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Foundations of HEMIS 2019

Higher Education: The big picture

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1

Acknowledgements

- Council for Higher Education documentation
- Department of Higher Education and Training documentation
- Presentations by the author on related aspects

Purpose

The purpose of this session is to ***explain*** the **nature and scope** of the South African *Higher Education Management Information System* (HEMIS) and to **locate it in the broader South African Higher Education context**



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What is HEMIS?

- Higher Education Management Information System (HEMIS)
- A unit record statistical reporting system for Higher Education
- Include a student component (6 files), a staff component (2 files) and a space component (3 files), Post-doctoral & Research fellows
- Research information
- Financial information

The Private Higher Education equivalent is the Higher Education Quality Committee Information System (HEQCIS). HEMIS, HEQCIS and the Further Education and Training (formerly TVET) and Adult education equivalents are subsystems for HETMIS and all provide inputs to the National Learner Records Database (NLRD)



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Why is HEMIS necessary?

- Provide information for systemic planning purposes
- Provide information used in the funding of institutions
- Provide information that can be used for quality purposes
- Comparison between institutions
- Provide information for research purposes



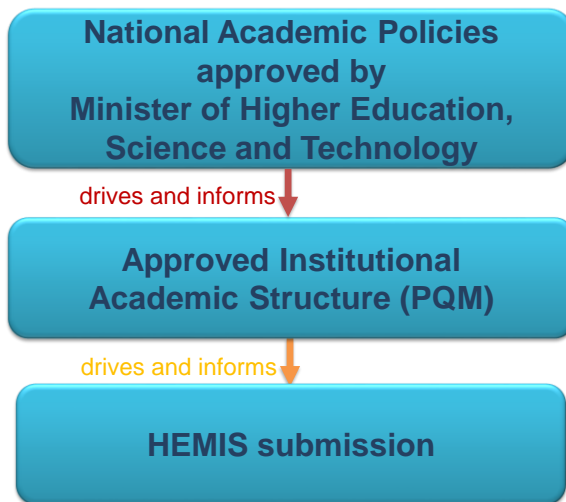
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Linkage between National Policies, PQM and HEMIS

- Institutional academic programme structures (PQM) are
 - **approved** by the **Minister of Higher Education, Science and Technology (before restructuring of cabinet, Minister of Higher Education and Training)**
 - **accredited** by the **Council for Higher Education (CHE)** and
 - **registered** by **South African Qualifications Authority (SAQA)**
- Should be consistent with:
 - **National academic policies** approved by the Minister of Higher Education, Science and Technology
 - The **National Plan for Higher Education (NPHE)**
- HEMIS submissions should be consistent with the approved PQM and HEMIS directives



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Approved PQM

- The **approved PQM** represents the qualifications that are approved for funding purposes
- It includes an official name and an internal name/names for these qualifications
- Summarised version (qualification type & CESM) referred to as **high-level PQM**
- Often “PQM” is also used for programmes and the courses that make these up, especially internally within institutions

Naming of Qualifications

- **The naming of qualifications must be in line with the appropriate national academic policy** (e.g., Higher Education Qualification Sub-Framework – HEQSF)
- **The approved name as on the PQM must be used for HEMIS reporting**
- Institutions **may use an internal name** and provision are made to capture the internal name on HEMIS as well



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Roles of DHET, CHE & SAQA

- The Department of Higher Education and Training (DHET) **approve qualifications in principle** (PQM clearance)
- The Council for Higher Education (CHE) **accredits Higher Education programmes leading to qualifications on the National Qualification Framework (NQF) and perform a quality assurance role**
- The South African Qualifications Authority (SAQA) **registers** the qualification on the National Qualification Sub-Framework (NQSF)



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Enrolment Planning

- Institutions submit 5-year rolling plans (e.g. 2020-2025) with their estimated enrolments to the DHET
- DHET and each institution then negotiate an approved enrolment plan that must be endorsed by the institution's Council
- These enrolment plans are then used to play a role in the funding for the institution



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Subsidy

- Subsidy is based on the relative share of the institution's planned enrolments as portion of the systemic planned enrolments
- Block grants made up of the following:
 - Teaching input grants
 - Teaching output grants
 - Research output grants
 - Institutional factor grants
- Earmarked funding, e.g. NSFAS
- *May change as a result of Funding review recommendations and Fee review*



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Teaching Input grants

- Derived from relative share of planned enrolments
- 4 X 4 funding grid existing of 4 funding groups and 4 funding levels
- Funding groups derived from 20 CESM categories
- Funding levels derived from course levels/HEQSF levels
- Mode of tuition (Contact, Mixed, Distance)



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Allocation of CESM categories to funding groups **(proposed to change)**

Funding group	CESM category
1	07 Education
	12 Law
	18 Psychology
	19 Public Management and Services
2	04 Business, Economics and Management Studies
	05 Communication, Journalism and Related Studies
	06 Computer and Information Sciences
	11 Languages, Linguistics and Literature
	17 Philosophy, Religion and Theology
	20 Social Sciences



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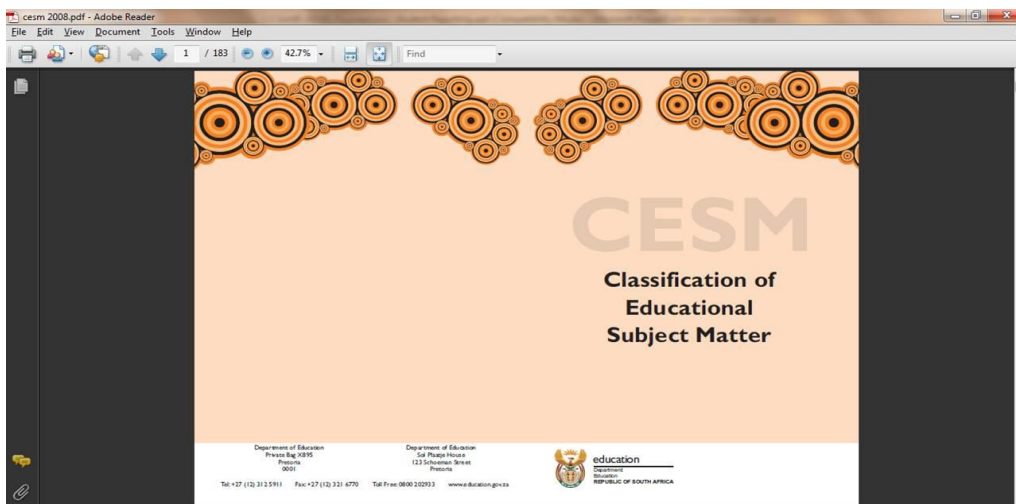
Allocation of CESM categories to funding groups (continued)

Funding group	CESM category
3	02 Architecture and the Built Environment
	08 Engineering
	10 Family Ecology and Consumer Sciences
	15 Mathematics and Statistics
4	01 Agriculture, Agricultural Operations and Related Sciences
	03 Visual and Performing Arts
	09 Health Professions and Related Clinical Sciences
	13 Life Sciences
	14 Physical Sciences



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CESM



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1st Order CESM category (used for funding groups)

- 01 Agriculture, Agricultural Operations And Related Sciences
- 02 Architecture And The Built Environment
- 03 Visual And Performing Arts
- 04 Business, Economics And Management Studies
- 05 Communication, Journalism And Related Studies
- 06 Computer And Information Sciences
- 07 Education
- 08 Engineering
- 09 Health Professions And Related Clinical Sciences
- 10 Family Ecology And Consumer Sciences
- 11 Languages, Linguistics And Literature
- 12 Law
- 13 Life Sciences
- 14 Physical Sciences
- 15 Mathematics And Statistics
- 16 Military Sciences
- 17 Philosophy, Religion And Theology
- 18 Psychology
- 19 Public Management And Services
- 20 Social Sciences



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2nd Order CESM category (example)

0401	Business Administration, Management And Operations
0402	Accounting And Related Services
0403	Business/Corporate Communications
0404	Economics
0405	Entrepreneurial and Small Business Operations
0406	Finance and Financial Management Services
0407	Hospitality Administration/Management
0408	Human Resource Management and Services
0409	International Business
0410	Management Sciences And Quantitative Methods
0411	Marketing
0412	Real Estate
0413	Taxation
0414	Insurance
0415	General Sales, Merchandising And Related Marketing Operations
0416	Specialised Sales, Merchandising And Marketing Operations
0417	Parks, Recreation And Leisure Facilities Management
0499	Business, Economics and Management Studies, Other



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3rd Order CESH category (example)

04 Finance and Financial Management Services

0406 Finance and Financial Management Services

040601	Finance, General
040602	Banking and Financial Support Systems
040603	Financial Planning and Services
040604	International Finance
040605	Investments and Securities
040606	Public Finance
040607	Credit Management
040699	Finance and Financial Management Services, Other



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Attendance mode

- **The attendance mode by which a student is undertaking the qualification.**
- Student undertaking the qualification by one of the following modes:
 - Contact mode only (C)
 - Distance mode only (D)
 - Mixture of contact and distance mode (M)
- **Also see the mode of courses making up the qualification**



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Teaching Input Units (TIUs)

- Based on Enrolled Funded Credits (EFC) [also known as Full-Time Equivalent (FTE) enrolments]
- Weighted by funding levels
 - Undergraduate & equivalent (X1)
 - Honours & equivalent (X2)
 - Master’s (X3)
 - Doctoral enrolments (x4)
 to arrive at weighted FTE enrolments (WFTEs)
- Weighted by funding groups and Mode of tuition (Contact or Distance) for Teaching Input Units (proposed to further differentiate Distance offered by Unisa)
- Teaching Input Units X Unit price = Teaching Input Grant



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Current Weighting factors for Teaching Inputs

Funding Group	Under-graduate		Honours		Masters		Doctoral	
	X1		X2		X3		X4	
	C	D	C	D	C	D	C	D
1	1,00	0,50	2,00	1,00	3,00	3,00	4,00	4,00
2	1,50	0,75	3,00	1,50	4,50	4,50	6,00	6,00
3	2,50	1,25	5,00	2,50	7,50	7,50	10,00	10,00
4	3,50	1,75	7,00	3,50	10,50	10,50	14,00	14,00

Teaching Output grants

- Based on teaching outputs, derived from non-research graduates in year N-2
- Weighted by qualification type to arrive at Teaching Output Units
- Teaching Output Units X Unit price = Teaching Output Grant



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Research Output grants

- Based on research outputs, derived from research graduates in year N-2 plus research publication units weighted publication units (X1), research masters graduates (X1) and doctoral graduates (X3)
- Research Output Units X Unit price = Research Output Grant



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University Development grants

- Earmarked grant
- Replace the former developments grants
 - Teaching Development
 - Research Development
- Very important grant for development of capacity
- Universities need to report progress annually



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Quality assurance

- Quality assurance falls under the auspices of the CHE's Higher Education Quality Committee (HEQC)
 - Programme accreditation
 - Programme reviews
 - Institutional audits
 - Quality Enhancement Project (QEP), intended to enhance student success
- HEMIS plays a significant role to benchmark between institutions



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Volumes of learning and credits



- The number of credits is based on the notional study hours required for achieving the learning outcomes specified for the
- The credit-rating system rates 10 notional study hours as equivalent to one credit
- Include, among others, contact time, self-study, WIL, assignments, projects and examinations
- Certificate, Diploma, Bachelor's Degree and Bachelor (Honours) Degree qualification types assume a 30-week full-time academic year, while Master's Degree and Doctoral qualification types assume a 45-week full-time academic year.
- An average full-time equivalent student is expected to study for a 40-hour week, thus requiring a minimum credit-load of 120 credits per academic year for Certificates, Diplomas and Bachelor's Degrees and 180 credits per academic year for Master's Degrees and Doctorates
- Credit ratings specified on the framework are expressed as minima – credit loads above the minimum may be required but should not be unrealistic in terms of the relationship of credits to actual study time



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Funding credits



The properties of a qualification determine the total number of units of state subsidy (funding credits) approved by the Minister of Higher Education and Training for that qualification:

- For the HEQSF this is based on the NQF credits creating a simpler and consistent approach
- Remember in the process of implementation of the HEQSF some students may have some funding credits earned under the old dispensation



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Qualification weight/ Funding credit



- For subsidy-purposes, all qualifications are given a weight relative to a first bachelor's degree

- Student/lecturing staff ratio

For subsidy-purposes, different student/lecturing staff ratios have been introduced for the different subject matter areas (funding groups)



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Course Credit/ Funding Credit



- Each distinct instructional offering must be allocated a weight (course credit) which is used to calculate the funding credit
- E.g. subject with papers Business Management III may consist of five courses
- **Interchangeable offerings (options) should carry the same credit or weight**



- **Calculated for qualification course combination**



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Calculation of the Course Credits for Teaching

The course credits can then be easily calculated using the relative proportion of NQF credits for the course to the total NQF credits for the qualification

$$\frac{\text{Credits for course}}{\text{Total credits for qualification}}$$

For HEQF-qualifications, the use of NQF-credits are also recommended. For legacy qualifications, this is not possible and other methods are used.



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Calculation of the Funding Credits for Teaching

The funding credits for teaching offerings can be calculated using the relative proportion of the NQF credits of the course to the total NQF credits of the qualification

$$\frac{\text{Credits for course}}{\text{Total credits for qualification}} \times \text{Funding credits for qualification}$$

Experiential learning is not funded and although it contribute to the total NQF credits, the funded credits for experiential learning is 0.



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Calculation of the Course Credit for Teaching Example

Determined by the relative weight of the course

For a Bachelors degree with 360 credits (3 funding credits) with no experiential learning and a fixed curriculum of 30 12-credit modules (courses)

Each module $12/360 \times 3 = 0,100$ funding credits
(or $12 / 120$ per year $\times 1 = 0,100$)

Similarly, for courses and qualifications with different credits, the same principle can be applied

E.g. a Bachelors degree with 384 credits (3 funding credits) with no experiential learning and a fixed curriculum of 32 12-credit modules, 10 in the first year, 10 in the second year and 12 in the third year, the calculation for the first two years would be $12/120 \times 1 = 0,100$ and for the third year it would be $12/144 \times 1 = 0,083$.



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Calculation of the Funding Credits for Research Offerings



- In most cases, the total funded credits for master's degrees are 1,000 and for doctoral degrees are 2,000. Due to the fact that the research degrees are normally spread over more than one year, a special mechanism had to be devised



- The total funded credit value are divided by the average time that students took to complete the qualification over the last three years
- For practical reasons, qualifications may be clustered together



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Calculation of the Course Credit for Research Offerings



Number of graduates for the degree or cluster
 Number of years the graduates were enrolled
 = Average time for completion



Credit value = $\frac{\text{Total credit value} \times \text{Average time for completion}}{\text{Average time for completion}}$

Where Total credit value would typically be 1,000 for research masters and 2,000 for doctoral degrees



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Census dates

Example of census date calculation

Semester 1

Start of class 4 February 2019, end of class 31 May 2019
 Count number of days excluding weekends, public holidays

	Total days	Week days	Weekend days	Public holidays
February	25	19	6	0
March	31	20	10	1
April	30	20	7	3
May	31	22	8	1
Total		81		

The middle point $81/2 = 40,5$ or 41
 Therefore, counting from 4 February, the census date for semester 1 courses is 2 April 2019
 Census dates for semester 2 and year courses or postgraduate courses can be calculated using the same methodology



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Who and what to include

Who to include?

- A **student**
- Students who are **registered** before or on census date
- Students who have **not cancelled** a course before or on census date
- Students who are **effectively registered for an approved qualification**
- Students who are **effectively registered for a course**
- Student who are deemed to have been **academically active**



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Effective registration for a qualification

The student must meet all of the following criteria:

- Satisfies the **statutory entry requirements** for admission to a formally approved qualification offered by the institution
- **Officially enrolled** for the qualification between 1 January and 31 December of collection year
- **Effectively registered** (*conditions determined by institution*) for at least one course which is part of the curriculum of the qualification



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Applying the Graduates test to Course credits



- Students often do not follow the fixed curriculum and the original credit values would then have to be adjusted. This needs to be confirmed each year based on the course credits of the students that graduated in the particular degree
- The course credits could be adjusted per year for each qualification for practical reasons



- An adjustment factor is then calculated that will satisfy the Graduates test (originally 2% test, later 0% test) and multiplied with the original course credits to obtain an adjusted course credit that would satisfy the Graduates Test



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Implications for funding



- The PQM is based on approved qualifications
- Funding groups are based on the CESH-categories and the funding levels are based on the course levels
- The Teaching input funding grid of funding groups and funding levels is determined by the CESH and course level of courses
- Output subsidy is based on qualifications and their relative weights
- Qualifications and courses play a pivotal role in funding



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Terminology

- HEMIS = Higher Education Management Information System
- Valpac = Validation Package
- PQM = Programme and Qualification Mix
- SAQA = South African Qualifications Authority
- NPHE = National Plan for Higher Education
- MHET = Minister of Higher Education and Training
- DHET = Department of Higher Education and Training
- CESM = Categorisation of Education Subject Material
- CHE = Council for Higher Education
- NQF = National Qualification Framework
- NSFAS = National Student Financial Aid Scheme
- HEQSF = Higher Education Qualification Sub-Framework
- HEQC = Higher Education Quality Committee
- EFC = Enrolled Funded Credits also FTE = Full-Time Equivalent
- CFC = Completed Funded Credits
- WFTE = Weighted FTE
- TIU = Teaching Input Units
- TOU = Teaching Output Units
- ROU = Research Output Units
- TDG = Teaching Development Grant
- RDG = Research Development Grant



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Notes



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42