###### **CHAPTER ONE**

**INTRODUCTION**

**1.1 INTECU**

Since its establishment in 1996, the Information Technology and Communications Unit (INTECU) have continued to build a reputation as the foremost ICT resource center in the country. It has succeeded in establishing a Campus Wide Area Network within the Obafemi Awolowo University community, which is being maintained routinely. From its very inception, human capacity building was given great attention. Today, INTECU is involved in a variety of ICT-related activities.

**1.2 Objectives for Establishing INTECU**

The instrument establishing INTECU stated the objectives as follows:

1. To design, implement and maintain the Campus Wide Computer Network
2. To provide INTERNET-based services to the University Community.
3. To advise University authority on ICT development and related matters.
4. To provide technical support for ICT in educational and research institutions.
5. To provide ICT training for members of the University community, Nigerian University system as a whole and the professional from the industry.

**1.3 Organizational Structure**

INTECU is a Unit directly under the office of the Vice-Chancellor and reports to the Vice-Chancellor through a Management Board. Its administrative structure is as depicted in the following organogram:

Vice-Chancellor

INTECU Management Board

Director

Chief Engineer (Deputy Director) Secretary

Engineers Technicians Admin. Officer Messenger Driver

Clerk

**Fig 1.1**  INTECU Organizational Chart

**1.4 Location**

INTECU is a unit within the Obafemi Awolowo University, Ile-Ife Campus. It is located behind the Computer centre; Faculty of Technology building. INTECU operates in the underlisted five broad areas of specialization:

1. System Engineering
   1. Computer Hardware Identification
   2. Computer Hardware
   3. fault detection and Isolation
   4. Software Classification
   5. Software installation
   6. Operating System (O.S)
2. Network Administration
   1. All network technologies (Essentials of network technologies)
   2. Network Hardware
   3. Network Classification
   4. Network Design
   5. Network Configuration
   6. Network Optimization
   7. Network Media
   8. Network Monitory
   9. Communication Infrastructure (wireless and VSAT technologies)
3. System Administration
   1. Account Management
   2. Security Management
   3. Fault Management
   4. Dedicated services Management
   5. Redundancy and Back-up
   6. Resource Management
   7. System Automation
   8. Hardware Management
   9. Software Management
   10. Documentation
4. Basic intermediate Advance
   1. Application Programming
   2. Application Software design
5. Web Technologies
   1. Web Design
   2. Web Scripting
   3. Web Design tool
   4. Advance web programming language
   5. Web hosting technologies

Each of these departments has a departmental head that oversees and supervises the activities of the department and reports to the Director; Prof. Aderounmu. The office complex of INTECU comprises of;

1. The administrative building
2. An extension of the administrative building
3. The Server room building
4. A generator plant building.

INTECU presently has over 20 staff which consists of 11 Technical staff (8 Network Engineers, 1 Technologist and 2 Technical officers), 3 Administrative staffs and 2 junior staffs alongside with a collaborative interaction with a network of staff drawn from the other departments as associate staffs. INTECU also trains students from networking and IT oriented universities and polytechnics from all over Nigeria and western Africa; in the practical aspects of their respectively chosen discipline.

**1.5 Engineering Valuation**

Engineering Valuation is the art of the “appraisal of industrial property”. It is the estimation of the monetary measure of the desirability of ownership of commodities. In this case, it is the art of determining and estimating the current monetary measure of plant and machinery in INTECU. Depreciation is the decrease in value of physical equipment with the passage of time, and as such this factor greatly affects the worth of assets in INTECU.

In this comprehensive valuation report, mathematical analysis and technical assumptions were being employed in order to arrive at the best conclusion in the making of economic decisions.

**1.6 Purpose of the Engineering Valuation**

Engineering assets are tools in the hands of end users for the production of goods and services. Thus, there is need to know what their values are, which can be in terms of monetary value and can also be considered as the goodwill of the Company. The main reason for carrying out the valuation exercise is for financial purpose only and also to establish the present worth of the Company so that transfer of ownership can be easily conducted, if need arises. Valuation process conducted will be able to show the accumulated depreciation level of the equipments and machineries over the period of time they are put into use.

**1.7 Scope of Valuation**

This valuation exercise is aimed at two broad groups of assets; these are fixed and current asset. Fixed assets includes engineering equipment, computer systems, buses, INTECU building, Burglary proof, Generators, air-conditioners, electronic equipments and so on. Current assets on the other hand include cost of maintenance, cost of band width, cost of fueling the bus, cost of running the generator and so on.

The Engineering Valuation is to determine the market capital value of all the assets and not for the purpose of tax, insurance, disposal or for any hidden interior motive. Also, this Engineering valuation was prepared for meeting up to academic requirements

**1.8 Assumptions made in conducting the Valuation.**

In conducting the valuation, the following assumptions were made:

1. No responsibility will be taken for any condition of the equipment not readily discernable from the normal inspection of the various properties, which may affect the valuation except those items, which have been specifically indicated in this report.
2. The source of information as regards equipment, condition and price were obtained by inspection and personal communication with Engineers of INTECU, Supports and Administrative staffs and the workers at INTECU.
3. It is to be noted that this report is in accordance with standard practice and hence state that the valuation certificate is for the use of the establishment to whom it is addressed.

###### **CHAPTER TWO**

**LITERATURE REVIEW**

**2.1 Assets**

Assets are any properties owned by an individual or organization which have the capacity of producing future economic benefit; be it in possession, for instance, equipments; the measurement of which can be expressed in monetary terms. An asset is a property to which value can be assigned; its value is managed over life cycle and its failure leads to irrecoverable commercial loss. Assets may be classified in many ways. For the purpose of the report, the following assets will be considered:

* + 1. Fixed Assets;
    2. Current Assets; and
    3. Intangible Assets.

2.1.1 Fixed Assets

Fixed assets are also referred to as PPE (Property, Plant and Equipment); assets which are purchased for continued and long-term use in earning profit in a business. This group includes land, building, machinery, furniture and tools. They are also called capital assets in management accounting, especially when intangibles are considered.

For the scope of this valuation, the land and the building will not be valued.

2.1.2 Current assets

Current assets are cash and other assets expected to be converted to cash, sold, or consumed either in a year or in the operating cycle. These assets are continually turned over in the course of a business during normal business activities.

2.1.3 Intangible Assets

Intangible assets lack physical substance and usually are very hard to evaluate. They include patents, copyrights, franchises, software, goodwill, trademarks etc. These are amortized to expense over 5 to 40 years with exception of goodwill. These are not considered in the valuation report.

**2.2 Methods of Valuation**

2.2.1 Replacement Cost Method

The valuation for insurance purpose involves the establishment of the current cost of replacing the asset as new. If the asset is imported the replacement cost is estimated from the sum of:

1. the current Ex-Works Price;
2. The freight cost to the nation;
3. Cost of transit insurance;
4. Freight charges:
5. port charges (including *demurrage* if not cleared quickly);
6. Custom charges;
7. Clearing agent charges;
8. inland transit insurance charges;
9. Port –to-factory site transport cost; and
10. Installation charges at factory site.

This total sum is the current Replacement cost of that asset. The valuer needs to know the current exchange rate and government tariff for the imported machinery.

2.2.2 Depreciated Replacement Cost Method

This involves a 2-stage operation of first estimating the equipment as new and then depreciating the value obtained to make allowance for wear and tear, age and obsolescence. The rate of depreciation is determined from the unexpired economic life of the plant and the gross current replacement cost. The value obtained is known as the existing use value (EUV) and are economic values, which must reflect the economical production or service capacity of the machine rather than the cost of replacing the physical entity as in the case of valuation for insurance. In situations where equipment or a factory is working at less than optimum capacity one needs to use experience and wisdom in deciding what the depreciation value would be. So the economic working life is different from the physical working life.

For instance if the gross replacement of an equipment at installation is N26,000 and it is assumed to have a depreciation value of 40% after being in use for 4 years of N10,400, the Depreciated Replacement cost OR its EUV is N15,600. To chose the rate of depreciation and determine the unexpired economic life of a plant, especially in a non-productive economy as exist in Nigeria, needs specialized knowledge and experience.

2.2.3 Open Market valuation or Disposal Method

The change of hands in the disposal of a facility may happen in two ways:

1. The change of hands may not involve change of position or location; or
2. The sale may require a relocation of the plant to another town or country.

Financial purpose valuation of plant and machinery call for knowledge of production factors and technical handling of the plant as well as socio-economic considerations.

###### **CHAPTER THREE**

**VALUATION PROCESS**

**3.1 Inventory Taking**

After accepting the request for the valuation of INTECU; with the assistance of members of staff, the inventory of every asset and the classification were done on February, 2012.

INTECU makes use of equipments, which are electronic, electrical and mechanical in nature (see Table 1 for inventory).

**3.2 Assets Description**

The plant and machinery or equipment found in INTECU can be classified into two, namely, Production-line equipment (Computers, networking equipments etc) and Service equipment which includes those that are basically electronic in nature. The service equipment supports the production equipment in the event of power outage, or to provide regulated ac or dc power supply. They also ensure a cool working environment for the Computer and the networking equipment; this ensures longetivity of lives of those devices.

A. Production Equipment

INTECU provides Internet service and Support for the entire campus, research centers within the campus, OAUTHC and some independent cyber café. To effectively discharge these duties the engineers use these equipments.

B. Service Equipment

These include equipments that are electrical in nature. Some networking tools directly involved in providing structured LAN cabling connection solutions can also be included in this classification.

|  |  |  |
| --- | --- | --- |
| S/N | ASSET | QUANTITY |
|  |  |  |
| 1 | Toyota Bus | 1 Nos |
| 2 | INTECU Building | 1 Nos |
| 3 | Ethernet cables for Computer Network | 34 Nos |
| 4 | 13A- Double face socket | 30 Nos |
| 5 | 13A- Single face socket | 45 Nos |
| 6 | Fluorescent tube | 40 Nos |
| 7 | Fluorescent Unit | 40 Nos |
| 8 | Metal based furniture | 10 Nos |
| 9 | Long Wooden Table | 5 Nos |
| 10 | Wooden Stools | 20 Nos |
| 11 | Single light wall switch | 15 Nos |
| 12 | Triple light wall switch | 20 Nos |
| 13 | Louvre | 200 Nos |
| 14 | 25mm x 16mm Trunking Pipe | 2000 ft |
| 15 | 2.5mm Electrical Cable | 2000 ft |
| 16 | Burglary | 15 |
|  |  |  |
|  |  |  |

Table 1 Inventory of fixed and capital assets in INTECU

Table 1 Inventory of fixed and capital assets in INTECU (Cont’d)

|  |  |  |
| --- | --- | --- |
| S/N | ASSET | QUANTITY |
|  |  |  |
| 17 | Construction of A/C seat and cabinet | 12 Nos |
| 18 | Installation of split A/C | 12 Nos |
| 19 | Office cabinet and steel cupboard | 10 Nos |
| 20 | Installation of Intercom | 34 Nos |
| 21 | HP Servers (Proliant ML110) | 2 Nos |
| 22 | HP Servers (Proliant ML350) | 1 Nos |
| 23 | Compaq Servers (L2 Proliant ML350 ) | 5 Nos |
| 24 | Server mountable racks | 3 Nos |
| 25 | HP Proxy Server (Proliant DL380GS) | 1 Nos |
| 26 | HP Monitor, Keyboard, Mouse and System Units | 50 Nos |
| 27 | Haier Thermocool AC (HSU-18LEM03) | 2 Nos |
| 28 | CISCO 24-port switch (3560G) | 2 Nos |
| 29 | CISCO 24-port switch (2960) | 3 Nos |
| 30 | D Link 24-port switch (DGS1224T) | 2 Nos |
| 32 | COMTECH digital router (CMR 5975) | 1 Nos |
| 33 | COMTECH satellite Modem (CDM 5702) | 1 Nos |
|  |  |  |
|  |  |  |

Table 1 Inventory of fixed and capital assets in INTECU (Cont’d)

|  |  |  |
| --- | --- | --- |
| S/N | ASSET | QUANTITY |
|  |  |  |
| 34 | CISCO router (2800) | 1 Nos |
| 35 | Compaq laptops | 6 Nos |
| 36 | C Band VSAT Dish | 2 Nos |
| 37 | VSAT Communication Equipment | 1 Set |
| 38 | Radio equipment | 6 set |
| 39 | Fibre equipment and installation | - |
| 40 | Compaq Servers (L2 Proliant ML350 ) | 5 Nos |
| 41 | Back-up power (Inverter system) | - |
| 42 | TV Broadcast system | 6 Nos |
| 43 | CANON Projectors | 5 Nos |
| 44 | CANON photocopiers | 2 Nos |
| 45 | Refrigerating sets | 6 Nos |
| 46 | Network Bandwidth | - |
| 47 | Diesel for generating sets | monthly |
| 48 | Computer hardware in stock | - |
| 49 | Network hardware and accessories in stock | - |
|  |  |  |
|  |  |  |

**CHAPTER FOUR**

**RESULTS AND DISCUSSIONS**

**4.1 Obtaining Original Worth of Assets**

Information concerning the dates and costs of procuring all assets were collected from Engr. Tope Ajayi, a Network Engineer and also responsible for keeping inventory of company assets. It must be stressed however that some of the costs were assumed as insufficient information were unavailable and inaccessible.

**4.2 The Depreciation Rate of the Assets**

The depreciation rate of each asset is estimated by the mathematical formula; which for the purpose of this report will be estimated using the straight-line method under Modified Accelerated Cost Recovery System (MACRS) is employed.

The straight-line depreciation method is the simplest and most often used technique for computing depreciation rates; in which the company estimates the “salvage value” of the asset after the length of a time over which it is depreciated, and assumes the drop in the asset’s value is in equal, yearly increments over the amount of time. The salvage value is an estimate of the value of the asset at the time it will be sold or disposed of; it may also have a value of zero.

The formula for this method is shown below:

dk =

Dk =

Where,

n = depreciable life of the asset (in years)

B = unadjustable cost basis/original cost

dk = annual depreciation deduction in the kth year

Sv = Salvage value at the end of the depreciable life of the assets

Dk = cumulative depreciation through kth year.

**4.3 Existing Use Value of the Assets (EUV)**

The existing use value is determined by subtracting the cumulative depreciation through a number of years (k), from the unadjusted cost basis (B). This is referred to as the depreciated replacement cost method as seen in the formula below,

EUV = B - Dk

Where,

EUV = Existing Use Value

B = unadjusted cost basis

Dk = cumulative depreciation through kth year.

Thus, the total existing use value of the Information Technology and Communications Unit (INTECU) gives the worth of the establishment.

**4.4 Table of Computation**

Having critically examined the above mentioned procedure of compiling the valuation of the assets declared in the inventory; Table 2 (below) shows the application of the aforementioned formula in the computation of the Existing Use Value, EUV of the assets in INTECU.

Table 2 Valuation of assets in INTECU

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| S/N | Description of Item | Year | K(years) | No. | Book Value (N) | Cumm. Depreciation, DK(N) | Existing Use Value, EUV(N) |
| 1 | INTECU Building | 2004 | 7 | 1 | 18,000,000 | 11,111.00 | 17,988,888.8 |
| 2 | Toyota Bus | 2004 | 7 | 1 | 3,659,333 | 73,259.22 | 3,586,073.7 |
| 3 | Internet cable for Network | 2004 | 7 | 34 | 181,830 | 5,347.94 | 158,192.1 |
| 4 | Metal Based Furniture | 2004 | 7 | 10 | 706,000 | 70,600 | 695,400 |
| 5 | Burglary Proof | 2004 | 7 | 15 | 45,000 | 3,000 | 43,841.67 |
| 6 | Construction of A/C seat and cage | 2004 | 7 | 12 | 42,185 | 3,515.41 | 41,506.25 |
| 7 | Installation of split A/C | 2004 | 7 | 12 | 7,000,000 | 583,333.33 | 5,810,000 |
| 8 | Office cabinet & Steel Cupboard | 2004 | 7 | 10 | 181,830 | 81,830 | 179,647 |
| 9 | Installation of Intercom | 2004 | 7 | 34 | 178,000 | 5,235 | 147,740 |
| 10 | HP Servers | 2000 | 11 | 7 | 1,400,000 | 210,000 | 1,036,000 |
| 11 | CompaqServers | 2004 | 7 | 5 | 450,000 | 90,000 | 382,500 |
| 12 | Server racks | 2003 | 8 | 3 | 450,000 | 150,000 | 380,300 |
| 13 | Generator | 2000 | 11 | 1 | 200,000 | 200,000 | 166,000 |
| 14 | Compaq laptop | 2004 | 7 | 6 | 850,000 | 127,500 | 722,500 |
| 15 | C band VSAT Dish | 2002 | 9 | 2 | 7,250,000 | 3,625,000 | 5,132,500 |
| 16 | VSAT Communication Equipment | 2002 | 9 | - | 1,196,250 | - | 985,862 |
| 17 | Radio Equipment | 2000 | 11 | 6 set | 200,000 | 34,000 | 153,000 |
| 18 | Fiber Equipment and Installation | 2005 | - | - | 19,000,000 | --- | 19,488,000 |
| 19 | Coupled System | 2003 | 8 | 50 | 3.350,000 | 67,000 | 2,710,253.5 |
| 20 | Haier Thermocool | 2003 | 8 | 6 | 360,000 | 60,000 | 271,025.7 |
| 21 | Supply and Installation of Back Up Power Unit | 2004 | 7 | 30 | 5,155,551.9 | 773,332.77 | 4,382,219 |
| 22 | TV Broadcast System | 2005 | 7 | 6 | 14,876,725 | 2,479,454.17 | 14,876,724 |
| 23 | Projectors | 2003 | 8 | 5 | 540,000 | 151,200 | 388,800 |
| 24 | Photocopier | 2002 | 9 | 2 | 150,000 | 75,000 | 120,000 |
| 25 | CanonRefrigerator | 2004 | 7 | 6 | 76,000 | 12,000 | 63,080 |
| 26 | 13A–Double face socket | 2003 | 8 | 30 | 15,000 | 500 | 11,000 |
| 27 | 13A-Single face socket | 2000 | 11 | 45 | 13,500 | 300 | 10,050 |
| 28 | Flourescent tubes and units | 2003 | 8 | 40 | 38,000 | 950 | 33,000 |
| 29 | Wooden stools | 2003 | 8 | 20 | 20,000 | 1,000 | 17,500 |
| 30 | Louvres | 2002 | 9 | 200 | 31,000 | 155 | 28,900 |
| 31 | 25mm x 16mm trunking pipe | 2001 | 10 | 2000yd | 140,000 | 70/yd | 123,900 |
| 32 | Light switches | 2001 | 10 | 35 | 12,250 | 350 | 10,500 |
| 33. | 2.5mm Electrical cables | 2001 | 10 | 2000yd | 120,000 | 60/yd | 101,000 |
| 34. | CISCO switch | 2001 | 10 | 5 | 75,000 | 15,000 | 64,000 |
| 35. | D link switch | 2001 | 10 | 2 | 23,000 | 11,500 | 19,230 |
| 36. | COMTECH router | 2002 | 9 | 1 | 56,000 | 56,000 | 46,930 |
| 37. | COMTECH satellite modem | 2002 | 9 | 1 | 45,000 | 45,000 | 39,380 |
| 38. | CISCO router | 2002 | 9 | 1 | 60,000 | 60,000 | 54,560 |

**TOTAL N87, 060,751**

**CHAPTER FOUR**

**RESULTS AND DISCUSSION**

**4.1 OPINION OF VALUE**

After carrying out the Valuation of the assets in the Information Technology and Communications Unit (INTECU) located behind the Computer Centre; Obafemi Awolowo University, Ile-Ife. It is of the opinion that the ‘Existing Use Value’ of all available interest in the assets is Eighty-Seven Million, Sixty thousand and seven hundred and fifty one naira only **(N87, 060,751.00)**.

The following assumptions were made when arriving at the conclusion:

1. Every item installed is assumed to have a depreciation year of one.
2. Items whose prices cannot be obtained were assumed.
3. All the items were bought brand new.

**4.2 CERTIFICATE AND AUTHENTICATION**

The valuation certificate that authenticates the purpose of this valuation is as shown in the next page.

VALUATION CERTIFICATION

**Client:** Information Technology and Communications Unit (INTECU).

**Address:** INTECU building behind Computer Centre,

Obafemi Awolowo University, Ile-Ife, Osun State.

Dear Sir,

**VALUATION OF ASSETS IN INTECU**

This is to certify that the equipment/asset available in the Information Technology and Communications Unit (INTECU) has been valued as supported by the report and hereunder specified as follows:

* **Date of Valuation:** February 23,2012
* **Purpose of Valuation:** Financial/Accounting
* **Basis of Valuation:** Open market concept
* **Method of Valuation:** Depreciated Replacement Cost Approach
* **Total Amount:** N87, 060, 751
* **Amount in words:** Eighty-Seven Million, Sixty thousand and seven

hundred and fifty one naira only

* **Valuer:** SIWES students of INTECU

Signature .................................. Date.............................................

**CHAPTER FIVE**

**CONCLUSION AND RECOMMENDATION**

**5.1 CONCLUSION**

Having considered the various assets found in INTECU, it is hereby concluded that the true worth of the laboratory is Eighty-Seven Million, Sixty thousand and seven hundred and fifty one naira only **(N87, 060,751.00)**

**5.2 RECOMMENDATION**

It is recommended that engineering valuation should be taken as a course in the various departments during an ongoing semester.

**BIBLIOGRAPHY**

Ogendengbe O. M., Akanbi C. T., Oladepo K. T. and Adewumi I. F. (2005)

‘Technical Report Writing’ 2nd edition, Macmilian Nigeria.