THE FUNDING FRAMEOWK

Methodology and User Guide 4

Tuition Fees Adjustment Model

18 February 2016

Contents

1. BACKGROUND

The operational costs (Recurrent expenses) constitute the most important part of the funding for higher education. These Costs are funded by two main sources: The Tuition Fees which constitute the contribution of the beneficiary to the costs, and the Government Subsidy. The Funding Framework begins by estimating the Operational costs based on the academic burden i.e. the volume of training provided by the HEI. This volume is measured by the number of National Qualifications Framework (NQF) credits attached to the modules in which each student is registered. Credits are essentially based on the prescribed number of teaching hours.

The Government subsidy is determined by the difference between the needs of the HEI (measured by the estimated operational costs) and their own resources.

The way that the Government subsidy is calculated (by deducting the tuition and registration fee and the hostel and meal fee from the Estimated Operational costs), as per the FF, may create the incentive to be lenient when charging and collecting fee. Because the increased tuition will be shifted out of the Government's subsidy, the HEIs also stand neither to gain nor to lose in the aggregate.
This led to the need to examine the tuition fee considerations, meaning the way that the level of these fees is determined and the way they should be updated each year as the costs of HE deliveries are growing, essentially for inflation reasons.

The Tuition fee not only has an impact on resources but have other important impacts on the demand for HE and the level of social inequality. High level of tuition may discourage candidates to attend HEIs, and probably more those who are coming from low social background.

The TF Adjustment Model provides operational answers to the following issues:

- How to determine the general level of the tuition fees;
- How should the TF be differentiated taking into account, the qualification, the level, the field of learning, …
- How should the TF be updated each year taking in account the evolution of the costs and the general FF;
- What are the Institutional arrangements-?

~~The development of the Funding Framework included the establishment of a Higher Education Management Information System (HEMIS). With the developed TF Adjustment Model, there is a need to complement the HEMIS with the Tuition Fees Adjustment Module.~~

~~This Report constitutes the ToR of this task.~~

2. ANALYSIS OF THE TUITION FEES IN NAMIBIA'S PHEIs

This section analyzes the evolution of the tuition fees in relation to the expenses of the HEIs and the government subsidy. From this analysis it will come clear that the level of the fees is essentially determined in a way to cater for the "deficiency" of the Government Subsidy to cover the increase in the total expenses regardless of the relevance of this increase.

2.1. ANALYSIS OF THE EVOLUTION OF THE MAIN FINANCIAL INDICATORS OF PHEIS

Tables 15.1 and 16.2 provide the evolution of the following information for the period 2006-2014:

- the number of students;
- total recurrent expenses (Operational Costs);
- the government subsidy for recurrent expenses;
- total tuition fees;
- recurrent expenses per student;
- the government subsidy for recurrent expenses per student;
- tuition fees per student.

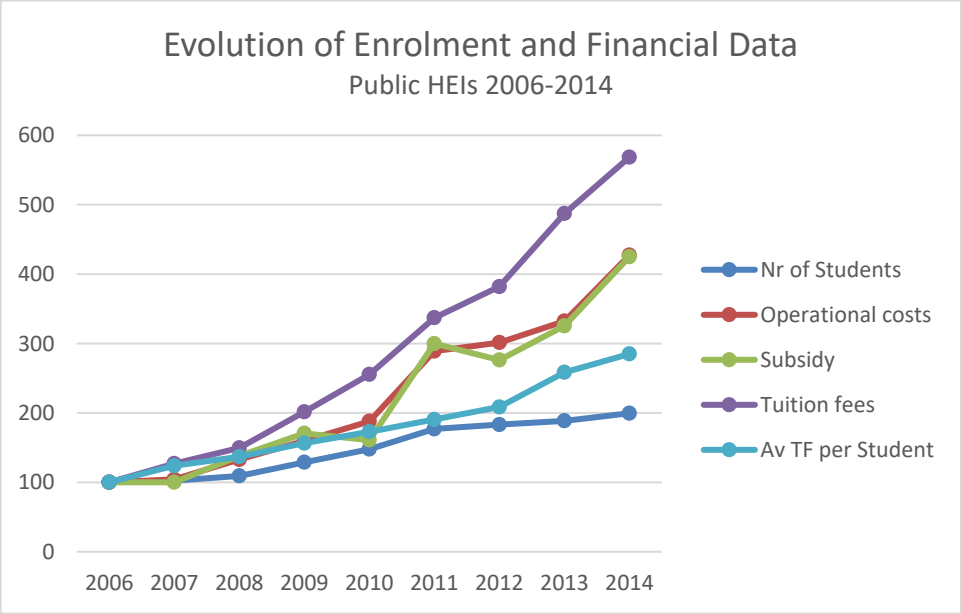
When examining the evolution of costs, Government subsidy and tuition fees at Namibian public HEIs during the period between 2006 and 2014, one can see:

- the number of students has grown at an average rate of 9 per cent and has roughly doubled;
- recurrent expenses have grown at an average rate of 19.9 per cent and been multiplied by 4.3 times. This growth rate is far higher than the number of students. The difference can be explained only partially by inflation (the average rate was 6.6per cent per year during the period) and changes in the structure of students in favour of more expensive learning fields;

- the Government subsidy has grown at a comparable rate equal on average to 19.8 per cent and been multiplied by 4.25. This growth rate is also far higher than the number of students;
- total tuition fees have also grown at an average rate equal to 24.3 per cent and been multiplied by 5.7 times. This growth rate is also far higher than the one for recurrent expenses;

As a consequence, the average tuition fees per student increased at a faster rate (14per cent) than spending per student (10.0 per cent).

Figure 1–Evolution of Financial Indicators



Index Base 100 in 2006.

TABLE 1. EVOLUTION OF FINANCIAL AND EMROLMENT DATA :UNAM AND POLYTECHNIC OF NAMIBIA 2006-2014

	2006	2007	2008	2009	2010	2011	2012	2013	2014	Average growth rate
Nr of Students	16,264	16,670	17,771	20,946	24,027	28,772	29,784	30,666	32,452	9.0%
Operational costs (million N$)	414.4	432.1	550.8	661.9	778.6	1,197.8	1,248.8	1,376.8	1,770.8	19.9%
Subsidy (million N$)	265.6	265.6	366.4	453.0	427.4	796.3	733.5	864.5	1,129.1	19.8%
Tuition fees (million N$)	87.7	111.4	131.2	176.7	224.1	295.7	335.1	427.5	498.9	24.3%

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	2006	2007	2008	2009	2010	2011	2012	2013	2014
Nr of Students	100	102	109	129	148	177	183	189	200
Operational costs	100	104	133	160	188	289	301	332	427
Subsidy	100	100	138	171	161	300	276	325	425
Tuition fees	100	127	150	201	255	337	382	487	569
Av TF per Student	100	100	133	183	191	277	203	316	442

Per Student

	2006	2007	2008	2009	2010	2011	2012	2013	2014	Average growth rate
Cost per Student N$	25,482	25,923	30,995	31,601	32,407	41,629	41,928	44,897	54,566	10.0%
Subsidy/student N$	16,331	15,933	20,616	21,628	17,790	27,677	24,627	28,192	34,793	9.9%
Fees/student N$	5,394	6,682	7,385	8,437	9,327	10,277	11,251	13,939	15,372	14.0%

Annual rate of Growth

	2006	2007	2008	2009	2010	2011	2012	2013	2014
Nr of Students		2%	7%	18%	15%	20%	4%	3%	6%
Operational costs		4%	27%	20%	18%	54%	4%	10%	29%
Subsidy		0%	38%	24%	-6%	86%	-8%	18%	31%
Tuition fees		27%	18%	35%	27%	32%	13%	28%	17%
Av TF per Student		0%	33%	37%	5%	45%	-27%	55%	40%

Looking to the affordability, one can compare the average Tuition Fees per Student by the Average Income, measured by the Gross Domestic Product per Capita.

Table 2…gives the compared evolution of the average Income and the average TF.

Table.TF as percentage of GDP per Capita

	Fees/student N$	GDP Billions Current N$	Population	GDP/Capita	TF/GDP pc
2006	5,394	54.026	2053915	26303.91	20.5%
2007	6,682	61.583	2083174	29562.10	22.6%
2008	7,385	70.109	2115703	33137.45	22.3%
2009	8,437	75.212	2152357	34944.02	24.1%
2010	9,327	82.598	2193643	37653.35	24.8%
2011	10,277	90.128	2240161	40232.82	25.5%
2012	11,251	107.037	2291645	46707.50	24.1%
2013	13,939	126.608	2364592	53543.28	26.0%
2014	15,372	142.753	2402858	59409.67	25.9%
Average growth rate	14.0%	12.9%	2.0%	10.7%	

It shows that the growth of the TF per student have grown at a larger rate than the Income (respectively 14per cent and 10.7per cent). As consequence, the share of the TF from the average income is increased from 20.5per cent in 2006 to 25.9per cent in 2014.

2.2. COMPARATIVE ANALYSIS BETWEEN PHEIS

2.2.1 Evolution of costs, Government subsidy and tuition fees for UNAM

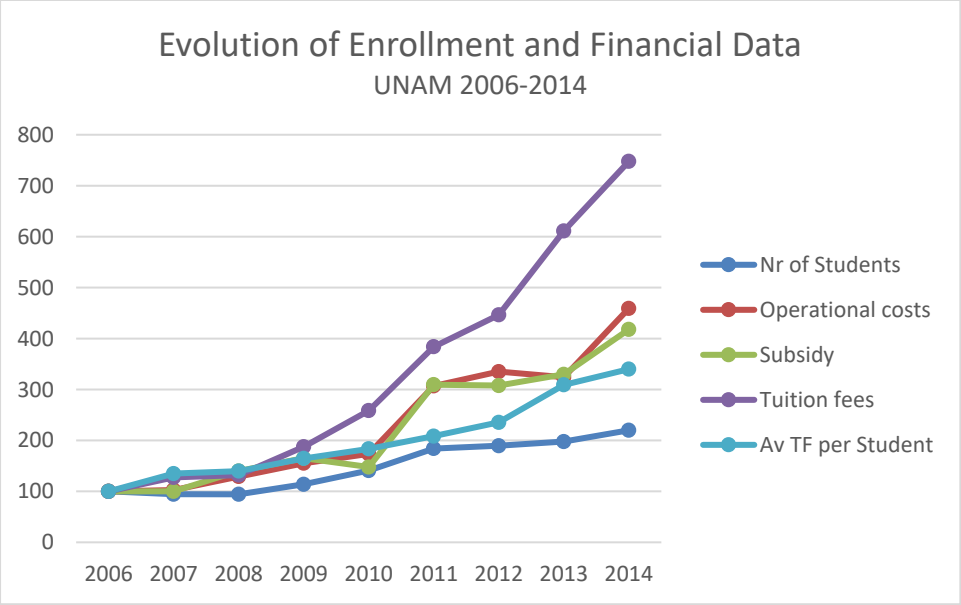
During the period between 2006 and 2014:

- the number of students has grown at an average rate of 10.4per cent and has more than doubled;
- recurrent expenses have grown at an average rate of 21per cent and been multiplied by 4.6 times. This growth rate is far higher than the number of students. This difference can be explained only partially by inflation (the average rate was 6.6per cent per year during the period) and changes in the structure of students in favour of more expensive learning fields;

- the Government subsidy has grown at a comparable rate equal on average to 19.6per cent and been multiplied by 4.2 times. This growth rate is also far higher than the one of the number of students;
- total tuition fees have also grown at an average rate equal to 28.6per cent and been multiplied by 7.5 times. This growth rate is also far higher than the one for recurrent expenses;

As a consequence, average tuition fees per student increased at a faster rate (16.5per cent) than spending per student (9.6per cent).

Figure 2–UNAM: Evolution of Financial Indicators



Index base 100 in 2006

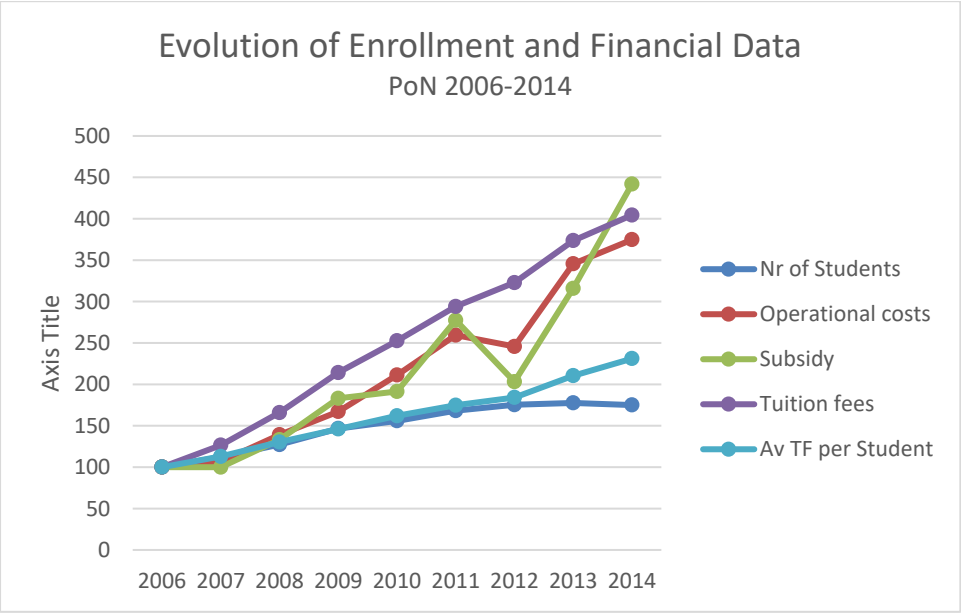
2.2.2 Evolution of costs, Government subsidy and tuition fees for PoN

During the period between 2006 and 2014:

- the number of students has grown at an average rate of 7.2 per cent and has been multiplied by 1.75 times. The rate of growth is substantially reduced over the past five years;
- recurrent expenses have grown at an average rate of 18per cent and been multiplied by 3.75 times. This growth rate is far higher than the number of students. This difference can be explained only partially by inflation (the average rate was 6.6per cent per year during the period) and changes in the structure of students in favour of more expensive learning fields;
- the Government subsidy has grown at an average rate equal to 20.9per cent and been multiplied 4.4 times during the period.
- total tuition fees have also grown at an average rate equal to 19.1per cent and been multiplied by 4 times. This growth rate is also far higher than the one for recurrent expenses;

As a consequence, average tuition fees per student increased at a slightly faster rate (11per cent) than spending per student (10per cent).

Figure 3– PoN: Evolution of Financial Indicators



Index base 100 in 2006

TABLE 3. EVOLUTION OF FINANCIAL AND ENROLMENT DATA UNAM 2006-2014

	2006	2007	2008	2009	2010	2011	2012	2013	2014	Average growth rate
Nr of Students	8,868	8,378	8,361	10,101	12,496	16,332	16,819	17,536	19,506	10.4%
Operational costs (million N$)	257.8	264.8	332.9	400.1	447.7	791.3	863.9	835.5	1,183.7	21.0%
Subsidy (million N$)	185.4	185.4	259.5	306.1	273.9	573.8	570.5	611.1	774.6	19.6%
Tuition fees (million N$)	42.0	53.5	55.3	78.7	108.5	161.1	187.3	256.5	313.7	28.6%

Per Student

	2006	2007	2008	2009	2010	2011	2012	2013	2014	Average growth rate
Cost per Student N$	29,069	31,608	39,818	39,608	35,830	48,451	51,364	47,644	60,685	9.6%
Subsidy/student N$	20,904	22,129	31,034	30,307	21,921	35,132	33,919	34,848	39,712	8.4%
Fees/student N$	4,732	6,383	6,618	7,792	8,682	9,866	11,138	14,625	16,084	16.5%

INDEX UNAM

	2006	2007	2008	2009	2010	2011	2012	2013	2014
Nr of Students	100	94	94	114	141	184	190	198	220
Operational costs	100	103	129	155	174	307	335	324	459
Subsidy	100	100	140	165	148	310	308	330	418
Tuition fees	100	127	132	188	259	384	446	611	748
Av TF per Student	100	135	140	165	183	208	235	309	340

Annual rate of Growth UNAM

	2006	2007	2008	2009	2010	2011	2012	2013	2014
Nr of Students		-6%	0%	21%	24%	31%	3%	4%	11%
Operational costs		3%	26%	20%	12%	77%	9%	-3%	42%
Subsidy		0%	40%	18%	-11%	109%	-1%	7%	27%
Tuition fees		27%	3%	42%	38%	49%	16%	37%	22%
Av TF per Student		35%	4%	18%	11%	14%	13%	31%	10%

TABLE 4. EVOLUTION OF FINANCIAL AND ENROLMENT DATA POLYTECHNIC OF NAMIBIA 2006-2014

	2006	2007	2008	2009	2010	2011	2012	2013	2014	Average growth rate
Nr of Students	7,396	8,292	9,410	10,845	11,531	12,440	12,965	13,130	12,946	7.2%
Operational costs (million N$)	156.7	167.3	217.9	261.8	330.9	406.5	384.9	541.3	587.1	18.0%
Subsidy (million N$)	80.2	80.2	106.9	146.9	153.5	222.5	163.0	253.4	354.5	20.4%
Tuition fees (million N$)	45.8	57.9	75.9	98.0	115.6	134.6	147.8	171.0	185.1	19.1%

Per Student

	2006	2007	2008	2009	2010	2011	2012	2013	2014	Average growth rate
Cost per Student N$	21,182	20,179	23,156	24,143	28,698	32,673	29,687	41,230	45,347	10.0%
Subsidy/student N$	10,847	9,672	11,359	13,545	13,314	17,889	12,572	19,302	27,382	12.3%
Fees/student N$	6,189	6,984	8,066	9,038	10,026	10,818	11,397	13,023	14,301	11.0%

Index PoN

	2006	2007	2008	2009	2010	2011	2012	2013	2014
Nr of Students	100	112	127	147	156	168	175	178	175
Operational costs	100	107	139	167	211	259	246	346	375
Subsidy	100	100	133	183	191	277	203	316	442
Tuition fees	100	127	166	214	253	294	323	374	404
Av TF per Student	100	135	140	165	183	208	235	309	340

Annual rate of Growth PoN

	2006	2007	2008	2009	2010	2011	2012	2013	2014
Nr of Students		12%	13%	15%	6%	8%	4%	1%	-1%
Operational costs		7%	30%	20%	26%	23%	-5%	41%	8%
Subsidy		0%	33%	37%	5%	45%	-27%	55%	40%
Tuition fees		27%	31%	29%	18%	16%	10%	16%	8%
Av TF per Student		13%	15%	12%	11%	8%	5%	14%	10%

Looking at the shape of each of the curves in the graphs of both UNAM and PoN, there is a parallelism between the Evolution of cost curve and that of the Subsidy. This firstly means that universities are spending the money the government gives them (The Subsidy makes the costs).

Secondly, the evolution of the tuition fees is determined in a way to cater for the "deficiency" of the Government Subsidy to cover the increase in the total expenses regardless of the relevance of this increase;

3. HOW DO PHEIs ADJUST THE TUITION FEES: UNAM's MODEL

UNAM started using a TF Model in 2008. This model is based on a Standard Cost per Credit (SCC). This SCC was determined to be equal to 40 N$ per credit for a Certificate Qualification Type.

Based on this SCC, the Cost per Credit is differentiated according to the type of qualification, as follows:

- N$40 for the Certificate and the Diploma types;
- N$45 for the Advanced Diploma Type;
- N$ 52.1 for the Postgraduate Diploma Type;
- N$80 for the Master Type for the course work subjects
- N$60 for the Master type for the research subjects (Thesis).
- N$80 for the PhD Type (Thesis).

Within each type, the Cost per Credit is differentiated according to the year level, as follows: For each year the Cost per Credit is increased by 5per cent compared to the corresponding one of the year before. As example: The cost per credit is equal to N$40 for the first year of a diploma, N$ 42for the second year and N$44.1for the third year…

Table 5-. UNIVERSITY OF NAMIBIA (CREDIT SYSTEM)

			2008	2009	2010	2011	2012	2013	per cent
Qualification	Year Level	NQA Level	Amount per Credit	Amount per Credit	Amount per Credit	Amount per Credit	Amount per Credit	Amount per Credit	Year Levels
Certificate	1		40.00	44.00	49.28	54.20	62.50	**68.75**	
Yearly Rate of increase				10%	12%	10%	15.3%	10%	
Diploma	1		40.00	44.00	49.28	54.20	62.50	**68.75**	
	2		42.00	46.00	51.52	56.67	65.25	**73.75**	5%
	3		44.10	48.00	53.76	59.13	68.75	**76.25**	5%
	4		46.31	51.00	57.12	62.83	72.50	**79.75**	5%
Adv.Diploma	1		45.00	49.50	55.44	60.98	71.25	**78.38**	
	2		47.25	51.98	58.22	64.04	73.75	**83.33**	5%
	3		49.61	54.57	61.12	67.23	77.50	**85.25**	5%
	4		52.10	57.31	64.19	70.60	81.25	**89.38**	5%
Post Grad Dipl	4	8	52.10	57.31	64.18	70.59	81.25	**89.38**	5%
Degree	1	4&5	45.00	49.50	55.44	60.98	71.25	**78.38**	
	2	6	47.25	51.98	58.22	64.04	73.75	**83.33**	5%
	3	7	49.61	54.57	61.12	67.23	77.50	**85.25**	5%
	4	8	52.10	57.31	64.18	70.60	81.25	**89.38**	5%
Masters (2 years) Based on 240 credits over 2 years									
			2008	**2009**	**2010**	**2011**	**2012**	**2013**	
Course work	1		80.00	88.00	98.56	108.41	125.76	138.34	
	2								
Thesis	1		60.00	66.00	73.92	81.31	93.51	102.86	
	2								
Doctorate (3 years) Based on 360 credits over 3 years									
Thesis	1		80.00	88.00	98.56	108.41	125.76	138.24	
	2								
	3								

Table below provides the Cost per subject and the cost per year for the year 2013.

Table 6.UNIVERSITY OF NAMIBIA (CREDIT SYSTEM)

		Fees per Credit		Fees per Subject			Fees per Year
		2008	2013	2013			
Qualification	Year Level	Amount per Credit	Amount per Credit	8 Credits Rounded off	16 Credits Rounded off	32 Credits Rounded off	yearly Tuition Fees Based on 120 credits
Certificate	1	40.00	68.75	550.00	1,100.00	2,200.00	**8,250**
Diploma	1	40.00	68.75	550	1,100	2,200	**8,250**
Diploma	2	42.00	73.75	590	1,180	2,360	**8,850**
Diploma	3	44.10	76.25	610	1,220	2,440	**9,150**
Diploma	4	46.31	79.75	640	1,280	2,560	**9,600**
Adv.Diploma	1	45.00	78.38	630	1,260	2,520	**9,450**
Adv.Diploma	2	47.25	83.33	650	1,300	2,600	**9,750**
Adv.Diploma	3	49.61	85.25	690	1,380	2,760	**10,350**
Adv.Diploma	4	52.10	89.38	720	1,440	2,880	**10,800**
Post Grad Diploma	4	52.10	89.38	720	1,440	2,880	**10,800**
Degree	1	45.00	78.38	630	1,260	2,520	**9,450**
Degree	2	47.25	83.33	650	1,300	2,600	**9,750**
Degree	3	49.61	85.25	690	1,380	2,760	**10,350**
Degree	4	52.10	89.38	720	1,440	2,880	**10,800**
Masters (2 years) Based on 240 credits over 2 years							
_		**2008**	**2013**				
Course work	1	80	138				**16,601**
Course work	2						
Thesis	1	60	103				**12,343**
	2						
Doctorate (3 years) Based on 360 credits over 3 years							
Thesis	1	80	138				**16,601**
	2						
	3						

This apparently rigorous methodology raises some issues:

- The SCC is a key parameter as it determines the level of the tuition fees at all levels. Unfortunately, there is apparently no rigorous methodology of the

determination of its amount (N$40 in 2008). It was probably the result of simulations using the global costs of the University.

- This SCC is updated each year by applying a percentage increase. This percentage was equal to 10per cent in 2009, 12per cent in 2010, 10per cent in 2011, 15.3per cent in 2012 and 10per cent in 2013. Here also, there is no rigorous methodology on how the SCC is updated i.e. how the percentage increase per cent is decided upon.
- Finally the Cost per Credit is differentiated according to the Qualification type and the Year level. But it isn't according to the Field of Learning which may be considered as the main criteria determining the differences in the costs of delivery.

Arguably the PHEIs do not have clear and rigorous methodology for determining tuition fees.

From our discussions with these HEIs it is evident that the process for establishing tuition fees and increases annually is based on the following:

- Try to achieve at least 20per cent cost recovery per department and as an Institution.
- Local and regional (SADC) benchmark per course.
- Inflation; and
- Affordability for students without financial support.

The main limitation lies in the non-availability of an adequate financial system which allows these institutions to estimate the cost per course or per student. One consequence is that the fees per course are differentiated according to the field of learning (an additional percentage is added to courses which are more expensive to carry out) but without a clear connection to the real cost of the course.

4. THE TUITION FEES CONSIDERATIONS

As mentioned previously, tuition fees are one of the most important resources for public higher education institutions. They generally constitute 25 per cent of these resources. Key issues to consider when adjusting the Tuition Fees include:

- What is the appropriate share of the educational cost to be borne by students and their families?
- To what degree should tuition fees reflect differential underlying programmes' costs, (as among, e.g.: Medicine, Engineering, Business, or an elementary lecture course in Humanities), study levels, and residential status
- What is the appropriate way to increase tuition fees as underlying costs increase?, and
- What kind of support to enable students and/or their caregivers to meet the costs of tuition fees, or to be relieved of some or all of such costs through means-tested, or need-based, loans and grants in an effort to maintain accessibility to higher education for all students willing and able to benefit from such studies, regardless of the student's/caregiver's financial means.

4.1 THE GENERAL LEVEL OF TUITION FEES

As per the Funding Framework, the general level of the tuition fees is essentially determined by the general level of costs in higher education institutions. It is adjusted by taking into account the following criteria:

- Affordability
- Return on education
- Residential status of the student (citizenship), and
- Nature of the higher education institution.

The affordability issue relates essentially to the average level of tuition fees compared to the average level of income. In order to maintain the current level of affordability and encourage the access to higher education, it is proposed that the percentage of average tuition fees per student should never exceed the actual level of 25 per cent..

The expected return on higher education affects the level of the tuition fees. If the return on higher education (i.e. the private rate of return on higher education is high and/or the unemployment rate of graduates is low), the percentage of fees from average individual income can be maintained at a high level, otherwise it should be reduced. These two important parameters must be assessed on the basis of specific surveys so as to make informed decisions.

For Southern African Development Community (SADC) Countries, students are charged the same level of fees as Namibian citizens in line with SADC Protocol on Education and Training. For students coming from outside the SADC, public tuition fees should be equal to a higher percentage of the tuition cost, unless reciprocal agreements can be worked out to allow relatively equal flows between countries. The

fees per credit unit (SCU) should be equal to 80 per cent of the cost per SCU or any other appropriate percentage as determined by the institution from time to time.

Government will encourage a particular level of tuition fees percentage increase, leaving its actual establishment to the universities.

4.2 TUITION FEES DIFFERENTIATION

The following criteria are to be taken into account for the determination of the level of the tuition fees for a specific programme:

The field of learning: The level of tuition fees per field of learning is determined by the weighting attached to that field. This weighting takes two things into account:
Differences in the cost of a credit unit, and
Differences in the return on education.
However, it is not advisable to use the Funding Framework weightings in calculating the tuition fee per credit unit, because this will translate into huge differences in the tuition fees payable by students at different higher education institutions and in different faculties, which would not be socially or politically advisable. On the other hand, linking tuition fees to the cost per credit unit may not be advisable either: many priority fields of learning are more costly, which may discourage students from seeking qualifications in such fields. Moderate weightings can therefore be used, if necessary.

Duration of programme: The National Qualifications Framework types of qualification, such as certificates and diplomas, being of shorter duration, are less

expensive. The differences among the weightings of these various types of qualification should also be moderate.

The year of study: Tuition fees in a student's first year should be lower than in subsequent years in order to encourage prospective students. Also, the differences among the weightings of various years of study should be moderate.

The type of offering: Although the workload for part-time students may be spread over a longer period, it is the same as that for full-time students. Thus, tuition fees per credit unit are identical for *Contact* types of offerings, irrespective of whether the studies are part-time or full-time. However, tuition fees per credit unit should be lower for the *Distance* type of offering. Also, because of the different weightings per field of learning and type of offering, one can expect tuition fees at public higher education institutions to be lower for undergraduate studies. For lower-cost institutions (e.g. two-year and four-year comprehensive or technical colleges), for programmes leading to a first degree, and especially for the first year or first two years of study, a lower tuition fee per credit unit could be introduced.

Expected return on higher education: The differentiation of fees between the various fields of learning is also affected by the return rate on higher education for each field. Higher fees per credit unit could be charged for fields of learning (i.e. programmes) with higher returns.

As for the Funding Formula, the workload per student will be measured by the number of subjects for which the student is registered, and the number of credit units attached to those subjects. As mentioned previously, the unit of any cost-related calculation is the credit unit. The general level of fees in public higher education institutions is determined by the fees per credit unit.[1] The University of Namibia and Polytechnic of Namibia's databases have been used to estimate the general level of tuition fees (per credit unit).

[1] The University of Namibia has been using the credit unit as the basis for calculating its tuition fees since the credit unit system was introduced in 2008.

4.3 TUITION FEES ADJUSTMENTS

The adjustment of the fees as the costs increase will use a specific cost index, namely the Higher Education Cost Adjustment (HECA) Index. The calculation of HECA Index depends on two main factors, both of which are separate price indices:

The first factor, which measures changes in labour costs, is the Employment Cost Index, and

The second factor, the Goods and Services Cost Index, which measures changes in the prices of goods and services purchased by higher education institutions.

This index assumes that faculty and staff salaries are the major drivers of higher education institutions expenditures and that this needs to be accounted for in any proper analysis of the rise in the real cost of college over time. HECA Index weights the Employment Cost Index at 75 per cent and the Consumer Price Index at 25 per cent, on the logic that higher education institutions spend about 75 per cent of their budgets on labour.

4.4 TUITION FEES AND THE STUDENTS FINANCIAL ASSISTANCE SCHEME

Any decision about the level of tuition fees must take in account the level and the coverage of the student financial assistance scheme. First, financial assistance to students (whether in the form of loans or grants) constitutes an indirect funding for higher education institutions. Without loans and grants, most of the potential students will not be able to attend higher education programmes. Secondly, international experience, as well as economic theory shows that a good tuition fees Model must be supported by an adequate financial support system to students. Most students cannot afford to pay for higher education, dictating that any of their contribution to the cost of their Degree should be supported by a well-designed financial assistance scheme.

5. THE TUITION FEES MODEL

The tuition fees are determined for each individual subject. It is to be based on the number of credits attached to the subject.

The tuition fee per credit will be determined according to the following parameters:

- the Tuition fee per Credit Unit (TFCU);
- A set of weightings;
- The adjustment to the affordability requirements.

5.1 THE TF PER CU

The table below gives the TF per Credit Unit for the period 2011-2014.

Table 7: TF per Credit Unit for the period 2011-2014

		2011	2012	2013	2014	Av Growth rate
UNAM	TF	161,124,000	187,336,000	256,471,000	313,727,000	
	Number of CU	2,730,382	2,333,478	2,452,790	2,637,240	
	TF/CU	**59**	**80**	**105**	**119**	26%
	TC/CU Annual Growth		36%	30%	14%	
PoN	TF	134,578,090	147,762,854	170,990,622	185,135,275	
	Number of CU	1,885,047	1,870,754	1,893,845	1,620,520	
	TF/CU	**71**	**79**	**90**	**114**	17%
	TC/Credit Annual Growth		11%	14%	27%	
AVERAGE	Average TF/CU	**64**	**80**	**98**	**117**	22%
	TC/CU Annual Growth		24%	23%	19%	

The figures show that the TF per Credit has increased at a rapid rate during the period: 26per cent for UNAM, 17per cent for PoN and 22per cent in average.

If 2014 is to be chosen as the base year, the TF per Credit Unit will be equal to N$117.

5.2 THE WEIGHTINGS

For many reasons, specific weightings may be used for the TF.

1. Weighting by Field of Learning

The weighting according to the field of learning are justified to translate two things:

- The differences in the cost of a credit;
- The differences in the return on education.

The differences in the cost of a credit are measured by the weighting of each field of learning used in the Funding Formula. However, it is not advisable to use these weightings for the calculation of the TF per credit, because it will translate in huge differences in the TF to be paid by students in different schools and faculties, which may not be advisable from policy point of view. Furthermore, linking the fees to the cost may not be advisable as many priority fields of learning are costly than other fields which may discourage prospective students to seek qualifications in these fields. Moderate weights can be used if necessary.

2. Weighting by NQF type of Qualifications

The weighting according to the NQF type of Qualification are justified in order to encourage “Short Duration” Qualifications as Certificates and Diplomas. The differences in the weightings should also be moderate (See the example of UNAM, above).

3. Weighting by Year-Level

The weighting according to the Year level are justified in order to encourage beginner students. Once again, the differences in the weightings should also be moderate (See the example of UNAM, above).

4. Individual Qualification or Subject Weighting

If deemed necessary, specific weights may be applied to an individual qualification or subject, such as for engineering or medical studies or some specific costly subjects. Priority qualifications that are subject to low demand from students may have low weights in order to boost the demand.

5.3 THE ADJUSTMENT TO THE AFFORDABILITY REQUIREMENTS

The adjustment to the affordability will determine the final level of the TF per CU for the Year T. The process is as follows:

1. Estimate the initial TF/Credit

The Initial TF/CU is estimated using the TF/CU for the year T-1 and applying the rate of growth of this TF/CU for the period T-1 to T. This rate is –unless other option is chosen- equal to the rate determined by the HECAI.

$$TF/CU_{Year\ T} = TF/CU_{Year\ T-1} * (1 + HECAI\ rate\ of\ Growth_{Year\ T-1,\ Year\ T})$$

2. Estimate the Average TF/Student

The Table estimates the percentage TF/Student from GDP per Capita, which is the criteria used to analyze the affordability.

The Average TF per student is estimated, for a Growth rate of the TF/CU equal to 5.4per cent (Equal to HECAI two years rate), under two assumptions:

- The TF/CU is augmented by 10per cent to take in account the weightings applied;
- The TF/Student are calculated for a standard number of credits per student and per year equal to 120 credits.

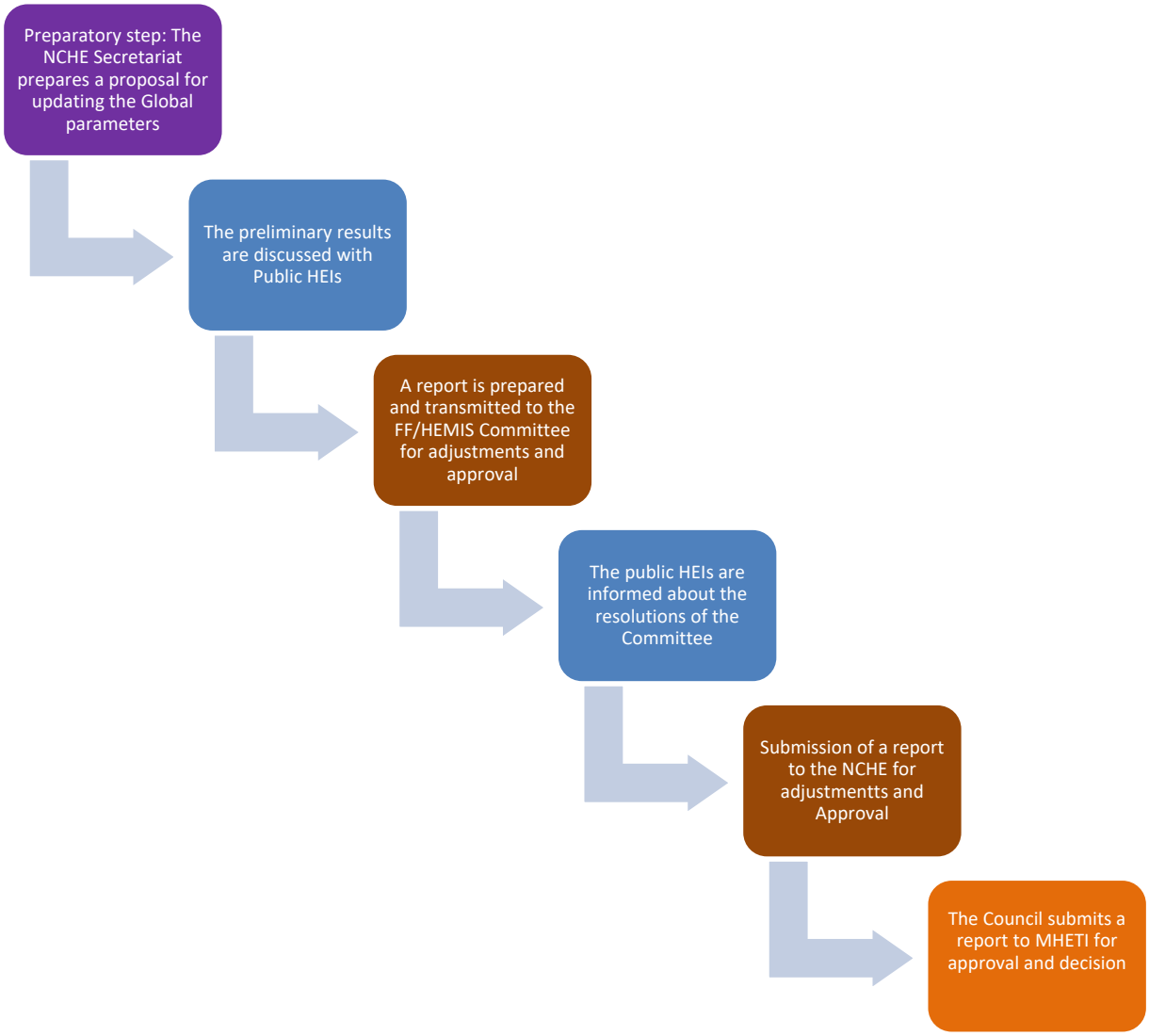
The table shows that the affordability is improved, the per cent of TF/Student from GDP per capita is decreasing from 21.4per cent in 2015 to 20.5per cent in 2016.

Table 8: Average TF/Student as percentage of GDP per Capita

Annual rate of Growth of TF/CU	5.4%	
	2015	**2016 (Expected)**
TF/CU	**123.3**	**130**
TF/Student	14,796	15,600
GDP per Capita	69,300	75,870
TF/Student as % of GDP per capita	21.4%	20.5%

6. INSTITUTIONAL ARRANGEMENTS

The Chart describes the institutional arrangements of the TF Adjustment Process.


Preparatory step: The NCHE Secretariat prepares a proposal for updating the Global parameters
The preliminary results are discussed with Public HEIs
A report is prepared and transmitted to the FF/HEMIS Committee for adjustments and approval
The public HEIs are informed about the resolutions of the Committee
Submission of a report to the NCHE for adjustmentts and Approval
The Council submits a report to MHETI for approval and decision

TECHNICAL ANNEX: THE TF ADJUSTMENT MODULE

1. The Tuition Fees Adjustment Model: Overview

The Model will be used by the public HEIs in order to determine the tuition fees based on parameters agreed upon between the NCHE and these institutions. For each HEI, School or Faculty, Year of Study, the tuition fees are determined for each individual subject. For any subject, the tuition fees will be based on the number of credits attached to the subject.

The Software will have two modules. An internal module and a web-based module.

The internal module is to be used by the public HEIs in order to determine the tuition fees based on parameters convened upon between institutions and these institutions.

The web-based module will use the TF databases provided by each HEI and allows the public to consult these databases.

The tuition fee per credit will be determined according to the following parameters, provided by the user:

- the Base Tuition fee per Credit Unit (TFCU);
- the Higher Education Cost Adjustment Index (HECAI)
- A set of weightings; depending upon the Qualification.

These parameters are the main input of the Model and are provided by the user.

The MODEL will be based on a new database that will include the following functionalities:

- Data Management
    - Import Databases
    - Export Databases
- Global Parameters
    - The TF/CU

    - The Global Weightings
- Individual Subject TF Setting
    - Batch Individual Subjects TF Setting
    - Individual Subject TF Setting.
- Consulting the Database

2. The Tuition Fees Database

The TF database is a slightly modified form of the Subject Database. Just like in the Subject Database, each record is related to a subject.

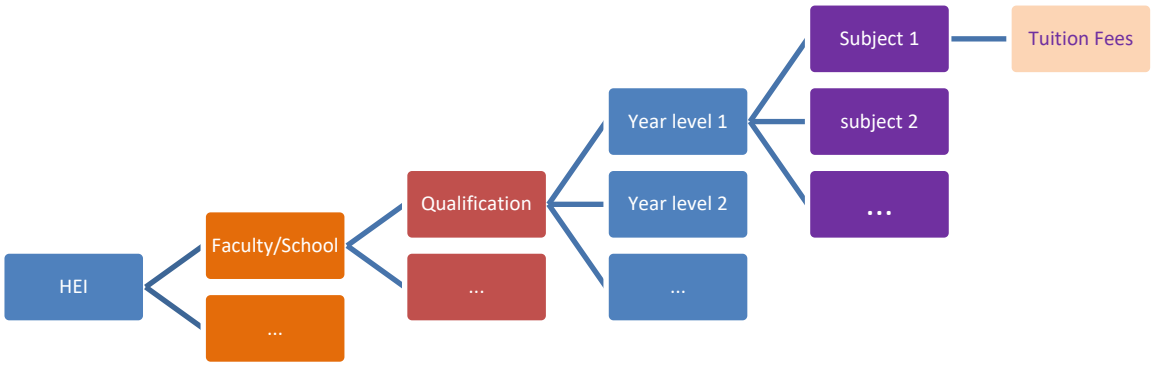
The content of the TF Data base

- Academic Year
- HEI Name
- Faculty/School
- Qualification Code
- Qualification Name
- Qualification type (NQF)
- Qualification Level (NQF)
- Qualification Field of Learning (NQF)
- Year of study
- Required Number of Optional Subjects[2]
- Subject Code
- Subject Name
- Subject Nature (1 if the subject is Compulsory for the qualification and the year level, 0 if it is Optional)[1]
- Practical (1 if the Subject is Practical, 0 otherwise) [1]
- Subject Field of Learning (NQF)
- Subject Number of Credits
- Subject Fees[1]

Figure 1 illustrates the structure of the database.

[2] Not included in the existing database

Figure 1: Structure of the Tuition Fees Database



3. The Tuition Fees Adjustment Model Functionalities

3.1 The Tuition fees Database Management Module

This module has two functionalities

- Importing TF databases; and
- Exporting TF databases.

3.1.1 Importing TF databases

After determining their fees, the HEI begin uploading its TF database for the next year respecting the format indicated above.

3.1.2 Exporting TF databases

Uploading the Tuition Fees to the consultations module.

3.2 The Tuition fees Global Parameters Module

This module allows for entering and updating the parameters.

3.2.1 The Tuition fee per Credit Unit for the Target Year (year T)

This is the first parameter to be provided is the Tuition Fees per Credit Unit (TFCU) for the year T.

The Higher Education Cost Adjustment Index (HECAI) is used to calculate the TFCU. The TFCU for the year T is estimated using the TFCU for the year T-1 and applying the rate of growth of this TFCU for the period T-1 to T, T being the current year.

$$TFCU_{Year\ T} = TFCU_{Year\ T-1} \times (1 + HECAI\ rate\ of\ Growth\ Year_{T-1,\ Year\ T})$$

3.2.2 The weightings

The following sets of weights must be provided, the values in each table are only indicative:

Weights per NQF Qualification Types

NQF Qualification Types	Weight
1. Certificates	1
2. Diplomas	1
3. Bachelor Degree	1.05
4. Bachelor Honours Degree	1.1
5. Professional Bachelor Degree	1.1
6. Master's Degree	1.15
7. Doctorate Degree	1.2

Weight per NQF Fields of Learning

NQF Fields of Learning	Weight
1. Agriculture and Nature Conservation	1.1
2. Business, Commerce and Management Studies	1
3. Communication Studies and Language	1
4. Culture and the Arts	1
5. Education, Training and Development	1
6. Manufacturing, Engineering and Technology	1.1
7. Human and Social Studies	1
8. Law, Military Science and Security	1
9. Health Sciences and Social Services	1.1
10. Physical, Mathematical and Computer Sciences	1.1
11. Physical Planning and Construction	1.1
12. Services and Life Sciences	1.1

Weight per Year of Study

Year of Study	Weight
Year 1	1
Year 2	1
Year 3 or more	1.1

Given these TFCU and the weights, the TF for a Given Subject are calculated as follows:

TF for Subject A
=
TFCU
X
Weight of the NQF Qualification Type
X
Weight of the Field of Learning of the Subject A
X
Weight of the Year of Study
X
Number of Credits of the Subject A

3.3 Individual Subjects Tuition Fees Setting Module

It may be necessary to modify the TF for a single subject or a batch of subjects. If the number of subjects to be modified is limited, one can use the single subject TF setting procedure. If the number is high, one can use the batch procedure

3.3.1 Single Subject TF Setting

When launching this procedure, the following screen should be displayed:

Academic Year	2016
HEI Code	UNAM
Qualification Code	BSC001
Year of study	1
Subject code	MATH1

Search

One must fill the green cells and press the “Search” Button. The following screen is than displayed:

Academic Year	2016
HEI Code	UNAM
Qualification Code	BSC001
Year of study	1
Subject code	MATH1
Tuition Fees	1200 N$
New Tuition Fees	800

Save

One must introduce the new value (in the Green Cell, the grey cells must be shaded) of the TF and press the “Save” button. The newly introduced value cannot be higher than the initial Tuition Fees.

3.3.2 Tuition Fees Setting for a Batch of Subjects

In this case, the modification concerns a wide range of subjects, the modifications can be recorded in an Excel file using the following format:

Academic Year	HEI Code	Qualification Code	Year of study	Subject code	New Tuition Fees
2016	UNAM	BSC001	1	MATH1	800
…					
…					
…					
…					

This file is saved.

When launching this procedure, the following screen should be displayed:

File containing the modifications

Select file

When the file is selected, the choice is validated.

3.4 Tuition Fees Database Consultations Module

The Model should allow for consultations.

The consultation of the database can be done for a single subject or for a qualification.

When launching this procedure, the following screen should be displayed:

- TF Database Consultation
  - Single Subject
  - Qualification

3.4.1 Single Subject consultation

When launching this procedure, the following screen should be displayed and drop-down menus must be used:

Academic Year	
HEI	UNAM
	PoN
Campus	Campus 1
	Campus 2…
Faculty/ School	Faculty/ School 1
	Faculty/ School 2
Qualification	Qualification 1
	Qualification 2…
Year of Study	Year 1
	Year 2…
Semester	Semester 1
	Semester 2…
Subject	Subject 1
	Subject 2…

Save

When the Save Button is pressed the following output is displayed (example)

Academic Year	2015
HEI	PoN
Campus	Main Campus Windhoek
School/Faculty	School of Human Sciences
Qualification	Bachelor of Public Management
Year of Study	Year 2
Semester	Semester 3
Subject Code	PIS121S
Subject	Principle of Information Systems 1A
Tuition Fees	**1,330 N$**

3.4.2 Qualification consultation

When launching this procedure, the following screen should be displayed and drop-down menus must be used:

Academic Year	2015
HEI	PoN
Campus	Main Campus/Windhoek
Faculty/School	School of Human Sciences
Qualification	Qualification
Year of Study	Year 1

Save

When the Save Button is pressed the following output is displayed (example):

Academic Year	*2015*		
HEI	*PoN*		
Campus	*Main Campus Windhoek*		
School/Faculty	*School of Computing and Informatics*		
Qualification	*BACHELOR OF INFORMATION TECHNOLOGY: SYSTEMS ADMINISTRATION AND NETWORKS*		
Year of Study	Year 2		
Semester	Semester 3		
Compulsory Subjects			
	Subject Code	*Subject Title*	*Tuition Fees*
	ISA210S	Introduction to Systems Administration	2600
	ICN210S	Introduction to Computer Networking	2600
	PTM210S	Project Management	2600
Optional Subjects	***Choose 2 Subjects***		
	Subject Code	Subject Title	Tuition Fees
	OOP210S	Object Oriented Programming	3120
	IDB210S	Introduction to Databases 1A	2600
	IDB220S	Introduction to Databases 1B	2600
	MNS210S	Management Information Systems	2600
Semester Fees			
Between	13000	AND	13520
Semester	Semester 4		
Compulsory Subjects			
	Subject Code	Subject Title	Tuition Fees
	OPS210S	Operating Systems	2600
	IRS220S	Introduction to Routing and Switching	2600
	SAD221S	Systems Administration	2600
Optional Subjects	***Choose 2 Subjects***		
	INT220S	Internet Technology	2600
	DBP220S	Database Programming	2840
	WDF220S	Web Development Fundamentals	2600
	ELC220S	Electronic Commerce	3210
Semester Fees			
Between	13000	AND	13850
Yearly Fees			
Between	26000	AND	27370