

UFS FORM 5: SHORT LEARNING PROGRAMME

SECTION A: CATALOGUE

CODE: HEQC/H06/SCI/SLNSM (Non-credit bearing SLP)

TITLE: Skills development course in Natural Sciences/Mathematics in the FET phase

NQF LEVEL: 5 (new)

CREDITS: Non-credit bearing

NOTIONAL LEARNING HOURS: 160

FORMAL CONTACT TIME: = 48 Hours

Lectures = 3 hours / day [5 days]

Practical and skills development = 3 hours / day [5 days]

LEARNING ASSUMED TO BE IN PLACE:

Relevant experiences in Physical Sciences and/or Mathematics with at least a grade 12 Senior Certificate + a one year Higher Education Certificate.

LEARNING OUTCOMES:

Having successfully completed this unit, the student will be able to demonstrate knowledge and understanding of...

- Skills to explain content to learners in a way that they will understand new and difficult concepts in the field of study.
- Previously learned material in Mathematics or Physical Sciences.
- Describing facts, methods and procedures in the mentioned study fields to underpin difficult methods of explanations of work.
- The correct usage of procedures, applying of laws / theories / skills to practical situations in the field of study.
- Creatively apply knowledge to new areas and to integrate new knowledge.

BRIEF DESCRIPTION OF CONTENT:

Development of skills to handle the next topics;

Mathematics:

1. Functions
2. Number systems and number patterns
3. General Algebra (Products, Factors, Fractions, equations, etc.)
4. Exponents and Surds
5. Analytical Geometry and Transformations
6. Trigonometry
7. Statistics
8. Financial Mathematics
9. Linear Programming
10. Calculations of areas and volumes

OR

Physical Sciences

1. Newton's laws
2. Equations of motion
3. Levers
4. Capacitors
5. Electricity
6. Friction
7. Electric fields
8. Atomic combinations: molecular structure
9. Ideal gases and thermal properties
10. Quantitative aspects of chemical change
11. Energy and chemical change
12. Types of reaction

CRITICAL OUTCOMES SUPPORTED BY SHORT LEARNING PROGRAMME:

After completion of this SLP [Short Learning Program] the students will be able to;

- Organise and manage oneself and one's activities responsibly and effectively by demonstrating the skills obtained during the SLP [i.e. organizational skills].
- Identify and solve problems in which responses display that responsible decision could be made, using critical and creative thinking skills. [i.e. problem solving skills].
- Work effectively with others as members of the Mathematical and Science students' group in their community.
- Collect, analyse, organise and critically evaluate information within their classes to be able to transfer the skills obtained.
- Communicate effectively in their Mathematics and Science groups by using visual, mathematical and/or language skills in the modes of oral and/or written presentation [i.e. communicational skills].
- Use science and technology critically and effectively, showing responsibility towards the environment and health of others [i.e. technological and scientific skills].
- Demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation [i.e. a strategically skill].
- Reflect on and exploring a variety of strategies to learn more effectively [i.e. learning skills].
- Participate as a responsible citizen in the life of local, national and global communities.
- Be culturally and aesthetically sensitive across a range of social contexts.
- Explore education and career opportunities.
- Develop entrepreneurial opportunities [entrepreneurial skills].

METHODS OF ASSESSMENT:

Formative Assessment:

The students will be assessed on the following;

- Practical exercises in workshops,
- Peer group assessment on activities done during practical exercises,
- Compilation of a portfolio.

Summative assessment:

- Assessment on all the work done during skills development workshop by means of a written examination.
- Evaluation of portfolio by means of a rubric.

ASSESSMENT CRITERIA:

Students should take part during the workshops in practical sessions. Assessment will involve the following;

- Demonstrate practical skills in solving mathematical / scientific problems in the FET level 4 bands during workshops.
- Demonstrate skills proficiency in the assessment of questions in modules presented at the workshops.
- Skills to demonstrate competency to explain problems to fellow students during workshops.
- Compiling and submitting of a portfolio representing the practical exercises done during the workshops and examples of syllabi teaching material to learners.
- Presenting of a test with a memorandum on work done in their classes at their respective schools.
- Show competency in the skills to demonstrate, explain and illustrate the solving of subject specific problems.

ORGANISING FIELD: 10

(1 = Agriculture and Nature Conservation)

(2 = Culture and Arts)

(3 = Business, Commerce and Management Studies)

(4 = Communication Studies and Language)

(5 = Education, Training and Development)

(6 = Manufacturing, Engineering and Technology)

(7 = Human and Social Studies)

(8 = Law, Military Science and Security)

(9 = Health Sciences and Social Services)

(10 = Physical, Mathematical, Computer and Life Sciences)

(11 = Services)

(12 = Physical Planning and Construction)

APPROVAL DATE: May 2008

REVIEW DATE: End of 2010

DEPARTMENTAL OR PROGRAMME "HOME":

The Faculty of Natural and Agricultural Sciences

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APPROVED:

Faculty: Programme Committee

Date: March 2008

Faculty: Management

Date: July 2008

UFS Programme Committee

Date: 22 September 2008

Faculty Board

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