



**Republic of the Philippines**  
**CENTRAL MINDANAO UNIVERSITY**  
**BIDS AND AWARDS COMMITTEE**  
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**SUPPLEMENTAL BID BULLETIN NO. ITB-35-2022**

This bid bulletin is issued to amend the **Supply and Installation of Learning Management System (LMS) and Infrastructure ICT Equipment**

Item	TECHNICAL SPECIFICATION	CHANGE TO	Quantity
1	<p><b>Learning Management System (LMS)</b></p> <p><i>With FREE training for CMU Faculty to be delivered by the supplier (no other party)</i></p> <p><i>Cloud-based LMS</i></p> <p><i>Suitable for 100% online classes as well as supplementing face-to-face learning</i></p> <p><i>Simple, lightweight, efficient, compatible, low-tech browser interface</i></p> <p><i>Course listing shows descriptions for every course on the server, including accessibility to guests.</i></p> <p><i>Courses can be categorized and searched – one LMS site can support thousands of courses</i></p> <p><i>Emphasis on strong security throughout. Forms are all checked, data validated, cookies encrypted etc.</i></p> <p><i>Most text entry areas (resources, forum postings etc.) can be edited using an embedded WYSIWYG HTML editor</i></p> <p><i>Site is defined during setup. Defaults can be edited during setup or globally accepted</i></p> <p><i>Site can be modified by a robust Site administration block.</i></p>	<p><b>Learning Management System (LMS) Perpetual License</b></p> <p><i>With FREE training for CMU Faculty to be delivered by the supplier (no other party)</i></p> <p><i>Suitable for 100% online classes as well as supplementing face-to-face learning</i></p> <p><i>Simple, lightweight, efficient, compatible, low-tech browser interface</i></p> <p><i>Course listing shows descriptions for every course on the server, including accessibility to guests.</i></p> <p><i>Courses can be categorized and searched – one LMS site can support thousands of courses</i></p> <p><i>Emphasis on strong security throughout. Forms are all checked, data validated, cookies encrypted etc.</i></p> <p><i>Most text entry areas (resources, forum postings etc.) can be edited using an embedded WYSIWYG HTML editor</i></p> <p><i>Site is defined during setup. Defaults can be edited during setup or globally accepted</i></p> <p><i>Site can be modified by a robust Site administration block.</i></p>	1

	<p><b>Enrolment</b></p> <ul style="list-style-type: none"> <li>• Courses can a limit enrollment in several ways. Student self enrollment can be turned off.</li> <li>• An "enrolment key" in a course, only allows certain students to enter. These keys can be given out face-to-face or via email and can be changed</li> <li>• Teachers, with permissions, can manually enroll students or unenroll students in their courses.</li> <li>• Course completion is a course prerequisite feature that allows scaffolding of courses.</li> <li>• Course and site settings have options for automatic removal of users</li> <li>• Each person needs only one account for the site. Each account can have access to different courses, and the courses resources and activities.</li> <li>• Meta courses get their enrollment information from 1 or more other courses.</li> </ul>	<p>Supports a range of user authentication mechanisms through plug-in authentication modules, allowing easy integration with existing systems.</p> <p>Enrolment to class Module, Multiple Roles Module, Course Management Module, Course Reports Module, Assignment Module, Chat Module Forum Module, Glossary Module, Leeson Module, Quiz Module, Resource Module, Wiki Module, Workshop Module</p>	
	<p><b>Multiple Roles</b></p> <ul style="list-style-type: none"> <li>• Roles combine specific permissions for specific types of participants. A user can be assigned a different role for each context, such as a specific course.</li> <li>• The administrator (admin) user account controls the creation of courses and creates teachers by assigning users to courses and giving them a role in that context</li> <li>• New roles can be created, copied from existing roles, and edited. Some standard roles include: <ul style="list-style-type: none"> <li>o Course creator can create courses, teach in them, and assign others to teacher roles.</li> <li>o Teachers are a role in a specific course.</li> <li>o Non-editing teacher roles are available for adjuncts, and part-time tutors.</li> <li>o Students can participate and view activities but not create them</li> <li>o Guests are view only users.</li> </ul> </li> </ul>	<p><b>Enrolment</b></p> <ul style="list-style-type: none"> <li>• Courses can a limit enrollment in several ways. Student self enrollment can be turned off.</li> <li>• An "enrolment key" in a course, only allows certain students to enter. These keys can be given out face-to-face or via email and can be changed</li> <li>• Teachers, with permissions, can manually enroll students or unenroll students in their courses.</li> <li>• Course completion is a course prerequisite feature that allows scaffolding of courses.</li> <li>• Course and site settings have options for automatic removal of users</li> </ul>	
	<p><b>Course Management</b></p> <ul style="list-style-type: none"> <li>• Typically, a teacher has full control over all settings for a course.</li> <li>• This can include assigning other teachers' roles with less privileges</li> <li>• Choice of Course formats settings such as by week, by topic or a discussion-focused social format</li> <li>• An individual course theme and layout can be created for any</li> </ul>	<ul style="list-style-type: none"> <li>• Each person needs only one account for the site. Each account can have access to different courses, and the courses resources and activities.</li> <li>• Meta courses get their enrollment information from 1 or more other courses.</li> </ul>	

	<ul style="list-style-type: none"> <li>• Specific course activities and resources can be imported from another existing course</li> <li>• Conditional activities allow the teacher to set completion standards and conditions for entry into any specific activity, based upon several criterion.</li> </ul>	<p><b>Multiple Roles</b></p> <ul style="list-style-type: none"> <li>• Roles combine specific permissions for specific types of participants. A user can be assigned a different role for each context, such as a specific course.</li> <li>• The administrator (admin) user account controls the creation of courses and creates teachers by assigning users to courses and giving them a role in that context</li> <li>• New roles can be created, copied from existing roles, and edited. Some standard roles include:             <ul style="list-style-type: none"> <li>o Course creator can create courses, teach in them, and assign others to teacher roles.</li> <li>o Teachers are a role in a specific course.</li> <li>o Non-editing teacher roles are</li> </ul> </li> </ul>	
	<p><b>Course Reports</b></p> <ul style="list-style-type: none"> <li>• All grades for many kinds of activities can be viewed on one page (and downloaded in several formats).</li> <li>• Graded activities can be further calculated or manually entered in the Gradebook which is separated from the initial activity calculation. Additionally, categories of graded activities and display functions allow for custom reports.</li> <li>• Full user logging and tracking - activity reports for each student are available with graphs and details about each module (last access, number of times read) as well as a detailed "story" of each student's involvement including postings etc. on one page.</li> </ul>	<p><b>Course Management</b></p> <ul style="list-style-type: none"> <li>• Typically, a teacher has full control over all settings for a course.</li> <li>• This can include assigning other teachers' roles with less privileges</li> <li>• Choice of Course formats settings such as by week, by topic or a discussion-focused social format</li> <li>• An individual course theme and layout can be created for any course.</li> <li>• Flexible array of course activities - Forums, Quizzes, Glossaries, Resources, Choices, Surveys, Assignments, Chats, Workshops</li> <li>• Groups - teacher(s) and students can be placed in one or more groups</li> <li>• Recent changes to the course since the last login can be displayed on the course home page - helps give sense of community</li> <li>• Content areas (things seen by students) have an HTML editor tool bar with many standard editing functions, including an html code view.</li> <li>• Mail integration - copies of forum posts, teacher feedback etc. can be</li> </ul>	

	<p><b>Assignment Module</b></p> <ul style="list-style-type: none"> <li>• Assignments can be specified with a due date and a maximum grade.</li> <li>• Students can upload their assignments (any file format) to the server - they are date-stamped.</li> <li>• Late assignments are allowed, but the amount of lateness is shown clearly to the teacher</li> <li>• For each assignment, the whole class can be assessed (grade and comment) on one page in one form.</li> <li>• Teacher feedback is appended to the assignment page for each student, and notification is mailed out.</li> <li>• The teacher can choose to allow resubmission of assignments after grading (for regrading)</li> <li>• Allowing resubmissions can allow the teacher to progress monitor student projects/assignments as they evolve.</li> <li>• Advanced assignments can allow multiple files to be uploaded. This could keep together preplanning maps, outlines, research papers and presentations. (Not for beginners)</li> </ul>	<ul style="list-style-type: none"> <li>• Custom scales - teachers can define their own scales to be used for grading forums and assignments</li> <li>• Courses can be packaged as a single zip file using the Backup function. These can be restored on any cloud server.</li> </ul>	
	<p><b>Chat Module</b></p> <ul style="list-style-type: none"> <li>• The Chat module allows smooth, synchronous text interaction <ul style="list-style-type: none"> <li>o They can be limited to group members or roles, or be for anyone in the course</li> </ul> </li> <li>• Includes profile pictures in the chat window</li> <li>• Supports URLs, similes, embedded HTML, images etc.</li> <li>• All sessions are logged for later viewing, and these can also be made available to students</li> </ul>	<ul style="list-style-type: none"> <li>• Specific course activities and resources can be imported from another existing course</li> <li>• Conditional activities allow the teacher to set completion standards and conditions for entry into any specific activity, based upon several criterion.</li> </ul>	
	<p><b>Forum Module</b></p> <ul style="list-style-type: none"> <li>• Different types of forums are available, such as course news, open-to-all, one-thread-per-user, and question/answers types.</li> <li>• Forum posts can be emailed in several ways, some controlled by the student.</li> <li>• Posts can have the authors photo attached.</li> <li>• Discussions can be viewed nested, flat or threaded, oldest or newest first.</li> <li>• Robust subscription methods for each forum</li> </ul>	<p><b>Course Reports</b></p> <ul style="list-style-type: none"> <li>• All grades for many kinds of activities can be viewed on one page (and downloaded in several formats).</li> <li>• Graded activities can be further calculated or manually entered in the Gradebook which is separated from the initial activity calculation. Additionally, categories of graded activities and display functions allow for custom reports.</li> <li>• Full user logging and tracking - activity reports for each student are available with graphs and details about each module (last access,</li> </ul>	

	<p><b>Glossary Module</b></p> <ul style="list-style-type: none"> <li>• The Glossary module is one of the modules that best illustrates the way that LMS can fundamentally improve upon the experience of a traditional classroom</li> <li>• When students contribute to a course in a public place like the glossary, their ideas are given weight and attention and often result in a greater pride or ownership of the assignment</li> <li>• Allows participants to create and maintain a list of definitions, like a dictionary</li> <li>• Student entries can be previewed by instructors before publishing</li> <li>• Entries can be searched or browsed using alphabet, category, date, and author</li> <li>• A glossary of terms can be easily referenced by students</li> <li>• Almost any module of LMS can be set to hyperlink - automatically - to any word or phrase that is stored in or added to the glossary</li> <li>• Glossary items can be grouped in categories</li> <li>• Participants can comment on glossary entries</li> <li>• Entries can be rated using teacher-defined scales</li> <li>• Glossaries can be easily exported and imported via xml</li> </ul>	<p><b>Assignment Module</b></p> <ul style="list-style-type: none"> <li>• Assignments can be specified with a due date and a maximum grade.</li> <li>• Students can upload their assignments (any file format) to the server - they are date-stamped.</li> <li>• Late assignments are allowed, but the amount of lateness is shown clearly to the teacher</li> <li>• For each assignment, the whole class can be assessed (grade and comment) on one page in one form.</li> <li>• Teacher feedback is appended to the assignment page for each student, and notification is mailed out.</li> <li>• The teacher can choose to allow resubmission of assignments after grading (for regrading)</li> <li>• Allowing resubmissions can allow the teacher to progress monitor student projects/assignments as they evolve.</li> <li>• Advanced assignments can allow multiple files to be uploaded. This could keep together preplanning maps, outlines, research papers and presentations. (Not for beginners)</li> </ul>	
	<p><b>Lesson Module</b></p> <ul style="list-style-type: none"> <li>• A lesson is a single activity where a series of pages are presented to the student, usually based upon a student's choice.</li> <li>• Content seen by the student is created with LMS HTML editor tool.</li> <li>• Students make choices by their answers to questions or by selecting a button with a description. Their choices are linked to other pages in the lesson.</li> <li>• This allows for a simple slide show type of presentation, with content and questions.</li> <li>• It allows for a branching, adaptive presentation based upon a student's specific choice.</li> <li>• Navigation through the lesson can be straight forward or complex, logical, or random.</li> <li>• Jumps are associated with each choice that link to other lesson pages.</li> <li>• Jumps can be to a specific page or to a random page or a page not seen by the student.</li> <li>• Choices that are answers to questions and can be scored and given individual feedback.</li> <li>• Question pages include Multiple choice, Multi-answer, T/F, numeric, short answer, and essay.</li> <li>• Lesson settings offer the teacher</li> </ul>	<p><b>Chat Module</b></p> <ul style="list-style-type: none"> <li>• The Chat module allows smooth, synchronous text interaction <ul style="list-style-type: none"> <li>◦ They can be limited to group members or roles, or be for anyone in the course</li> </ul> </li> <li>• Includes profile pictures in the chat window</li> <li>• Supports URLs, similes, embedded HTML, images etc.</li> <li>• All sessions are logged for later viewing, and these can also be made available to students</li> </ul>	

	<ul style="list-style-type: none"> <li>• Password start and end times, and other restrictions can be placed on students.</li> <li>• Pages can be created one at a time or imported.</li> </ul>	<p><b>Forum Module</b></p> <ul style="list-style-type: none"> <li>• Different types of forums are available, such as course news, open-to-all, one-thread-per-user, and question/answers types.</li> <li>• Forum posts can be emailed in several ways, some controlled by the student.</li> <li>• Posts can have the authors photo attached.</li> <li>• Discussions can be viewed nested, flat or threaded, oldest or newest first.</li> <li>• Robust subscription methods for each forum <ul style="list-style-type: none"> <li>o Individual forums can be subscribed to by each person</li> <li>o Teacher can force subscription for all members of the course, either initially or permanently.</li> </ul> </li> <li>• Groups features allow options for more entry and viewing limitations for students.</li> <li>• The teacher can choose not to allow replies to their posts (announcements).</li> <li>• Discussion threads can be moved</li> </ul>	
	<p><b>Quiz Module</b></p> <ul style="list-style-type: none"> <li>• There are many types of standard questions format that can be used in the Quiz module. Quiz offers many scoring methods and ways to present itself to students.</li> <li>• Quizzes are automatically graded when a student finish. An entire quiz or specific questions be regraded at any time, should the teacher change an answer's score.</li> <li>• There are many quiz settings options, such as: <ul style="list-style-type: none"> <li>o Quizzes can have a limited time window outside of which they are not available</li> <li>o At the teacher's option, quizzes can be attempted multiple times, and can show feedback and/or correct answers</li> <li>o Quiz questions and quiz answers can each be shuffled (randomized) to reduce cheating</li> <li>o Quizzes can be attempted multiple times, if desired</li> <li>o Attempts can be cumulative, if desired, and finished over several sessions</li> </ul> </li> </ul>	<p><b>Glossary Module</b></p> <ul style="list-style-type: none"> <li>• The Glossary module is one of the modules that best illustrates the way that LMS can fundamentally improve upon the experience of a traditional classroom</li> <li>• When students contribute to a course in a public place like the glossary, their ideas are given weight and attention and often result in a greater pride or ownership of the assignment</li> <li>• Allows participants to create and maintain a list of definitions, like a dictionary</li> <li>• Student entries can be previewed by instructors before publishing</li> <li>• Entries can be searched or browsed using alphabet, category, date, and author</li> <li>• A glossary of terms can be easily referenced by students</li> <li>• Almost any module of LMS can be set to hyperlink - automatically - to any word or phrase that is stored in or added to the glossary</li> <li>• Glossary items can be grouped in categories</li> <li>• Participants can comment on glossary entries</li> <li>• Entries can be rated using teacher-defined scales</li> <li>• Glossaries can be easily exported and imported via xml</li> <li>• Glossaries can be fully searched</li> </ul>	

	<ul style="list-style-type: none"> <li>• Questions are stored in categories that are part of a robust [[Question bank database] for easy access.</li> <li>• Categories of questions can be arranged in the database so they can only be used in a specific quiz, or in a specific course or in any quiz on the site.</li> <li>• Edited questions can replace the original or become new questions in the database</li> <li>• Questions use HTML formatting, images, and has a friendly tool bar in both the questions and answer areas.</li> </ul>	<p><i>Lesson Module</i></p> <ul style="list-style-type: none"> <li>• A lesson is a single activity where a series of pages are presented to the student, usually based upon a student's choice.</li> <li>• Content seen by the student is created with LMS HTML editor tool.</li> <li>• Students make choices by their answers to questions or by selecting a button with a description. Their choices are linked to other pages in the lesson.</li> <li>• This allows for a simple slide show type of presentation, with content and questions.</li> <li>• It allows for a branching, adaptive presentation based upon a student's specific choice.</li> <li>• Navigation through the lesson can be straight forward or complex, logical, or random.</li> <li>• Jumps are associated with each choice that link to other lesson pages.</li> <li>• Jumps can be to a specific page or to a random page or a page not seen by the student.</li> <li>• Choices that are answers to questions and can be scored and given individual feedback.</li> <li>• Question pages include Multiple choice, Multi-answer, T/F, numeric, short answer, and essay.</li> <li>• Lesson settings offer the teacher many options such as:</li> </ul>	
	<ul style="list-style-type: none"> <li>• Questions can be imported or exported in many file formats.</li> <li>• There are more than 10 question types, each with different scoring methods, such as:</li> <li>• Multiple-choice questions supporting single or multiple answers</li> <li>• Short Answer questions (words or phrases)</li> <li>• True-False questions** Matching questions</li> <li>• Random Short answer questions</li> <li>• Numerical questions (with allowable ranges)</li> <li>• Embedded-answer questions (cloze style) with answers within passages of text</li> <li>• Embedded descriptive text and graphics is possible in questions</li> <li>• Quiz questions can come from specific question in a specific category or as a random question drawn from a category. These can be mixed and matched to suit the teacher.</li> </ul>	<ul style="list-style-type: none"> <li>• Password start and end times, and other restrictions can be placed on students.</li> <li>• Pages can be created one at a time or imported.</li> </ul>	

	<p><b>Resource Module</b></p> <ul style="list-style-type: none"> <li>Resources can display of many types of media content files by a single link on the course page, such as: <ul style="list-style-type: none"> <li>Word, PowerPoint, Flash, Video formats, Audio formats</li> <li>Internal web pages (HTML formatted) can be created with HTML editor tool</li> <li>Internal Text pages (no formatting)</li> <li>Files can be stored locally or the link point to remote locations</li> <li>Files can be uploaded and managed (zipped, unzipped, renamed, moved) in the course</li> <li>Folders can be created and managed in the course and students given a link to the folder via a resource link.</li> <li>File handling has a File picker that is associated with specific resources or activities, allowing uploads from server, private, recent or on the fly. Files have attributes for</li> </ul> </li> </ul>	<p><b>Quiz Module</b></p> <ul style="list-style-type: none"> <li>There are many types of standard questions format that can be used in the Quiz module. Quiz offers many scoring methods and ways to present itself to students.</li> <li>Quizzes are automatically graded when a student finish. An entire quiz or specific questions be regraded at any time, should the teacher change an answer's score.</li> <li>There are many quiz settings options, such as: <ul style="list-style-type: none"> <li>Quizzes can have a limited time window outside of which they are not available</li> <li>At the teacher's option, quizzes can be attempted multiple times, and can show feedback and/or correct answers</li> <li>Quiz questions and quiz answers can each be shuffled (randomized) to reduce cheating</li> <li>Quizzes can be attempted multiple times, if desired</li> <li>Attempts can be cumulative, if desired, and finished over several sessions</li> </ul> </li> </ul>	
	<p>author and license/copyright.</p> <ul style="list-style-type: none"> <li>content on the web can be linked to or seamlessly included within the course interface.</li> <li>External web applications can be linked to with data passed to them</li> <li>Survey Module</li> <li>Built-in surveys (COLLES, ATTLS) have been proven as instruments for analyzing online classes</li> <li>Online survey reports always available, including many graphs. Data is downloadable as an Excel</li> </ul>	<ul style="list-style-type: none"> <li>Questions are stored in categories that are part of a robust [[Question bank database] for easy access.</li> <li>Categories of questions can be arranged in the database so they can only be used in a specific quiz, or in a specific course or in any quiz on the site.</li> <li>Edited questions can replace the original or become new questions in the database</li> <li>Questions use HTML formatting, images, and has a friendly tool bar in</li> </ul>	
	<ul style="list-style-type: none"> <li>Survey interface prevents partly finished surveys.</li> <li>Feedback is provided to the student of their results compared to the class averages</li> </ul>	<ul style="list-style-type: none"> <li>Questions can be imported or exported in many file formats.</li> <li>There are more than 10 question types, each with different scoring methods, such as: <ul style="list-style-type: none"> <li>Multiple-choice questions supporting single or multiple answers</li> <li>Short Answer questions (words or phrases)</li> <li>True-False questions** Matching questions</li> <li>Random Short answer questions</li> <li>Numerical questions (with allowable ranges)</li> <li>Embedded-answer questions (cloze style) with answers within passages of text</li> <li>Embedded descriptive text and graphics is possible in questions</li> <li>Quiz questions can come from specific question in a specific category or as a random question drawn from a category. These can be mixed and matched to suit the teacher.</li> </ul> </li> </ul>	



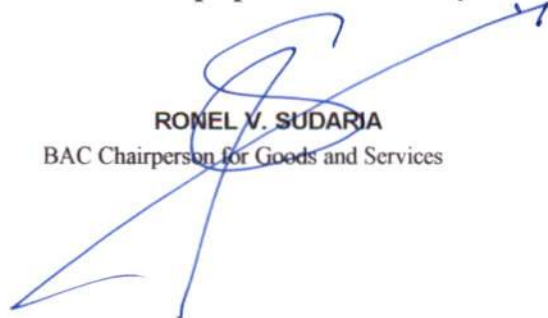
	<p><i>Wiki Module</i></p> <ul style="list-style-type: none"> <li>• Wiki module is a series of web pages that anyone can add to or edit</li> <li>• It enables document pages to be authored collectively</li> <li>• Supports groups</li> <li>• There are many teacher-based editing tools.</li> </ul>	<p><i>Resource Module</i></p> <ul style="list-style-type: none"> <li>• Resources can display of many types of media content files by a single link on the course page, such as:</li> <li>• Word, PowerPoint, Flash, Video formats, Audio formats</li> <li>• Internal web pages (HTML formatted) can be created with HTML editor tool</li> <li>• Internal Text pages (no formatting)</li> <li>• Files can be stored locally or the link point to remote locations</li> <li>• Files can be uploaded and managed (zipped, unzipped, renamed, moved) in the course</li> <li>• Folders can be created and managed in the course and students given a link to the folder via a resource link.</li> <li>• File handling has a File picker that is associated with specific resources or activities, allowing uploads from author and license/copyright.</li> </ul>	
	<p><i>Other Functionalities and Features</i></p> <ul style="list-style-type: none"> <li>• Built-in Instant Messaging Tools</li> <li>• 256 bit Encryption</li> <li>• Firebase or OAuth2 Authentication (user email authentication)</li> <li>• Social Media Login (Google/Facebook/etc)</li> <li>• API for third party integration</li> </ul>	<ul style="list-style-type: none"> <li>• content on the web can be linked to or seamlessly included within the course interface.</li> <li>• External web applications can be linked to with data passed to them</li> <li>• Survey Module</li> <li>• Built-in surveys (COLLES, ATTLS) have been proven as instruments for analyzing online classes</li> <li>• Online survey reports always available, including many graphs. Data</li> </ul>	
		<ul style="list-style-type: none"> <li>• Survey interface prevents partly finished surveys.</li> <li>• Feedback is provided to the student of their results compared to the class</li> </ul>	
		<p><i>Wiki Module</i></p> <ul style="list-style-type: none"> <li>• Wiki module is a series of web pages that anyone can add to or edit</li> <li>• It enables document pages to be authored collectively</li> <li>• Supports groups</li> <li>• There are many teacher-based</li> </ul>	
		<p><i>Other Functionalities and Features</i></p> <ul style="list-style-type: none"> <li>• Built-in Instant Messaging Tools</li> <li>• 256 bit Encryption</li> <li>• Authentication (user email authentication)</li> <li>• Social Media Login (Google/Facebook/etc)</li> <li>• API for third party integration</li> </ul>	
	<b>Firewall Load Balancer with Bandwidth Manager</b>	<b>Network Monitoring Software (Perpetual License)</b>	1

	<p>Firewall 20 Gbps, IPS 2.2 Gbps, NGFW 1.8 Gbps, Threat Protection 1.2 Gbps Throughput Interfaces: 2x GE RJ45 Management/HA Ports, 2x GE RJ45 WAN Ports, 14x GE RJ45 Ports, 4x GE SFP Slots                  Firewall Throughput (Packet per Second) 13.5 Mpps, Concurrent Sessions (TCP) 2 Million, New Sessions/Second (TCP) 135,000, Firewall Policies 10,000, IPsec VPN Throughput (512 byte) 7.2 Gbps                  Client-to-Gateway IPsec VPN Tunnels 10,000, SSL-VPN Throughput 900 Mbps                  Concurrent SSL-VPN Users (Recommended Maximum, Tunnel Mode) 5,00                  SSL Inspection Throughput (IPS, avg. HTTPS) 820 Mbps, SSL Inspection CPS (IPS, avg. HTTPS) 1000                  Application Control Throughput (HTTP 64K) 3.5 Gbps, CAPWAP Throughput (1444 byte, UDP) 1.5 Gbps, Virtual Domains (Default / Maximum) 10 / 10</p>	<p><i>Multi-vendor network monitoring                  Network Insights for deeper visibility                  Intelligent maps                  NetPath and PerfStack for easy troubleshooting                  Smarter scalability for large environments                  Advanced alerting</i></p>	
	<p><b>Core Switch</b></p>	<p><b>Network Switch Layer 3 (Catalyts 9300 model 48 Ports PoE)</b></p>	<p>3</p>
	<p>16-SFP ports 10Gig switch, with Network Advantage                  Switching capacity Up to 480 Gbps, Forwarding rate Up to 360 Mpps, Total number of MAC addresses Up to 64,000, Total number of IPv4 routes (Address Resolution Protocol [ARP] plus learned routes) Up to 64,000 indirect Up to 80,000 host                  Total number of IPv6 routes Up to 32,000 indirect Up to 40,000 host, QoS ACL scale Up to 18000 Security ACL scale Up to 18000, FNF entries Up to 512,000, DRAM 16 GB, Flash 16 GB, VLAN IDs 4000                  Total Switched Virtual Interfaces (SVIs) 4000, Jumbo frame 9198 bytes</p>	<p><i>- High wireless scale for Wi-Fi 6 and 802.11ac Wave 2 access points supported on a single switch with select models                  - With programmable pipeline and microengine capabilities, along with template-based, configurable allocation of Layer 2 and Layer 3 forwarding, Access Control Lists (ACLs), and Quality of Service (QoS) entries                  - Adds line rate support for Crypto, including 100G hardware-based IPsec                  - x86 CPU complex with 8-GB memory, and 16 GB of flash and external USB 3.0 SSD pluggable storage slot (delivering up to 240GB of storage with an option SSD drive) to host containers. Support 16GB of memory                  - USB 2.0 slot to load system images and set configurations</i></p>	
	<p><b>Network switch 48 ports PoE</b></p>	<p><i>- Flexible and dense uplink offerings with 100G, 40G, 25G, Multigigabit, 10G, and 1G as fixed or modular uplinks                  - Easy transition from 40G to 100G and 10G to 25G with dual-rate optics</i></p>	

	<p>Total 10/100/1000 or Multigigabit copper ports 48 POE+</p> <p>Default AC power supply 715W AC</p> <p>Available PoE power 437W</p> <p>Switching capacity 256 Gbps on 48-port Gigabit Ethernet model</p> <p>Stacking bandwidth 480 Gbps</p> <p>Total number of IPv4 routes 32,000 (24,000 direct routes and 8000 indirect routes)</p> <p>DRAM 8 GB</p> <p>Flash 16 GB</p> <p>Forwarding rate 154.76 Mpps</p>	<ul style="list-style-type: none"> <li>- Flexible downlink options with 25G, 10G and 1G Copper and Fiber as well as the densest Multigigabit links</li> <li>- With a mix of Copper (1G up to 10G) and Fiber (1G up to 25G) supported in a single stack, multiple flexible deployment scenarios are enabled, including 2-Tier, 3-Tier and Hybrid architectures</li> <li>- Leading PoE capabilities with up to 384 ports of PoE per stack, PoE+, and 288 ports high density IEEE 802.3bt - 90W UPOE+</li> <li>- Intelligent Power Management, providing power stacking among members for power redundancy. Stackpower pools the power supplies across the stack to be used redundancy and supplemental power purposes</li> <li>- Line-rate, hardware-based Flexible NetFlow (FNF), delivering flow</li> </ul>	
	<p><b>Network switch 48 ports</b></p>	<ul style="list-style-type: none"> <li>- IEEE 802.1ba AV Bridging (AVB) built in to provide a better audio and video experience through improved time synchronization and QoS</li> <li>- Precision Time Protocol (PTP; IEEE 1588v2) provides accurate clock synchronization with sub-microsecond accuracy making it suitable for distribution and synchronization of time and frequency over network</li> <li>- End-to-end visualization of the path from campus/branch to clouds/DC</li> <li>- Plug and Play (PnP) enabled: A simple, secure, unified, and integrated offering to ease new branch or</li> </ul>	
	<p>Total 10/100/1000 or Multigigabit copper ports 48</p> <p>Default AC power supply 350W AC</p> <p>Switching capacity 256 Gbps on 48-port Gigabit Ethernet model</p> <p>Stacking bandwidth 480 Gbps</p> <p>Total number of IPv4 routes 32,000 (24,000 direct routes and 8000 indirect routes)</p> <p>DRAM 8 GB</p> <p>Flash 16 GB</p> <p>Forwarding rate 154.76 Mpps</p>	<p><b>Network Switch Layer 3 (Catalyst 2960-X Model 48 Ports)</b></p>	4
	<p><b>Network Performance Monitoring (Perpetual License up to 100 elements)</b></p>	<ul style="list-style-type: none"> <li>- 24 or 48 Gigabit Ethernet ports with line-rate forwarding performance</li> <li>- 4 fixed 1 Gigabit Ethernet Small Form-Factor Pluggable (SFP) uplinks or 2 fixed 10 Gigabit Ethernet SFP+ uplinks</li> <li>- PoE+ support with a power budget of up to 740W and Perpetual PoE</li> </ul>	
	<p>Multi-vendor network monitoring</p> <p>Network Insights for deeper visibility</p> <p>Intelligent maps</p> <p>NetPath and PerfStack for easy troubleshooting</p> <p>Smarter scalability for large environments</p> <p>Advanced alerting</p>	<ul style="list-style-type: none"> <li>- Device management with web UI, over-the-air access via Bluetooth, Command-Line Interface (CLI), Simple Network Management Protocol (SNMP), and RJ-45 or USB console access</li> <li>- Network management with Cisco Prime®, Cisco Network Plug and Play, and Cisco DNA Center</li> <li>- Stacking with FlexStack-Plus and FlexStack-Extended</li> <li>- Layer 3 features with routed access (Open Shortest Path First [OSPF]), static routing, and Routing Information Protocol (RIP)</li> </ul>	

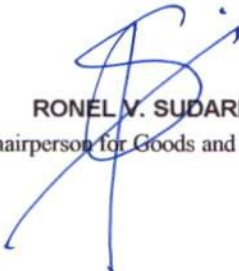
	<p>CPU 1* Intel Xeon Silver4110R 1.4G, 10C/10T,118G(31G*4) Memory,8*3.5in disk slots,1*118G OS disk,6*GE+1*10ge, NO CACHE DISK OR DATA DISK 31 GB DDR4 RDIMM, the quantity of 31 GB memory stripes can be odd number, Can deliver 16GB81 or 31 GB*1,based on current server configuration. 4TB 7100RPM 3.5"STA HDD (enterprise).140gb SSD Intel S4600 3D NAND TLC SSD 1.5",SATA 3.0GbpsServer visualization, Distributed Firewall, Drawable Topology, visualized network, aSwitch, aRouterStorage visualization,1-3 copies, SSD read and write acceleration, data locality, striping Repair and maintenance within warranty service 1 year</p>	<ul style="list-style-type: none"> <li>- 24 or 48 Gigabit Ethernet ports with line-rate forwarding performance</li> <li>- 4 fixed 1 Gigabit Ethernet Small Form-Factor Pluggable (SFP) uplinks or 2 fixed 10 Gigabit Ethernet SFP+ uplinks</li> <li>- PoE+ support with a power budget of up to 740W and Perpetual PoE</li> <li>- IOS LAN Base[1] or LAN Lite1 and IOS IP Lite[2]</li> <li>- Device management with web UI, over-the-air access via Bluetooth, Command-Line Interface (CLI), Simple Network Management Protocol (SNMP), and RJ-45 or USB console access</li> <li>- Network management, Plug and Play</li> <li>- Stacking with FlexStack-Plus and FlexStack-Extended</li> <li>- Layer 3 features with routed access (Open Shortest Path First [OSPF]),</li> </ul>	
		<p><b>MS Office 2021 Pro License OEM</b></p>	<p>100</p>
		<p><b>Other Requirements:</b>                  The Bidder shall have at least experience in undertaking Software development and programming deployment. Should have employed Programmer with Technical knowledge and skilled functional experience in LMS. Must have the ability to develop smart and intuitive solutions to maximize on the LMS, in streamlining and facilitating various data intensive work and processes required for the management of online learning programs. Must have Certified Virtualization Engineer for the deployment of LMS.                  Must have a Certified Engineer for Hyperconverged Infrastructure in connection to the deployment of LMS on the existing Hyperconverged Infrastructure of Central Mindanao university.                  Must have a Microsoft Certified Professional in connection to the deployment of Microsoft Office.                  Must provide a Workflow of Learning Management System.                  Must ensures support services, including 24/7 technical support, data-</p>	
<p>30 DAYS</p>		<p>15 DAYS</p>	

All interested bidders for the **Supply and Installation of Learning Management System (LMS) and Infrastructure ICT Equipment** are hereby notified of this

  
**RONEL V. SUDARIA**  
 BAC Chairperson for Goods and Services

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