

**178. PROFILE ON HIGHER EDUCATION AT FIRST
DEGREE LEVEL**

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I. SUMMARY

This profile envisages the establishment of an institution that provides higher education at first degree level with a capacity of enrolling 2,500 students.

The present demand for the proposed institution is estimated at 342,544 students per annum. The demand is expected to reach at 2.48 million students by the year 2017.

The total investment requirement is estimated at about Birr 23.88 million, out of which Birr 7 million is required for teaching equipment. The institution will create employment opportunities for 83 persons.

The project is financially viable with an internal rate of return (IRR) of 16.81 % and a net present value (NPV) of Birr 9.90 million, discounted at 8.5 %.

II. SERVICE DESCRIPTION & APPLICATION

Higher education is provided by universities, university colleges and specialized institutions. They are under the responsibility of the Ministry of Education. Junior colleges and colleges offering diploma program are also under regional governments and private providers.

The first stage of university level education leads to the Bachelor's Degree after three to four years' study. Examinations are organized at the end of each semester. In Medicine and Veterinary Medicine, the professional qualification of Doctor is conferred after five years' study.

In this profile study, higher education (University level) of Computer science on Degree level is considered.

III. MARKET STUDY AND SERVICE CAPACITY

A. MARKET STUDY

1. Service Supply and Demand

Institutions of higher education offer programs beyond the high school level. Colleges and universities provide necessary training for individuals wishing to enter professional careers by developing student's creativity, insight and analytical skills. At present the number of high school students in the city is increasing rapidly and the capacity of existing higher education institutions is limited therefore, establishment of higher education institute will have high demand.

This is a third-level educational program which is offered for duration of three to four years after completing high school. Completion of this program is certified by awarding a Bachelor's Degree. The degree of Doctor of Medicine (MD) and the Degree of Veterinary Medicine (DVM) are also Undergraduate Degrees, which are given after a training period of 6 years, the last one being a period of internship or externship.

Higher education at degree level is provided both by government and non government institutions. Non government institutions include the private sector and the civil society.

The student enrollment in institutions of higher education at first degree level is shown in Table 3.1.

Table 3.1

**TREND OF STUDENT ENROLLED IN INSTITUTIONS OF HIGHER
EDUCATION PROGRAM AT FIRST DEGREE LEVEL**

Year	Enrollment in Number				Annual Growth Rate in %
	Regular	Evening	Kiremit	Total	
2001/02	25,482	15,430	4,992	45,904	-
2002/03	41,282	24,264	6,616	72,162	57.2
2003/04	70,314	40,748	13,263	124,325	72.3
2004/05	99,467	67,640	15,167	182,274	46.6
2005/06	125,111	78,794	16,435	220,340	20.9

Source: Ministry of Education, Annual Statistical Abstract, 2007

The enrollment into higher education at first degree level excluding distance education¹ has substantially increased in the last five years. It reached to about 220 thousand in 2005/06². It increased by about 380% from the 2001/02 level. The average annual growth rate during the five year period considered has been 49.2%.

2. Projected Demand

It is expected that the demand for higher education at first degree level continues to increase for the coming ten years. The basic reasons for the demand to increase are the following, among others:

- The continued need in business, agriculture and industry for specialization and specialized skills.
- The competitiveness of the labor market.
- The envisaged high economic growth of the country.

Accordingly a projection for the coming ten years is done using the past five year trends. However to be more accurate it is assumed that demand for the coming ten years will grow

¹ Distance education is excluded since it is treated separately

² It should be noted that the analysis is done at national level for the reason that higher education is not geographic area specific. The higher education located in Addis Ababa provides education to students coming from all over the country.

by 50% of the past five years average annual growth rate. In other words the projected annual growth rate of enrollment for the coming ten years is assumed to be 24.6% (see Table 3.1).

The basic reason to assume that the growth rate to fall is due to the fact that the growth in the past five years has not been natural growth rate. About 50% of the growth rate is expected to be attributed to the suppressed demand accumulated over the years due to the absence of private higher education institutions in the country.

Table 3.2

**DEMAND PROJECTION FOR HIGHER EDUCATION AT FIRST DEGREE
LEVEL FOR THE COMING 10 YEARS**

Year	Projected Demand
2005/06(actual	220,340
2006/07(estimated)	274,544
2007/08	342,081
2008/09	426,233
2009/10	531,087
2010/11	661,734
2011/12	824,521
2012/13	1,027,353
2013/14	1,280,082
2014/15	1,594,982
2015/16	1,987,347
2016/17	2,476,235

Source: Own Calculation

As can be seen from the table above, the demand for higher education at first degree level in the country will reach about 2.5 million by the year 2016/17.

3. Service Fee Structure

Though it is difficult to come up with a comprehensive list of fee for distance education provided by the various institutions offering distance education in the country, an attempt is made to list the fee charged by the major institutions. The following are some of the institutions providing degree program and the fee they are charging.

- Addis Ababa University charges Birr 1,800 per semester for a regular degree program.
- Admass College charges Birr 45 per credit hour for a regular degree program.
- Alpha University College charges Birr 45 per credit hour for a regular degree program.
- St. Marry University College charges Birr 47 per credit hour for a regular degree program.
- Unity University charges Birr 49 per credit hour for a regular degree program.

B. SERVICE CAPACITY AND PROGRAMME

1. Service Capacity

Taking in to account the market study on existing condition of higher education at first degree level related with the number of enrolment, the envisaged higher education at first degree level is intended to have a capacity of accepting 2,500 students on degree level. The service will be given for two shifts (Regular and extension) per day.

2. Service Programme

The project requires some years to penetrate into the market and capture a significant share. It will start providing services at 75% and 90% of its rated capacity in the first and second year of service provision, respectively. Full service provision shall be attained in the third year and then after. The proposed service provision programme is shown in Table 3.4.

Table 3.4
SERVICE PROVISION PROGRAMME

Sr. No.	Service	Service Year		
		1	2	3-10
1	Enrolment of degree level (number)	1,875	2,250	2,500
2	Capacity Utilization Rate (%)	75	90	100

IV. MATERIALS AND UTILITIES

A. MATERIALS

The main materials and inputs required for the provision of higher education at first degree level areas are given on Table 4.1. The cost of these and other related materials are estimated to be of Birr 3, 500,000.00, out of which Birr 2,100,000.00 is required in foreign currency while the center reaches at its full capacity.

Table 4.1

**RAW MATERIALS AND CONSUMABLES REQUIREMENT AT FULL
CAPACITY AND ESTIMATED COST**

Sr. No.	Materials	Unit of Measure	Cost ('000 Birr)		
			FC	LC	TC
1	CURRICULUM: <ul style="list-style-type: none"> • Responsive to individual and social need • Comprehensive coverage Adaptable to changing	Package	1,100.00	1,000.00	2,100.00
2	EDUCATIONAL MATERIALS: <ul style="list-style-type: none"> • On-line library e-books and other useful information • Quantitatively adequate • User friendly, easily exploitable and challenging to both instructors and learners • A judicious mix of print-audio-oral materials • Closely related to the goals of the curriculum 	Lump sum	1000.00		1,000.00
3	Cleaning materials	Lump sum		100	100
4	Stationery materials	Lump sum		200	200
5	Other miscellaneous items			100	100
	Grand Total		2,100.00	1,400.00	3, 500.00

B. UTILITIES

The major utilities required by the center are electricity fuel oil and water. The estimated annual requirement at full capacity and the corresponding cost is given in Table 4.2.

Table 4.2

ANNUAL UTILITIES REQUIREMENT AND ESTIMATED COST

Sr. No.	Description	Unit of Meas.	Qty.	Unit price (Birr)	Cost ('000 Birr)
1	Electricity	kWh	60,000	0.4736	28.416
2	Fuel oil (stand by diesel generator)	Lt	1000	6.90	6.90
3	Water	m ³	5,000	3.25	16.25
	Total				51.566

V. TECHNOLOGY AND ENGINEERING

A. TECHNOLOGY

1. Service Process

The University Senate awards credentials, which are recognized by the country. The Ministry of Education is mandated to accredit private and public higher education institutions according to whether they fulfill the required standards.

Admission to university-level studies:

Name of secondary school credential required: Ethiopian Higher Education Entrance Examination:

Minimum score/requirement: Passes in 4 subjects at C-level

Other admission requirements: Special privileges for female students and students from disadvantaged/remote regions.

Foreign students' admission:

A person enrolled at the envisaged university of higher education the country of which he/she is not permanently resident is considered as a foreign student.

Foreign students must provide the academic certificates required by the envisaged university concerned. Foreign qualifications recognized as equivalent to the Ethiopian school-leaving certificate are: the General Certificate of Education of the University of London; the Cambridge Overseas Examination; the West African School Certificate and the Oxford Examination. The Higher Education Department may grant equivalence to other secondary school-leaving certificates in individual cases.

All students must cover their living expenses by their own means outside the envisaged university campus.

The education service is given at both regular and extension level. The regular session will be held in morning and afternoon (8:30 AM-12:30 PM and 01:30PM -5:30PM) from Monday to Saturday for regular students. The extension program is given from 6:00 PM - 8:30PM from Monday to Friday and morning and after noon in week ends as required. The BSC program mainly covers the courses shown below.

- ICT Fundamentals
- Focusing Areas in ICT
- Computer Programming I
- Computer Programming II
- Object Oriented Programming
- Windows Programming
- Data Structures
- Database Programming
- Introduction to UNIX
- UNIX
- Web Development
- Web Development
- Senior Projects

Each course will have lab sessions together with classroom instruction and individual and group exercises. Senior project work is given in-group or individually, as a final graduating project, based on the interest of prospective graduate.

Main grading systems applied are as follows:

Full Description: It is A-F. The highest on scale is "A" and the lowest is "F". The pass/fail level for undergraduates is "C", and for postgraduates is "B".

Highest on scale: "A"

Pass/fail level: "C" (for undergraduates), "B" (for postgraduates)

Lowest on scale: "F"

The provision of such service doesn't have any adverse impact on environment.

B. ENGINEERING

1. Machinery and Equipment

The list of machinery, equipment and other facilities required for provision of Computer Science higher education service on BSC Degree level is estimated to be Birr 7,000,000.00, out of which Birr 1,500,000.00 is required in foreign currency (Table 5.1).

Table 5.1

MACHINERY, EQUIPMENT & OTHER FACILITIES REQUIREMENT AND COST

Sr. No.	Description	UOM	Qty.	Cost ('000 Birr)
1	Broadband internet line (Supply & Network Installation)	Unit	4	785.00
2	Desk top computers networked (Supply & Installation)	Set	300	3,000.00
3	Lap top computers	Set	75	1500.00
4	Scanner	Pcs	3	45.00
5	Digital camera	Pcs	1	10.00
6	Video camera	Set	1	15.00
7	DVD player	Set	1	5.00
8	Photo copy machine	Pcs	2	200.00
9	Duplicating machine	Pcs	1	45.00
10	Generator set 11 KW (Supply & Installation)	Set	1	20.00
11	Printer	Set	50	600.00
12	Fax machine	Set	5	75.00
13	Satellite TV-set (Supply & Installation)	Set	10	50.00
14	Cafeteria facilities	Set	2	200.00
15	Lawn moan	Set	1	50.00
16	Other miscellaneous items		Lump sum	400.00
	Total			7,000.00

2. Land, Building and Civil Works

The envisaged higher education at degree level service requires a total plot of land of 3,200 m² area, out of which 2,000 m² area is the indoor built -up area, which is the building (class rooms(500 m²), library(400 m²), assembly hall(400 m²), administration offices(150 m²),

reception(50 m²), toilet(50 m²), computer lab(80m²), lounges(200 m²),duplication and documentation(130 m²)). The remaining 1200 m² area is the out door built -up area which includes the student cafeteria (250 m²), parking lot (300 m²), walk ways (200 m²), garden (300 m²), generator house (25 m²), guard room(25 m²) etc.

Assuming an indoor construction rate of Birr 2500 per m² and Birr 1500 per m² for the outdoor building and civil works, the total cost of construction is estimated Birr 5,000,000.00 and Birr 1,800, 000.00, respectively.

According to the Federal Legislation on the Lease Holding of Urban Land (Proclamation No 272/2002) in principle, urban land permit by lease is on auction or negotiation basis, however, the time and condition of applying the proclamation shall be determined by the concerned regional or city governments depending on the level of development.

In Addis Ababa the city's Land Administration And Development Authority is directly responsible in dealing with matters concerning land. Accordingly, the initial land lease rate in Addis Ababa set by the Authority based on the location of land is as shown in Table 5.2.

Table 5.2
INITIAL LAND LEASE RATE IN ADDIS ABABA

Sr. No	Location of the land	Land Grade	Initial Price in m²
1	Central Business zones	1	1167.3
		2	1062.9
		3	916.2
		4	751.5
		5	619.2
2	Places that are Under Transit	1	716.4
		2	647.1
		3	559.8
		4	472.5
		5	384.3
3	Expansion Zones	1	245.7
		2	207
		3	150.3
		4	132.3

Source: Addis Ababa City Land Administration Authority.

As can be seen from Table 5.2 the initial land lease rate ranges from Birr 1,167.3 to 132.3 per m².

Currently, most of the educational facilities in Addis Ababa are located on the central business zones of the city. Therefore, places under transit and expansion zones are recommended as the best locations for the project. Accordingly, the average of the highest land lease rates in places under transit and expansion zones which is Birr 481.05 m² is adopted.

The Federal Legislation on the Lease Holding of Urban Land legislation has also set the maximum on lease period and the payment of lease prices (see Table 5.3 and Table 5.4).

Table 5.3
LEASE PERIOD

Type of Service	Lease Period (Years)
Residential area	99
Industry	80
Education, cultural research health, sport, NGO and religious	99
Trade	70
Urban Agriculture	15
Other service	70

Table 5.4
LEASE PAYMENT PERIOD

Sr. No.	Service Type	Period of Payment According to the Grade of Towns
1	Private residential are obtained through tender or negotiation	50 - 60 years
2	Trade	40 - 50 years
3	Industry	40 - 50 years
4	Real estate	40 years
5	Urban Agriculture	8 - 10 years
6	Trade and social service	40 - 50 years
7	Others	40 years

Moreover, advance payment of lease based on the type of investment ranges from 5% to 10%. For those that pay the entire amount of the lease will receive 0.5% discount from the total lease value and those that pay in installments will be charged interest based on the prevailing interest rate of banks. Moreover, based on the type of investment, two to seven years grace period shall also be provided. The lease price is payable after the grace period annually.

Regarding, the terms and conditions of land lease the Addis Ababa City Government have adopted Article 6 of the Federal Legislation with very minimal changes. Therefore, for the purpose of this project profile since the project is engaged in social service , 99 years lease period, 50 years lease payment completion period, 5% down payment and seven years grace period is used.

Accordingly, the land lease cost of the project, at rate of Birr 481.05 per m² for 99 years of holding is estimated at Birr 152.40 million. Assuming 5% of the total cost (Birr 7.61 million) will be paid in advance as down payment and the remaining Birr 144.78 million will be paid in equal installments with in 50 years, the annual lease payment is estimated at Birr 2,895,536.

VI. MANPOWER AND TRAINING REQUIREMENT

A. MANPOWER REQUIREMENT

The total manpower requirement, including skilled and unskilled labor is 83 persons. The corresponding total labor cost, including fringe benefits, is estimate at Birr 1,713,000.00.

Table 6.1 shows the list of manpower required and the estimated annual labor costs.

Table 6.1**MANPOWER REQUIREMENT & LABROUR COST**

Sr. No.	Description	Req. No.	Salary (Birr)	
			Monthly	Annual
1	Director	1	6,000	72,000
2	Senior Secretary	1	1,000	12,000
3	Student dean	1	3,500	42,000
4	Planning & Evaluation Officer	1	2,000	24,000
5	Public & External Relations Officer	1	2,000	24,000
6	Instructor	10	45,000	54,000
7	Registrar	1	1,900	22,800
8	Student Record Officer	1	1,600	19,200
9	Head, finance & administration	1	3,000	36,000
10	Computer Administrator	1	2,500	30,000
11	Documentation attendant	3	2,400	28,800
12	House Keeping Supervisor	1	1,400	16,800
13	Financial clerk	2	1,800	21,600
14	Head ,security guard	1	1,350	16,200
15	Computer Lab Assistant	5	4,000	48,000
16	Librarian	3	2,400	28,800
17	Carpenter	2	1,400	16,800
18	Plumber	2	1,400	16,800
19	Electrician	2	1,400	16,800
20	Cleaner	20	12,000	144,000
21	Guard	15	10,300	123,600
22	Gardener	2	1,200	14,400
23	Secretary	3	2,400	28,800
24	Driver	1	750	9,000
25	Casher	2	1,500	18,000
	Sub-Total	83	114,200	1,370,400
	Workers benefit (25% of BS)	-	28,550	342,600
	Total	83	142,750	1,713,000

B. TRAINING REQUIREMENT

Laboratory assistants and technician need to get local tailor made training and attachment training at similar centers. The cost of training is estimated at Birr 40,000.

VII. FINANCIAL ANALYSIS

The financial analysis of the higher education at first degree level project is based on the data presented in the previous chapters and the following assumptions:-

Construction period	1 year
Source of finance	30 % equity 70 % loan
Bank interest	8.5%
Discount cash flow	8.5%
Accounts receivable	30 days
Material and input	30 days
Cash in hand	5 days
Accounts payable	30 days
Repair and maintenance	5% of equipment cost

A. TOTAL INITIAL INVESTMENT COST

The total investment cost of the project including working capital is estimated at Birr 23.88 million, of which 6% is required in foreign currency. The major breakdown of the total initial investment cost is shown in Table 7.1.

Table 7.1
INITIAL INVESTMENT COST

Sr. No.	Cost Items	Local Cost	Foreign Cost	Total Cost
1	Land lease value	7,610.00	-	7,610.00
2	Building and Civil Work	6,800.00	-	6,800.00
3	Teaching Equipment	5,500.00	1,500.00	7,000.00
4	Office Furniture and Equipment	100.00	-	100.00
5	Vehicle	450.00	-	450.00
6	Pre-production Expenditure*	1,496.54	-	1,496.54
7	Working Capital	424.90	-	424.90
	Total Investment cost	22,381.44	1,500.00	23,881.44

* *N.B Pre-production expenditure includes interest during construction (Birr 1.35 thousand), training (Birr 40 thousand) and Birr 100 thousand costs of registration, licensing and formation of the company including legal fees, commissioning expenses, etc.*

B. OPERATING COST

The annual operating cost at full capacity operation is estimated at Birr 7.98 million (see Table 7.2). The material and input cost accounts for 43.83 per cent of the operation cost. The other major components of the operation cost are depreciation, financial cost and direct labour which account for 16.24 %, 13.45% and 10.30% respectively. The remaining 16.18% is the share of utility, administration cost, labour overhead and repair and maintenance.

Table 7.2**ANNUAL PRODUCTION COST AT FULL CAPACITY ('000 BIRR)**

Items	Cost	%
Raw Material and Inputs	3,500.00	43.83
Utilities	51.57	0.65
Maintenance and repair	350.00	4.38
Labour direct	822.24	10.30
Labour overheads	342.60	4.29
Administration Costs	548.16	6.86
Land Lease Cost	-	-
Total Operating Costs	5,614.57	70.31
Depreciation	1,296.83	16.24
Cost of Finance	1,074.26	13.45
Total Production Cost	7,985.66	100

C. FINANCIAL EVALUATION**1. Profitability**

Based on the projected profit and loss statement, the project will generate a profit through out its operation life. Annual net profit after tax will grow from Birr 1.49 million to Birr 3.08 million during the life of the project. Moreover, at the end of the project life the accumulated cash flow amounts to Birr 26.49 million.

2. Ratios

In financial analysis financial ratios and efficiency ratios are used as an index or yard stick for evaluating the financial position of a firm. It is also an indicator for the strength and weakness of the firm or a project. Using the year-end balance sheet figures and other relevant data, the most important ratios such as return on sales which is computed by dividing net income by revenue, return on assets (operating income divided by assets), return on equity (net profit divided by equity) and return on total investment (net profit plus interest divided by total investment) has been carried out over the period of the project life and all the results are found to be satisfactory.

3. Break-even Analysis

The break-even analysis establishes a relationship between operation costs and revenues. It indicates the level at which costs and revenue are in equilibrium. To this end, the break-even point of the project including cost of finance when it starts to operate at full capacity (year 3) is estimated by using income statement projection.

$$\text{BE} = \frac{\text{Fixed Cost}}{\text{Sales} - \text{Variable Cost}} = 23 \%$$

4. Payback Period

The pay back period, also called pay – off period is defined as the period required to recover the original investment outlay through the accumulated net cash flows earned by the project. Accordingly, based on the projected cash flow it is estimated that the project's initial investment will be fully recovered within 5 years.

5. Internal Rate of Return

The internal rate of return (IRR) is the annualized effective compounded return rate that can be earned on the invested capital, i.e., the yield on the investment. Put another way, the internal rate of return for an investment is the discount rate that makes the net present value of the investment's income stream total to zero. It is an indicator of the efficiency or quality of an investment. A project is a good investment proposition if its IRR is greater than the rate of return that could be earned by alternate investments or putting the money in a bank account. Accordingly, the IRR of this project is computed to be 16.81 % indicating the viability of the project.

6. Net Present Value

Net present value (NPV) is defined as the total present (discounted) value of a time series of cash flows. NPV aggregates cash flows that occur during different periods of time during the life of a project in to a common measuring unit i.e. present value. It is a standard method for using the time value of money to appraise long-term projects. NPV is an

indicator of how much value an investment or project adds to the capital invested. In principle a project is accepted if the NPV is non-negative.

Accordingly, the net present value of the project at 8.5% discount rate is found to be Birr 5.56 million which is acceptable.

D. ECONOMIC BENEFITS

The project can create employment for 83 persons. In addition to supply of the domestic needs, the project will generate Birr 5.56 million in terms of tax revenue. The project will contribute to the expansion of education which is vital for development of the country.