**Inclusion and Differentiation in Teaching and Learning Mathematics**

**June 2020**

AIMSSEC, established in 2003, is the Schools Enrichment Centre of AIMS South Africa (African Institute for Mathematical Sciences). The objective of AIMSSEC is to play a key role in the extension of educational opportunities for disadvantaged communities in South Africa and to raise standards by improving the quality of the teaching and learning of mathematics.

AIMSSEC is a community of academics, researchers, teacher trainers, schoolteachers and subject advisers, all working in mathematics education who share a commitment to lifelong learning and a dedication to improving the teaching and learning of mathematics. The AIMSSEC community involves all those who have taught on the AIMSSEC courses as well as former students. There is a shared belief that we must learn from mathematics education research and that teaching for the 21st century must be different from the past because different skills are needed in this radically changed and rapidly changing society.

The **Inclusion and Differentiation in Teaching and Learning Mathematics** course is part of the AIMSSEC 7-course Subject Leader Professional Development Programme for teachers, subject advisers and teacher trainers endorsed by the South African Council for Educators (SACE) for professional development points. The residential component in the June school holiday at Stellenbosch High School, 18 Jannasch Road, Mostertsdrift, Stellenbosch, 7600 is followed by 3 months distance learning. All participants are expected to be in residence for the full duration of the residential component or participate all day taking all meals with the group and arranging their own Bed and Breakfast

During the residential period sessions run from 8:15 to 20:00 each day with 85 minute sessions.

Participants work in three groups according to the phase in which they teach, ranging from grade 4 to grade 12. Each course has a Mathematics Subject Content strand, a Pedagogy strand and an IT strand. The test at the end of the residential period assesses the content learnt during that period. During the distance learning period each participant is expected to complete 3 assignments designed to encourage them to reflect on their ownteaching style, to put into practice some of what they have learnt on the AIMSSEC courses, and to pursue a journey of lifelong learning.

AIMSSEC courses include plenary sessions **where all the teachers from the different phase groups learn together.** The plenary sessions involve mathematics relevant to teaching in all phases with topics, for example: Fractals or the Golden Ratio; Mathematics in African Art; mathematical model making; people mathematics in data handling and graphs; problem solving involving systematic and logical thinking; planning suitable learning activities to engage learners of all abilities in classes that include learners with special needs; reflecting on how chance (probability) affects our daily lives; building and using geoboards; playing mathematical games and reflecting on their value in teaching and learning.

**The Starter Course of Subject Leader Training is: Mathematical Thinking, Problem Solving and Technology in Teaching and Learning Mathematics (MT).** Applicants must be qualified teachers who are actually teaching mathematics. There is an emphasis on the **Growth Mindset** **and YES I CAN attitude** and planning for learning rather than planning for teaching. Teachers reflect on their own learning and later on their teaching, using journals, and learn to use formative assessment tools to identify strengths and weaknesses of learners. **To be eligible for the 6 Subject Leader Courses teachers must get at least 60% (a merit) on the Mathematical Thinking Course.**

The purpose of the six courses that follow the MT course is to train future leaders in mathematics education. A merit in the MT course is usually required for admission to the AIMSSEC subject leader training but exceptions are made for teachers according to their previous qualifications. Admission to all courses depends on the support of the applicant’s school principal and head of mathematics.

The AIMSSEC team of local and international experts in mathematics education has run world class distance learning courses since 2004 for more than 2,000 teachers from different provinces in South Africa and also East Africa. Many of the teachers who successfully completed AIMSSEC’s subject leader training now lecture on the MT course or act as teaching assistants.

Each course has a residential component, 3 or 6 months distance learning, and a different educational focus addressing contemporary challenges that face teachers in their professional lives. Teaching and learning resources are provided and participants learn how to make cost effective teaching and learning resources.

**Phase 1 Subject Leader Training comprises two courses that can be taken in any order:**

Both Phase 1 courses focus, for the Intermediate Phase group, on teaching for grades 4 and 5 (with aspects of grade 6 and 7); for the Senior Phase group, on teaching for grades 7 and 8 (with aspects of grade 9); and for the FET band, grades 10 and 11. The coverage in the Language and Communication course includes number, algebra, functions, financial maths and probability. The coverage in the Inclusion and Differentiation course includes geometry, measures and statistics, and for the FET group analytic geometry and trigonometry. Both courses include IT sessions to support teachers in using technology in teaching mathematics and in their professional work.

**(1A) Language and Communication of Mathematical Concepts in Teaching and Learning** focuses on language in the mathematics classroom where teaching mathematics in English as a second language is a serious problem, particularly in rural areas where English is seldom spoken outside the classroom. English is used as the official language of learning and teaching (LoLT) by 90% of the learners in public schools in the South Africa. These learners are multilingual; in other words, they are also English-language learners (ELLs). The use of English as LoLT is undoubtedly a burden for most of these learners, specifically learners from under resourced communities with limited access to the language. In order to lighten the load, **the course aims to** empower teachers to use language as a resource in teaching by focusing on the following outcomes:

* Understanding English language learners:
	+ Challenges faced by English language learners
	+ Needs of English language Learners
* Teaching methods for effectively accommodating English language learners
* Effective mathematical teaching and learning activities cognisant of English language learners
* Teaching mathematics register

**(1B) Inclusion and Differentiation in Teaching and Learning Mathematics is the third of the** AIMSSEC 7-course sequence of subject leader training and may be taken either before or after the Language course. This course focuses on the issues of catering for learners of all abilities in large mixed ability classes, and providing support for learners with special needs, in order that all learners experience success and make progress. AIMSSEC provides many original free learning resources for activities described as ***‘low threshold, high ceiling’*** starting with tasks in which all learners can succeed and feel a sense of achievement. Although some learners will be slower than others, there is no discrimination as everyone is engaged in the same learning journey. Such activities takes average learners on to further stages and also provide challenges for the most able involving higher order mathematical reasoning. In these lessons all learners make progress at the fastest pace they can manage without feeling discouraged.

**Phase 2** *Teachers must pass both phase 1 courses before proceeding to Phase* 2

**(2A) Teaching Mathematics to Build Skills for the 21st Century**

**(2B) Conceptual Development, Progression and Planning for Transitions in Education**

**Phase 3** *Teachers must pass all phase 1 and phase 2 courses before proceeding to Phase 3*

**(3A) Action Research**

**(3B) Training Future Leaders in Mathematics Education.**

**The two funding possibilities to apply to attend this course are:**

1. **Self-funding option**: For those sponsored by their school or funder or paying themselves the all-inclusive cost for the 7 day course with full board at Stellenbosch High School Huis du Preez hostel is R6,800. The course fee includes the tuition fee, accommodation, meals and stationery during the residential course. If the applicant decides not to stay in the school hostel, but to stay in a B&B in Stellenbosch the cost of the course will be R4,800 not including Bed & Breakfast.

An invoice will be sent to you with a specific reference number.

The full amount must be paid by 15 May 2020 via electronic transfer or deposit payment to bank account:

Account: University of Stellenbosch

Bank: Standard Bank Stellenbosch

Branch Code: 05 06 10

Account number: 073006955

Use the reference on the invoice that will be send to you.

Send the transfer statement/ deposit slip to Lorenza George at Leg29@sun.ac.za and to

admin@aimssec.ac.za AIMSSEC is a Cost Centre R268 of University of Stellenbosch.

1. **Bursary or Scholarship option:** Funds are strictly limited and there is a long waiting list. A **Some bursaries are available for teachers from disadvantage communities.** These applicants must also complete the question under section 5, Miscellanea, by providing the Quintile and area of the school The bursary normally includes a contribution to travel expenses for the most economical method of transport (e.g. Translux or City to City buses).

**Teachers who gain the highest overall marks in the Phase 1, 2 and 3 courses will be awarded a scholarship to cover all the costs of their next course in the sequence.**

**Dates for June 2020:** To be decided

**June 2020 – The Inclusion and Differentiation in Teaching and Learning Mathematics course and MT33 will be offered.**

**Applicants for the Inclusion and Differentiation course must complete the application form below and attach certified copies of ID, payslip, main teaching qualifications and SACE certificate; then email, fax or post the documents to one of the options below, to reach AIMSSEC by 30th April 2020**

|  |  |
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| **Email**: admin@aimssec.ac.za**Fax**: 086 263 1268**Cell**: 082 482 4461 | **Postal address**: AIMSSEC6 Melrose RoadMuizenberg 7945Cape Town |

**APPLICATION FORM**

**Inclusion and Differentiation in Teaching and Learning Mathematics**

(June 2020)

Use block letters and ticks to fill in all 5 sections of the application form. The checklist on page 5 will help you to make sure the application is complete.

1. **Personal Information**

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| **Title:**  | **Mr.** |  | **Ms.** |  | **Mrs.** |  | **Other (specify)** |  |

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| **Gender:** | **Male** |  | **Female** |  |

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| **First names:** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | **Initial(s)** |  |  |  |

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| **Surname:** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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| **Citizenship:** | **South African** |  | **Other(specify)** |  |
| **Population group:** | **White** |  | **Black** |  | **Coloured** |  | **Indian** |  | **Other (specify)** |  |
| **Home language:** |  |

1. **Contact details**

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| **Cell phone number:**  |  |  |  |  |  |  |  |  |  |  | **Fax:** |  |  |  |  |  |  |  |  |  |  |

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| **E-mail address:** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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| **Postal address:****Post code:** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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**FOR OFFICE USE ONLY**

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1. **Details of current employment**

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| **Position:**  | **Teacher** |  | **H. O. D.** |  | **Other(specify)** |  |

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| **Currently teaching mathematics Phase** | **IP** | **SP** | **FET** |
| **Grade** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |

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| **Principal:**  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Principal’s Tel:** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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| **Name of school:** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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| **School address:****Post code:** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **District:** |  |  |  |  |  |  |  |  |  |  |  |  |  | **Province:** |  |  |  |  |  |  |  |  |  |  |

1. **Main Qualifications**

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| **Details of main qualifications** |
| **Period** | **Name of University, Technikon or College** | **Name of degree / dipl / cert** | **Completed****Yes / No** | **Student Number** |
| **From****Yr.** | **To****Yr.** |
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| **Highest level of mathematics studied:** *(Specify course / module / grade)* |

1. **Miscellanea**

 ***Yes No***

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| 1. **Are you a sponsored or self-funding participant?**
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| 1. **Will you be staying in the school hostel? If yes, then the cost of the course will then be R6,800 for full board.**
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| 1. **Are you going to stay in a B&B? If yes, then you must pay that amount to the B&B and the cost of the course will be R4,800 with all meals but not Bed and Breakfast.**
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| 1. **Are you applying for a bursary? If yes, then also provide proof that your school is in a disadvantage area by giving the Quintile and area.**
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| 1. **Do you have any special dietary requirements?** *If* ***yes*** *please specify below:*
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| 1. **Do you have any disability?** *If* ***yes*** *please specify below:*
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| 1. **Do you have any medical condition?** *If* ***yes*** *please specify below:*
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| 1. **Do you object to AIMSSEC using your photograph in publicity of our work?**
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| 1. **When travelling to Cape Town by bus, which town would you travel from (it can be the town where you live)? What is the distance between this town and your home?**

**Name of nearest town: ……….………………………………… Distance from home:………**km |

**REFERENCE**

Please ask your Principal (or line Manager), as a senior person acquainted with your professional and academic work, to fill in the reference check form on your behalf, indicating your professional standing and general suitability as a **mathematics teacher** to undertake this course. This testimonial must be enclosed with the application form in a sealed envelope or returned directly to us by the referee. "Open" testimonials are not acceptable.

**ACCOMODATION**

Accommodation is in student hostels in a boarding school for the duration of the course. Teachers usually share a room and the bathrooms are communual. All accommodation, food and tuition fees are catered for by the bursaries offered to teachers on the course. No children or other family members can be accommodated.

If you are a sponsored or self-paying participant and decide not to stay in the school hostel, then you must make your own arrangements with a B&B in Stellenbosch and you must pay that cost to the B&B.

**TRAVEL**

Funds are limited but bursaries normally include a contribution to travel expenses for the most economical method of transport (e.g. Translux or City to City buses).

Self-paying applicants must pay for their own travel to and from Stellenbosch and to and from the B&B to Stellenbosch High School.

**CHECKLIST**

Please go through the checklist to make sure you understand what is written in the application form and what you need to do. The checklist will also help you to make sure your application is complete. You can contact AIMSSEC on **021 787 9359** / **082 482 4461** or admin@aimssec.ac.za if you have any questions. ***Tick when done***

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| 1. **Have you completed all 5 sections of this form?**
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| 1. **Have you noted the closing date for applications? 15 November 2019**
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| 1. **Have you attached certified copies of the following documents?**
2. **ID**
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| 1. **Payslip showing persal number**
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| 1. **Teaching qualification**
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| 1. **Other university accredited qualifications**
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| 1. **SACE certificate**
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| 1. **If you post your application have you enclosed a sealed envelope with a referee form signed by your Principal/line manager?** *The referee form is the last page of the application form. If you email or fax your application please ask your referee to do it separately to the same contact number.*
 |  |
| 1. **Have you noted the contact details for sending the application form back to AIMSSEC?** *The contact details are on page 2.*
 |  |

Once the application is received by AIMSSEC, applicants will be sent confirmation by ***sms***. Confirmation of receipt is not a guarantee of a place on the course. Acceptance will be confirmed at a later date. Information given in this form will be computerised and used to inform admission decisions.

I confirm that the information that I have given in this application is true and correct to the best of my knowledge, and I understand that if offered a place, I will be committing myself to a professional development short course.

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| **Signature:** |  | **Date:** |

**REFEREE FORM**

**Inclusion and Differentiation in Teaching and Learning Mathematics**

The course will be presented from June 2020.

**To the referee:** The applicant: ……………………………………………………………….. (**name**); is applying for admission to the above **AIMSSEC** professional development course. Please complete the following and return to **AIMSSEC** via fax, post or email as shown above:

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| **Referee:**  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Tel:** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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| **Name of institution:** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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| **Address:****Post code:** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| 1. **For how long have you known the applicant?**
 |  **..... Years** |
| 1. **Comment on the applicant’s aptitude as a mathematics teacher.**
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| 1. **Comment on the applicant’s motivation, maturity, originality and initiative as a mathematics teacher.**
 |
| 1. **For how many years has the teacher taught mathematics?**
 |  **.....Years** |
| **5. As part of the course students must share what they have learned, and the AIMSSEC free learning resources, with other teachers in their home areas by running a collaborative learning staff development session for other mathematics teachers at the school using an AIMSSEC Professional Development Workshop Guide** [**https://aiminghigh.aimssec.ac.za/category/cpd/**](https://aiminghigh.aimssec.ac.za/category/cpd/)**Are you willing to make it possible for the applicant to conduct this staff development session?** |

**I agree that the following recommendation will be kept confidential:**

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| **Signature of referee:** |  | **Date:** |  |