USE OF FUNDS PROVIDED THROUGH
THE CDCVLP PROGRAM

(Deadline for completion: please send the financial and activity report, all invoices, boarding tickets and your bank information four (4) weeks after your visit)

ITEMIZED FINANCIAL STATEMENT

Name of the Volunteer: **Prof. Olabode Matthias Bamigbola**
Home institution of the volunteer: **University of Ilorin, Ilorin, Nigeria**
Institution Visited (name, city, country): **Kampala International University, Kampala, Uganda**
Travel dates: **10 - 11 February, 2020 and 12 March, 2020**

I. Grant received from CDC€**0.00**

II. Grants from other sources   €**0.00**
Indicate name(s) of co-funder(s) and amount. **Not applicable**

Was the CDC grant important in obtaining additional funding ☐ Yes   ☒ No

Total funds for the Volunteer Lecturer Course (I+II)   €**0.00**

Breakdown of expenditure of CDC grant	CDC Euros €	Receipt/boarding tickets attached to this report?
Travel cost (economic flight, travel to airport)	628.89	Yes
Other travel cost to the airport	17.96	Yes
Visa cost	44.96	Yes
Travel Health insurance	37.88	Yes
Vaccination	0.00	Yes
Accommodation	376.33	Yes
Living costs	257.74	Yes
Total Amount:	1363.76	

Did your accommodation include breakfast or any other meal?

Please specify: **No**

Did you already receive a pre-payment? ☐ Yes   ☒ No
In case yes, how much did you receive (in EURO): _____

Date: **9 April, 2020**

Signature: _____   Home Institution: **University of Ilorin, Nigeria**

BREAKDOWN OF EXPENDITURE OF IMU-CDC GRANT

		AMOUNT	EURO
	TRAVEL COST		
05/02/2020	Receipt for Flight Ticket	NGN 229,255	
10/02/2020	Ojota -M/M Airport Uber transport	NGN 3,000	
12/03/2020	M/M Airport - Ojota, Lagos Car Hire Service	NGN 5,000	
	SUBTOTAL	NGN237,255	583.634
12/03/2020	Entebbe-Kampala - Entebbe Airport Shuttle	UGX160,000	
12/03/2020	Baggage Wrap	UGX30,000	
	SUBTOTAL	UGX190,000	45.255
	TOTAL		**628.889**
	OTHER TRAVEL COST TO AIRPORT		
10/02/2020	Ilorin-Ojota, Lagos Bus transport	NGN 4,000	
12/03/2020	Ojota, Lagos - Ilorin Bus transport	NGN 3,300	
	TOTAL	**NGN7,300**	**17.958**
	VISA COST		
11/02/2020	Ugandan visa	**USD 50**	**44.959**
	TRAVEL HEALTH INSURANCE		
06/02/2020	Travel Insurance	NGN 15,400	**37.875**
	VACCINATION		
		NGN2,000	**0.00**
	ACCOMODATION		
11/02/2020	Hotel Accommodation	UGX80,000	
12/02/2020	Hotel Accommodation (12 Feb - 12 Mar)	UGX1,500,000	
	TOTAL	**UGX1,580,000**	**376.329**
	LIVING COSTS		
06/02/2020	Food items	NGN 8,420	
07/02/2020	Purchase of Airtime	NGN 5,000	
07/02/2020	Purchase of Data	NGN 1,000	
	SUBTOTAL	NGN14,420	35.465
13/02/2020	AirTel SIM Card	UGX 2,000	
13/02/2020	Airtime	UGX 3,000	
13/02/2020	Purchase - Household materials	UGX48,000	
13/02/2020	Purchase - Assorted materials	UGX23,600	
13/02/2020	Purchase - food items	UGX37,500	
15/02/2020	AirTel Airtime	UGX 5,500	
15/02/2020	Shopping - juice	UGX27,000	
15/02/2020	Shopping - bread	UGX2,500	
16/02/2020	AirTel Data 9GB	UGX 30,000	
16/02/2020	Airtel Daily Tax	UGX 200	
21/02/2020	Lunch/Supper for 11-21 Feb	UGX185,000	
21/02/2020	Shopping - juice	UGX15,000	

21/02/2020	Airtel Daily Tax	UGX 200	
22/02/2020	Shopping - bread & insecticide	UGX12,500	
22/02/2020	Purchase - crate of eggs	UGX5,000	
22/02/2020	Airtel Daily Tax	UGX 200	
23/02/2020	Airtel Daily Tax	UGX 200	
25/02/2020	AirTel Airtime	UGX 2,000	
28/02/2020	Lunch/Supper for 22 - 28 Feb	UGX149,000	
29/02/2020	Airtel Daily Tax	UGX 200	
02/03/2020	Airtel Daily Tax	UGX 200	
02/03/2020	Juice	UGX25,500	
03/03/2020	Airtel Daily Tax	UGX 200	
04/03/2020	AirTel Airtime	UGX5,000	
06/03/2020	Lunch/Supper for 29 Feb - 6 Mar	UGX140,000	
07/03/2020	Airtel Daily Tax	UGX 200	
11/03/2020	AirTel Airtime	UGX1,000	
11/03/2020	Lunch/Supper for 7 - 11 Mar	UGX127,000	
11/03/2020	Local transport for 11 Feb - 11 Mar	UGX 85,500	
	SUBTOTAL	UGX933,200	222.273
	TOTAL		**257.738**
	GRAND TOTAL		**1,363.76**

ACTIVITY REPORTING FORM
FOR CDCVLP PROGRAM

(Deadline for completion: four weeks after the VLP visit)

Name of the Volunteer: **Prof. Olabode Matthias Bamigbola**
Home institution of the volunteer: **University of Ilorin, Ilorin, Nigeria**
Institution Visited (name, city, country): **Kampala International University, Kampala, Uganda**
Travel dates: **10 - 11 February, 2020 and 12 March, 2020**

An activity report must be provided using the format described below for each Volunteer Course that received financial support from IMU CDC. Please state how the students/ colleagues benefited from the course, and a summary of any follow-on activities that were seeded by this visit and course.

The maximum length of the report should be **4-pages**. Please note that at least four pictures of the supported visit(including a picture of the Volunteer with the students) should be included/ attached to this report and send as a pdf and email to the CDC Administrator.

After consideration by CDC, the intention is that this activity report and pictures will be made publicly available on the CDC web site.

Were any official IMU representatives or IMU adhering organizations involved(including any IMU sub-committee members) involved in the project, if so, which one:

> None

1. General Information about the Volunteer Lecturer Course
Arrival and Departure Day in Host Country: **11 February, 2020 and 12 March, 2020**
Who was your main contact in the host country (name, affiliation and email address):
Prof. Benjamin Peter, Kampala International University; benjamin.aina@kiu.ac.ug

Please answer the following questions:
a. Location (country, city, institution) of your lecture: **Uganda, Kampala, Kampala International University**
b. Dates of Lecture: **13 February - 10 March, 2020**
c. Subject and title of the course: **Mathematics; Partial Differential Equations**
d. How often did you teach a course? **Twice a week**
e. How many students did participate in the course (s) **15**
f. Background of Students: Undergraduate/ Master/ PhD Students **Master**
g. Please provide (if possible) any schedule of activities/list of topics covered during your visit. **See list attached**
h. Did you develop or follow a prescribed syllabus or did you write your own? **Followed a prescribed course**
   Was it available to the students before the course or when the course began? **Available before the course**
   Please also mention the references you used or any text books that were referred to: **Listed in the attachment**
i. Did you use any books, classroom material, AV, or other technology-based materials? **Formed notes**
j. What type of assessment tools did you use? **Assignment, quiz, test, examination**
k. In which language was the course given: **English**
l. Was the course language, the native language of the students? **No**

m. Did you give any public lecture, discussed with local staff issues regarding curriculum?
Seminar on "Optimization in Electric Power System"

n. Where did you live? (e.g. hotel, hostel, on campus, in city e.g.) **Hotel**

2. Major outcome / achievements (max. 1 pages)

- Including a summary statement (1-2 sentences) of major outcome

This report is in respect of the IMU-CDC Volunteer Lectures Program (VLP) in "Partial Differential Equations" approved for January 3 - February 3, 2020 at the Kampala International University. As a result of some logistics problem, the VLP was rescheduled for February 10 - March 12, 2020.

Activities in the program include teaching a course, presentation of a seminar on "Optimization in Electric Power System", and granting an interview. These activities emphasize the important roles mathematics play in globalization and modernization.

Apart from creating awareness about IMU and CDC through the activities, major achievements of the VLP include the promotion of co-operation between mathematicians in developing countries and the international mathematical community; reinforcement of the teaching capacity of the host university in an advanced mathematical course, and utilization of opportunities for research collaborations and student mentoring, thereby improving research capability in the host university. Another achievement attained was by means of the public lecture, which was toned down to a seminar, is the realization that knowledge in mathematics has utilitarian value and indeed can be utilized in resolving challenges confronting the human society.

On a personal note, the VLP has afforded me an opportunity of finding myself in an environment I did not dream of visiting and interacting with students and faculty members it would have been impossible to come across.

In summary, the above enumerated outcome are focused on improving the standard of mathematical education in a developing country.

3. Planned follow up activities and future implications (up to 1/2 page)

Planned follow up activities include maintaining close contact with academic staff who have indicated interest in forging research collaboration with me and regular communication with students who desire to further their studies in the discipline; they need some information relating to admission tips.

I have indicated interest to the host lecturer, who also doubles as the head of department, in visiting the host university to teach another core course in their degree program, possibly, next session. This is necessary in order to consolidate the achievements of the just concluded VLP.

Furthermore, I was reliably informed of an advert put up by the host university for research fellows in many subject areas including mathematics, for which I will like to put in for. If given the opportunity, I hope to spend up to 6 months in the program.

At any other opportunity to visit the host university, my target will be to encourage the junior academics who have not earned their PhD to embark on the programme, as well as to enlighten and encourage indigent undergraduates who are capable of furthering their study on how to get financial supports for enrolment and sustenance for higher degree programmes.

Finally, I seize this opportunity to thank IMU-CDC for the opportunity to participate in her volunteer lectures program.

Date: 9 April, 2020   Signature:

SCHEDULE OF ACTIVITIES/LIST OF TOPICS COVERED/REFERENCES

A. SCHEDULE OF ACTIVITIES

DAY/DATE	ACTIVITY	DAY/DATE	ACTIVITY
Mon 10 Feb	Departure from Lagos, Nigeria	Tue 11 Feb	Arrival At Kampala, Uganda
Wed 12 Feb	Settling down in Hotel	Thu 13 Feb	Courtesy Call on KIU Admin &
Thu 13 Feb	Start of MAT 7208 Lectures	Fri 14 Feb	Academic Engagement
Sat 15 Feb	Academic Engagement	Sun 16 Feb	Visit to Campus
Mon 17 Feb	Academic Engagement/Interaction	Tue 18 Feb	MAT 7208 Lectures (8:00 - 11:00am)
Wed 19 Feb	Academic Engagement/Interaction	Thu 20 Feb	MAT 7208 Lectures (8:00 - 11:00am)
Fri 21 Feb	Academic Engagement/Interaction	Sat 22 Feb	Academic Engagement
Sun 23 Feb	Visit to Campus	Mon 24 Feb	Seminar Paper Preparation
Tue 25 Feb	MAT 7208 Lectures (8:00 - 11:00am)	Wed 26 Feb	Research Consultation
Thu 27 Feb	MAT 7208 Lectures (8:00 - 11:00am)	Fri 28 Feb	Seminar Presentation (10:00 - 12:00noon)
Sat 29 Feb	Academic Engagement	Sun 01 Mar	Visit to Campus
Mon 02 Mar	Academic Engagement/Interaction	Tue 03 Mar	MAT 7208 Lectures (8:00 - 11:00am)
Wed 04 Mar	Academic Engagement/Interaction	Thu 05 Mar	MAT 7208 Lectures (8:00 - 11:00am)
Fri 06 Mar	Academic Engagement/Interaction	Sat 07 Mar	City Tour
Sun 08 Mar	Visit to Campus	Mon 09 Mar	Academic Engagement/Interaction
Tue 10 Mar	End of MAT 7208 Lectures (8:00 - 11:00am)	Wed 11 Mar	Farewell
Thu 12 Mar	Departure From Kampala, Uganda & Arrival at Lagos, Nigeria		

B. LIST OF TOPICS COVERED

Basic concepts and definitions in partial differential equation (pde): order, linear, quasilinear, semilinear, nonlinear pdes, , initial, and boundary conditions, Dirichlet, Newmann, Robin problem types, well-posed problems. First order pdes, Jacobian's method, Hamilton Jacobian's theory, general and complete solutions, Lagrange's method, real life model and application of pdes. Second order pdes: complementary and particular integrals, principle of superposition, solution by factorization of operators, classification of pdes, characteristics and canonical forms. Miscellaneous solution methods - separation of variables, Fourier and Laplace transforms.

C. REFERENCES

[1] B. Neta (2012) Partial Differential Equations Lecture Notes with Solution Manual. Department of Mathematics, Naval Postgraduate School, Monterey, California.

[2] Qing Han (2010) An Introduction to Linear Partial Differential Equations.

[3] Erich Miersemann (2012) Partial Differential Equations Lecture Notes. Department of Mathematics, Leipzig University.

[4] Evy Kersale (2003) MATH3414 Analytic Solutions of Partial Differential Equations School of Mathematics, University of Leeds.

[5] Igor Yanovsky (2005) Partial Differential Equations: Graduate Level Problems and Solutions.

[6] Victor Ivrii (2017).Partial Differential Equations, Department of Mathematics, University of Toronto, Ontario, Canada.

[7] Raphael B. Adeniyi (2007) Basic Essential Tools in Mathematical Methods. Evidence Nig. Ventures, Ilorin.

PICTURES OF IMU-CDC VOLUNTEER LECTURES PROGRAM
AT KAMPALA INTERNATIONAL UNIVERSITY, UGANDA

Presentation on "Optimization in Electric Power System"

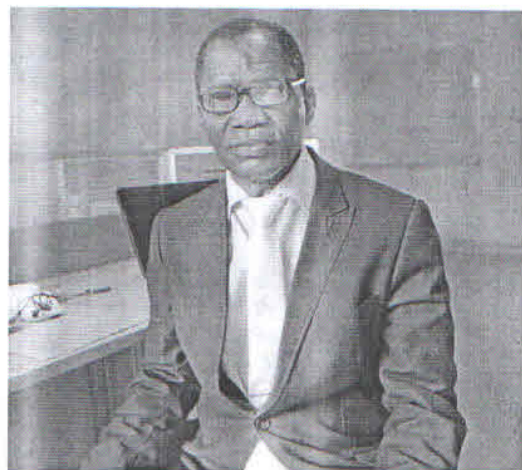Volunteer lecturer answering a question at the seminar

Picture with administrator and faculty after the seminar

Picture with the students after the seminar

Host and volunteer professors

Volunteer lecturer at the interview

DIRECTORATE OF HUMAN RESOURCES

P.M.B. 1515,
Ilorin,
Kwara State
Website: www.unilorin.edu.ng
e-mail: estabsdiv@unilorin.edu.ng
Telephone: +234 803 4190112
+234 709 8816374

Our Ref: UIL/SSE/PF/1770

Date: 17th January, 2020

Professor O.M. Bamigbola,
Department of Mathematics,
Faculty of Physical Sciences,
University of Ilorin,
Ilorin.

Dear Professor Bamigbola,

RE: PERMISSION TO PARTICIPATE IN IMU-CDC VOLUNTEER LECTURER PROGRAM

With reference to your letter dated 17th December, 2019 on the above subject, I write to convey approval for you to honour the invitation to participate in the volunteer lecture programme of International Mathematical Union-Commission for Developing Countries (IMU-CDC) holding at Kampala International University, Kampala, Uganda between 3rd January and 3rd February, 2020.

You are expected to resume duty on 4th February, 2020.

This letter supersedes the earlier one dated 7th January, 2020 on this subject.

Yours sincerely,

T.A. Bamigboye
for: Registrar