

3. What did you like about the instructor? His frankness and directness backed up by examples punctuated his presentation.

4. What did you not like about the instructor? He got off to a slow start. This could be attributed partially to it being a late afternoon class.

In comparison with my other engineering and management course instructors, I would rank:

Please check:

- Time sheet
- Other instructions
- X
- X
MANAGING THE USE OF VALUE ANALYSIS

1. What did you like about the content of this class?
   
   - The many examples and exhibits further explaining important points.

2. What did you not like about the content of this class?

   - Not enough specifics. I guess as an engineer, I need my mind jogged to keep it from thinking in figures (such as 2 + 2 = 4) rather than values.

3. What did you like about the instructor?

   - His knowledge of the subject. You could tell he believed in what he was saying.

4. What did you not like about the instructor?

   - Nothing.

In comparison with my other engineering and management course classes and instructors, I would rate:

Please check:

- This class
- This instructor

[Blank check boxes]
1. What did you like about the content of this class?
   Interesting concepts

2. What did you not like about the content of this class?
   Too much on electrical equipment manufacturing.
   Too little on broader applications and principles.

3. What did you like about the instructor?
   Pleasant and approachable.

4. What did you not like about the instructor?
   His resistance to talking about broader fields such as construction, maintenance, etc. Possibly because he lacked personal experience, but there are many articles available.

In comparison with other Engineering and Management science classes and instructors, I would rate:

Please check:

- This class
- Instructor

Please write in the margin:

[Handwritten comments]
1. What did you like about the content of this class?
   It covered the subject quite thoroughly for the time allotted.

2. What did you not like about the content of this class?
   I felt that workshop sessions would have been useful. I.E., this could be accomplished with the instructor acting as the lead VE Eng.

3. What did you like about the instructor?
   Accurate to class questions
   Enthusiastic about subject.

4. What did you not like about the instructor?
   No comments.

In comparison with my other Engineering and Management course classes and instructors, I would rate

Please check:

- This class
- This instructor
Managing the Use of Value Analysis

I appreciated the techniques of applicability presented with the subject.

I suppose being an Industrial Engineer I am sensitive about disparaging remarks concerning our efforts in this field. It seemed to me the thoughts presented were well taken but should not require 15 hours of class. Many thoughts were basic to my I.E. college training.

Informal, well informed, enthusiastic, and helpful.

Presentation was extremely slow. Subject presentation seemed vague in many spots. I must admit, however, that he pulled several loose threads together nicely on the next to last meeting.

In comparison with my other Engineering and engineering science classes and presentations, I would have:

Table shown:

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Please return with your response on or before Friday, June 14.
MANAGING THE USE OF VALUE ANALYSIS

1. What did you like about the content of this class?
   COULD BE VERY APPLICABLE. IN OUR CO. WELL DESCRIBED & PRESENTED.

2. What did you not like about the content of this class? —

3. What did you like about the instructor? SUCCESSFULLY HE HAS A DONE IN PRIVATE INDUSTRY THE THINGS HE IS TEACHING.

4. What did you not like about the instructor? —

In comparison with my other Engineering and Management Course classes and instructors, I would rate:

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PLEASE RETURN THIS FORM DIRECTLY TO THE INSTRUCTOR CONCERNED.
**MANAGING THE USE OF VALUE ANALYSIS**

**Please do not identify yourself in any way.**

1. **What did you like about the content of this class?**
   - Its potential application to consumer products.

2. **What did you not like about the content of this class?**
   - Did not cover sufficiently the application of VA to military and/or R&D Programs.

3. **What did you like about the instructor?**
   - Use of numerous graphic examples.

4. **What did you not like about the instructor?**
   - I think the level of presentation may have been a bit low.

In comparison with my other Engineering and Management Course classes and instructors, I would rate:

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1. What did you like about the content of this class?
   
   Too much reading

2. What did you not like about the content of this class?
   
   Presentation was defensive in nature with respect to VA. I would have liked more information on the detailed use of VA than how to defend VA.

3. What did you like about the instructor?
   
   Was very effective in his presentation and made good use of comparisons.

4. What did you not like about the instructor?

---

In comparison with my other Engineering and Management Course classes and instructors, I would rate:

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Clear and great presentation.

Physical attachment.

Please find the handover.

Sign from the head merch.

Lori Miles

Value Engineering - EN 2018 Course 18
1. What did you like about the content of this class?

Excellent material

2. What did you not like about the content of this class?

Nothing

3. What did you like about the instructor?

Did excellent job in presenting the material

4. What did you not like about the instructor?

Nothing

In comparison with my other Engineering and Management Course classes and instructors, I would rate:

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Managing the use of Valence Analysis

1. How did you like the content of this class?
   The material was presented in a very interesting way.
   The use of examples throughout was very enlightening.

2. Did you not like any aspect of this class?
   The subject was so new to me, I cannot at this time evaluate what if anything was distasteful about the content. Since everything was presented so enthusiastically, I doubt if there is any dislike.

3. Did you not like any aspect of the instructor?
   Very enthusiastic!

4. What did you like about the instructor?
   Nothing.

In conclusion, while I must regard Valence Analysis as too abstract and hypothetical, I would have.

Please assess:

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Date: 18
Class 18

Please do not identify yourself in anyway.

1. What did you like about the content of this class?
   A. Unlimited first hand accounts of incidents that backed up your teachings.
   B. This gives me a new tool to add to those already in use by my department (Ex: PDI). I conclude that the value to my department is my test will be a specialist not unlike that of a Fort D. Ph.D. - but much more functional.

2. What did you not like about the content of this class?

   Repetition - But I accept the fact that this will be the road to ready access to the principles of Value Engineering. I won't have a good grasp of the tool until I have reviewed and used the tool many times.

3. What did you like about the instructor?

   Very objective and very perceptive but never bowing - except to make a point. i.e. Yes you are right. I am not infallible - only perhaps 90% right all the time - and with an implication that we could all do as well - if we try - a very humble but firm.

Nothing -

In response with my other engineering and management course classes and instructors, I would rate

Thank you.
1. What did you like about the content of this class?
   It called attention to a method that can help produce a good product at a lower cost. I probably obtained more value from this course than any other.

2. What did you not like about the content of this course?
   The material covered could have been done in a shorter time. It was very repetitive.

3. What did you like about the instructor?
   He made a sincere effort to present the subject and do his name proud.

4. What did you not like about the instructor?
   He was very repetitive.

In comparison with my other engineering and management courses taken and instructors, I would rank...

Please check:

- This class
- His lectures

[Marked with a check mark]
Class 11: Managing the Use of Value Analysis

1. What did you like about the content of this class?
   - More emphasis on doing and to use the new techniques in my company.

2. What do you not like about the content of this class?
   - Nothing. The subject extremely well.

4. What did you like best about the instructor?

In comparison with a prior Instructor and textbook, course classes and lectures are excellent. I would rate:

Please check:

- This class: ✓
- Textbook: ✓
1. What would help me most in my present job:

a. How can Value Engineering & Analysis principles be applied to the Maintenance & Repair function of a Civil Engineering Organization on a United States Air Force Base?

b. In the application of these principles, how can they be utilized as cost reduction programs?

c. Is a special organization required in establishing a Value Analysis & Engineering function, particularly under military organizations?

d. What would be the best techniques for making both military and civilian (Civil Service) workers aware of what Value Engineering is, and the benefits which could be gained from it?

2. My nearest belief in what is Value Engineering, is a method of developing a product or system within a set of parameters and specific quality controls at the least expense.
How to make UE work

1. Recognize that companies are different in attitude

2. Some are creative, dynamic, ready to make change and by the way, make a lot of money and grow fast.

3. Other companies are very steady and staid, and not to venturesome. They make money too! But they don’t grow as fast, may be they are already as big as they want to be and just stay there.

4. The difference between companies #2 & #3 means that #2 will accept UE fast (but, paradoxically, they don’t need it as bad as #2, they therefore because they were more creative in the beginning). #2 needs it badly, but won’t readily accept it unless there is a key man that understands people and can slowly apply it in a way that does no damage to people.

5. The conclusion is that companies have personalities equal to the norm of the personalities of UE.
the people that compose it.

You should expect this and cope
with it accordingly. You will
show more savings (total), but
over a longer period of time
in company #2 as opposed
to No. 3.
Value Engineering

I believe that Value Analysis/Engineering is a process or technique for the optimization (either in cost, quality or usefulness) of a product or end-item. This process involves the analysis and selection of approaches from a number of alternatives.

What would help me most:—I manage a (satellite) program charged with integrating a group of basic research/scientific experiments into a space vehicle and thenjecting the spacecraft into the aerospace environment to be investigated. I operate under a rather tight fixed budget and schedule.

Certainly, I'm concerned with lowest costs
and high quality but I am even more concerned about getting maximum usefulness from the final end item — i.e., integrated experiments/spacecraft. Scientists are prone to ask for the world when being supported. On the other hand, I must ensure that the basic spacecraft are not degraded so they cannot meet their basic function — i.e., survive in space & transmit scientific data to the ground.

Consequently, I need means or techniques of being able to value analyze such alternatives that pertain to the overall usefulness of the complete/overall end item. For example, should I spend my limited funds on providing the
scientist with slightly more data, or in improving his experiment capability; or should I channel my funds into spacecraft engineering items that only add to the vehicle reliability.

Finally — since a contractor must perform the program development tasks, how can I assess that he is using Value Analysis/Engineering in the more accepted sense — i.e., minimizing cost & maximizing quality of the end item.
My nearest belief now of what VATE is, I had not heard of VATE as such, prior to this course.

What would help me most application of VATE concepts to materials handling, screws, belts, elevators, etc.

R. F. Payne
RALPH HARRIS

BETTER UNDERSTANDING OF ORGANIZATION AND PROCESSES TO INCREASE EFFICIENCY AND REDUCE PRODUCT COST.

MY PRESENT UNDERSTANDING OF V.A. IS ESSENTIALLY ZERO.
What would help me most in a course on V.A.?

1. A basic understanding about what is Value Analysis? What are the techniques involved?

2. How may the techniques of Value Analysis be applied in the R and D phase of a product without interfering with the performance and schedule goals of that phase?

3. What approaches are available for introducing Value Analysis into a company from a middle management level?

What is my sincerest belief now about Value Engineering and Analysis?

Before coming to this course my only contact with VA was by word of mouth. I have come to believe that VA was the process of applying system engineering techniques to cost reduction.

By system engineering techniques I mean:

1. Define the problem
2. State the objective
3. Determine the decision criteria
4. Synthesis various alternatives
5. Analyze these alternatives
6. Choose the “best” alternative
1. My nearest belief now of what value analysis is:-

   A re-examination of unit function and design in terms of incremental cost reduction—quality, overall functionality, and other physical attributes remaining constant.

2. What would help me most:-

   It might be possible to apply these techniques to human analysis for performance measurement. If there are thoughts along these lines I would be interested in hearing them.
My nearest belief now of what Value Analysis is?

To analyze the value of an object by studying the functions of the object separately.

What would we require first.

To be able to analyze the functions of jobs.
Managing the Use of Value Analysis

1. VA and VE — The identification and elimination of unnecessary cost without affecting the quality or users of the product.

2. What would help me most.
   a. What is it?
   b. How do you apply it to VA/VE activities?
   c. How do you differentiate between actual and apparent benefits?
G. F. Nicolson 

11612 or Engie - Byron Jackson Inc.

Policy: Upon what VA, etc.

Would help.

Are the VA to new product?

How and 1600 making it.

Need unique process.

Finally, test in California. Flawless testing.

Sufficient testing and checking on every piece and ensure all manufacturing is done.
Value Analysis & Engineering

Jim Halman

1. What I expect to get out of the Course?
   An understanding of value analysis. At the present time, I do not know anything about it. It could be that I presently practice it to a certain extent, under a different title.

2. What is my nearest belief of value analysis?
   A study of improving - either cut cost without cutting quality.
I  Belief Concerning Value Engineering:

A quality measuring superimposed engineering effort which encompasses accomplishment of the objective, simplicity of the design with benefit to reliability, ease of fabrication, and flexibility of application; resultant minimization of overall cost measured not only on the short range but in durability and appearance (esthetic).

II  The greatest help to be obtained from the Value Engineering Course for me, would be the application of the principle to more production design where engineering time is often the most expensive commodity. Use of expensive materials and fabrication procedures may result in 100% reliability, redefining the engineering task of design and configuration control documentation associated with continual rework effort.
1. My nearest belief now of what V.E./V.A. is.

2. As I understand V.E., it is a formal technique for obtaining a specified level of performance at minimum total cost.

2. What would help me most?

A. I would like to clearly understand the answers (if there are answers) to the following questions.
   1. How should the V.E. function be integrated into an organization to achieve maximum return on the effort. I have had personal experience with a V.E. effort set up as an engineering responsibility. This is not a good arrangement.

2. What is the best manner of V.E. Documentation? That is, how do you eliminate the feeling that V.E. Documentation is slanted to prove inflated claims for the V.E. effort.
Question 1: My nearest belief now of what V.A. is:

Determine function(s) of item studied and their true costs. Seek other ways of doing the function at the lowest possible cost without reduction of reliability and quality.

Question 2: What will help me most in material reviewed, presented and discussed:

a) Principles and philosophy of this technique.
b) How to obtain support and utilization of this technique by participants in (in-plant) programs.
c) Reference and source regarding successful application of this technique in the food and packaging industry.
Question - My current belief now is what V.A. & V.E. is?

Answer - An overly approach to evaluating return on related to cost.

Question - What would help me most?

Answer - Practical application of V.A. to current cost reduction problems on a day to day basis in food processing where major costs are raw material and minor costs are in processing.
1. My present belief of what Value Eng is:
   Emphasize techniques for evaluating performance in terms of Quality, Reliability & Cost to help achieve the best balance.

2. What would help me most:
   Desire to use Value engineering in evaluating systems that will improve the potential performance of work or construction (e.g., floor systems of low-rise apartments) at equivalent or lower cost.

   How can Value Eng techniques assist in such evaluation? Especially during analytical phases of systems development since only the most promising systems should be actually tested.
Techniques of Value Analysis and Engineering

What I want from course

1. Logical process of applying VA/VE in the design/development/production phases of an engineering program.

2. Knowing when to apply

3. Knowing how to accomplish with minimal organizational changes and personnel (VA/VE team) costs.

4. Knowing how to accomplish with minimum disruption to the organizations ultimately involved in applying the results of the VA/VE decision, e.g., production or R&D.

What is VA/VE to me

VA/VE is a systematic process of evaluating elements of cost in a product with the end goal of reducing these costs while still maintaining the original intent and goals of the product.

R.L. Lautzenhiser
Hughes Aircraft Co.
1. Value analysis is an approach which includes a methodology to determine the optimum expenditure for necessary to achieve a specific quality in a manufactured product. In another sense it could be construed to mean a problem solving technique to achieve value received for value expended.

2. My expected result of taking the course is to give me yet another approach to problem solving. It is not possible at this time for me to state the particular part or parts of the problem solving approach which will dovetail with my particular area of interest. As an Air Force Officer at least 75% of my time is devoted to problem solving which involves men, materiel, and equipment.
What I think VA is:

1. A technique of design for minimum cost at optimum effectiveness.
2. Applying cost reductions as a major consideration in system design and development.
3. Application to cost of producing a manufactured item.
4. Applies to improved effectiveness, maintainability and serviceability costs as well as design development and manufacturing costs.

What would help me most:

1. How can I properly evaluate value engineering change proposals?
2. How can I relate VA to interfaces:
   a. Can I compromise effectiveness, reliability, maintainability? To what extent?
3. What are the pitfalls of making value engineering changes to an operational system? I think it is an excellent application to initial design and during development, but what if it is applied to a going system in latter life span of that system?
My present thoughts are to what V.A. is.

1. The assigning of a value to a function. Using the value to determine if function being studied is now being performed in the best and most economical function.

2. Cost and cost-utility analysis. Meeting functions and equipment at minimum cost.

What I would like from the course:

1. Can value analysis be effectively applied in process industry? How? Typical example?

2. Is value analysis being used in the Food Industry?

3. When can value analysis be effectively used by a manufacturer of equipment or contract to a manufacturer?
My nearest belief now of what Value Analysis is:

To obtain the maximum functional product for the lowest possible cost.

What would help me most?
I believe that value engineering has its place as a discipline along with other disciplines.

However, I feel that together with "Configuration Control," "Maintainability," and other disciplines perhaps the advocate of "value engineering" have pushed this discipline into areas not warranted and out of proportion to its ultimate value.

Quality control for quality control some is very expensive — I don't know, but I feel the government is fostering "Value Engineering" across the board in the same manner. One might say this is normal — the pendulum must swing — I say that we as taxpayers have paid an awful lot to educate the procurement personnel of our government. If "value engineering" is so valuable — I advocate specific courses to those people in order to have a sane application of this discipline.

Secondly — I feel that most applications are based on individual costs such as the bolt and spacer application you presented — this represented only the manufacturing and assembly costs — I am not arguing the 8 cent cost, but pointing to the 3/4 and 8/10 cost figure. I feel that if they had gone to "off-the-shelf" items such as screw and spacer it would have meant less future logistics and maintenance costs together with quicker repairs in case of failure. This is what I mean when
I stated that I felt "Value Engineering" considered only "bits + pieces or single components" rather than a "System" which was to be re-able at a minimum cost, maximum MTBF, and minimum down time.

I took Value Engineering to learn a new discipline. I believe that a good manager needs all the tools he can get – I think that many times we subconsciously use tools (or disciplines) we have been provided (or taught).

In this context I feel Value Engineering can be of benefit. Whatever is good in this discipline can find use in any decision-making if the principle is sound. Thus, this is why I said I wanted to know the method of analyses – the criteria – the thought process required.
Assignment

1. My nearest belief now of what Value Analysis is:

    "A technique for objective evaluation of each operation and all material going into a manufactured product or a business operation as related to product function, product quality, and the total manufacturing cost of the product."

2. What would help me most:

    "To develop a readily accessible general technique of applying Value Analysis to:
    - process engineering
    - research and development
    - manufacturing methods
    - drafting functions
    - engineering paperwork."
1. My nearest belief now of what value analysis is:

   It is the art of evaluating an existing design or operation with the prime objective of reducing cost without adversely affecting quality or performance.

2. What would help me the most:

   I need a better understanding of the working techniques. As an Air Force project officer, I need to mentally establish work loads and performance standards before I can accept for the Government, work performed by a contractor.

   Major Loren Pfeifer
   USAF
I. My nearest belief of what Value Engineering/Analysis is:

During the last 5 years of my assignment as an Air Force Civil Engineer, my position has been purely staff. Specifically, I have never been actively involved in the Value Analysis/Engineering process, nor do I have any feel for it. More specifically I do not know what it means. Though, it may sound very elementary, to me VA/E is the process of getting the 'most' for the 'least' without compromise.

II. What will help me most from this course and what I hope to achieve is a clari...
understanding of VAE and a meaningful approach, or rather, a sensible approach to its application in the U.S. Air Force.
My belief now of what T.A. is:

1. Performance per $.


3. Cost existing designs.

4. Lowest cost per function.

5. Optimum quality at fixed cost.

6. Optimum cost at fixed quality.

7. A way of life rather than a technique.

8. Improvement of components cost with systems considerations.

9. A sophisticated name for cost analysis.

10. Brainstorming with a lot of people participating.

11. Applied system engineering to minimize cost.
1. My present belief is that Value Analysis is a process by which a methodical logic is applied to the design of parts or systems to achieve adequate performance at the lowest possible cost. It is a "bare-bones" approach.

2. What I would like most from this course is not so much the how and why as the where and when of V.A.'s application. What interface with reliability and aesthetic design (styling) would be of interest. Where should it be applied in an R and D effort?
What would help me most:

1. What activities to consider in the food industry
2. What is T.A.? 
3. How to apply T.A. to Civil Engineering (in USAF)
4. Cost reduction, maintenance and spare parts managing (in USAF)
5. When to apply T.A. (in B&D?)
6. The process of T.A.
7. How to set up T.A. in an organisation
8. Can T.A. be done without a formal organisation?
9. How to evaluate the quality of the T.A. work
10. Documentation of T.A.
11. How to overcome negative thinking (make people believe)
12. Don't we do it every day? (without naming it)
13. How to do T.A. more systematically
14. What are the interfaces of T.A. with Industrial Design, Maintenance
15. When should there be no T.A.
My nearest belief now of what Value Analysis is centers primarily on the effort to get the most possible savings in unit cost with little or no loss of efficiency, quality, or safety in the product. Most references to Value Analysis has been directed to improvement of present facilities, methods, and equipment still consistent with successful mission completion at reduced cost.

What would help me the most in this course would be:

1. A clear understanding of the goals, methods, and devices needed to integrate a solid Value Analysis program to missile operational requirements.

2. A clear differentiation between "real" and "imaginary" cost reductions in government and military Value Analysis programs. Emphasis on concrete savings not paper savings as presently encountered in programs should be stressed for the program to be worthwhile to the taxpayer and the government.

3. Methods, techniques, and environment adjustments needed to create a constructive or positive attitude toward Value Analysis should be outlined as well as potential dangers if the data and results are not properly presented to the management, production, and engineering department personnel.
V. Analysis & Engineering

I believe that VA is the:

1. Critical engineering examination of something to reduce intricacies, to increase operational efficiencies or retain minimums, and to reduce material and manpower costs through this initial or reexamination.

1. W would be able to achieve the definition of VA in all maintenance or manufacture at my station.

I want to learn from this course:

- The relationship between VA and Cost Reduction.
- To learn how to organize a VA study.
- To learn to "sell" the tinfoil spoon as a replacement for the gold one.
My Nearest Beliefs Now Concerning What Value Analysis Is.
I really don't know, but it would seem to me that Value Analysis, or Value Engineering, would be concerned with evaluating the worth in dollars & cents of the component parts of a given product with respect to their function and importance in that product. In other words, evaluating the possibilities of reducing the costs of a given product without changing its quality or performance.

What Would Help Me Most?
To understand what Value Analysis is & how to use it specifically in the development, manufacturing, and marketing of the products of Udico Electric Co. (which are small electric appliances). Also the part Value Analysis should play in the design & development of new products not marketed as yet.
My nearest belief of what 'Value Analysis' is:

A system for critically evaluating the specific functions and requirements of units of equipment to arrive at a 'true' value of the individual functions in an attempt to secure equally satisfactory or acceptable (esteen value) results at a substantially lower cost.

Unfortunately I believe that the main field of use of Value Analysis is in mass production of mechanical-type items.

What would help me most

1) If we can find some methods for applying the basic techniques to contribute to a cost reduction program in the maintenance activities in an industrial plant. In my specific case it's an oil refinery, but the basic equipment such as piping, valves, motors, turbines etc. is common to many industrial operations.

2) Methods of utilizing (and communicating the possibility of such utilization) V.A. techniques in the construction of new process plants, pipelines etc. It would seem that some new thinking in this area might result in substantial savings in capital investment, but possibly much of our thinking is in the area of minor changes, like using a less expensive valve, motor or such rather than examining basic concepts.

3) If we can find applications under 1 or 2 how do we get people 'on the team'?
1. My nearest beliefs now of V.A. is:

A special case of cost effectiveness, possible on component or subsystem level, where cost is minimized subject to a particular performance level.

2. What would help me most,

a. limitations and advantages of V.A.
   b. Where applied?
   c. When applied in what stage of a systems development, production - operation?
Questions

2. If you agree that there is a tendency for "mistfits" to gravitate into V.E. work, please discuss any thoughts you may have on this.

3. How can these people be detected in time to avoid them?

4. How do you deal with the individual who avoids doing value work on a basis of function? Some V.E.'s seem to feel this is "childish".

   A man who does not use the function basis is not a V.E.

   Like a sloppy pilot that will not use compass headings.

Function Approach
Clarifies problem
Often re-defines the problem

Function Structure
Correlates V.E. practice

Optimizes work value
Some competent companies for training:

J. A. Incorporated
Newport Beach, Calif.
JK Fowlkes Pres

Value programs for Industry

Schenectady, New York
RE Fountain Pres

Value Associates
5364 N New Jersey St
Indianapolis, Ind.