THE FUNDING FRAMEWORK

Methodology and User Guide 3

The Investment Model

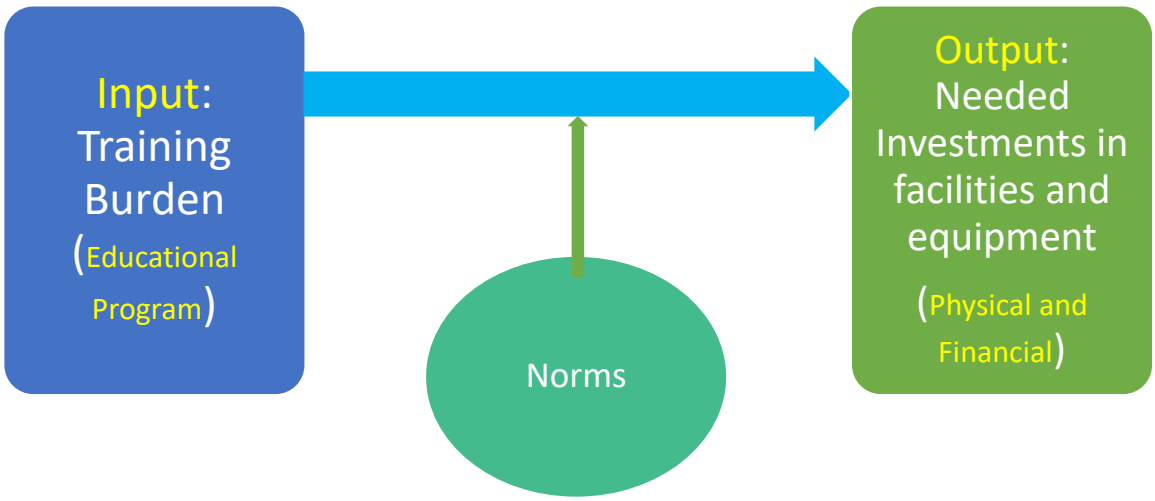
18 February 2016

CONTENTS

1. INTRODUCTION

The Investment Model (IM) is one of the main tools of the Funding Framework. The Investment Model helps to assess the needs for investment in facilities and equipment which constitute the main component of investments. The IM is also very useful for the purposes of individual institutions' internal planning. It can be used by the higher education institutions (HEIs) in order to prepare the negotiations of their development plans with the Government. Figure 1summarises the way the Investment model works.

Figure 1: The Investment model



The input of the Model is the Educational Program, which describes the training burden of the HEI. The educational Programme may be related to:

- The existing situation;
- A new campus or an extension of an existing institution;
- A new projected HEI,

In the case where the Educational Programme is related to the existing situation; the Investment Model allows for assessing the adequacy of the existing facilities and therefore considers the appropriateness of any new investment.

In the case where the Educational Programme is related to a new situation (A new campus or an extension of an existing institution, or a new projected HEI), the Investment Model allows for estimating the needs for facilities and the total investment.

2. FACILITIES' INVENTORY AND CLASSIFICATION

2.1 INTRODUCTION

The use of the Investment Model requires the establishment of a Facilities' Inventory (FI). The usefulness of the FI exceeds objectives of the Investment Model. Along with its human resources, financial assets, and intellectual cache, space is a primary resource of an educational institution. Indeed, the dollar value (initial cost, replacement cost, or market value) of a postsecondary education institution's buildings sometimes exceeds its annual operating budget and endowment. Without information on how much and what type of resources it has, an institution cannot assess whether sufficient resources are available to fulfil its mission. Answering some basic questions about space, including how much space is available, what kind of space it is, to whom is the space assigned, and how efficiently is the space being used, requires gathering facilities' inventory data and developing and maintaining a **Facilities' Inventory Database.**

The Facilities' Inventory Database keeps records on each Individual Space.

Individual Spaces: The most basic discrete spatial unit to be measured, inventoried, and tracked is an individual *space.* While the terms *room* and *space* are commonly used interchangeably, they are individually defined for

purposes of this manual. A *space* is an area bounded by walls and/or an imaginary boundary line (a "phantom wall") that accommodates a single use. A *room* is defined as a contiguous area enclosed by walls on all sides; it may consist of one or more *spaces. S*ome rooms may be subdivided into several discrete *spaces* because they accommodate multiple uses. The term *space* will be used wherever both terms could be used interchangeably.

Facilities' Inventory Systems Contain Data About Spaces. A facilities inventory may incorporate data about many types of structures and physical assets, the most important are spaces. Space information includes such items as space area, space use…

Each Space Needs a Unique Identifier. The initial step in a facilities inventory is to assign each space a unique code to identify a "record" or set of data fields within the inventory. These identifiers are then used to link spaces to buildings and to link the facilities inventory records to other institutional information such as plant asset records, the registrar's course schedule, and equipment inventories.

2.2 Overview of Building Measurement Terms

In a building inventory, it is important to be able to determine the amount of space that can be assigned to people or programs. However, buildings necessarily contain other types of space as well.

The amount of space that can be used for people or programs is known as the *Net Assignable Area*. The area of an Assignable space is the area measured within its interior walls. The Net Assignable Area of a building (or all buildings

in an inventory) is the sum of the space allocated to the 9 major assignable *space use categories*: classrooms, Class laboratories, Research Laboratories, offices, study areas, special use, general use and support space, health care, residential, and unclassified space. These categories are further described below.

Net Assignable Area = Sum of the 9 Major Space Use Categories of Assignable Space

The amount of space within a building that is essential to the operation of the building but not assigned directly to people or programs is known as the *Non assignable Area*. The area of a Non assignable space is the area measured within its interior walls. The Non assignable Area of a building (or all buildings in an inventory) is the sum of the space allocated to the three major non assignable space use categories: *building service area*, *circulation area*, and *mechanical area*. These categories are further described below.

Non assignable Area =

Sum of the Three Major Space Use Categories of Non assignable Space

The aggregate interior area of a building, known as the *Net Usable Area,* is the sum of Assignable Area and Non assignable Area.

Net Usable Area = Assignable Area + Non assignable Area

It is also important to know that the *Gross Area* of a building is the floor area of a structure within the **outside** faces of the exterior walls

The difference between the exterior or Gross Area and the interior or Net Usable Area is the *Structural Area*, the floor area upon which the exterior and interior walls sit and the unusable areas in attics and excavated basements. Structural Area is calculated as the difference between the Gross Area of a building and the Net Usable Area of that building.

$$Structural\ Area = Gross\ Area - Net\ Usable\ Area$$

2.3 The Facilities' Inventory Database

The Facility Database contains the information about the facilities available at the HEI. It is provided by each HEI. If it does not exist, it should be created and maintained according to the following description. Each record is related to a facility unit (classrooms, laboratories, offices, etc.). The nature of the information is described below.

The Facility Database includes for each facility (classroom, office, laboratory...) the following information:

- Academic Year
- HEI Name
- HEI Code
- Campus Name
- Remote (dummy)
- Space identifier
- Ownership of the Space
- Space Use Category
- Space Functional Category
- Space Condition
- Assignable Area Square Meters

Thorough description of these categories is provided in Annex 1.

3. THE INPUT OF THE INVESTMENT MODEL

The Normative required facilities are directly linked to the number of students. The Training Burden is measured by the number of students translated in terms of Full-Time Equivalent (FTE) number of students for Contact students (Full Time and Part Time), and the number of distance students.

Due to the fact that the teaching burden and the facilities and equipment requirements are different according the Qualification Type (the seven NQF Qualification Types), and the Field of Learning (the twelve NQF Fields of Learning), the number of students must be split according these two criteria. This defines the template that must be used for the presentation of the educational Programme. Table I1 presents the Educational Programme for a given HEI for the year 2014, in the required template/ format.

Table I1. Educational Programme

Field of Learning	Number of FTE contact students								Number of Distance Students							
	Qualification types								Qualification types							
	1	2	3	4	5	6	7	TOTAL CONTACT	1	2	3	4	5	6	7	TOTAL DISTANCE
1. Agriculture and Nature Conservation	0	58	216	25	0	4	0	303	0	0	0	0	0	0	0	
2. Business, Commerce and Management Studies	0	336	4471	43	0	64	0	4914	0	133	2282	18				2433
3. Communication Studies and Language	0	0	215	16	0	0	0	231	0	0	147	11				158
4. Culture and the Arts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5. Education, Training and Development	40	5	0	0	0	0	0	45	12	15	0	0				27
6. Manufacturing, Engineering and Technology	0	105	220	0	383	25	0	732	0	0	0	0	0	0	0	
7. Human and Social Studies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8. Law, Military Science and Security	0	0	75	7	0	0	0	82	0	0	0	0	0	0	0	
9. Health Sciences and Social Services	8	0	34	0	203	0	0	245	0	0	0	0	0	0	0	
10. Physical, Mathematical and Computer Sciences	3	11	722	70	0	14	6	825	0	0	0	0	0	0	0	
11. Physical Planning and Construction	0	119	307	5	0	9	0	440	0	0	0	0	0	0	0	
12. Services and Life Sciences	0	0	271	10	0	12	0	293	0	0	105	0				105
TOTAL	**51**	**634**	**6530**	**176**	**586**	**127**	**6**	**8109**	**12**	**148**	**2534**	**29**				**2723**

As the investment model caters also for the institutional housing needs (Students housed at the HEI), information is needed about the housing. It is to be presented in the table I2 below.

Table I2. Institutional Housing

Student Use of Institutional House	Number of FTE contact students								Number of Distance Students							
	Qualification types								Qualification types							
	1	2	3	4	5	6	7	TOTAL CONTACT	1	2	3	4	5	6	7	TOTAL DISTANCE
FTE students using institutional housing	29	51	231	0	100	0	0	**411**	0	0	0	0	0	0	0	**0**
FTE students not using institutional housing	22	583	6299	176	486	127	6	**7698**	12	148	2534	29	0	0	0	2723
TOTAL	**51**	**634**	**6530**	**176**	**586**	**127**	**6**	**8109**	**12**	**148**	**2534**	**29**				**2723**

Important: Investments can be estimated globally at the level of the entire Institution. However, it makes more sense to estimate at the level of each campus separately (or set of campuses located in the same city). Thus, the Table I1 and I2 must be established and provided for each campus.

The Investment model can be run for each campus separately. In this case the Educational programme must be established for each single Campus.

4. THE OUTPUT OF THE INVESTMENT MODEL

The Investment Model provides detailed physical (area) estimations of the required facilities in square meters (m^2). The summary estimations are presented in Table S1, detailed estimations in Annex 2 and monetary estimations are presented in section 6.

The table s1 provides a summary of these estimations.

The estimations are given using the standard nomenclature of the facilities i.e. the "Space use Category":

1. Classroom Facilities
2. Class/Open Laboratory Facilities
3. Research/ Non-class Laboratory Facilities
4. Office Facilities
5. Study Facilities
6. Special Use, General Use & Supporting Facilities
7. Health Care Facilities
8. Residential Facilities.

Table S1: Summary of the estimated requirements By Space Use Category

SPACE USE CATEGORY	Total Assigned Square Meters
Classroom Facilities	9,899
Class/Open Laboratory Facilities	11,261
Research/ Non-class Laboratory Facilities	6,568
Office Facilities	14,361
Study Facilities	12,847
Special Use, General Use & Supporting Facilities	26,564
Health Care Facilities	130
Residential Facilities	6,526
TOTAL	**88,156**

This table provides the physical requirements (Total Assigned Square Meters). It shows, as example, that starting from the information provided in the Input, and based on the Norms and Parameters of the model (See Section 4), the requirement in terms of Classroom Facilities are equal to 9899m^2, and the total Buildings requirements are 88,156m^2.

Comparing to the existing, one can assess the adequacy of the existing facilities to the existing number of students, as shown in the Table OC below.

TABLE OC : Adequacy of the Existing Facilities to the Requirements as estimated by the IM

SPACE USE CATEGORY	Estimated Requirements (Square Meters) (1)	Existing (Square Meters) (2)	Difference (2)- (1)
Classroom Facilities	9,899	10,500	601
Class/Open Laboratory Facilities	11,261	10,325	-936
Research/ Non-class Laboratory Facilities	6,568	5,010	-1,558
Office Facilities	14,361	12,300	-2,061
Study Facilities	12,847	13,000	153
Special Use, General Use & Supporting Facilities	26,564	25,040	-1,524
Health Care Facilities	130	200	70
Residential Facilities	6,526	5,230	-1,296
TOTAL	**88,156**	**81,603**	**-6,553**

A negative value of the Difference means a need while a positive one indicates an excess of the existing facilities compared to the estimated ones.

5. THE NORMS AND PARAMETERS OF THE INVESTMENT MODEL

As any model, the Investment Model is based on Norms and parameters: Space and Cost Norms. The main characteristics of these space and cost norms can be summarised as follows:

- They are adapted from those tailored for the South African situation.
- They accommodate students making use of both contact and distance tuition at institutions with or without hostel facilities.

- They provide a broad framework within which institutions, with proper planning, have ample room to creatively erect suitable, quality buildings.
- They are based on what is at present regarded as attainable, rather than on what has been attained in the past. For example, it is proposed that the provision of classroom facilities be made dependent on realistic figures for the utilisation of classroom facilities student contact hours and mean classroom surface area per student.
- They are based on a few well-defined data parameters, which have been selected so as to form the basis of a reliable estimate of the total space and cost requirements of buildings and other land improvements from a national perspective. These parameters are also very useful for the purposes of individual institutions' internal planning.
- They are sufficiently detailed to allow for legitimate differences between the needs of different higher education institutions, but do not duplicate the detailed unique internal space allocation processes of individual institutions.
- They are applied to the overall space and cost of a building only. This allows institutional planners to allocate space differently from that implied by the present set of space norms. The system thus rewards the economic use of space by allowing "saved" space to be used to supplement space where it is needed.

But the most important is to note that Norms are used for two main purposes: first in the establishment of unit area allowances on the basis of which expenditure limits for new building or adaptation are set; and secondly as providing an initial yardstick for the assessment of capacity of existing buildings.

In neither case are they used as blunt instruments. So far as the assessment of capacity is concerned, the norms essentially provide a point of departure for the process of assessment, not a rigid formula for the calculation of capacity. These

norms should be progressively adapted to the specific situation of the Namibian Public HEIs. This can be done only after the required facility databases are available and used to test the adequacy of the model.

5.1 Norms for the Instruction Category

In the following we present the Norms for the Instruction Category. These norms (Table N1) give the number of Square Meters per contact FTE and distance student for each Space Use Category, Field of Learning and Type of qualification.

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In the following we present the Norms for the Instruction Category. These norms (Table N1) give the number of Square Meters per contact FTE and distance student for each Space Use Category, Field of Learning and Type of qualification.

Table N1- Building Space Norms for Contact and Distance Tuition According to Field of Learning, Space Use Category, Offering Type and Qualification Type

(M^2 per FTE and distance student enrolled at an institution)

Space use Category		Classroom Facilities			Class/Open Laboratory Facilities		Office Facilities	
Qualification Type		Contact		Distance	Contact	Distance	Contact	Distance
		1-3,5	4,6	1-6	1-6		1-7	
Field of Learning	Agriculture and Nature Conservation	1.03	0.77	0.06	3.00	0.10	1.50	0.38
	Business, Commerce and Management Studies	1.14	0.86	0.12	0.30	0.01	0.75	0.19
	Communication Studies and Language	0.97	0.73	0.08	0.75	0.05	0.75	0.30
	Culture and the Arts	0.67	0.50	0.10	5.00	0.13	1.25	0.75
	Education, Training and Development	1.00	0.75	0.06	0.88	0.03	0.75	0.21
	Manufacturing, Engineering and Technology	1.56	1.17	0.06	4.55	0.14	1.50	0.38
	Human and Social Studies	1.06	0.79	0.06	0.35	0.02	0.75	0.19
	Law, Military Science and Security	1.19	0.90	0.06	0.37	0.03	0.75	0.19
	Health Sciences and Social Services	1.19	0.90	0.04	3.25	0.09	1.50	0.21
	Physical, Mathematical and Computer Sciences	1.39	1.04	0.04	2.33	0.02	0.75	0.25
	Physical Planning and Construction	1.22	0.92	0.06	4.12	0.15	1.50	0.38
	Services and Life Sciences	1.00	0.75	0.04	2.50	0.10	1.00	0.25

Source: adapted from *Space and cost norms for building and other land improvement at Higher Education Institutions*, Department of Education Institutions, South Africa, April 2009.

How to read this table?

Taking the first row as example, the figures have the following meanings:

- For each contact student (Full Time and Part Time converted to FTE) registered at any of the Qualification Types 1, 2, 3 and 5 (respectively, Certificate, Diploma, Bachelor Degree and Professional degree) in a

qualification that belongs to the “Agriculture and Nature Conservation” Filed of Learning you need 1.03 m2 of classroom facilities;

- For each contact student (Full Time and Part Time converted to FTE) registered at any of the qualification Types 4 and 6 (respectively, Bachelor Honours and Master Degree) in a qualification that belongs to the “Agriculture and Nature Conservation” Filed of Learning you need 0.77 m2 of classroom facilities;
- For each distance student registered at any of the qualification Types 1 to 6 (Certificate, Diploma, Bachelor Degree, Bachelor Honours, Professional degree and Master Degree) in a qualification that belongs to the “Agriculture and Nature Conservation” Filed of Learning you need 0.06 m2 of classroom facilities;
- For each contact student (Full Time and Part Time converted to FTE) registered at any of the qualification Types 1 to 6 (Certificate, Diploma, Bachelor Degree, Bachelor Honours, Professional degree and Master Degree) in a qualification that belongs to the “Agriculture and Nature Conservation” Filed of Learning you need 3.00 m2 of Class/Open Laboratory Facilities;
- For each distance student registered at any of the qualification Types 1 to 6 (Certificate, Diploma, Bachelor Degree, Bachelor Honours, Professional degree and Master Degree) in a qualification that belongs to the “Agriculture and Nature Conservation” Filed of Learning you need 0.10 m2 of Class/Open Laboratory Facilities;
- For each contact student (Full Time and Part Time converted to FTE) registered at any of the qualification Types 1 to 7 (Certificate, Diploma, Bachelor Degree, Bachelor Honours, Professional degree, Master Degree and PhD) in a qualification that belongs to the “Agriculture and Nature Conservation” Filed of Learning you need 1.50 m2 of Office Facilities;
- For each distance student registered at any of the qualification Types 1 to 7 (Certificate, Diploma, Bachelor Degree, Bachelor Honours, Professional degree, Master Degree and PhD) in a qualification that

belongs to the “Agriculture and Nature Conservation” Filed of Learning you need 0.38 m2 of Office Facilities;

How do we come to this Norms?

According to Table 1, classroom facilities are provided for the Instruction (1.0) programme (Functional Category) only.

The norms for “Classroom facilities” depend upon sets of parameters which values are provided in TableSP1. The numerical values of these quantities vary, within limits, from institution to institution and even within Field of Learning and aggregates of Qualification Types.

Table SP1- Building Space Parameters for Contact and Distance Tuition According to Field of Learning, Qualification Type and Space Use Category

Space use Category use Category		Classroom Facilities						Class/Open Laboratory Facilities				Office Facilities		
Qualification Type		A	U		C			A	U	C		B	R	
		(ASM)	(HOURS)		(HOURS)		(HOURS)	(ASM)	(HOURS)	(HOURS)		(ASM)	FTE students per FTE academic personnel member	
			Contact	Distance	Contact		Distance			Contact	Distance		Contact	Distance
					1-3,5	4,6	1-6			1-6			1-7	
Field of Learning	Agriculture and Nature Conservation	1.5	540	600	370	278	22	5	600	360	12.5	15	10	40
	Business, Commerce and Management Studies	1.5	540	600	410	308	49	1.5	600	120	5.6	15	20	80
	Communication Studies and Language	1.5	540	600	350	263	33	3	600	150	10	15	20	50
	Culture and the Arts	1.5	540	600	240	180	38	6	600	500	13.3	15	12	20
	Education, Training and Development	1.5	540	600	360	270	22	3.5	600	150	4.3	15	20	70
	Manufacturing, Engineering and Technology	1.5	540	600	560	420	22	7	600	390	11.6	15	10	40
	Human and Social Studies	1.5	540	600	380	285	22	1.5	600	140	7.6	15	20	80
	Law, Military Science and Security	1.5	540	600	430	323	22	2	600	110	8.8	15	20	80
	Health Sciences and Social Services	1.5	540	600	430	323	16	5	600	390	11.3	15	10	70
	Physical, Mathematical and Computer Sciences	1.5	540	600	500	375	16	4	600	350	3.6	15	20	60
	Physical Planning and Construction	1.5	540	600	440	330	22	6.5	600	380	13.7	15	10	40
	Services and Life Sciences	1.5	540	600	360	270	16	6	600	250	10	15	15	60

The Parameters for classrooms and class laboratories are:

- An Assignable square meters per classroom station. This parameter is equal to 1.5 M^2
- U Annual utilisation hours per classroom station
- C Annual student classroom contact hours per FTE non-research student of a particular learning field, qualification type and offering type.

ASM Classroom facilities' space per Classroom Station (A)

A careful consideration of modern classroom layout and design suggests that the A value of 1.5 listed in Table SP1 is reasonable. In practice classrooms with fewer stations require more floor area because the circulation space is proportionally larger and vice versa. Accordingly, institutions with classrooms averaging fewer stations (usually the smaller institutions) will have a larger average station area than institutions with classrooms having a larger number of stations (usually the larger institutions). Note that continuous wooden benches can accommodate twice as many students as swivel type seats thus generating A values far below 1.0, but restrict the free movement of students.

Annual Utilisation hours per Classroom station (U)

This quantity measures the number of hours per year that a seat in a classroom can be realistically utilised. This not only depends on the number of hours per year that a classroom can reasonably be scheduled, but also on the percentage of seats that are occupied during scheduled classroom use. The U-values of 540 and 600 in Table P.1 for contact and distance education respectively, take these factors into account. As an example, in order to obtain U = 600 hours per station it could be assumed that, of 1200 class hours per annum (30 weeks per year times 40 hours per week), each seat is occupied for 50% of the time. These numerical values vary, within limits, from institution to institution.

There are various ways to use facilities more effectively and thus to obtain larger U values, such as:

- phasing out any department's claim that classroom space in its building is for that department's use only.
- central bookings of classrooms in order to optimise the use of classrooms and to determine future needs for additional classrooms to be erected.
- increasing the number of weeks of formal instruction in a year and/or decreasing the intensity of face to face instruction.
- erecting multi-purpose lecturing complexes, where, for example, a large assembly hall has the capacity to be effectively subdivided and transformed into smaller lecture rooms as and when needed.
- scheduling the use of classrooms in the mornings, afternoons and evenings.

Annual student Classroom contact hours per FTE non-research student of a particular Field of Learning (C)

The value of this quantity varies between Field of Learning, the higher values being associated with those categories in which more intensive classroom instruction is normally regarded as necessary.

The relationship between the quantities A, U and C, and the standard space norm for classroom facilities within the Instruction programme for each Field of learning, can mathematically be defined by the following equation:

ASM classroom space per FTE student of a particular Field of Learning and aggregate of Qualifications Types

=

A x C/ U

By using the values of A, U and C as listed in Table SP1 and the above formula, it is possible to calculate the standard space norms for classroom facilities provided in Table N1. For example, take the values of A = 1.5 and C = 370 for contact tuition for the Qualification types aggregate (1.3 and 5) for the Field of Learning “Agriculture and Nature Conservation”, which when multiplied by each other and divided by the corresponding U = 540, yield the standard space norm of 1.03 ASM per FTE in Table N1.

The Parameters for Office facilities for the instruction functional category (three last columns of table SP1) are:

B is the ASM per FTE academic personnel member

R is the number of students per FTE academic personnel member

By using the values of B and R as listed in Table SP1, it is possible to calculate the standard space norms for office facilities provided in Table N1. The number of square meters of office facilities per student is equal to B/R.

Using data from Table I1and norms from TableN1, one can calculate the total number of square meters for each category as indicated in Table O1, Section 4.

5.2 Norms for the Non-Instructional Functional Categories

Table gives the norms for the Non-Instruction functional categories. These norms are the number of Square Meters per FTE contact and distance student for each Space Use Category, and Category of qualification.

Table N2 - Building Space Norms per for the Non-Instructional Categories According to Space Use Category

Space use Category	Research/ Non-class Laboratory Facilities		Office Facilities		Study Facilities		Special Use, General Use & Supporting Facilities		Health Care Facilities	Residential Facilities		TOTAL	
Space Use Category/subcategory	**Contact**	**Distance**	**Contact**	**Distance**	**Contact**	**Distance**	**Contact**	**Distance**	**Contact**	**Contact**	**Distance**	**Contact**	**Distance**
2.0 Research	0.8	0.03										0.8	0.03
4.0 Academic Support													
4.1 Library Services			0.1	0.05	1.45	0.4						1.55	0.45
4.2 Museum Services							0.075	0.03				0.075	0.03
4.3 Educational Media Services			0.01	0.01			0.072	0.015				0.082	0.025
4.4 Academic Computing Support			0.02	0.008			0.047	0.001				0.067	0.009
4.5 Ancillary Support			0.075	0.038			0.425	0.035				0.5	0.073
4.6 Academic Administration			0.1	0.05								0.1	0.05
4.7 Course and Curriculum Development			0.005									0.005	
4.8 Academic Personnel Development			0.005									0.005	
5.0 Student Services													
5.1 Student Services Administration			0.008									0.008	
5.2 Social and Cultural Development			0.06				0.927	0.02				0.987	0.02
5.3 Counselling and Career Guidance			0.02									0.02	
5.4 Student Health Services									0.016			0.016	
6.0 Institutional Support													
6.1 Executive Management			0.02	0.01			0.042	0.006				0.062	0.016
6.2 Financial Administration			0.05	0.025				0.006				0.05	0.031
6.3 Financial Aid Administration			0.02									0.02	
6.4 General Administration and Logistical Services			0.06	0.03			0.516	0.371				0.576	0.401
6.5 Student Admissions, Records and Examination			0.03	0.02								0.03	0.02

Space use Category	Research/ Non-class Laboratory Facilities		Office Facilities		Study Facilities		Special Use, General Use & Supporting Facilities		Health Care Facilities	Residential Facilities		TOTAL	
6.6 Administrative Computing Support			0.025	0.019			0.019	0.015				0.044	0.034
6.7 Public Relations/Fund-Raising			0.03	0.03								0.03	0.03
6.8 Staff Social and Cultural Development			0.015									0.015	
7.0 Operation and Maintenance of Plant			0.03	0.005			0.27	0.06				0.3	0.065
9.0 Auxiliary Enterprises													
9.1 Student Housing Services(1)							2.104			11.8		13.904	
9.2 Student Food Services(1)							1.689					1.689	
9.3 Staff Housing Services										0.2	0.02	0.2	0.02
9.4 Other Food Services(1)							0.462	0.04				0.462	0.04
9.5 Other Auxiliary Enterprises				0.01			0.044	0.005				0.044	0.015
9.6 Operation and Maintenance of Plant for Aux. Ent. (1)			0.03				0.107					0.137	

Source: Adapted from *Space and cost norms for building and other land improvement at Higher Education Institutions*, Department of Education Institutions, South Africa, April 2009.
(1) Subcategories 9.1, 9.2 and 9.6 apply to FTE students using institutional housing and subcategory 9.4 to FTE students not using institutional housing. Total FTE students (Qualifications 1-7) apply to all other categories / subcategories.

These Norms are also estimated using parameters. The Parameters for Office facilities for the instruction functional category are provided in table SP.2.

Table SP.2 - Building Space Parameters for Non-Instructional Categories for the Office Space use category

SPACE USE CATEGORY	OFFICE FACILITIES		
Functional Category	**B**	**R**	
	(ASM)	**Contact**	**Distance**
4.0 Academic Support			
4.1 Library Services	15	150	300
4.2 Museum Services			
4.3 Educational Media Services	15	1500	1500
4.4 Academic Computing Support	15	750	2000
4.5 Ancillary Support	15	200	400
4.6 Academic Administration	15	150	300
4.7 Course and Curriculum Development	15	3000	
4.8 Academic Personnel Development	15	3000	
5.0 Student Services			
5.1 Student Services Administration	15	2000	
5.2 Social and Cultural Development	15	250	
5.3 Counselling and Career Guidance	15	750	
5.4 Student Health Services			
6.0 Institutional Support			
6.1 Executive Management	15	750	1500
6.2 Financial Administration	15	300	600
6.3 Financial Aid Administration	15	750	
6.4 General Administration and Logistical Services	15	250	500
6.5 Student Admissions, Records and Examination	15	500	750
6.6 Administrative Computing Support	15	600	800
6.7 Public Relations/Fund- Raising	15	500	500
6.8 Staff Social and Cultural Development	15	1000	
7.0 Operation and Maintenance of Plant	15	500	3000
9.0 Auxiliary Enterprises			
9.1 Student Housing Services			
9.2 Student Food Services			
9.3 Staff Housing Services			
9.4 Other Food Services			
9.5 Other Auxiliary Enterprises	15		1500
9.6 Operation and Maintenance of Plant for Aux. Ent.2)	15	500	

1) All students of Qualifications 1 to 7 apply to categories 4 to 7, as well as to subcategory 9.5

2) Sub-programme 9.6 applies to FTE students using institutional housing.
Key for symbols: B is the ASM office facilities per non-academic personnel member and R is the FTE students per FTE non-academic personnel member.

Using data from Tables I1 and I2, and norms from Table N2, one can calculate the total number of square meters for each category as indicated in Table O3, Section 4.

6. THE COSTING IN THE INVESTMENT MODEL

The Investment Model is used essentially for estimating and assessing the needs in terms of space (ASM). But it can also be used to estimate the financial counterpart of the estimated space i.e. to obtain realistic estimates for building costs, as well as costs of land improvements other than buildings. This is done using the Cost Units Norms.

For this purpose, a framework for standard cost norms is introduced in this section and defined in terms of a Basic Building Cost per m^2 (BBCS). This BBCS, expressed in monetary units can be the cost of building of a square meter of a specific space use category and a specific field of learning (Normally the cheapest one).[1] Given the BBCS, the m^2 building cost of each specific category (for example a m^2 of Class/Open Laboratory in the Field of learning "Agriculture and Nature Conservation") is expressed as a Multiple of the BBSC. The multiplier, which is called "Building cost units" may be lower than, equal to or higher than 1. When it is lower this means that the building cost of a m^2 of this specific category is lower than the BBCS. In the case it is higher this means that the building cost of a m^2 of this specific category is higher than the BBCS.

The standard values of the cost units per ASM, are given in Table C1 for the space-use facilities and Fields of Learning within the Instruction programme. Obviously, these cost units per ASM tables are expressing the building cost in BBCS to provide one ASM building space within a particular space use facility, Field of Learning or programme/sub programme.

[1] In the RSA *The cost unit is defined annually to be the current rand equivalent of R3 065 on 15 June1995. An annual value of the cost unit is provided by the Department of Education each year.*

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Table C1–Building Cost Units per ASM for the Education Programme According to Field of Learning and Space Use Category

	Fields of learning	Classrooms facilities	Class/Open Laboratory Facilities	Office Facilities
1	Agriculture and Nature Conservation	1.5	1.75	1.2
2	Business, Commerce and Management Studies	1.5	1	1.2
3	Communication Studies and Language	1.5	1.5	1.2
4	Culture and the Arts	1.5	1.1	1.2
5	Education, Training and Development	1.5	1.1	1.2
6	Manufacturing, Engineering and Technology	1.5	2	1.2
7	Human and Social Studies	1.5	1.1	1.2
8	Law, Military Science and Security	1.5	1.5	1.2
9	Health Sciences and Social Services	1.5	1.75	1.2
10	Physical, Mathematical and Computer Sciences	1.5	1.5	1.2
11	Physical Planning and Construction	1.5	1.75	1.2
12	Services and Life Sciences	1.5	1.6	1.2

Source: adapted from *Space and cost norms for building and other land improvement at Higher Education Institutions*, Department of Education Institutions, South Africa, April 2009.

How to read this table?

Consider, as example, the first row.

If the Basic Building Cost per m^2 is equal to N$6000:

- the Building cost per m^2 of a Classroom Facility for the FoL "Agriculture and Nature Conservation" is equal to 1.5 times the BBCS (=N$9000).
- the Building cost per m^2 of a Class/Open Laboratory Facility for the FoL "Agriculture and Nature Conservation" is equal to 1.75 times the BBCS (=N$1050).
- the Building cost per m^2 of an Office Facility for the FoL "Agriculture and Nature Conservation" is equal to 1.2 times the BBCS (=N$7200).
- The differences in Building Cost Units per ASM translate differences in the nature of the facility and the related differences in the real costs.

Using data from Table O1 and cost norms from Table C1, one can calculate the total number of square meters for each category as indicated in Table O2.

TABLE O2: COST UNITS FOR THE INSTRUCTIONAL FUNCTIONAL CATEGORY

Space use Category	Classroom Facilities				Class/Open Laboratory Facilities			Office Facilities		
Field of Learning	**Contact**		**Distance**	**TOTAL**	**Contact**	**Distance**	**TOTAL**	**Contact**	**Distance**	**TOTAL**
Qualification Type	**1-3,5**	**4,6**	**1-6**		**1-6**			**1-7**		
•Agriculture and Nature Conservation	422	34	0	456	1,591	0	1,591	545	0	545
•Business, Commerce and Management Studies	8,212	137	447	8,796	1,474	34	1,508	4,422	547	4,970
•Communication Studies and Language	313	18	20	350	259	12	271	207	57	264
•Culture and the Arts	0	0	0	0	0	0	0	0	0	0
•Education, Training and Development	68	0	2	70	43	1	44	41	7	47
•Manufacturing, Engineering and Technology	1,651	43	0	1,694	6,661	0	6,661	1,318	0	1,318
•Human and Social Studies	0	0	0	0	0	0	0	0	0	0
•Law, Military Science and Security	134	9	0	143	45	0	45	73	0	73
•Health Sciences and Social Services	439	0	0	439	1,393	0	1,393	441	0	441
•Physical, Mathematical and Computer Sciences	1,533	130	0	1,664	2,868	0	2,868	743	0	743
•Physical Planning and Construction	781	19	0	800	3,170	0	3,170	792	0	792
•Services and Life Sciences	407	25	6	438	1,172	17	1,189	352	32	383
TOTAL	13,960	414	475	**14,849**	18,677	63	**18,740**	8,934	643	**9,576**

Table C2 gives the standard values of the cost units per ASM, for the space-use facilities within the Non-Instruction programmes/sub programmes.

Table C2 - Building Cost Units per ASM for Non-Instructional Functional Categories According to Space Use Category

SPACE USE CATEGORY	Research/ Non class Laboratory Facilities	Office Facilities	Study Facilities	Special Use/ General Use and Supporting Facilities	Health Care Facilities	Residential Facilities
2.0 Research	1.7					
4.0 Academic Support						
4.1 Library Services		1.2	1.1			
4.2 Museum Services				1		
4.3 Educational Media Services		1.2		1.15		
4.4 Academic Computing Support		1.2		1.7		
4.5 Ancillary Support		1.2		1		
4.6 Academic Administration		1.2				
4.7 Course and Curriculum Development		1.2				
4.8 Academic Personnel Development		1.2				
5.0 Student Services						
5.1 Student Services Administration		1.2				
5.2 Social and Cultural Development		1.2		1		
5.3 counselling and Career Guidance		1.2				
5.4 Student Health Services					1.5	
6.0 Institutional Support						
6.1 Executive Management		1.2		1.25		
6.2 Financial Administration		1.2		1.2		
6.3 Financial Aid Administration		1.2				
6.4 General Administration and Logistical Services		1.2		0.75		
6.5 Student Admissions, Records and Examination		1.2				
6.6 Administrative Computing Support		1.2		1.7		
6.7 Public Relations/Fund- Raising		1.2				
6.8 Staff Social and Cultural Development		1.2				
7.0 Operation and Maintenance of Plant		1.2		0.85		
9.0 Auxiliary Enterprises						
9.1 Student Housing Services				0.95		1.2
9.2 Student Food Services				0.95		
9.3 Staff Housing Services						1.2
9.4 Other Food Services				0.95		
9.5 Other Auxiliary Enterprises		1.2		0.95		
9.6 Operation and Maintenance of Plant for Aux. Ent.		1.2		0.85		

Source: Adapted from *Space and cost norms for building and other land improvement at Higher Education Institutions*, Department of Education Institutions, South Africa, April 2009.

Using data from Tables O3 and cost norms from Table C2, one can calculate the total number of square meters for each category as indicated in Table O4.

TABLE O4. : BUILDING COST UNITS FOR CONTACT AND DISTANCE TUITION FOR THE NON-INSTRUCTIONALCATEGORIES/ SUBCATEGORIES ACCORDING TO SPACE USE CATEGORY

Space use Category	Research/ Non-class Laboratory Facilities			Office Facilities			Study Facilities			Special Use, General Use & Supporting Facilities			Health Care Facilities	Residential Facilities			TOTAL		
Functional Category/subcategory	Contact	Distance	TOTAL	Contact	Distance	TOTAL	Contact	Distance	TOTAL	Contact	Distance	TOTAL	Contact	Contact	Distance	TOTAL	Contact	Distance	TOTAL
2.0 Research	11,028	139	11,166	0	0	0	0	0	0	0	0	0	0	0	0	0	11,028	139	11,166
4.0 Academic Support	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.1 Library Services	0	0	0	973	163	1,136	12,933	1,198	14,131	0	0	0	0	0	0	0	13,906	1,362	15,268
4.2 Museum Services	0	0	0	0	0	0	0	0	0	608	82	690	0	0	0	0	608	82	690
4.3 Educational Media Services	0	0	0	97	33	130	0	0	0	671	47	718	0	0	0	0	769	80	848
4.4 Academic Computing Support	0	0	0	195	26	221	0	0	0	648	5	652	0	0	0	0	842	31	873
4.5 Ancillary Support	0	0	0	730	124	854	0	0	0	3,446	95	3,541	0	0	0	0	4,176	219	4,395
4.6 Academic Administration	0	0	0	973	163	1,136	0	0	0	0	0	0	0	0	0	0	973	163	1,136
4.7 Course and Curriculum Development	0	0	0	49	0	49	0	0	0	0	0	0	0	0	0	0	49	0	49
4.8 Academic Personnel Development	0	0	0	49	0	49	0	0	0	0	0	0	0	0	0	0	49	0	49
5.0 Student Services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.1 Student Services Administration	0	0	0	78	0	78	0	0	0	0	0	0	0	0	0	0	78	0	78
5.2 Social and Cultural Development	0	0	0	584	0	584	0	0	0	7,517	54	7,571	0	0	0	0	8,100	54	8,155
5.3 Counciling and Career Guidance	0	0	0	195	0	195	0	0	0	0	0	0	0	0	0	0	195	0	195
5.4 Student Health Services	0	0	0	0	0	0	0	0	0	0	0	0	195	0	0	0	195	0	195
6.0 Institutional Support	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.1 Executive Management	0	0	0	195	33	227	0	0	0	426	20	446	0	0	0	0	620	53	673
6.2 Financial Administration	0	0	0	487	82	568	0	0	0	0	20	20	0	0	0	0	487	101	588
6.3 Financial Aid Administration	0	0	0	195	0	195	0	0	0	0	0	0	0	0	0	0	195	0	195
6.4 General Administration and Logistical Services	0	0	0	584	98	682	0	0	0	3,138	758	3,896	0	0	0	0	3,722	856	4,578
6.5 Student Admissions, Records and Examination	0	0	0	292	65	357	0	0	0	0	0	0	0	0	0	0	292	65	357

6.6 Administrative Computing Support	0	0	0	243	62	305	0	0	0	262	69	331	0	0	0	0	505	132	637
6.7 Public Relations/Fund-Raising	0	0	0	292	98	390	0	0	0	0	0	0	0	0	0	0	292	98	390
6.8 Staff Social and Cultural Development	0	0	0	146	0	146	0	0	0	0	0	0	0	0	0	0	146	0	146
7.0 Operation and Maintenance of Plant	0	0	0	292	16	308	0	0	0	1,861	139	2,000	0	0	0	0	2,153	155	2,308
9.0 Auxiliary Enterprises	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9.1 Student Housing Services(1)	0	0	0	0	0	0	0	0	0	822	0	822	0	5,820	0	5,820	6,641	0	6,641
9.2 Student Food Services(1)	0	0	0	0	0	0	0	0	0	659	0	659	0	0	0	0	659	0	659
9.3 Staff Housing Services	0	0	0	0	0	0	0	0	0	0	0	0	0	1,946	65	2,011	1,946	65	2,011
9.4 Other Food Services(1)	0	0	0	0	0	0	0	0	0	3,378	103	3,482	0	0	0	0	3,378	103	3,482
9.5 Other Auxiliary Enterprises	0	0	0	0	33	33	0	0	0	339	13	352	0	0	0	0	339	46	385
9.6 Operation and Maintenance of Plant for Aux. Ent. (1)	0	0	0	15	0	15	0	0	0	37	0	37	0	0	0	0	52	0	52
TOTAL	**11,028**	**139**	**11,166**	**6,661**	**997**	**7,657**	**12,933**	**1,198**	**14,131**	**23,812**	**1,405**	**25,218**	**195**	**7,766**	**65**	**7,831**	62,394	3,804	**66,198**

It should be emphasised that the set of Building Cost Units per ASM (Tables C1 and C2) represents a conservative but nevertheless realistic all-inclusive estimate of the building cost in cost units of one ASM building facilities' space within a particular space use category, Field of Learning or programme/ sub programme. Also included in this estimate are air-conditioning where necessary, a 2% cost escalation due to possible adverse physical conditions on the building site, and a 1 % allowance for site improvement in the immediate vicinity of the building. Building costs are also assumed to include value-added tax, such items as fees of professionals and other costs directly attributable to the building project such as the salaries of clerks of works and fees paid to local authorities for the approval of plans.

It is to be noted that there is no norms for the Land improvements costs. Land improvements other than buildings comprise:

- Streets, roads and bridges
- Landscaping
- Open-air parking areas
- Open-air recreational areas
- Utility distribution systems

Obviously, space norms have no meaning in these cases and cost units for land improvement other than buildings will usually be supplied for a completely new building. It is suggested that***13% of the total cost units for new buildings*** be provided for the associated land improvement other than buildings.

Table S1, provides a global summary of the outputs of the Investment model.

TABLE S1: TOTAL ASM, BUILDING COST UNITS, and TOTAL MONETARY COST BY SPACE USE CATEGORY

Space Use Category	Total Assigned Square Meters	Total Cost units	Total Cost N$
Classroom Facilities	9,899	14,849	89,092,338
Class/Open Laboratory Facilities	11,261	18,740	112,442,567
Research/ Non-class Laboratory Facilities	6,568	11,166	66,998,598
Office Facilities	14,361	17,233	103,400,631
Study Facilities	12,847	14,131	84,787,065
Special Use, General Use & Supporting Facilities	26,564	25,218	151,306,652
Health Care Facilities	130	195	1,167,624
Residential Facilities	6,526	7,831	46,986,912
TOTAL	**88,156**	**109,364**	**656,182,386**

The first column gives the required space in terms of m^2 building. The second column gives the corresponding number of "Total Cost Units". The last column provides the financial equivalent of the cost. The unit for these estimations is the BBCS (in this example this cost is equal to 6000 NAD per m^2, it is one of the parameters of the model and can be changed at any time).

By adding 13 per cent for land improvement the total estimated investment becomes N$741,486,096.

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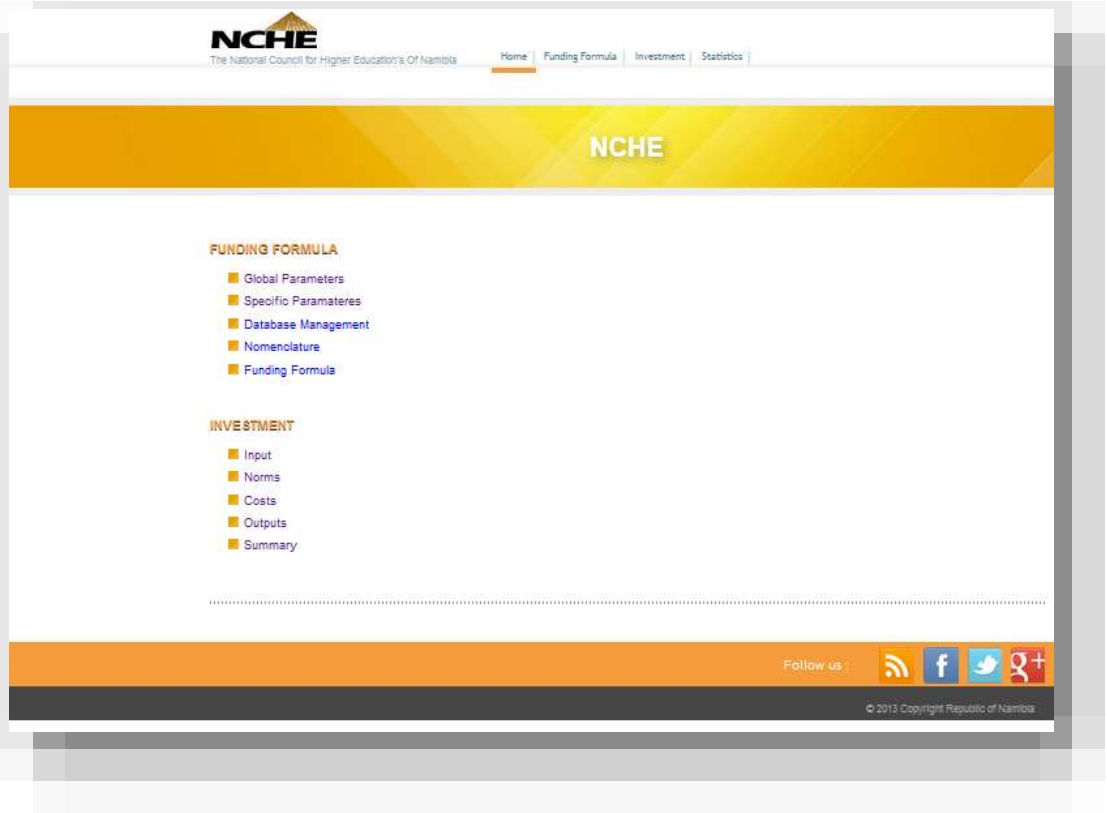
5. RUNNING THE INVESTMENT MODEL UNDER HEMIS

The Figure below is the main Menu of the HEMIS. The functionalities are grouped in two categories:

- Funding formula
  - Global parameters
  - Specific parameters
  - Database management
  - Nomenclature
  - Funding formula

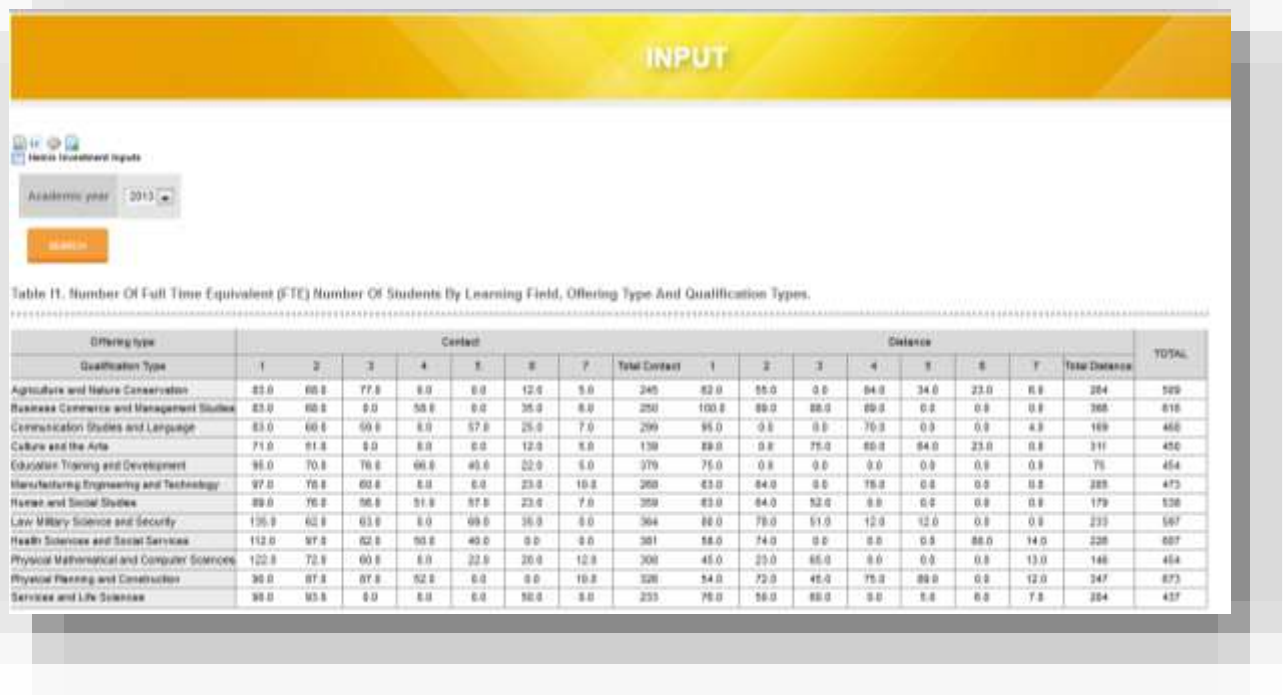
- Investment
  - Input
  - Norms
  - Costs
  - Outputs
  - Summary



To start using the investment model one must click on “Input” button.

7.1 INPUT

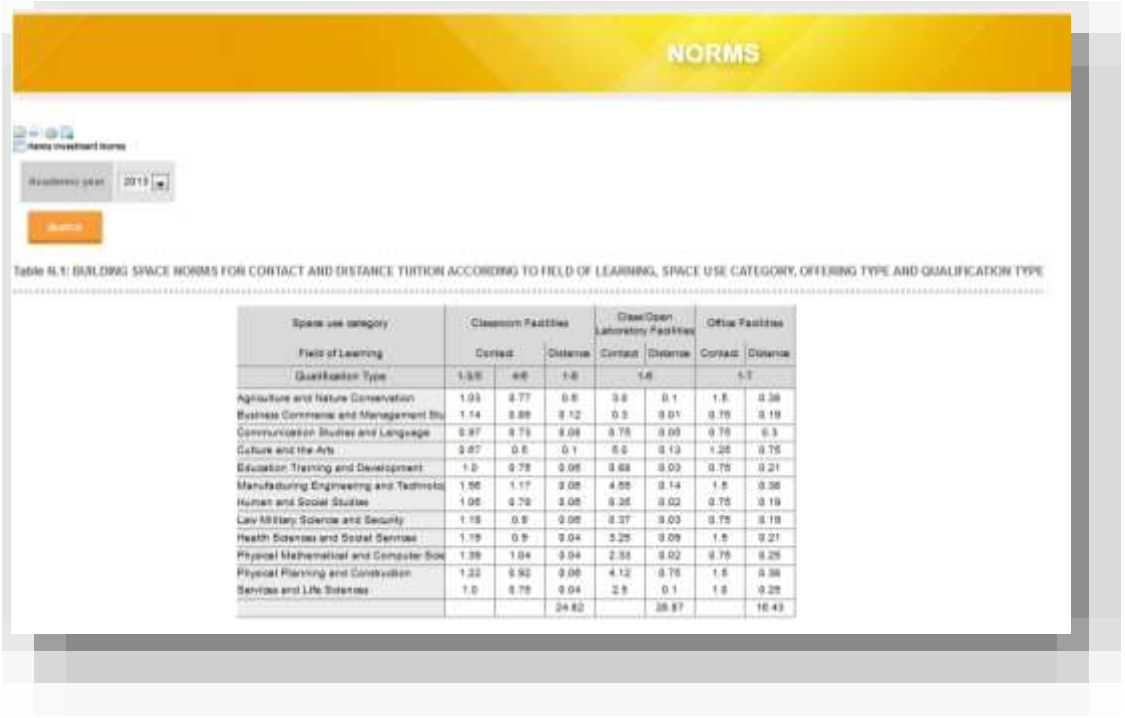
This interface allows user to fill the input Table (Table I1 and I2). The data are related to a specific year. They are stored and can be recalled, viewed, edited and used at any time. The total column is calculated automatically and updated after each modification in any cell of the table.



7.1 NORMS

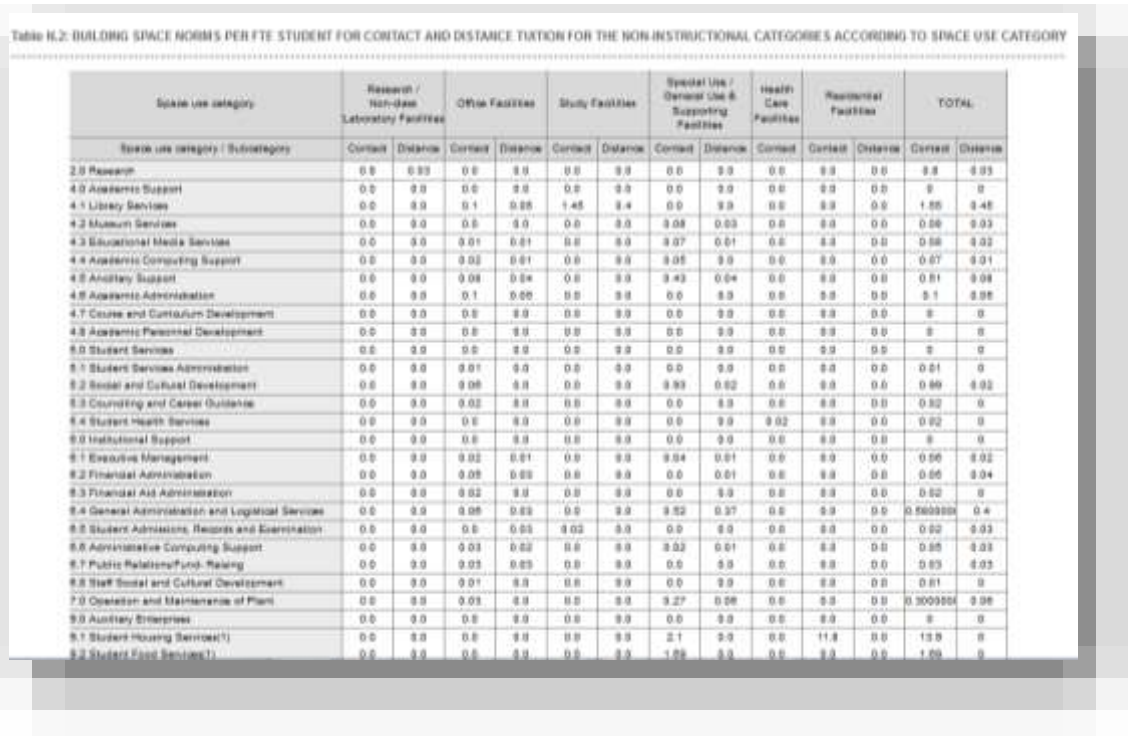
This sub module contains two tables:

The first table contains the building space norms for Instructional Functional Category (Table N1).



Space use category	Classroom Facilities			Class/Open Laboratory Facilities		Office Facilities	
Field of Learning	Contact		Distance	Contact	Distance	Contact	Distance
Qualification Type	1-5/6	4/6	1-6	1-6		1-7	
Agriculture and Nature Conservation	1.03	0.77	0.6	3.0	0.1	1.5	0.38
Business Commerce and Management Stu	1.14	0.85	0.12	0.3	0.01	0.75	0.19
Communication Studies and Language	0.97	0.73	0.06	0.75	0.03	0.75	0.3
Culture and the Arts	0.67	0.5	0.1	5.0	0.13	1.25	0.75
Education Training and Development	1.0	0.75	0.05	0.68	0.03	0.75	0.21
Manufacturing Engineering and Technolo	1.56	1.17	0.05	4.55	0.14	1.5	0.38
Human and Social Studies	1.06	0.79	0.05	0.25	0.02	0.75	0.19
Law Military Science and Security	1.19	0.9	0.05	0.37	0.03	0.75	0.19
Health Sciences and Social Services	1.19	0.9	0.04	3.25	0.09	1.5	0.21
Physical Mathematical and Computer Sci	1.39	1.04	0.04	2.53	0.02	0.75	0.25
Physical Planning and Construction	1.22	0.92	0.06	4.12	0.75	1.5	0.38
Services and Life Sciences	1.0	0.75	0.04	2.5	0.1	1.5	0.25
			24.62		28.87		16.43

The second table contains the space norms for the non-instructional Functional Categories /programmes according to space use category (table N2).

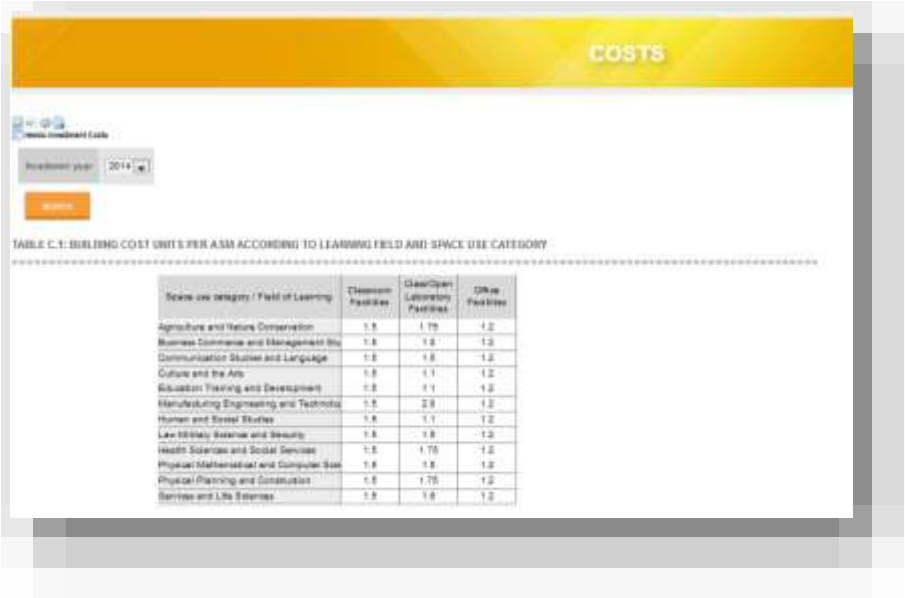


Space use category	Research / Non-class Laboratory Facilities		Office Facilities		Study Facilities		Special Use / General Use & Supporting Facilities		Health Care Facilities	Residential Facilities		TOTAL	
Space use category / Subcategory	Contact	Distance	Contact	Distance	Contact	Distance	Contact	Distance	Contact	Contact	Distance	Contact	Distance
2.0 Research	0.0	0.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.03
4.0 Academic Support	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
4.1 Library Services	0.0	0.0	0.1	0.05	1.45	0.4	0.0	0.0	0.0	0.0	0.0	1.55	0.45
4.2 Museum Services	0.0	0.0	0.0	0.0	0.0	0.0	0.08	0.03	0.0	0.0	0.0	0.08	0.03
4.3 Educational Media Services	0.0	0.0	0.01	0.01	0.0	0.0	0.07	0.01	0.0	0.0	0.0	0.08	0.02
4.4 Academic Computing Support	0.0	0.0	0.02	0.01	0.0	0.0	0.05	0.0	0.0	0.0	0.0	0.07	0.01
4.5 Ancillary Support	0.0	0.0	0.08	0.04	0.0	0.0	0.43	0.04	0.0	0.0	0.0	0.51	0.08
4.6 Academic Administration	0.0	0.0	0.1	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.05
4.7 Course and Curriculum Development	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
4.8 Academic Personnel Development	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
5.0 Student Services	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
5.1 Student Services Administration	0.0	0.0	0.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0
5.2 Social and Cultural Development	0.0	0.0	0.08	0.0	0.0	0.0	0.93	0.02	0.0	0.0	0.0	0.99	0.02
5.3 Counselling and Career Guidance	0.0	0.0	0.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.02	0
5.4 Student Health Services	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.02	0.0	0.0	0.02	0
6.0 Institutional Support	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
6.1 Executive Management	0.0	0.0	0.02	0.01	0.0	0.0	0.04	0.01	0.0	0.0	0.0	0.06	0.02
6.2 Financial Administration	0.0	0.0	0.05	0.03	0.0	0.0	0.0	0.01	0.0	0.0	0.0	0.05	0.04
6.3 Financial Aid Administration	0.0	0.0	0.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.02	0
6.4 General Administration and Logistical Services	0.0	0.0	0.05	0.03	0.0	0.0	0.32	0.37	0.0	0.0	0.0	0.3900000	0.4
6.5 Student Admissions, Records and Examination	0.0	0.0	0.0	0.03	0.02	0.0	0.0	0.0	0.0	0.0	0.0	0.02	0.03
6.6 Administrative Computing Support	0.0	0.0	0.03	0.02	0.0	0.0	0.02	0.01	0.0	0.0	0.0	0.05	0.03
6.7 Public Relations/Fund- Raising	0.0	0.0	0.03	0.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.03	0.03
6.8 Staff Social and Cultural Development	0.0	0.0	0.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0
7.0 Operation and Maintenance of Plant	0.0	0.0	0.03	0.0	0.0	0.0	0.27	0.06	0.0	0.0	0.0	0.3000000	0.06
9.0 Auxiliary Enterprises	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
9.1 Student Housing Services(1)	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	11.8	0.0	13.9	0
9.2 Student Food Services(1)	0.0	0.0	0.0	0.0	0.0	0.0	1.09	0.0	0.0	0.0	0.0	1.09	0

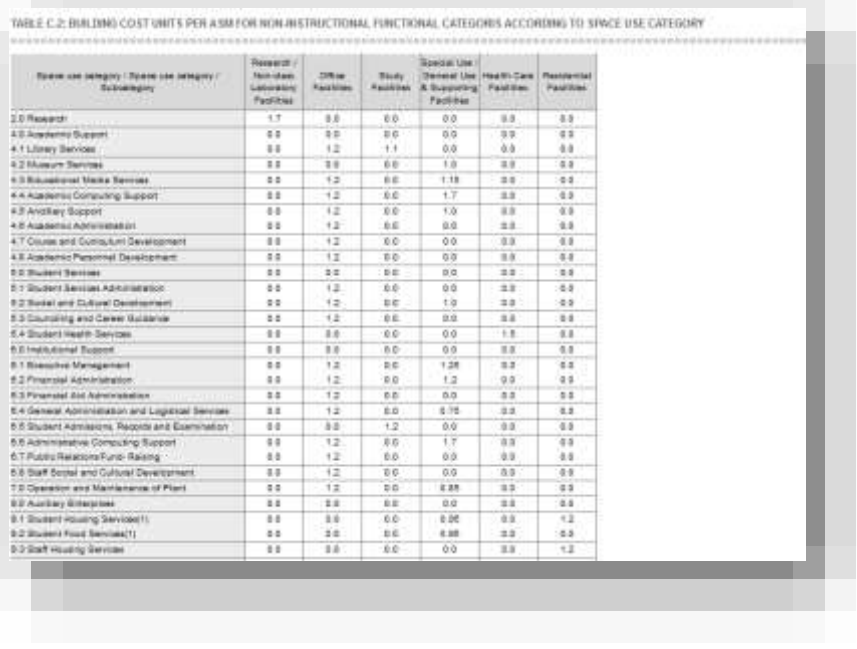
7.1 COSTS

This sub module contains two tables to fulfil:

The first one contains the values of building cost units per ASM according to learning field and space use category for the Instruction Functional Category (Table C1).



The second one contains the building cost units per ASM for non-instructional functional categories according to space use category (Table C2).

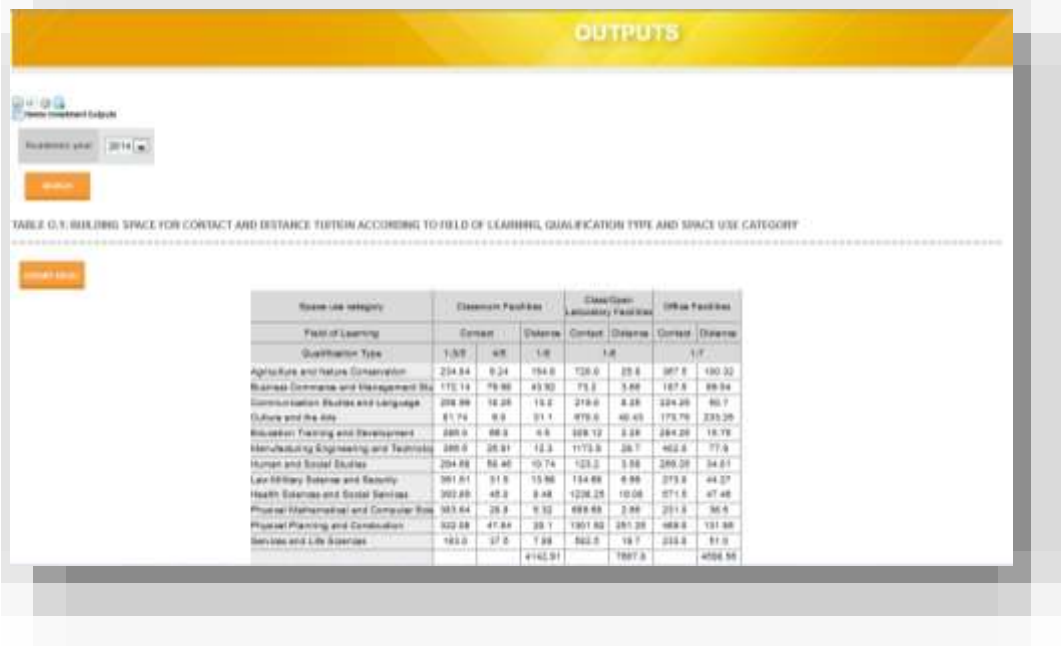


After inserting all data, the user has to click on “Save” button to submit the entered values in the database.

7.4 OUTPUTS

This sub module contains four tables.

The first one contains building space requirements for the Instruction Functional Category (Table O1).



The second one contains cost for the instructional functional category (Table O2).

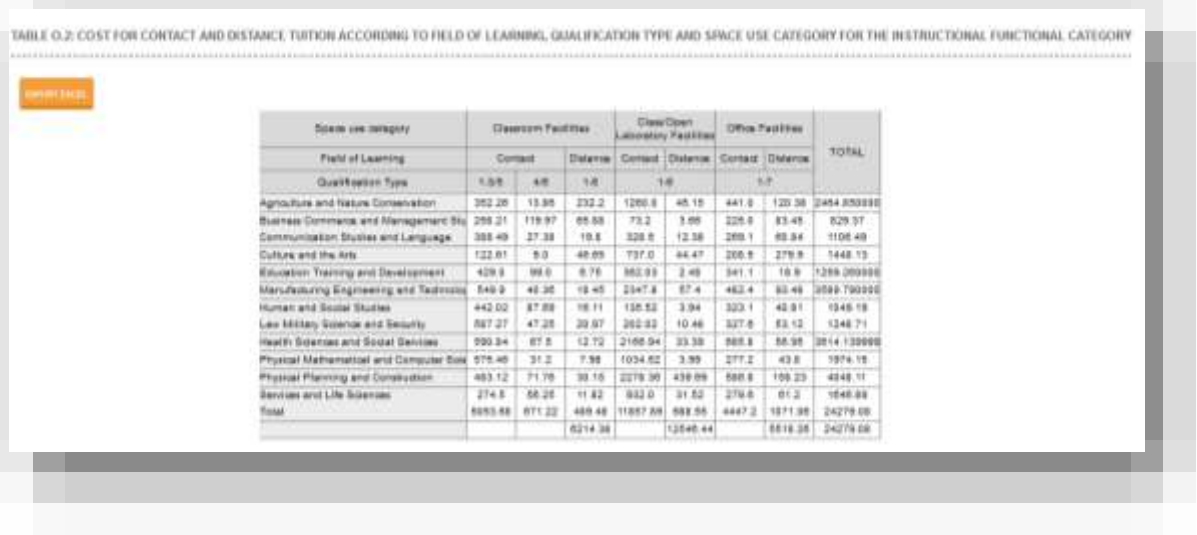


TABLE O.2: COST FOR CONTACT AND DISTANCE TUITION ACCORDING TO FIELD OF LEARNING, QUALIFICATION TYPE AND SPACE USE CATEGORY FOR THE INSTRUCTIONAL FUNCTIONAL CATEGORY

Space use category	Classroom Facilities			Class/Open Laboratory Facilities		Office Facilities		TOTAL
Field of Learning	Contact		Distance	Contact	Distance	Contact	Distance	
Qualification Type	1.5/6	4/6	1/6	1/6		1/7		
Agriculture and Nature Conservation	352.26	13.95	232.2	1260.8	46.15	441.0	120.38	2464.850000
Business Commerce and Management Stu	268.21	119.97	65.58	73.2	3.66	226.8	83.45	829.97
Communication Studies and Language	388.49	27.38	10.8	328.6	12.38	268.1	68.84	1106.49
Culture and the Arts	122.61	8.0	46.05	737.0	44.47	205.9	279.9	1448.13
Education Training and Development	429.9	99.0	8.76	362.03	2.46	341.1	16.9	1289.260000
Manufacturing Engineering and Technolog	549.9	46.36	19.45	2347.8	67.4	462.4	83.46	3589.790000
Human and Social Studies	442.02	87.88	16.11	135.52	3.94	323.1	42.91	1345.18
Law Military Science and Security	567.27	47.25	20.97	262.02	10.46	327.6	53.13	1346.71
Health Sciences and Social Services	990.34	67.5	12.72	2168.94	33.38	885.8	56.95	3814.130000
Physical Mathematical and Computer Scie	575.46	31.2	7.98	1034.62	3.99	277.2	43.8	1974.15
Physical Planning and Construction	483.12	71.76	30.15	2279.36	439.09	588.8	109.23	4948.11
Services and Life Sciences	274.5	56.25	11.82	932.0	31.52	279.6	61.2	1646.89
Total	6053.68	671.22	469.48	11857.59	668.55	4447.2	1071.98	24279.09
			6214.38		12540.44		5518.35	24279.09

The third contains values of building space for contact and distance tuition for the non-instructional categories/subcategories according to space use category (Table O3).

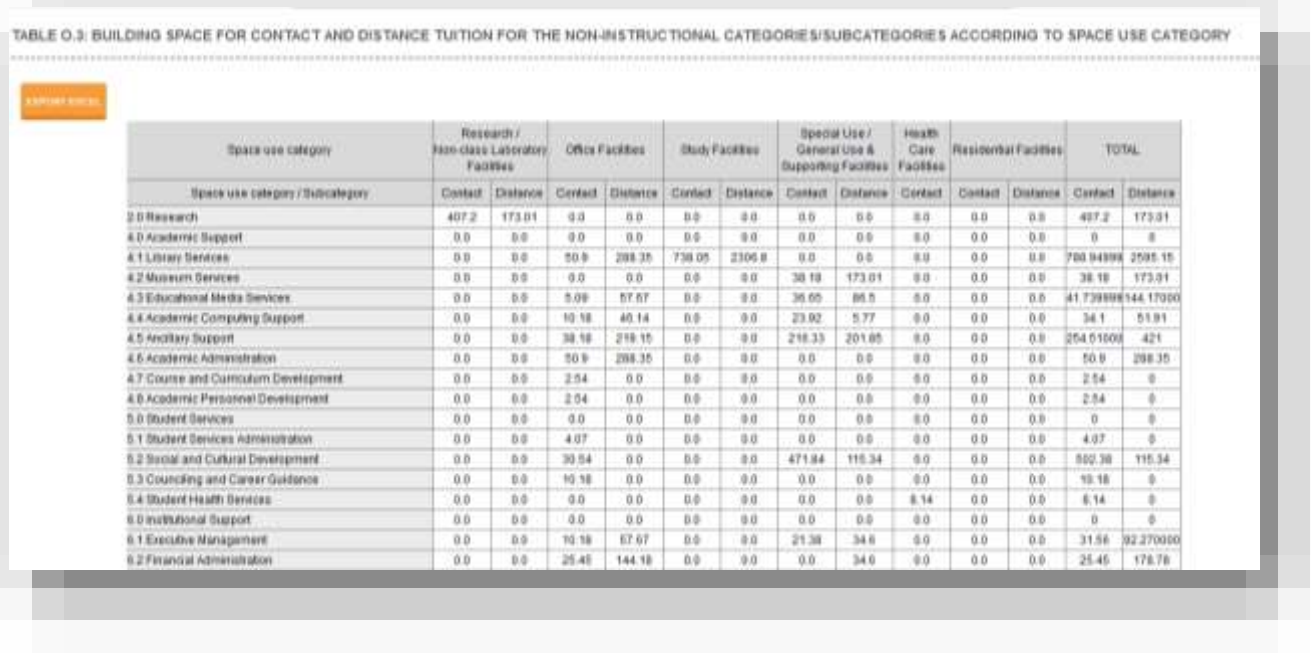


TABLE O.3: BUILDING SPACE FOR CONTACT AND DISTANCE TUITION FOR THE NON-INSTRUCTIONAL CATEGORIES/SUBCATEGORIES ACCORDING TO SPACE USE CATEGORY

Space use category	Research / Non-class Laboratory Facilities		Office Facilities		Study Facilities		Special Use / General Use & Supporting Facilities		Health Care Facilities	Residential Facilities		TOTAL	
Space use category / Subcategory	Contact	Distance	Contact	Distance	Contact	Distance	Contact	Distance	Contact	Contact	Distance	Contact	Distance
2.0 Research	407.2	173.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	407.2	173.01
4.0 Academic Support	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
4.1 Library Services	0.0	0.0	50.9	288.35	738.05	2306.8	0.0	0.0	0.0	0.0	0.0	788.94999	2595.15
4.2 Museum Services	0.0	0.0	0.0	0.0	0.0	0.0	38.18	173.01	0.0	0.0	0.0	38.18	173.01
4.3 Educational Media Services	0.0	0.0	5.09	57.67	0.0	0.0	36.65	86.5	0.0	0.0	0.0	41.739999	144.17000
4.4 Academic Computing Support	0.0	0.0	10.18	40.14	0.0	0.0	23.92	5.77	0.0	0.0	0.0	34.1	51.91
4.5 Ancillary Support	0.0	0.0	38.18	219.15	0.0	0.0	216.33	201.85	0.0	0.0	0.0	254.51000	421
4.6 Academic Administration	0.0	0.0	50.9	288.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.9	288.35
4.7 Course and Curriculum Development	0.0	0.0	2.54	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.54	0
4.8 Academic Personnel Development	0.0	0.0	2.54	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.54	0
5.0 Student Services	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
5.1 Student Services Administration	0.0	0.0	4.07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.07	0
5.2 Social and Cultural Development	0.0	0.0	30.54	0.0	0.0	0.0	471.84	115.34	0.0	0.0	0.0	502.38	115.34
5.3 Counciling and Career Guidance	0.0	0.0	10.18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.18	0
5.4 Student Health Services	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.14	0.0	0.0	8.14	0
6.0 Institutional Support	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
6.1 Executive Management	0.0	0.0	10.18	87.67	0.0	0.0	21.38	34.6	0.0	0.0	0.0	31.56	92.270000
6.2 Financial Administration	0.0	0.0	25.45	144.18	0.0	0.0	0.0	34.6	0.0	0.0	0.0	25.45	178.78

The fourth table contains the values of building costs for contact and distance tuition for the non-instructional categories/subcategories according to space use category (Table O4).

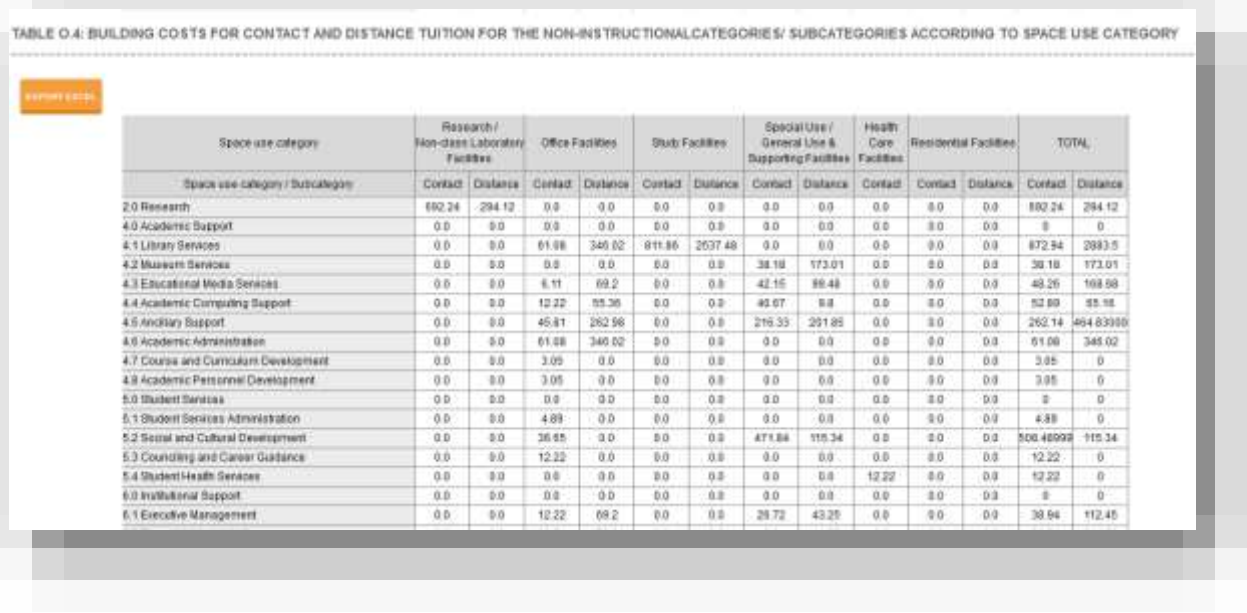
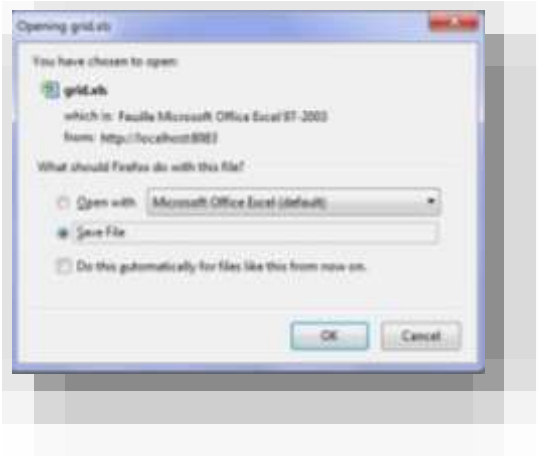


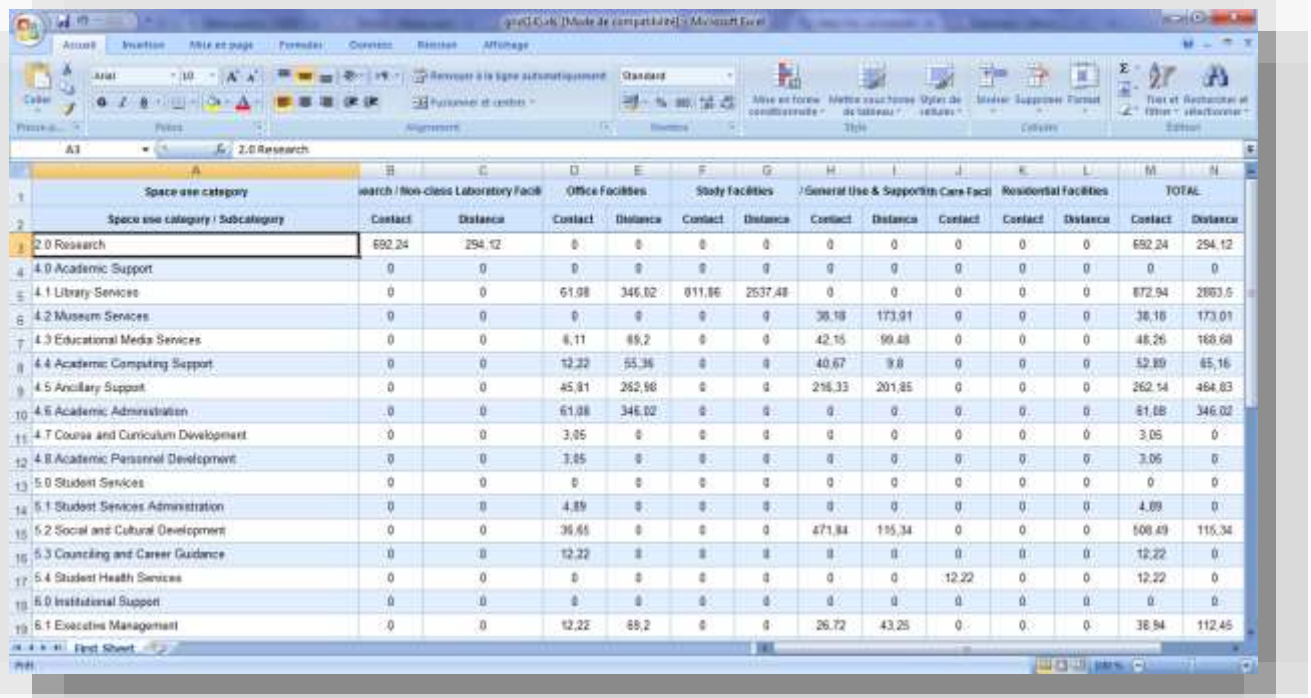
TABLE O.4: BUILDING COSTS FOR CONTACT AND DISTANCE TUITION FOR THE NON-INSTRUCTIONALCATEGORIES/ SUBCATEGORIES ACCORDING TO SPACE USE CATEGORY

Space use category	Research / Non-class Laboratory Facilities		Office Facilities		Study Facilities		Special Use / General Use & Supporting Facilities		Health Care Facilities	Residential Facilities		TOTAL	
Space use category / Subcategory	Contact	Distance	Contact	Distance	Contact	Distance	Contact	Distance	Contact	Contact	Distance	Contact	Distance
2.0 Research	592.24	294.12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	592.24	294.12
4.0 Academic Support	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
4.1 Library Services	0.0	0.0	61.08	346.02	811.86	2537.48	0.0	0.0	0.0	0.0	0.0	872.94	2883.5
4.2 Museum Services	0.0	0.0	0.0	0.0	0.0	0.0	38.18	173.01	0.0	0.0	0.0	38.18	173.01
4.3 Educational Media Services	0.0	0.0	6.11	69.2	0.0	0.0	42.15	99.48	0.0	0.0	0.0	48.26	168.68
4.4 Academic Computing Support	0.0	0.0	12.22	55.36	0.0	0.0	40.67	0.8	0.0	0.0	0.0	52.89	55.16
4.6 Ancillary Support	0.0	0.0	45.81	262.56	0.0	0.0	216.33	201.85	0.0	0.0	0.0	262.14	464.83000
4.6 Academic Administration	0.0	0.0	61.08	346.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	61.08	346.02
4.7 Course and Curriculum Development	0.0	0.0	3.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.05	0
4.8 Academic Personnel Development	0.0	0.0	3.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.05	0
5.0 Student Services	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
5.1 Student Services Administration	0.0	0.0	4.89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.89	0
5.2 Social and Cultural Development	0.0	0.0	36.65	0.0	0.0	0.0	471.84	115.34	0.0	0.0	0.0	508.48999	115.34
5.3 Counseling and Career Guidance	0.0	0.0	12.22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.22	0
5.4 Student Health Services	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.22	0.0	0.0	12.22	0
6.0 Institutional Support	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
6.1 Executive Management	0.0	0.0	12.22	69.2	0.0	0.0	29.72	43.25	0.0	0.0	0.0	38.94	112.45

Each output table can be exported in excel format by clicking on the “Export Excel” button situated next to each table. After clicking on it the following window will be displayed to open or save the generated excel file:



The previews of the generated excel file looks like this:

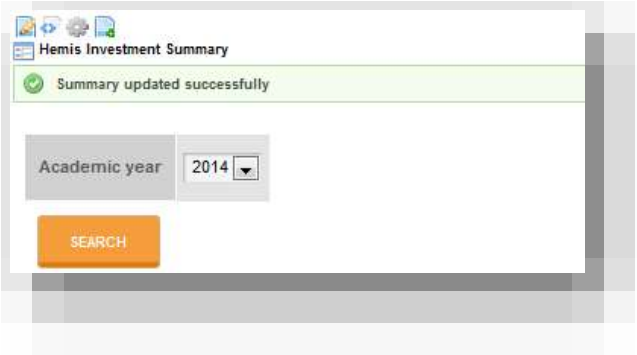


Space use category	Research / Non-class Laboratory Facil		Office Facilities		Study Facilities		General Use & Support		Health Care Facil		Residential Facilities		TOTAL	
Space use category / Subcategory	Contact	Distance	Contact	Distance	Contact	Distance	Contact	Distance	Contact	Distance	Contact	Distance	Contact	Distance
2.0 Research	692,24	294,12	0	0	0	0	0	0	0	0	0	0	692,24	294,12
4.0 Academic Support	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.1 Library Services	0	0	61,08	346,02	811,86	2537,48	0	0	0	0	0	0	872,94	2883,5
4.2 Museum Services	0	0	0	0	0	0	38,18	173,01	0	0	0	0	38,18	173,01
4.3 Educational Media Services	0	0	6,11	69,2	0	0	42,15	99,48	0	0	0	0	48,26	168,68
4.4 Academic Computing Support	0	0	12,22	55,36	0	0	40,67	9,8	0	0	0	0	52,89	65,16
4.5 Ancillary Support	0	0	45,81	262,98	0	0	216,33	201,85	0	0	0	0	262,14	464,83
4.6 Academic Administration	0	0	61,08	346,02	0	0	0	0	0	0	0	0	61,08	346,02
4.7 Course and Curriculum Development	0	0	3,05	0	0	0	0	0	0	0	0	0	3,05	0
4.8 Academic Personnel Development	0	0	3,05	0	0	0	0	0	0	0	0	0	3,05	0
5.0 Student Services	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.1 Student Services Administration	0	0	4,89	0	0	0	0	0	0	0	0	0	4,89	0
5.2 Social and Cultural Development	0	0	36,65	0	0	0	471,84	115,34	0	0	0	0	508,49	115,34
5.3 Counciling and Career Guidance	0	0	12,22	0	0	0	0	0	0	0	0	0	12,22	0
5.4 Student Health Services	0	0	0	0	0	0	0	0	12,22	0	0	0	12,22	0
6.0 Institutional Support	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.1 Executive Management	0	0	12,22	69,2	0	0	26,72	43,25	0	0	0	0	38,94	112,45

7.5 SUMMARY

This page contains the Summary Table. It depends on the value of “Unit Cost Per ASM” (BBCS) entered at this level:

After updating the Unit Cost per ASM the user has to click on “Save” button. Then a success message will appear as below:



ANNEX 1

THE FACILITIES' INVENTORY AND CLASSIFICATION SYSTEM (FICM)[2]

The Facilities Database includes for each facility (classroom, office, laboratory...) the following information:

- Academic Year
- HEI Name
- HEI Code
- Campus Name
- Remote (dummy)
- Space identifier
- Ownership of the Space
- Space Use Category
- Space Functional Category
- Space Condition
- Assignable Area Square Meters

1. SPACE IDENTIFIER

Each Space Needs a Unique Identifier. The initial step in a facilities inventory is to assign each space a unique code to identify a "record" or set of data fields within the inventory. These identifiers are then used to link spaces to buildings and to link the facilities inventory records to other institutional information such as plant asset records, the registrar's course schedule, and equipment inventories.

[2] Adapted from:

Postsecondary Education Facilities Inventory and Classification Manual (FICM):2006 Edition

U.S. Department of Education, Institute of Education Sciences NCES 2006-160. May 2006

2. SPACE USE CATEGORY STRUCTURE

2.1 Space Use Categories

The 9 major space use categories of assignable space and the 3 major space use categories of non-assignable space defined in this section are intended to provide necessary flexibility in coding space use at the institutional level and to provide appropriate comparability in reporting space uses across institutions.

For purposes of this manual, the term *space* will be used wherever the terms *space* and *room* could be used interchangeably. For example, wherever use codes are mentioned, they are called “space use codes”; when a use could be housed in either a *room* or a *space*, the term *space* is used. However, the term *room* is retained in most examples of use classifications provided in the definitions, for example, (e.g., dark room, laundry room, operating room). *Room* is also used for functions that would be housed only in enclosed rooms, as defined in this manual.

All assignable space should be classified into 1 of the 9 major assignable use categories, and all non-assignable space should be classified into 1 of the 3 major non assignable use categories listed below.

In table 1. Each of these 12 major categories encompasses several subcategories of more specialized uses (e.g., different types of laboratories or circulation areas).

Table 1 - Space Use Categories Description

	SPACE USE CATEGORY	DEFINITION
		Assignable Area
1	Classrooms	General purpose classrooms, lecture halls, recitation rooms, seminar rooms, and other spaces used primarily for scheduled non-laboratory instruction
2	Class Laboratory Facilities and Class Laboratories Service	Rooms or spaces characterized by special purpose equipment or a specific configuration that ties instructional activities to a particular discipline or a closely related group of disciplines.
3	Research/Non-class Laboratories and Research/Non-class Laboratories Service	Rooms or spaces characterized by special purpose equipment or a specific configuration that ties research activities to a particular discipline or a closely related group of disciplines. Also note that research/non-class laboratory facilities thus provided need not necessarily be in the form of conventional research/non-class laboratories facilities. In many research fields, research/non-class laboratory requirements may be for offices and, although the term research/non-class laboratory facilities is used, there is absolutely no reason for restricting staff research activities to conventional research/non-class laboratory facilities.
4	Office Facilities	Offices and conference rooms specifically assigned to each of the various academic, administrative, and service functions.
5	Study Facilities	Study rooms, stacks, open-stack reading rooms, and library processing spaces.
6	Special Use, General Use and Support Facilities	<u>Special Use Facilities</u> Military training rooms, athletic and physical education spaces, media production rooms, clinics, demonstration areas, field buildings, animal quarters, greenhouses, and other room categories that are sufficiently specialized in their <u>General Use Facilities</u> Assembly rooms, exhibition space, food facilities, lounges, merchandising facilities, recreational facilities, meeting rooms, child and adult care rooms, and other facilities that are characterized by a broader availability to faculty, students, staff or the public than are special use areas.

		Support Facilities Computing facilities, shops, central storage areas, vehicle storage areas, and central service space that provide
7	Health Care Facilities	Facilities used to provide patient care (human and animal).
8	Residential Facilities	Housing facilities for students, faculty, staff, and visitors to the campus.
0	Unclassified Facilities	Inactive or unfinished areas, or areas in the process of conversion
		Non Assignable Area
WWW	Circulation Area	Non assignable spaces required for physical access to floors or subdivisions of space within the building, whether directly bounded by partitions or not.
XXX	Building Service Area	Non assignable spaces used to support its cleaning and public hygiene functions.
YYY	Mechanical Area	Non assignable spaces of a building designed to house mechanical equipment and utility services, and shaft areas.

Space use codes are assigned based on **primary** use. Most rooms and spaces in an institution fall readily into one space use code. In some cases, however, individual rooms or groups of rooms have multiple uses (e.g., office and art studio). If a space inventory system uses only a single code to indicate the use, the coding should be based on the primary use of the space. Thus, a space that is a laboratory by appearance or design but is currently being used primarily as a classroom is coded as a classroom rather than as a laboratory. As another example, a space that is used as both an Office and a Research/Non class Laboratory equipped and used principally for research, but which also includes some space used occasionally as an office, should be coded as a laboratory facility.

It is recommended that primary use be evaluated in terms of **time**, the human activity element that focuses on **use** rather than space. In the event that time of use is not readily available, the amount of space allocated to each activity or function should be the determining factor. Where multiple room use codes are accommodated in a system, proration may be used. Where multiple space use codes can be accommodated in the database, a system to prorate space may be used. Primary use or proration also applies to the assignment of spaces to organizational units, functional categories.

2.2 Assignable Area Categories Description

100 Classroom Facilities

This category aggregates classroom facilities as an institution-wide resource, even though these areas may fall under different levels of organizational control. The term “classroom” includes not only general purpose classrooms, but also lecture halls, recitation rooms, seminar rooms, and other spaces used primarily for scheduled non-laboratory instruction. Total classroom facilities include any support rooms that serve the classroom activity. A classroom may contain various types of instructional aids or equipment (e.g., multimedia or telecommunications equipment) as long as they do not tie the room to instruction in a specific subject or discipline. For treatment of such space, see Laboratory Facilities.

110 Classroom

- *Definition:* A room or space used primarily for instruction classes and that is not tied to a specific subject or discipline by equipment in the room or the configuration of the space.

- *Description:* Includes rooms or spaces generally used for scheduled instruction that require no special, restrictive equipment or configuration. These spaces may be called lecture rooms, lecture-demonstration rooms, seminar rooms, and general purpose classrooms. A classroom may be equipped with tablet armchairs (fixed to the floor, joined in groups, or flexible in arrangement), tables and chairs (as in a seminar room), or similar types of seating. These spaces may contain multimedia or telecommunications equipment. A classroom may be furnished with special equipment (e.g., globes, pianos, maps, computers, network connections) appropriate to a specific area of study, **if** this equipment does not render the space unsuitable for use by classes in other areas of study.

115 Classroom Service

- *Definition:* A space that directly serves one or more classrooms as an extension of the activities in that space.

- *Description:* Includes projection rooms, telecommunications control booths, preparation rooms, coat rooms, closets, storage areas, etc., **if** they serve classrooms.

200 Class Laboratory Facilities

General

A Class laboratory is a facility characterized by special purpose equipment or a specific space configuration that limits instructional activities to a particular discipline or a closely related group of disciplines. Laboratories may be found in all fields of study including letters, humanities, natural sciences, social sciences, vocational and technical disciplines, etc.

The nature of laboratory experiences has changed in many disciplines with the introduction of computer simulation in combination with, or as replacement of, the old “wet lab” experience in both natural and social sciences. Curricular intent should be considered as well as the physical structure of the space.

Laboratory facilities can be subdivided into two categories: class and open. A class laboratory is used for **scheduled** instruction. An open laboratory supports instruction but is not formally scheduled.

210 Class Laboratory

- *Definition:* A space used primarily for formally or regularly scheduled instruction (including associated mandatory, but non-credit-earning laboratories) that require special purpose equipment or a specific space configuration for student participation, experimentation, observation, or practice in an academic discipline. A space is considered to be scheduled if the activities generate weekly

student contact hours (WSCHs), the activities fulfil course requirements, and/or there is a formal convener present.

- *Description:* A class laboratory is designed for or furnished with equipment to serve the needs of a particular discipline for group instruction in formally or regularly scheduled classes. This special equipment normally limits or precludes the space's use by other disciplines. Included in this category are spaces generally called teaching laboratories, instructional shops, computer laboratories, drafting rooms, band rooms, choral rooms, (group) music practice rooms, language laboratories, (group) studios, theatre stage areas used primarily for instruction, instructional health laboratories, and similar specially designed or equipped rooms, if they are used primarily for group instruction in formally or regularly scheduled classes. Computer rooms used primarily to instruct students in the use of computers are classified as class laboratories if that instruction is conducted primarily in formally or regularly scheduled classes.

215 Class Laboratory Service

- *Definition:* A space that directly serves one or more class laboratories as an extension of the activities in those spaces.

- *Description:* Includes any space that directly serves a class laboratory. Included are projection rooms, telecommunications control booths, coat rooms, preparation rooms, closets, material storage (including temporary hazardous materials storage), balance rooms, cold rooms, stock rooms, dark rooms, equipment issue rooms, etc., if they serve class laboratories.

220 Open Laboratory

- *Definition:* A laboratory used primarily for individual or group instruction that is informally scheduled, unscheduled, or open.

- *Description:* An open laboratory is designed for or furnished with equipment that serves the needs of a particular discipline or discipline group for individual or group instruction where 1) use of the space is not formally or regularly scheduled, or 2) access is limited to specific groups of students. Included in this category are spaces generally called music practice rooms, language laboratories used for individualized instruction, studios for individualized instruction, special laboratories or learning laboratories (e.g., speech, hearing, law, individual laboratories, and computer laboratories involving specialized restrictive software or where access is limited to specific categories of students. For example, a computer laboratory with only engineering or CAD software or a computer-based writing laboratory available only to English Composition students would be classified as an open laboratory because of the restricted usage of the space for a particular discipline or discipline group. Spaces containing computer equipment that is not restricted to a specific discipline or discipline group are classified as Study Rooms unless the primary intent is to function as a site for structured learning or group activities rather than individual knowledge acquisition.

225 Open Laboratory Service

- *Definition:* A space that directly serves one or more open laboratories as an extension of the activities in those spaces.

- *Description:* Includes only those spaces that directly serve an open laboratory. Included are projection rooms, telecommunications control booths, coat rooms, preparation rooms, closets, material storage (including **temporary** hazardous materials storage), balance rooms, cold rooms, stock rooms, dark rooms, equipment issue rooms, and similar facilities, if they serve open laboratories.

300 Research Laboratory Facilities

General

A research/non-class laboratory is used for research, experimentation, observation, research training, or structured creative activity that supports extension of a field of knowledge.

Note: Within comprehensive research universities, it is difficult to draw precise lines between instruction and research activities. At institutions with medical and health science programs, it is even more complicated because of the difficulty in distinguishing between patient care and instruction or research activities. The problem of joint activities makes the classification of space more difficult.

The complexity of "research" and how it may affect space use classification decisions needs discussion at the institutional level. In general, there are four categories of research/non class activities: externally budgeted or funded projects or centers; separately organized centers or projects that are funded from institutional resources; departmental research activities that are neither separately budgeted or organized; and creative and intellectual activities of faculty in some

disciplines that are the equivalent of departmental research (e.g., visual and performing arts are common examples).

When this complexity exists, institutions may elect to use standard space use codes for laboratories, office space, etc., and rely upon the actual activities of the faculty and staff housed within the space to determine the distinction between instruction and research. The space inventory data elements include a designation of function as a separate code for each space. If combined with financial and activity information, the combination of function and space use code can accurately represent allocations of space for research more effectively and accurately than reliance upon only the space use code.

310 Research/Non class Laboratory

- *Definition:* A space used for laboratory experimentation, research, or training in research methods; professional research and observation; or structured creative activity within a specific program or for sponsored research (whether sponsored with federal, state, private, or institutional funds).

- *Description:* A research/non-class laboratory is designed or equipped for faculty, staff, and students for the conduct of research and controlled or structured creative activities. These activities are generally confined to faculty, staff, and assigned graduate students and are applicable to any academic discipline. Activities may include experimentation, application, observation, composition, or research training in a structured environment directed by one or more faculty or principal investigators. These activities do not include practice or independent

study projects and activities that, although delivering "new knowledge" to a student, are not intended for a broader academic (or sponsoring) community (e.g., a presentation or publication). This category includes laboratories that are used for experiments, testing, or "dry runs" in support of instructional, research, or public service activities. Non-class public service laboratories that promote new knowledge in academic fields (e.g., animal diagnostic laboratories, cooperative extension laboratories) are included in this category.

315 Research/Non-class Laboratory Service

- *Definition:* A space that directly serves one or more research/non-class laboratories as an extension of the activities in those spaces.

- *Description:* Includes only those spaces that directly serve a research/non-class laboratory. Included are projection rooms, telecommunications control booths, coat rooms, preparation rooms, closets, material storage, balance rooms, cold rooms, stock rooms, dark rooms, equipment issue rooms, temporary hazardous materials storage areas, and similar facilities, if they serve research/non-class laboratories.

400 Office Facilities

General

Office facilities are individual, multi-person, or workstation spaces specifically assigned to academic, administrative, and service functions of a college or university. While some institutions may wish to classify all office space as Office (410), others may wish to differentiate academic, administrative, staff, secretarial, clerical, or student assistant offices, etc., by applying additional codes.

410 Office

- *Definition:* A space housing faculty, staff, or students working at one or more desks, tables, or workstations.

- *Description:* An office is typically assigned to one or more persons as a station or work area. It may be equipped with desks, chairs, tables, bookcases, filing cabinets, computer workstations, microcomputers, or other office equipment. Included are faculty, administrative, clerical, graduate and teaching assistant, and student offices.

415 Office Service

- *Definition:* A space that directly serves an office or group of offices as an extension of the activities in those spaces.

- *Description:* Includes file rooms, break rooms, kitchenettes serving office areas, copy and fax rooms, vaults, closets, private rest rooms not available to the public, records rooms, office supply rooms, first aid rooms serving office areas, student counselling rooms and testing

(assessment, non-health, non-discipline-related) rooms, and open and private (restricted/non-public) circulation areas.

450 Conference Room

- *Definition:* A space serving an office complex and used primarily for staff meetings and departmental activities.

- *Description:* A conference space is typically equipped with tables and chairs. Normally it is used by a specific organizational unit or office area, whereas Meeting Rooms are used for general purposes such as community or campus group meetings not associated with a particular department. If a space is used for both conference and meeting space functions, then the space should be classified according to its principal use. A conference space is distinguished from facilities such as seminar rooms, lecture rooms, and Classrooms because it is used primarily for activities other than scheduled classes. A conference space is intended primarily for formal gatherings, whereas a lounge is intended for relaxation and casual interaction. This category includes teleconference spaces.

455 Conference Room Service

- *Definition:* A space that directly serves one or more conference spaces as an extension of the activities in those spaces.

- *Description:* Includes kitchenettes, storage spaces, telecommunications control booths, projection rooms, sound equipment rooms, etc., if they serve conference spaces.

500 Study Facilities

General

Study space is classified into five categories: study room, stack, open-stack study room, processing room, and study service. Offices used for library activities are coded as office facilities. A study space may contain equipment or materials that aid the study or learning process (e.g., computers, multimedia carrels, CD and DVD players, typewriters, records and tapes) and that do not restrict the space to a particular academic discipline or discipline group. Whereas a Study Room (510) may appear in almost any type of building on campus (e.g., academic, residential, student service), Stacks (520), Open-Stack Study Rooms (530), and Processing Rooms (540) are typically located in central, branch, and departmental libraries. Identification of library space should be made through the use of functional categories, and departmental space through the combined use of academic discipline and functional categories.

510 Study Space

- *Definition:* A room or area used by individuals to study at their convenience, the space not being restricted to a particular subject or discipline by contained equipment.

- *Description:* Includes study or reading rooms located in libraries, residential facilities, academic or student service facilities, study carrel and booth areas, and similar spaces that are intended for general study purposes. Study stations may be grouped, as in a library reading room, or individualized, as in a carrel. Study stations may include computers, typewriters, microform readers, CD and DVD players, or other multimedia equipment. The category Study Space includes spaces commonly termed “learning labs” or “computer

labs" if they are not restricted to specific disciplines by contained equipment or software. Study spaces are primarily used by students or staff for learning at their convenience, although access may be restricted by a controlling unit (e.g., departmental study room).

520 Stack

- *Definition:* A space used to house arranged collections of educational materials for use as a study resource.

- *Description:* Stacks typically appear in central, branch, or departmental libraries and are characterized by accessible, arranged, and managed collections. Collections can include books, periodicals, journals, monographs, micro-materials, electronic storage media (e.g., tapes, disks, slides, etc.), musical scores, maps, and other educational materials.

530 Open-Stack Study Room

- *Definition:* A combination study space and stack, generally without physical boundaries between the stack and study areas.

- *Description:* Seating areas include those types of station and seating arrangements described under Study Room (510). The stack areas of these spaces may include any of the educational material collections described under Stack (520).

540 Processing Room

- *Definition:* A room or area devoted to processes and operations in support of library functions.

- *Description:* A processing room is intended for specific library operations that support the overall library mission. Included are card and microfiche areas, reference desk and circulation desk areas, bookbinding rooms, multimedia materials processing areas, interlibrary loan processing areas, and other areas with a specific process or operation in support of library functions.

555 Study Service

- *Definition:* A space that directly serves study spaces, stacks, open-stack study spaces, or processing rooms as a direct extension of the activities in those spaces.

- *Description:* Includes storage spaces, copy rooms, closets, locker rooms, coat rooms, and other typical service areas that support a primary study facilities room. With the increasing implementation of wireless technology, service areas are migrating into the primary study space and stacks. Campuses need to adopt a consistent approach to using either predominate use or "phantom walls" to allow for the separation of service space. An example would be space occupied by routers, servers, or battery-charging equipment on the open floor of a library or student center.

600 Special Use, General Use and Support use Facilities

General

The Special Use category includes several spaces that are sufficiently specialized in their primary activity or function to merit a unique space code. Areas and rooms for military training, athletic activity, media production, clinical activities (outside of separately organized health care facilities), demonstration, agricultural field activities, and animal and plant

shelters are included here. Although many of these special use facilities provide service to other areas, their special use or configuration dictates that these areas not be coded as service spaces.

It includes:

601. Armory (Military Support)
602. Armory Service
603. Athletic or Physical Education
604. Athletic Facilities Spectator Seating
605. Athletic or Physical Education Service
606. Media Production
607. Media Production Service
608. Clinic
609. Clinic Service
610. Demonstration
611. Demonstration Service
612. Field Building
613. Animal Facilities
614. Animal Facilities Service
615. Greenhouse
616. Greenhouse Service
617. Other (All Purpose)

The General use facilities are characterized by a broader availability to faculty, students, staff, or the public than are Special Use Facilities, which are typically limited to a small group or special population. General use facilities comprise a campus general service or functional support system (e.g., assembly, exhibition, dining, relaxation, merchandising, recreation, general meetings, and day care) for the institutional and participant community populations.

It includes:

620. Assembly
621. Assembly Service
622. Exhibition

623. Exhibition Service
624. Food Facility
625. Food Facility Service
626. Day Care
627. Day Care Service
628. Lounge
629. Lounge Service
630. Merchandising
631. Merchandising Service
632. Recreation
633. Recreation Service
634. Meeting Room
635. Meeting Room Service

The Support facilities Category, which provide centralized space for various auxiliary support systems and services of a campus, help keep all institutional programs and activities operational. While not as directly accessible to institutional and community members as General Use Facilities, these areas provide a continuous, indirect support system to faculty, staff, students, and the public. Support facilities are centralized in that they typically serve an area ranging from an entire building or organizational unit to the entire campus. Included are centralized areas for computer-based data processing and telecommunications, shop services, general storage and supply, vehicle storage, central services (e.g., printing and duplicating, mail, shipping and receiving, environmental testing or monitoring, laundry, or food stores), and hazardous materials areas.

It includes:

640. Central Computer or Telecommunications
641. Central Computer or Telecommunications Service
642. Shop
643. Shop Service
644. Central Storage
645. Central Storage Service

646. Vehicle Storage
647. Vehicle Storage Service
648. Central Service
649. Central Service Support
650. Hazardous Materials Storage
651. Hazardous Waste Storage
652. Hazardous Waste Service
653. Unit Storage

700 Health Care Facilities

General

This category provides space use classifications for patient care areas that are located in separately organized and budgeted health care facilities: student infirmaries and centers, teaching hospitals, stand-alone clinics run by these hospitals, and veterinary and medical schools. Space codes and definitions apply to both human and animal health care areas; excluded are clinic facilities located outside of separately organized and budgeted health care facilities (see Clinic). Although the codes in this series are confined to the settings listed, these facilities may also house areas that are classified using applicable codes from other classification series (e.g., classroom, laboratory, office, special use, general use, supporting facilities, etc.).

It includes

- 710 Patient Bedroom
- 715 Patient Bedroom Service
- 720 Patient Bath
- 730 Nurse Station
- 735 Nurse Station Service
- 740 Surgery
- 745 Surgery Service
- 750 Treatment/Examination Clinic
- 755 Treatment/Examination Clinic Service
- 760 Diagnostic Service Laboratory

- 765 Diagnostic Service Laboratory Support
- 770 Central Supplies
- 780 Public Waiting
- 790 Staff On-Call Facility
- 795 Staff On-Call Facility Service

800 Residential Facilities

General

Residential facilities include housing for students, faculty, staff, and visitors to the institution. Hotel or motel and other guest facilities are included in this series if they are owned or controlled by the institution and used for purposes associated with defined institutional missions (i.e., excluding commercial investment).

All space excluding Offices in residential facilities is included in this category which includes:

810 Students Hostels

820 Faculty and staff residential facilities

830 Guest Facilities

000 Unclassified

Unclassified facilities include those assignable areas that are inactive or unassigned; in the process of being altered, renovated, or converted; or in an unfinished state.

2.3 Non-Assignable Area

General

The following non assignable categories are included to complete the list of space use categories. When the total area of the assignable space use categories is added to the total area of the non-assignable space use categories, they provide the net usable area of a building :.

Net Usable Area = Assignable Area +

Non assignable Area

Physical assets (e.g., site improvements, major site utility distribution, etc.) that do not fall within the limits of a building are considered *infrastructure.*

WWW Circulation Area

General

Non assignable spaces required for physical access to floors or subdivisions of space within the building, whether directly bounded by partitions or not.

XXX Building Service Area

General

Non assignable spaces used to support a building's cleaning and public hygiene functions.

YYY Mechanical Area

General

Non-assignable spaces of a building designed to house mechanical equipment and utility services, and shaft areas.

Y01 Central Utility Plant

- *Definition:* A facility that primarily houses central utility production and/or distribution to more than one facility on campus. These include such facilities as steam plants, co-generation facilities, and electrical distribution facilities.

- *Limitations:* Conventional space use types such as Offices (310), Office Service (315), Conference Rooms (350), and the like are designated as such, even though they are located in a central utility plant.

Y02 Fuel Room

- *Definition:* A room or area within a building in which fuel for the heating/cooling of the building is stored.

- *Limitations:* Underground tanks adjacent to the building that do not fulfill the definition of a building should be treated as infrastructure.

Y03 Shaft

- *Definition:* Included are accessible or non-accessible shaft spaces available to house utility pipes and cables, or to distribute air within or to the exterior of a building. The cross-sectional area of every shaft is to be inventoried at each floor level through which it passes.

- *Limitations:* Shafts that house elevator cabs are to be coded as Elevator (W02).

Y04 Utility/Mechanical Space

- *Definition:* Included are covered and walled areas that house one or more utility and/or mechanical functions for the building. These areas range from large rooms co-located on a "mechanical" floor or basement area to small closet spaces distributed throughout the building. Such areas, while generally located within the exterior walls of a building or as an accessible roof structure, may be separately housed adjacent to the structure that they serve. They include such areas sometimes referred to as electrical, meter, network, or telecommunication spaces. Some may prefer to identify these specific spaces separately and may do so by adding them as subcategories of this space use.

- *Limitations:* Air inflow or outflow shafts within or immediately adjacent to the building, with a minimum ceiling height of 3 feet, fall under the non-assignable space use Shaft (Y03) and must be included in both gross area and non-assignable area calculations.

ZZZ Structural Area

General

The remaining area within the gross square footage of a building is structural or "construction" area, which cannot be occupied or put to use. Institutions may wish to include this area using the ZZZ code to have a complete inventory for all the building areas that add to the Gross Area total for a floor and for a building.

3. ROOM OR SPACE CONDITION

Room condition coding provides a structure for assessing the need for a room to be repaired, upgraded, or renovated based solely on the physical condition of the room.

The condition of a room may be considered independent of the condition of its building. Room condition pertains to specific conditions in the room itself, such as interior finishes, rather than conditions of **base** building systems, such as heating and air conditioning or exterior walls, which affect the building as a whole.

A. Definition. The physical status of the room at the time of the inventory or audit, based on the best judgment of those persons familiar with the physical characteristics and condition of the room.

B. **Derivation.** The most useful facilities management information is produced when the inventory or audit rates each space or space within a building. This approach documents the rating of each space, as well as the overall composite rating of all spaces in a building, and provides information about needed repairs or replacements. A facilities audit should tie subsystem and overall composite ratings to the estimated cost of rehabilitating or renovating the space(s).

C. Description. Space condition has the following categories based on the extent of renovation or restoration required:

1. Minimal Renovation (Good). Suitable for continued use with normal maintenance.

2. Limited Renovation (Satisfactory). Requires restoration to present acceptable conditions.
3. Moderate Renovation (Fair). Requires updating or restoration. The physical conditions may have an effect upon space use.
4. Significant Renovations (Poor). Requires significant updating or restoration.
5. Major Renovations (Unsatisfactory). Warrants major restoration with possible need to overhaul interfaces of equipment in the space with building subsystems.
6. Replace/Demolition. Barred from use because it is unsafe or hazardous, irrespective of the need for the space or the availability of funds for a replacement. This category takes precedence over all other categories.
7. Termination. Planned termination or relinquishment of occupancy of the space for reasons other than unsafeness or hazardous conditions, such as abandonment of temporary units or vacating of leased space. Additionally, this category takes precedence over category 6. If a space is scheduled for intentional vacancy, its condition is reported in this category, regardless of its condition.

5. FUNCTIONAL CATEGORIES (PROGRAMMES)

The functional categories were developed for Cost Financial Accounting purposes but are identified as optional data elements that can be used to link space allocations to financial data or to institutional missions (e.g. the proportion of space used for public service) or to analyse and compare space allocations across institutions according to commonly used functional categories. Table 2 below gives the description of the functional categories and their subcategories.

Table 2 - Description of the Functional Categories and their Subcategories

FUNCTIONAL CATEGORY (Programme)	DESCRIPTION
1.0 Instruction	This category includes all activities that are part of an institution's instructional program. Included are credit and non-credit courses for academic, vocational, and technical instruction; remedial and tutorial instruction; regular, special, and extension sessions; and community education.
2.0 Research	This category should include all activities specifically organized and separately budgeted to produce research outcomes, whether departmental or commissioned by an agency external to the institution or separately by an organizational unit within the institution.
3.0 Public Service	This category includes identified activities that are established primarily to provide non instructional services beneficial to individuals and groups external to the institution. Examples: *Community Services, Cooperative Extension Services, Public Broadcasting Services*
4.0 Academic Support	This category includes support services for the institution's primary missions: instruction, research, and public service. 4.1. Library Services 4.2. Museum Services 4.3. Educational Media Services 4.4. Academic Computing Support 4.5. Ancillary Support 4.6. Academic Administration 4.7. Course and Curriculum Development 4.8. Academic Personnel Development
5.0 Student Services	This category includes admissions and registrar offices and those activities whose primary purpose is to contribute to the student's emotional and physical well-being and to his or her intellectual, cultural, and social development outside the context of the formal instructional program. 5.1. Student Services Administration 5.2. Social and Cultural Development 5.3. Counselling and Career Guidance 5.4. Student Health Services

Table 3 describes the interrelationship between these two characteristics of a facility and the scoop of this guide. The shaded cells indicate possible combination.

TABLE 3: Interrelationship between Space Use categories

Space-use category / Functional Category	Classroom Facilities	Class/Open Laboratory Facilities	Res/Non-class Laboratory Facilities	Office Facilaties	Study Facilaties	Special-use Gen-use & Sup. fac.	Health-care Facilities	Residential Facilities
1.0 Instruction								
2.0 Research								
3.0 Public Service								
4.0 Academic Support								
5.0 Student Service								
6.0 Institutional Support								
7.0 Op. & Maint. of Plant								
8.0 Bursaries								
9.0 Auxilliary Enterprises								

The Investment Model treats separately the Instruction Programme and all the other Programmes, designed by “Non-Instruction” Programmes.

ANNEX 2

These detailed physical estimations are presented in Table O1 for the Instruction Programme and Table O3 for non-Instruction Programmes.

Table O1 - Building Space for Instructional Functional Category by Space Use Category

Space use Category		Classroom Facilities			Class/Open Laboratory Facilities		Office Facilities	
Qualification Type		Contact		Distance	Contact	Distance	Contact	Distance
		1-3,5	4,6	1-6	1-6		1-7	
Field of Learning	Agriculture and Nature Conservation	282	22.4	0	909	0	455	0
	Business, Commerce and Management Studies	5,475	91	298	1,474	34	3,685	456
	Communication Studies and Language	209	12	13	173	8	173	47
	Culture and the Arts	0	0	0	0	0	0	0
	Education, Training and Development	45	0	1	39	1	34	6
	Manufacturing, Engineering and Technology	1,101	29	0	3,331	0	1,098	0
	Human and Social Studies	0	0	0	0	0	0	0
	Law, Military Science and Security	90	6	0	30	0	61	0
	Health Sciences and Social Services	293	0	0	796	0	368	0
	Physical, Mathematical and Computer Sciences	1,022	87	0	1,912	0	619	0
	Physical Planning and Construction	521	13	0	1,811	0	660	0
	Services and Life Sciences	271	17	4	733	11	293	26
	TOTAL	9,306	276	317	11,208	53	7,445	536

Unit: Square meters

Table O3. - Building Space Requirements for the Non-Instructional Categories/Subcategories According to Space Use Category

(Unit: Square metres)

Space use Category	Research/ Non-class Laboratory Facilities		Office Facilities		Study Facilities		Special Use, General Use & Supporting Facilities		Health Care Facilities	Residential Facilities		TOTAL	
Space Use Programme/sub-programme	**Contact**	**Distance**	**Contact**	**Distance**	**Contact**	**Distance**	**Contact**	**Distance**	**Contact**	**Contact**	**Distance**	**Contact**	**Distance**
2.0 Research	6,487	82	0	0	0	0	0	0	0	0	0	6,487	82
4.0 Academic Support	0	0	0	0	0	0	0	0	0	0	0	0	0
4.1 Library Services	0	0	811	136	11,757	1,089	0	0	0	0	0	12,568	1,225
4.2 Museum Services	0	0	0	0	0	0	608	82	0	0	0	608	82
4.3 Educational Media Services	0	0	81	27	0	0	584	41	0	0	0	665	68
4.4 Academic Computing Support	0	0	162	22	0	0	381	3	0	0	0	543	25
4.5 Ancillary Support	0	0	608	103	0	0	3,446	95	0	0	0	4,054	199
4.6 Academic Administration	0	0	811	136	0	0	0	0	0	0	0	811	136
4.7 Course and Curriculum Development	0	0	41	0	0	0	0	0	0	0	0	41	0
4.8 Academic Personnel Development	0	0	41	0	0	0	0	0	0	0	0	41	0
5.0 Student Services	0	0	0	0	0	0	0	0	0	0	0	0	0
5.1 Student Services Administration	0	0	65	0	0	0	0	0	0	0	0	65	0
5.2 Social and Cultural Development	0	0	487	0	0	0	7,517	54	0	0	0	8,003	54
5.3 Counselling and Career Guidance	0	0	162	0	0	0	0	0	0	0	0	162	0
5.4 Student Health Services	0	0	0	0	0	0	0	0	130	0	0	130	0
6.0 Institutional Support	0	0	0	0	0	0	0	0	0	0	0	0	0
6.1 Executive Management	0	0	162	27	0	0	341	16	0	0	0	503	44
6.2 Financial Administration	0	0	405	68	0	0	0	16	0	0	0	405	84
6.3 Financial Aid Administration	0	0	162	0	0	0	0	0	0	0	0	162	0
6.4 General Administration and Logistical Services	0	0	487	82	0	0	4,184	1,010	0	0	0	4,670	1,092
6.5 Student Admissions, Records and Examination	0	0	243	54	0	0	0	0	0	0	0	243	54
6.6 Administrative Computing Support	0	0	203	52	0	0	154	41	0	0	0	357	93

6.7 Public Relations/Fund- Raising	0	0	243	82	0	0	0	0	0	0	0	243	82
6.8 Staff Social and Cultural Development	0	0	122	0	0	0	0	0	0	0	0	122	0
7.0 Operation and Maintenance of Plant	0	0	243	14	0	0	2,189	163	0	0	0	2,433	177
9.0 Auxiliary Enterprises	0	0	0	0	0	0	0	0	0	0	0	0	0
9.1 Student Housing Services(1)	0	0	0	0	0	0	865	0	0	4,850	0	5,715	0
9.2 Student Food Services(1)	0	0	0	0	0	0	694	0	0	0	0	694	0
9.3 Staff Housing Services	0	0	0	0	0	0	0	0	0	1,622	54	1,622	54
9.4 Other Food Services(1)	0	0	0	0	0	0	3,556	109	0	0	0	3,556	109
9.5 Other Auxiliary Enterprises	0	0	0	27	0	0	357	14	0	0	0	357	41
9.6 Operation and Maintenance of Plant for Aux. Ent. (1)	0	0	12	0	0	0	44	0	0	0	0	56	0
TOTAL	6,487	82	5,550	831	11,757	1,089	24,920	1,645	**130**	6,472	54	55,315	3,701

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