

## INSPIRING SCIENCE EDUCATION FOR GIRLS USING ICT

### TECHNICAL TRAINING WORKSHOP TO BE HELD (7<sup>th</sup> -11<sup>th</sup>) Jan 2008 AT NALINYA LWANTALE GIRLS SECONDARY SCHOOL, LUWERO

#### Introduction:

In order to reduce the computer downtimes and to technically sustain the computers in the 15 project schools, SchoolNet Uganda in partnership with the Ministry of Education and Sports is organizing 5-day basic technical course in computer maintenance & troubleshooting and Networking for 15 of the schools participating in the Inspiring Science Education for Girls using ICT project. Each of the selected 15 project schools will send one teacher and one student to the training. The teacher and the student trained at each school will form the core school technical support team. This technical support team will be responsible for the 1<sup>st</sup> level technical support at each project school. The core technical team will be expected to cascade the training at each project school. In addition, such a trained team will be able to report technical problem correctly to SchoolNet Uganda for remote technical support and assistance.

#### Objectives of the training:

- To identify tools, equipment and hardware compositions of a computer and name them correctly.
- To learn and practice assembling of computers.
- To learn and practice installation of software (operating systems, application & utility) on a computer.
- To learn and practice computer restoration from software crashes.
- Learn Computer & peripheral maintenance & troubleshooting.
- Learn Local Area Network (LAN) construction, maintenance & troubleshooting.
- Setup and Network a 50 computer lab at the new computer refurbishment centre hosted at Kyambogo College School.

#### Timetable for the Training.

Day/Time	Activity	In charge	Notes
<b>Monday</b>			
8.30-9.30am	<ul style="list-style-type: none"> <li>• Official opening</li> <li>• Collaborative introductions</li> <li>• House keeping</li> <li>• Ground rules</li> </ul> Workshop objectives		

9.30-10.30 am	A look at the availed training materials together		
10.30-11.00 am	Break		
11:00-11:10 am	Formation of working groups		
11.10-11.40 am	Module #1		<b>Introduction to computers</b> <ol style="list-style-type: none"> <li>1. Definition of a Computer</li> <li>2. Definitions of Hardware &amp; Software</li> <li>3. Brief Description of Computer terminology</li> <li>4. Parts of a Computer</li> <li>5. Introduction to Input devices</li> <li>6. Introduction to Output devices</li> <li>7. The Central Processing Unit</li> <li>8. About Storage Sections (Memory)</li> <li>9. How computers work</li> </ol>
11.40-12.30 pm	Module #2		<b>Identifying hardware components</b> <ol style="list-style-type: none"> <li>1. Cabinet and Power Supply</li> <li>2. Microprocessor with CPU Fan</li> <li>3. Motherboard</li> <li>4. The RAM</li> <li>5. Hard Disk</li> <li>6. Floppy Drive</li> <li>7. CDROM Drive</li> <li>8. DVD ROM</li> <li>9. The Modem</li> <li>10. Video Card</li> <li>11. Sound Card</li> <li>12. Various Cables/adapters</li> </ol>
12:30 – 2:00pm	Lunch		
2.00-5.00pm	Module #3&4		<b>Disassembling the Computer</b> <ol style="list-style-type: none"> <li>1. Separating the Peripherals</li> <li>2. Inside the Cabinet</li> <li>3. Removing the Base Plate</li> <li>4. Removing the CPU, Heat Sink &amp; CPU Fan</li> </ol>

			<b>Assembling the Computer</b> <ol style="list-style-type: none"> <li>1. Key Components</li> <li>2. Remove Cover of the Cabinet</li> <li>3. Remove Base Plate from the Cabinet</li> <li>4. Fix the Motherboard on to the Base Plate</li> <li>5. Connect the Processor to the Motherboard</li> <li>6. Install the Ram modules to the Motherboard</li> <li>7. Fix the Motherboard into the computer Unit</li> <li>8. Attach Storage Devices (Floppy /HDD /CD drive etc.)</li> <li>9. Connect Cables to the Motherboard</li> <li>10. Attach the drive data cable and power connectors</li> <li>11. Connect external port cables</li> <li>12. Connect the Display Card, Sound card, Internal Modem card</li> <li>13. Connecting the CD Audio cable</li> <li>14. Connecting Peripherals</li> </ol>
	Module #5		<b>Starting-up, Installing and configuring software</b> <ol style="list-style-type: none"> <li>1. Setting up of CMOS-BIOS</li> <li>2. Partitioning the Hard drive</li> <li>3. Formatting the Hard Disk</li> </ol>
<b>Tuesday</b>			
8.00-8.30	Review Day1 activities		
8.30-10:00	Module #5 continued		<ol style="list-style-type: none"> <li>4. Installing Windows</li> <li>5. Installing peripheral devices</li> <li>6. Installing anti-virus program</li> <li>7. Installing MS Office suit</li> </ol>
10:00 – 10:30	Health Break		
10:30 – 12:45	Module #6		<b>Trouble-shooting hardware &amp; software</b> <ol style="list-style-type: none"> <li>1. Operating system problems</li> <li>2. RAM (Memory) Errors</li> <li>3. HDD Troubleshooting</li> </ol>

			<ul style="list-style-type: none"> <li>4. Disk Media Errors</li> <li>5. CD drive Troubleshooting</li> <li>6. Floppy drive Troubleshooting</li> <li>Keyboard Troubleshooting</li> </ul>
12:45 – 2:00	Lunch		
2:00 – 5:00	Module #6 continued		<ul style="list-style-type: none"> <li>7. Mouse Troubleshooting</li> <li>8. Monitor Troubleshooting</li> <li>9. Connection of peripherals</li> </ul>
<b>Wed</b>			
8.00-8.30 am	Review of Day 2 Activities		
8.30 – 9:30 am	Module #7		<b>Computer servicing &amp; maintenance</b> <ul style="list-style-type: none"> <li>1. Why?</li> <li>2. When?</li> <li>3. How?</li> </ul>
9.30 – 10.00am	Module #8		<b>Safe, environmentally responsible, disposal of computer waste (e-waste)</b>
10:00 – 10:30	Health Break		
10:30 – 12:45	Module #9		<b>Introduction to Networking</b> <ul style="list-style-type: none"> <li>1. Unshielded Twisted pair cable</li> <li>2. Shielded Twisted pair cable</li> <li>3. Structured Cabling</li> <li>4. Hubs &amp; Switches</li> <li>5. TCP IP protocol</li> <li>6. LAN</li> </ul>
12:45 – 2:00	Lunch Break		
2:00 – 5:00	Module #10		<b>Connecting LAN to Internet (Theory)</b> <ul style="list-style-type: none"> <li>1. IP addressing</li> <li>2. Different Approaches to sharing a connection</li> <li>3. Serial Port Sharing</li> <li>4. Routing</li> <li>5. Proxy Server</li> <li>6. IP Masquerading</li> <li>7. Email Server</li> <li>8. Mail Server</li> </ul>

	Module #11		<b>Troubleshooting a Local Area Network – LAN (theory)</b>
<b>Thursday</b>			
8.00-10.00 am	Module #12 Practical session: Two Groups: Structured LAN cabling and PC configuration. <b>Group1:</b> A 50-PC computer room at the new Computer Refurbishing Center at Kyambogo College.) Group 2: A Computer lab at Nalinya Lwantale Girls SS.		<ol style="list-style-type: none"> <li>1. Making and testing straight-through network cable.</li> <li>1. Making and testing straight-through network cable.</li> <li>2. Connecting and configuring a mini LAN of 3 computers (group work)</li> <li>3. Troubleshooting the mini LAN</li> </ol>
10.00-10:30	Health Break		
10:30 – 12:45	Module #12 continued		<ol style="list-style-type: none"> <li>5. Mapping out for cable trunking along the walls</li> <li>6. Drilling and fixing cable trunkings</li> <li>7. Laying and labeling cables</li> </ol>
12:45 – 2:00	Lunch		
3:30 – 5:00	Module #12 continued		<ol style="list-style-type: none"> <li>8. Crimping cables</li> <li>9. Testing and cross-checking cables</li> <li>10. Trimming and tie-wraps for good workmanship</li> <li>11. Terminating into the switch/hub</li> </ol>
<b>Friday</b>			
8.00-10.00 am	Module #12 continued		<ol style="list-style-type: none"> <li>12. Configuring and connecting PCs on the network &amp; testing</li> <li>13. Installing peripherals on the network e.g. printer &amp; testing</li> </ol>
10.00-1.00pm	Module #12 continued		<ol style="list-style-type: none"> <li>14. Cleaning the workplace</li> <li>15. Labeling the workstations</li> </ol>
2.00-	Workshop closure		Award of Certificates of workshop

3.15pm			participation & closure
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### **Training Methodology:**

- First, participants will be given theoretical explanation for each module.
- Participants will be asked to read the concerned chapters for the next day's activities.
- While demonstrating the parts, the trainers will make sure the participants see the parts. SchoolNet Uganda's Technical Service Center has more than enough parts for demonstration. Each participant will handle the part carefully and be shown the correct method of handling these sensitive electronics.
- Participants will be given minds-on activities during the demonstration sessions to make them remember the hardware parts.
- During disassembly of the computer, each participant will have a computer to him/herself to disassemble.
- Participants will work in groups even though each one will have a computer to him/herself to assemble/disassemble. This allows for peer-learning and support.
- Each group will work under supervision of trainers.
- The same process will be repeated for the installation of drivers, operating systems, application and utility software.
- During the troubleshooting, participants will be given practical work involving trouble shooting. Wherever it is possible, errors will be simulated (without damaging the hardware).
- During the networking modules participants will be requested to read and understand the theory well before proceeding to practical installations.
- For the drilling, cable crimping, determining cable drop-points lengths, the trainers who are networking experts will do the demonstration first. Thereafter participants will construct the Local Area Network (LAN) and configure it.