Jadual 2.10
Metrik Konfigurasi Standard Pengintegrasian Teknologi (*Technology Integration Standards Configuration Matrix* [TISCM]).
Sumber: Mills (2000-2001).

TECHNOLOGY IMPLEMENTATION COMPONENT	**4** **IDEAL USE**	**3** **MODERATE USE**	**2** **MINIMAL USE**	**1** **UNACCEPTABLE**	**0** **NO USE**
1. Operate common technology devices including computer keyboard, mouse, monitor, printer, video camera, digital camera, VCR, scanner, or projection device.	Create a picture with a digital or video camera OR scan an image with a scanner and transfer to a computer file.	Connect a projection device to computer and project monitor image to a screen.	Connect keyboard, mouse, monitor, and printer to computer.	Use mouse and/or keyboard function keys to select a screen icon.	None of these
2. Perform basic file management tasks on a computer and local area network.	Locate, copy, or move files from a local computer drive to a network drive or folder .	Create a folder on a local drive and copy / save files in the folder.	Search for a file by name , type , or date.	Save an application file (word processing, spreadsheet, database) to a location on a local drive.	None of these
3. Apply trouble-shooting strategies for solving routine hardware and software problems that occur in the classroom.	Download and install software updates or install software updates from a local or network drive.	Remove a paper jam from a printer, install paper and ink cartridge in a printer.	Determine if a computer is logged-on to a computer network.	Properly shut down and restart computer when computer hangs or locks up.	None of these
4. Use software productivity tools to prepare publications, analyze and interpret data, perform classroom management tasks, report results to students, parents, or others audiences, and produce other creative works.	Prepare a report in a word processing document that includes a table that is imported or pasted from a spreadsheet or database file.	Create a spreadsheet using calculations and computation functions and format for printing.	Create a word processing document and format for printing.	Load application software (word processing, spreadsheet, database) and enter information.	None of these
5. Use technology to communicate and collaborate with peers, parents, and the larger community to nurture students learning.	Prepare an email distribution list and send an email message to every contact on the list .	Add and retrieve an attachment to / from and email message.	Add a name and address to an email address book OR set email program to apply a signature to all email messages.	Send an email message to an existing name on the school network address book.	None of these
6. Use technology to locate, evaluate, and collect educational research / best practices information from a variety of sources.	Subscribe to and participate in discussion groups or chat rooms of practitioners or subject-matter experts .	Subscribe to and read electronic newsletters or journals related to an area of education.	Perform a search using an Internet search engine OR perform a search of CD-ROM reference materials or on-line library catalog.	Browser the Internet to locate useful information using specific URLs.	None of these
7. Practice and model responsible use of technology systems, information, and software.	Develop classroom guidelines and procedures for students for computer and network use based	Develop classroom guidelines and procedures for students	Read and discuss school district acceptable use policy with students at least once	Be familiar with school district acceptable use policy (have read it).	None of these

	on school district acceptable use policy and provide orientation on proper use of equipment and software.	for computer and network use based on school district acceptable use.	each semester.		
8. Facilitate equitable access to technology resources for all students.	All students regularly use classroom computer or go to computer lab to perform learning activities related to specific learning objectives.	All students use one more educational software packages to reinforce or supplement learning objectives.	Some students use classroom computer or go to computer lab to reinforce or supplement learning objectives.	Some students use classroom computer or go to computer lab after completion of classroom learning activities.	None of these
9. Manage student learning activities in a technology-enhanced learning environment.	Conduct and facilitate student learning activities using educational software on a classroom computer or in the computer lab or on a regular basis.	Conduct and facilitate student learning activities using educational software on a classroom computer or in the computer lab occasionally.	Students use a classroom computer or computer lab on their own as an instructional supplement.	Students use a classroom computer or computer lab on their own for activities unrelated to classroom learning objectives.	None of these
10. Evaluate and select informational and educational resources based on the appropriateness to learning objectives, hardware requirements, and software features.	Develop a plan with a budget to purchase technology for classroom or lab including hardware requirements, software features, and relation to learning objectives.	Develop a technology plan for classroom or lab including hardware requirements and software features.	Describe two or more technology resources that teacher would like to use for instruction or classroom learning activities.	Describe one technology resource that teacher would like to use for instruction or classroom learning activities.	None of these
11. Demonstrate strategies to assess the validity and reliability of data gathered with technology.	Communicate criteria and strategies to students for determining the quality of web page content ; develop an electronic list or database (text or HTML document) of appropriate web sites and search engines for use with classroom learning activities.	Communicate criteria and strategies to students for determining the quality of web page content. Develop a list of appropriate web sites and search engines for use with classroom learning activities.	Establish and communicate criteria and strategies to student for determining the quality, reliability, and validity of web page content.	Describe two or more criteria or strategies students should use for critically evaluating the quality, reliability, and validity of web page content.	None of these
12. Use multiple technology contexts and a variety of productivity tools to provide classroom instruction.	Use a multimedia presentation application or web pages to create and present instruction on multiple topics.	Use a multimedia presentation application or web pages to create and present instruction on a single topic.	Use word processing to create worksheets, handouts, and test OR use video tapes and CD-ROMs to reinforce / supplement classroom instruction.	Use supplemental materials in teacher's manual to reinforce or supplement classroom instruction.	None of these
13. Employ technology in classroom learning activities in which students use technology resources to solve authentic problems in various content areas.	Integrate two or more technology-based learning experiences per semester into classroom instruction that are established for targeted curriculum themes or learning objectives.	Integrate one technology-based learning experiences per semester into classroom instruction that is established for targeted	Students use a classroom computer or go to computer lab to reinforce or supplement learning objectives.	Student use a classroom computer or go to computer lab after completion of classroom learning activities.	None of these

		curriculum themes or learning objectives.			
14. Use technology resources to provide learning contexts requiring the use of problem solving, critical thinking, informed decision-making, knowledge construction, and creativity by learners.	Integrate two or more technology-based projects per semester into classroom instruction. Requiring students to solve problems or formulate decisions.	Integrate one technology-based project per semester into classroom instruction requiring students to solve problems or formulate decisions.	Students use a classroom computer or to go to computer lab to reinforce or supplement learning objectives.	Students use a classroom computer or to go computer lab after completion of classroom learning activities.	None of these
15. Implement technology –based learning experiences that utilize a variety of grouping strategies to address the diverse learning needs of students (e.g. cooperative, project-based, collaborative, individualized, teams).	Create an individualized learning plan for each students and track accomplishment of learning goals in the plan using a computerized productivity tool.	Routinely use individual and cooperative learning strategies that result in the completion of technology-based products of learning.	Occasionally use a team-learning (small group) strategy to complete a technology-based learning activity.	Allow students to work in pairs or small group on the computer to learn or use educational software.	None of these
16. Apply multiple methods of evaluation and assessment to determine learners' use of technology for learning, communication, and productivity.	Use action research methods to determine whether technology and classroom teaching methods are impacting student learning.	Evaluate demonstrations of student technology skills using checklists, rubrics, and benchmarks to assist students in assessing their performance.	Evaluate student technology skills using objective tests and subjective evaluation of student-produced materials.	Evaluate student technology skills using objective tests only.	None of these
17. Engage learners in the development of electronic portfolios that document their technology-based educational experiences.	Students are required to maintain an electronic portfolio of technology-based products of learning using web pages or a multimedia presentation application and demonstrate technology skills and experiences.	Students are required to maintain an electronic portfolio of technology-based products of learning using a word processing document.	Maintain an electronic file of various student technology-based products of learning.	Maintain a cumulative folder of various student technology-based products of learning.	None of these
18. Use technology resources and productivity tools to collect, analyze, interpret, and communicate learner performance data and other information to improve instructional planning, management, and implementation of instructional / learning strategies.	Maintain and aggregate performance data for students in electronic files. Modify classroom and individual instruction based on analyses of student performance data.	Use an electronic grade book (or spreadsheet or database) to keep track of student grades and track student mastery of learning objectives.	Use an electronic grade book (or spreadsheet or database) to keep track of student grades.	Write evaluations of student work or progress and notes to parents using word processing and / or email.	None of these