MK?
SOUTH AFRICAN EXTENSIOH mm (SAEU)
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INTRODUCTIOH

The following is the proposed ?.Tethematics syllabus- at the level of pre-s secondary education for S.1’LEU.

. The course assumes a basic knowledge of mathematics at the prixarjr level. It intends to build up this fOLmdation closely to the level of Form One.

AIMS AND OBJECTIVES OF THE SYLLLBUS

The aim of this syllabus is two-fold. ZFIirstly, it will enable the student to gain knowledge of basic mathematics for daily use. Secondly, it will also give the student a basic mthematics course which Will enable him to pursue further studies in Mathematics.

At the end of this introductory mathematics course the students should be able to:

. 1. give logical instructions and execute the instructions logically;
2. V 01’k out the meaning of numerals; h
3. have an awareness of the art and science of mathematics;
4. apply mathemtics in science and technology and in their daily lives;
5. reason by induction and deduction.

The syllabus is in 18 1.: ’ WM? followdng 001-,::e:1ts:

3.
S E T S
a) Set definition and examples.
b) Set and how to describe them.
0) Subsets of a set.
d) Set notation.
e) Operations with sets.
1) Union of sets.
ii) Intersection of two sets only.
iii) Disjoint sets.
iv) Equivalent sets.
v) Complement of a set.
INTRODUCTION TO GEO Eg::
a) Points.
b) Straight lines.
o) Line segments.
a) Rays.
e) Flatness and planes.
f) Paths and polygons;
g) Drawing simple figures (Triangles and circles)
h) Rays and angles.
1) Types of eweles (obtuse, acute, reflex and strdight).
"v-43.
NUMBER AND NUMEPLTION SYSTEM
a) Sets in their natural order.
b) The counting (natural) numbers.
0) Different ways of representing numbers (Ancient and modern).
d) The number ten as basis for counting.
e) Counting in other bases (5, 2, 7).
f) Expanding numerals in base ten.
g) Expanding numerals in other bases (Base 5, 2, 7).
h) Changing to base ten.
1) Changing from base ten to 5, 2, 7.
j) Changing from one base to another.
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4.
5.
PIANE FIGURES
a) Pairs of line segments.
b) Vertically opposite angles.
c) Perpendicular lines.
d) Parallel lines.
e) Alternate interior angles.
f) Corresponding angles.
g) Complementary angles.
h) Adjacent angles.
1) The angles of a triangle.
3) Angles of quadralateral.
CLOCK ARITUIETIC AND WHOLE NUMBERS
a) Clock Arithmetic (synonym; modular arithmetic)
_ Clock addition.
b) Properties of clock addition.
1) Closure property.
ii) Commutative and associative properties.
iii) Identity element preperty.
iv) Adlitive inverse or ophosites.
0) Clock multiplication.
d) Properties of clock multiplication.
1) Closure property.
ii) Commutative property.
iii) Associative property.
iv) Distributive property.
v) Identity element.
NATURAL NUMBERS AHD WHOIE NUMBERS
a) Natural numbers.
b) Whole numbers.
1) Even numbers.
ii) Odd numbers.
iii) Prime numbers
iv) Factors
v) Indices.
vi) Prime factors.
vii) Highest Common Factor (HCF).
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7. DIRECTED NUMBERS
a) Enmber linei
b) Additional subtraction using number lines.
0) Operations with directed numbers.
1) Addition.
ii) Subtraction.
iii) Multiplication.
iv) Divisiono
8. BEASURII'TG I?HGTHS AND ANGIES
a) Measuring distances.
b) Use of a ruler.
. c) Measuring angles .
d) Addition properties of angles.
9) Angles and polygonS.
f) Perimeter of plane figures.
9. LETTERS FOR HUNBULS
mng .. M--_..._.4._.u___
a) letters for numbers.
b) Operations with letters.
0) Constant and variable numbers.
(1) Terms.
e) Expression with variables.
f) Operation with expressions.
. 1) Edition.
ii) Subtraction.
iii) Multiplication.
iv) Division.
g) The use of brackets.
1 O . A-REUX S AALICID V- O 111-11133 S
a) Fbasurement of area
b) Areas of right-angled triangle
0) Areas of other polygons (square, rectangles and parallelograms).
d) Area of trapezium
e) Area of circle
f) MQasurement of volume.
_ Regular solids .
CO.C/S

FRACTIONS
11.
a) The meaning of fractions.
b) Ratignal numbers.
0) Comparison of fractions.
(1) Ope ntions with fractions.
i) deition and subtractions.
ii) ultiplication and division.
I
12. DECIMAL, SIGNIFICANT FIGURES AND ROUNDING OFF
a) Decimal defined.
b) Simplification of decimals.
. c) Addition and subtraction of decimals.
d) Multiplication of decimals.
e) Multiplication by 10, 100-, 1000.
f) Division by whole numbers.
g) Division by decimals.
h) Division by 10, 100, 1000.
1) Conversion of fractions to decimal numbers.
- Miscellaneous examples.
3) Rounding off procedure.
k) Significant figures.
1) Correction to the nearest 10, 100, 1000.
m) Correction to the nearest integer.
n) Approximation of a given number.
13. CONSTRUCTION
2) Constructing a line.
b) Bisecting a line.
c) Bisecting an angle.
a) Drawing perpendicular line.
e) Constmcting angles of 300, 600,- 450, 900.
f) Construction of triangles.
i) The elements of triangles.
ii) congruent triangles.

14. IINEAR EQUATIONS AND INEQUALITIES
a) Equations in one variable and how to solve them"
b) Equation in one variable involving fractions.
0) Word problems leading to equation in one variable,
d) Changing the subject of a formula.
e) Simulteneous equations .
f) Word problems leading to simultaneous equationsa
g) Inequalities.
i) Statements.
ii) Simple and compound statements.
iii) Negation of, statement.
iv) Solution of simple linear inequalities.
. v) Variable and their domin.
vi) Graphs for solution set for inequalities.
15. SPECIAL PROPERTIES OF RIGHT ANGIED TRIANGIES
a) What is a right angled triangle?
b) Pythagoras Theorem.
0) Special triangles (300, 450, 600, 900).
d) Direct and Indirect measurement.
16. RATES2 RATIOS AND PROPORTIONS
a) Ratio
. b) Proportion (Direct and inverse Proportion).
. 0) Proportion division.
(1) Averages.
e) Speed.
f) Perc entages .
g) Profit and loss.
11) Simple interest.

17. w
a) Pictorial representation of data.
b) Pie charts.
0) Bar charts.
d) Number plane.
e) Drawing points.
f) Drawing lines.
8) Reacbng graphS.
18. POSTAL SERVICES
. , . a) Post office rates.
b) Registered mail.
0) Money orders.
a) Telegrams.
e) Telephones.
f) Radiocall services.
g) Post office saving banks.
The following are the supplementary books for this course:;
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. . Institute of Education (1971). 5.2591011. Imusmm
Kitabu cha 6 na 7, Institute of Education, Dar es Salaam.
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, Highway mathematics Ser19$ (Metric edition) Books 1/8,
O.U.P., Nairobi.
, Iongman Mathematic Series Book 1.
Ha. L-..
, Millistry of National Education (1981). Vgecondzg Ibthemggg,
Book T fart I and II, TPH, Dar es Salaam.
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The following are the reference books for this course:-
. Ministry er National Education (1971). Secondary Mathematics,
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