

Designing an Academic Workload Model for a Developing University of Technology

By

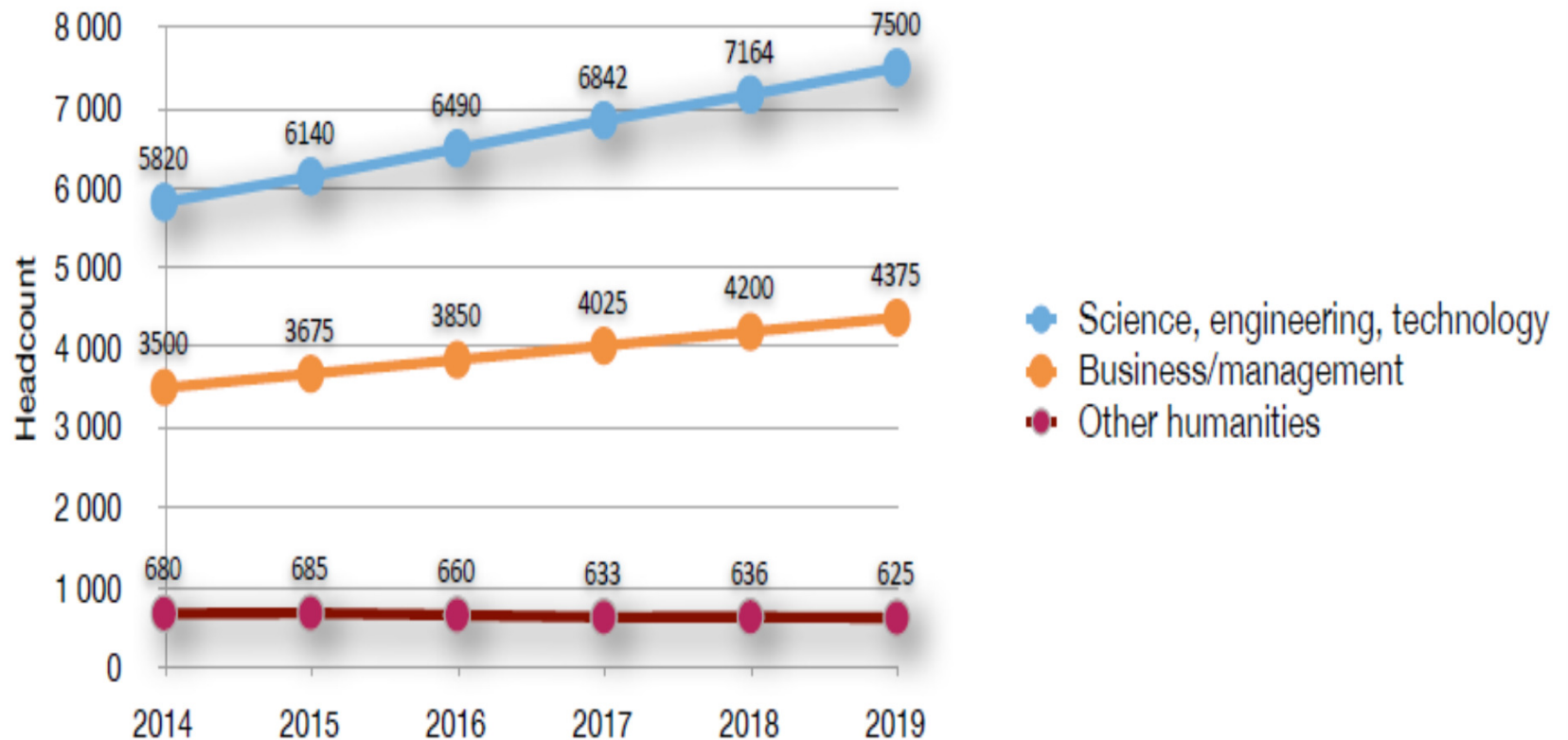
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Background

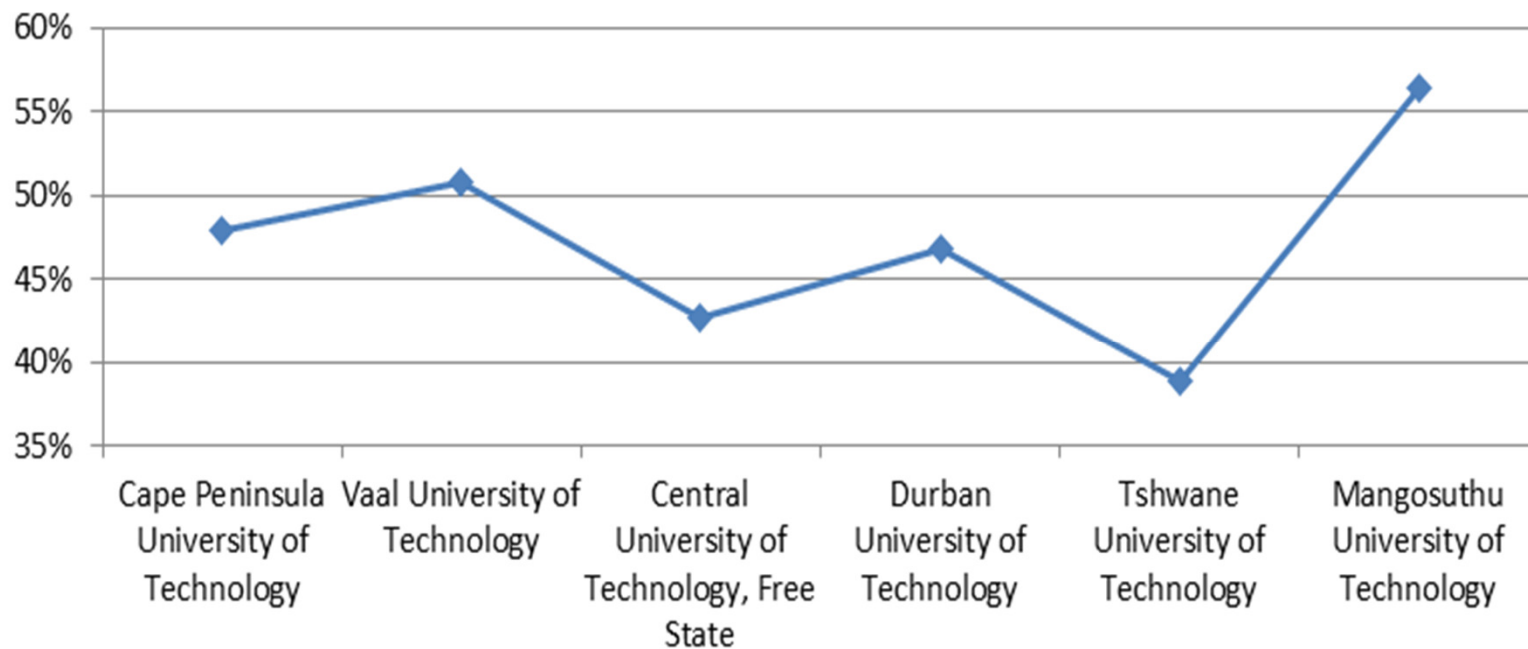
Mangosuthu University of Technology (MUT) formerly known as Mangosuthu Technikon is one of the six UoTs. The Technikon started teaching in 1979 as Mangosuthu Technikon out of the visionary idea of the Chief Minister of KwaZulu. The Technikon had the mandate of producing qualified African Technicians. Mangosuthu Technikon was renamed Mangosuthu University of Technology in 2007 following reforms in higher education across South Africa in the post-apartheid era. The University has current student enrolment of about 10,000 spread across three faculties of Engineering, Natural Sciences and Management Sciences.

Planned Enrolments



MUT SET Share In Headcount Enrolled Against those of other UoTs for 2010

MUT SET share against other UoTs (Headcount) - 2010



Generic Load

- The ratio of FTE student to FTE permanent instruction/research staff at MUT is about 40 against national average of 27 (CHE,2011).

	2007	2008	2009	2010	2011	2012
Total FTE enrolled students	6784	6822	7318	7426	7130	7372
FTE instruction/research staff	162	148	170	171	183	184
Ratio of FTE students to FTE instruction research staff	41.9	46.2	43.0	43.5	38.9	40.1

Philosophical Reflection

- Is it possible to completely measure the work that academics do?
- Is it possible to compare in every detail the workload of one academic to another?

Basis for Model Development

- Academic activities are complex and multidimensional; MUT recognizes the complex nature of academic activities.
- PQM of MUT reflects a predominantly undergraduate institution that focusses on teaching excellence in Science, Engineering and Business Management.
- To achieve teaching excellence, academic workload factors have to be distributed in a manner that allows prioritization of teaching and learning.

Motivation

- HEQC Recommendation: Develop a workload model for academic staff to establish equitable work allocation.
- Requests from faculties for academic workload guidelines.

Purpose

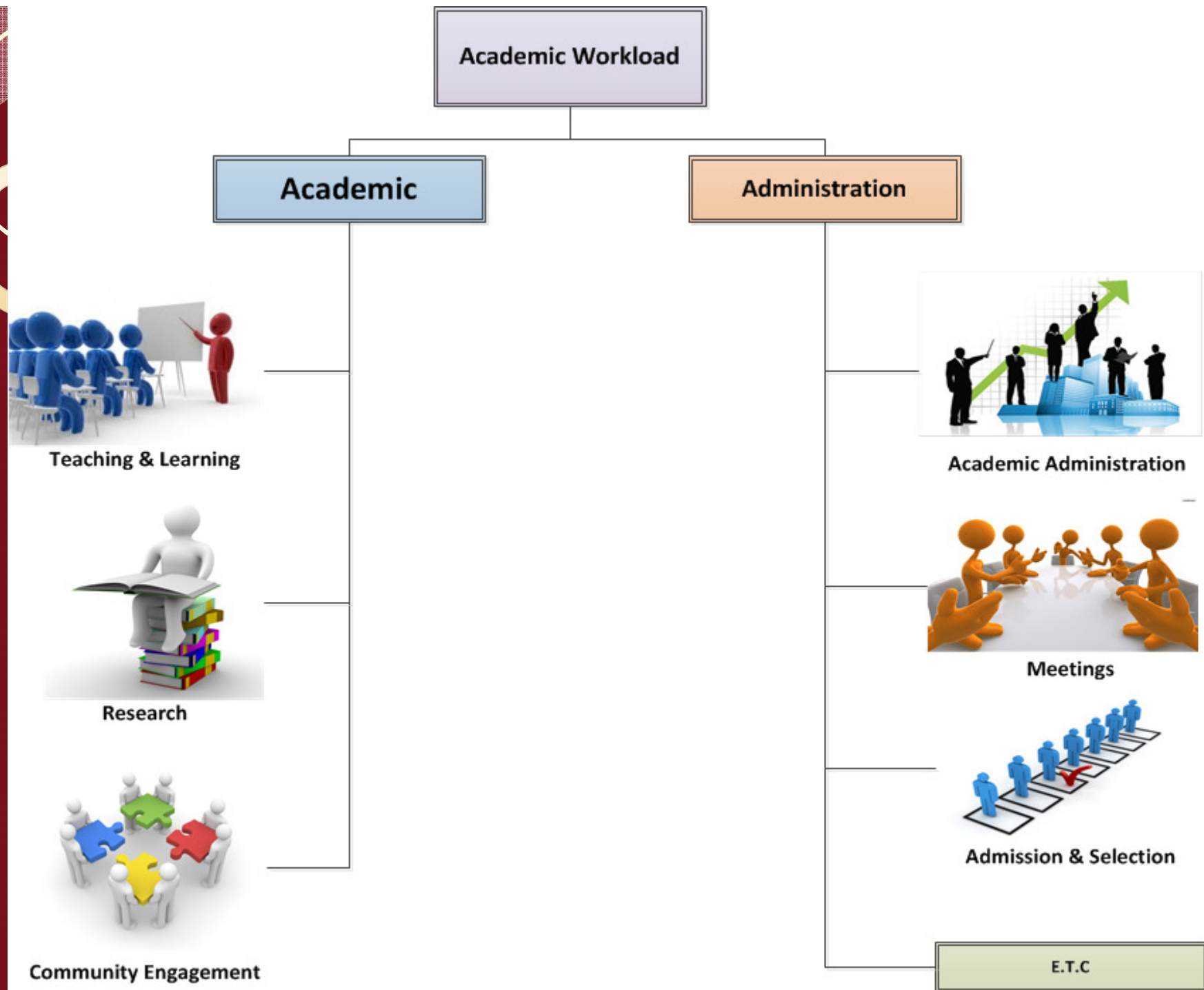
The purpose of the academic workload model is to provide MUT with a framework for ensuring that academic workloads are distributed equitably and transparently.

Principles

- Transparent process of workload allocation that provides opportunity for consultation .
- The allocation and recognition of academic workloads should support the strategic vision, mission and priorities of the University.
- The allocation of academic work should reflect the divergent career trajectories for academic staff.
- Simple and user friendly model.

Possible Workload Factors

Contact times, Class size, Type of Class, Mode of delivery, Consultation, WIL, Mentorship, Use of tutors, Experience, Community engagement, Nature of subject, Academic administration, Assessment, Research publications, Team teaching, Postgraduate supervision, Repeated subject, New subject ...



Workload Definition

- The workload of an academic is the aggregated time spent on academic and administrative duties.
- One workload unit is equal to one hour.

Available Week-based Academic Work Time/Units

Scale	Total Hours
Mon -Thu	32
Fri	5
Week	37

Teaching & Learning Loading Factors

- Preparation for teaching/practicals.
- Contact time in class/lab.
- Excursion and WIL visits.
- Assessment.

Research & Innovation Loading Factors

- Direct outputs such as; scholarly articles, proceedings, books and patents.
- Conference presentation and participation.
- Consultation as a researcher.
- Supervision of postgraduate students.

Community Engagement Load Factors

- Contact with community, professional bodies, government and non-governmental organizations etc. Giving of public or school lectures.
- Time spent on MUT related advancement programmes and projects (Memoranda of understanding, collaborations etc).

Administrative Load Factors

- Student selection and registration.
- Managing programmes, depts.
- Compiling timetables.
- Departmental, faculty, committee meetings.
- Attending training courses.
- Organizing guest lectures, workshops etc.
- Examination results ratification meetings.
- Other approved non-academic duties.

Guidelines for workload Allocation

- **Departmental obligation load:** A load of between 2 and 6 hours on average per week for departmental obligations.
- **Research and community engagement projects:** Between 2 and 8 hours on average per week to be determined by HOD.
- **Other obligations:**
 - Compulsory consultation hours: 5 hours per week distributed over three days
 - Compulsory time on campus: 20 hours per week, spread over FIVE days.

- **WIL activities:** One unit per hour for preparations and visits.
- **Preparation for teaching:** The hours of work required per contact hour, 3 units are used for lecture sections and 2 are used for laboratory sections. This provides for 1 unit preparation, 1 unit lecturing and 1 unit for assessment, administration, consulting etc.

- **Programme Coordinators:** HODs may recommend academics (Deans' approval) to serve as programme coordinators within departments that have substantial numbers of students in either different specializations or levels of study.
- **Service Departments HODs:** HODs of service departments are expected to utilize at least 50% of time on teaching and learning activities and 30% on admin.
- **Programme Departments HODs:** A load of 22 hours a week pertaining to administrative duties for Diploma programmes, 10 hours for B.Tech and 5 hours for Masters programmes.

- **Standard workload:** 37 units per week.
- **Exceptions:** To be dealt with according to circumstances and determined by Dean.

Workload Distribution by Rank

ACADEMIC LEVEL	T & L (%)	R & I (%)	CE (%)	ADMIN (%)
Junior Lecturer	≥ 80			
Lecturer	≥ 75			
Senior Lecturer	≥ 65			
Assistant Professor	≥ 65			
Associate Professor	≥ 65			
Professor	≥ 60			
Research Professor		≥ 90		
Programme Coordinator	≥ 50			≥ 30
HOD Service Dept	≥ 50			≥ 30
HOD Programme Dept				≥ 60
Dean				≥ 90

Workload Calculation

Total workload for an academic is calculated as follows:

$$TW = TL + RI + CE + AD$$

where,

TW = Total Workload

TL = Time on Teaching and Learning

RI = Time on Research and Innovation

CE = Time on Community Engagement

AD = Time on Administrative Activities.

The workload of an academic for teaching and learning component on a single subject for a week is calculated as:

$$TL = [CN \times PR \times (0.5 + 0.5 CS/NS)] - TU + W$$

where,

TL = teaching and learning workload

CN = the CONTACT HOURS per week

PR = the hours for PREPARATION required per contact hour

CS = the number of students (CLASS SIZE) in the class

NS = the NORMAL SIZE of the class section

W = the hours on WIL preparation and visits

TU = time saved by using a tutor (0.5 hr for each hr)

The constant 0.5 and 0.5 multiplier of (CS/NS) provide the balanced division for work that increases in proportion to class size.

In general, the total workload that encompasses all components of work of academics for a week is calculated as:

$$TW = \sum \{CN \times PR \times (0.5 + 0.5 CS/NS) - TU + W\} + RI + CE + AD$$

- If a subject has more than three contact hours per week each additional hour only carries unit weight (i.e. 1 unit for every hour).
- When presenting a subject to multiple small groups all the students in all groups are added and treated as one class size.
- In the case of team teaching, load is shared equally according to the number of academics.

Normal Class Size?

Faculty	Mean	Median	Std. Deviation	N
Engineering	69	73	39	177
Natural Scs	43	37	31	179
Management Scs	89	90	39	154
<i>MUT</i>	<i>66</i>	<i>57</i>	<i>41</i>	<i>510</i>

- Normal Class size: Average class size is regarded as 73 for Science and Engineering and 90 for Management Sciences.



Mangosuthu
University of Technology

Management Information Services (MIS)

UMLAZI KWAZULU-NATAL

P.O. Box 12363 Jacobs 4026 Durban Tel: 031 907 7510 Fax: 031 907 7559

PERSONAL DETAILS	
Staff Number	
Surname and Initials	
Department	

Subject Code/ Activity	Contact hours	Class Size	Normal Class Size	Preperation	Tutor Hours	Team Size	Load per week	
							Weighting	Load
Teaching and Learning								
Lab Practicals								
WIL activities								
Total Teaching and Learning								
Research								
Total Research								
Community Engagement								
Total Community Engagement								
Administration								
Total Administration								
Grand Total								

HOD Signature

Lecturer Signature

_____ Date _____

_____ Date _____

HOD Example

Mrs Jackson is HOD of certain department in Natural Sciences. Her department runs Diploma and B.Tech programmes. Mrs Jackson also teaches one subject A. For this subject, she has contact lectures with student for 3 hours in a week. The student population of her class is 90. She has a registered research project for which she commits 4 hours of time every week. What would be her total workload?

Mrs Jackson's Workload

Load for management of Dip programme = 22

Load for management of B.Tech Programme = 10

Total Admin Load for running her Department = 32

+

Subject A: $[3 \times 3 \times (0.5 + 0.5 \times 90/73)] = 10$

+

Research Load = 4

Total Workload = **46 Hours/Units**

Real Examples

- The following examples are from MUT timetable database for illustration purposes. Three randomly selection lecturers from Engineering, Science and Management Sciences.
- [Real Examples.xlsx](#)

WLM Overload Vs Contractual Overload

- The priority of the WLM is optimization workload during teaching semester period (30 weeks).
- Contractually engaged:
 - 40 hours/week
 - 48 weeks
 - - 4 weeks leave
 - - approx 2 weeks (12 days) public holidays.
- Contractual overload will only arise if:
 - workload exceeds 1680 hrs (42X40)/yr.

Automation Process

- **Identify data sources**
 - CELCAT-ITS Time Table and Staff Biographical data.
- **Create Academic Workload Database**
 - Develop database tables and relationships in HEDA
 - Develop extraction procedures to extract above data from ITS
 - Incorporate the Academic Workload business logic.
- **Create software to capture other work load related data**
 - Research Related
 - Community Engagement
 - Administration.
- **Reporting**
 - Reports to display workload on personal and aggregated levels.

Implementation Plan

	Task	Assigned To	Start	End	Dur	%	2013				2014				2015			
							Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	ACADEMIC WORKLOAD MODEL		10/29/13	12/16/15	557	40												
1	Model Development	Dr Nnadozie	10/29/13	4/11/14	119	100												
2	Presentation to HODs for Inputs	Dr Nnadozie & HODs	3/16/14	4/15/14	22	100												
3	Workload Workshop	Deans & Dr Nnadozie	4/30/14	4/30/14	1	100												
4	QEP Sub-task	Sub-team B: Workload	6/1/14	8/1/14	45	100												
5	Presentation to EMC	Prof Ndlovu	8/11/14	8/18/14	6	100												
6	Presentation to Faculty Boards	Dr Nnadozie	8/26/14	8/28/14	3	100												
7	Approval Protocols	Prof Ndlovu	9/1/14	11/26/14	63	0												
8	Benchmarking meetings (TUT&UP)	Dr Nnadozie & Dr Van Koller	9/15/14	9/19/14	5	0												
9	Automation	IDSC	1/12/15	2/20/15	30													
10	Rollout Workshop	Deans & Dr Nnadozie	2/21/15	3/5/15	9	0												
11	Piloting	DIPR & Faculties	3/6/15	5/28/15	60	0												
12	Full Implementation	DIPR & Faculties	7/1/15	12/16/15	121	0												

- MUT_AcademicWorkLoad Model Ver1.docx
- MUT_AcademicWorkLoad Policy Ver1.docx

*Thank you,
Siyabonga,
Dankie, Ke a
leboha, Enkosi,
Ro livhuwa !!*

