Automation of an Academic Workload Model at a developing University of Technology in South Africa

RC Nnadozie & S Gricius

22nd SAAIR CONFERENCE 2015
28th September – 1st October 2015
Session Outline

- Introduction
- Process and Data Sources
- Navigation
- Administrative tasks
- User tasks
- Workload/Time-sheet Reports
Intro: 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.
- Expected/Normal Load per semester week = 40 hr i.e. (8hr per day X 5)
Intro: Possible Workload Factors

Contact times, Class size, Type of Class, Mode of delivery, Consultation, WIL, Subject level, Use of tutors, Experience, Community engagement, Nature of subject, Academic administration, Assessment, Research publications, Team teaching, Postgraduate supervision, Repeated subject, New subject …
Summary of the Workload System

Background
The purpose of an academic workload model is to provide a mechanism for ensuring that academic workloads are distributed equitably and transparently. It could also be used for automation of timesheet reporting to DHET. Most importantly, the model could be used as a planning tool for academic staffing.

Workload
The following formula will be used in the HEDA Workload Model to calculate the total workload:

\[
\text{Teaching and Learning per subject} = \left( \frac{\text{CN} \times \text{WHR} \times \text{SF} \times (0.5 + (0.5 \times (\text{CS}/\text{AS}))) - \text{TU}}{\text{TS}} \right) + \text{Work Integrated Learning contact hours} + \text{Research and Innovation contact hours} + \text{Community Engagement contact hours} + \text{Administrative Duties contact hours}
\]

- **CN** - Contact hours per week
- **WHR** - Work hours required per contact hour
- **SF** - Subject factor
- **CS** - Class size
- **AS** - Average class size of Faculty
- **TU** - Hours saved by using a tutor
- **TS** - Team size

² The constant 0.5 and multiplier 0.5, provides the balanced division for work that increases in proportion to class size
## Intro: Workload Distribution by Rank

<table>
<thead>
<tr>
<th>ACADEMIC LEVEL</th>
<th>T &amp; L (%)</th>
<th>R &amp; I (%)</th>
<th>CE (%)</th>
<th>ADMIN (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Junior Lecturer</td>
<td>≥ 80</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lecturer</td>
<td>≥ 75</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior Lecturer</td>
<td>≥ 65</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assistant Professor</td>
<td>≥ 65</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Associate Professor</td>
<td>≥ 65</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professor</td>
<td>≥ 60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Professor</td>
<td></td>
<td>≥ 90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Programme Coordinator</td>
<td>≥ 50</td>
<td></td>
<td></td>
<td>≥ 30</td>
</tr>
<tr>
<td>HOD Service Dept</td>
<td>≥ 50</td>
<td></td>
<td></td>
<td>≥ 30</td>
</tr>
<tr>
<td>HOD Programme Dept</td>
<td></td>
<td></td>
<td></td>
<td>≥ 60</td>
</tr>
<tr>
<td>Dean</td>
<td></td>
<td></td>
<td></td>
<td>≥ 90</td>
</tr>
</tbody>
</table>
Prepare Data

System and WL Profile Template Setup

Individuals amend and complete WL Profile

HOD check/ authorise individual Profiles

Print and Sign Finalised WL Profiles

Once a year/semester

Import/ Create Individual WL Profiles

In Progress

Completed

Approved

New
Data Sources

- Staff
  - Name, Surname, Title, Academic level
  - Department

- Time Table
  - Staff
  - Subject
  - Day
  - Class Type
  - Block
  - Class size
  - Tutors
  - Duration
  - Day/Evening

- Subjects
  - Department
  - Name

- Departments & Faculties
  - Name
  - HOD
  - Dean

Data Sources

Staff

- Name, Surname, Title, Academic level
- Department

Time Table

- Staff
- Subject
- Day
- Class Type
- Block
- Class size
- Tutors
- Duration
- Day/Evening

Subjects

- Department
- Name

Departments & Faculties

- Name
- HOD
- Dean

Data Sources
Let's look at the application…

<table>
<thead>
<tr>
<th>Period</th>
<th>Personnel Member</th>
<th>Department</th>
<th>Status</th>
<th>TL</th>
<th>RI</th>
<th>CE</th>
<th>AD</th>
<th>Load</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015 S1</td>
<td>Dr. Veronica van Wyk (30008543)</td>
<td>Accounting</td>
<td>In Progress</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>39.85</td>
<td></td>
</tr>
<tr>
<td>2015 S1</td>
<td>Prof. Peter Nkosi (30011537)</td>
<td>Building Sciences</td>
<td>In Progress</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>41.28</td>
<td></td>
</tr>
<tr>
<td>2015 S1</td>
<td>Dr. Bob Motsepe (30016540)</td>
<td>Environmental Health</td>
<td>In Progress</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>31.40</td>
<td></td>
</tr>
<tr>
<td>2015 S1</td>
<td>Dr. Mary-An Johnson (30018100)</td>
<td>Environmental Health</td>
<td>In Progress</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>31.72</td>
<td></td>
</tr>
<tr>
<td>2015 S1</td>
<td>Dr. Ahmed Saljee (30019238)</td>
<td>ICT Services</td>
<td>In Progress</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>40.00</td>
<td></td>
</tr>
<tr>
<td>2015 S1</td>
<td>Mr Sipho Kweza (30019268)</td>
<td>ICT Services</td>
<td>In Progress</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>40.00</td>
<td></td>
</tr>
<tr>
<td>2015 S1</td>
<td>Mrs Suzette Venter (30019278)</td>
<td>Registrar: Finance</td>
<td>In Progress</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>40.00</td>
<td></td>
</tr>
<tr>
<td>2015 S1</td>
<td>Mr Pieter Els (30019298)</td>
<td>Directorate: Human Resources</td>
<td>In Progress</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>40.00</td>
<td></td>
</tr>
</tbody>
</table>

Total records and average load: 8

38.03
<table>
<thead>
<tr>
<th>ITEM</th>
<th>PROGRAMME</th>
<th>HOURS</th>
<th>ACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADMINISTRATIVE DUTIES</td>
<td></td>
<td>11.00</td>
<td></td>
</tr>
</tbody>
</table>
## Personal Details

- **Period:** 2015 Semester 1
- **Staff Number:** 30011537
- **Surname & Initials:** Prof. Peter Nkosi (30011537)
- **Department:** Building Sciences
- **Academic Level:** Professor
- **Responsibilities:** General Admin, HOD Managing B.Tech Programme

## Teaching and Learning

### Lecturing

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Contact Hours</th>
<th>Class Size</th>
<th>Average Class Size</th>
<th>Work Hours Required</th>
<th>Tutors</th>
<th>Team Size</th>
<th>Load per Week</th>
<th>Weight</th>
<th>Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPP1005</td>
<td>5.00</td>
<td>75</td>
<td>73</td>
<td>3.00</td>
<td>0</td>
<td>1</td>
<td>1.01</td>
<td>15.21</td>
<td></td>
</tr>
<tr>
<td>PPP2005</td>
<td>1.00</td>
<td>88</td>
<td>73</td>
<td>3.00</td>
<td>0</td>
<td>1</td>
<td>1.10</td>
<td>3.31</td>
<td></td>
</tr>
<tr>
<td>Lab</td>
<td>1.00</td>
<td>56</td>
<td>73</td>
<td>2.00</td>
<td>0</td>
<td>1</td>
<td>0.88</td>
<td>1.77</td>
<td></td>
</tr>
</tbody>
</table>

**Total Teaching and Learning:** 20.28

## Research and Innovation

- **Research and Innovation:**
  - Supervisor: 10.0

**Total Research and Innovation:** 10.00

## Administrative duties

- **Administrative duties**
  - General Admin: 1.0
  - HOD Managing B.Tech Programme: 10.0

**Total Administrative duties:** 11.00

## Grand Total

- **41.29 (103.23%)**

1. Maximum Weight Applicable
2. Percentage of normal working hours (40)
## Teaching and Learning Workload

### Report Parameters
- **Year**: 2015
- **Period**: All
- **Template**: IDSC Template
- **Faculty**: All
- **Department**: All

### Full-time/Part-time > Academic Level > Personnel Member

<table>
<thead>
<tr>
<th></th>
<th>Day</th>
<th>Evening</th>
<th>Total</th>
<th>Evening as % of Total</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>97.46</td>
<td>5.31</td>
<td>102.77</td>
<td>5.2%</td>
<td></td>
</tr>
<tr>
<td><strong>Full-time</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Junior lecturer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Mary-Ann Johnson (300181800)</td>
<td>23.48</td>
<td>23.48</td>
<td>23.48</td>
<td>0.0%</td>
<td>60.00 (97.1%)</td>
</tr>
<tr>
<td>Dr. Ria Groenewald (300218540)</td>
<td>34.78</td>
<td>34.78</td>
<td>34.78</td>
<td>0.0%</td>
<td>50.00 (81.5%)</td>
</tr>
<tr>
<td>Senior lecturer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Ahmed Salije (30019238)</td>
<td>23.97</td>
<td>23.97</td>
<td>23.97</td>
<td>0.0%</td>
<td>52.00 (45.1%)</td>
</tr>
<tr>
<td>Prof. Jan Swanepoel (300115537)</td>
<td>11.85</td>
<td>11.85</td>
<td>11.85</td>
<td>0.0%</td>
<td>26.00 (45.6%)</td>
</tr>
<tr>
<td><strong>Part-time</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior lecturer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Veronica van Wyk (30006543)</td>
<td>15.23</td>
<td>5.31</td>
<td>20.54</td>
<td>25.8%</td>
<td></td>
</tr>
</tbody>
</table>

1. Workload as Percentage of Capacity
**Individual Timesheet**

**Personal Details**
- Period: 2015 Semester 1
- Staff Number: 30011537
- Surname & Initials: Prof. Peter Nkosi (30011537)
- Department: Building Sciences
- Academic Level: Professor
- Responsibilities: General Admin, HOD, Managing B.Tech Programme

<table>
<thead>
<tr>
<th>Staff Programme</th>
<th>Staff Programme CESM</th>
<th>Staff FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instruction (010)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analysis And Functional Analysis (150103)</td>
<td></td>
<td>0.507</td>
</tr>
<tr>
<td>Research (020)</td>
<td></td>
<td>0.250</td>
</tr>
<tr>
<td>Construction Management (020302)</td>
<td></td>
<td>0.250</td>
</tr>
<tr>
<td>Academic support (040)</td>
<td></td>
<td>0.275</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>1.032</strong></td>
</tr>
</tbody>
</table>
Thank you.