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| ACRL Information Literacy Competency Standards for Higher Education | AAC&U  Essential Learning Outcomes | AAC&U  VALUE  Rubrics | ISTE  National Educational Technology Standards for Students | NCTE  21st Century Literacies and Curriculum Framework | Partnership for 21st Century Skills | AASL  Standards for the 21st Century Learner | Common Core State  “College and Career Readiness” Standards | Penn State  Co-Curricular Learning Outcomes | ABET Criteria for Accrediting Engineering Programs | CAS Professional Standards for Higher Education |
| Standard 1. The information literate student determines the nature and extent of the information needed. | Inquiry and Analysis,  Problem Solving | Inquiry and Analysis -  Identifies a creative, focused, and manageable topic that addresses potentially significant yet previously less-explored aspects of the topic.  Critical Thinking -  Issue/problem to be considered critically is stated clearly and described comprehensively, delivering all relevant information necessary for full understanding.  Problem Solving -  Demonstrates the ability to construct a clear and insightful problem statement with evidence of all relevant contextual factors. | Students plan strategies to guide inquiry; students identify and define authentic problems and significant questions for investigation; students plan and manage activities to develop a solution or complete a project. | Students use inquiry to ask questions and solve problems. | Identify and ask significant questions that clarify various points of view and lead to better solutions (Learning and Innovation Skills). | 1.1.3 Develop and refine a range of questions to frame the search for new understanding.  1.2.1 Display initiative and engagement by posing questions and investigating the answers beyond the collection of superficial facts. | Writing Standard 7. Perform short, focused research projects as well as more sustained research in response to a focused research question, demonstrating understanding of the material under investigation. |  | Engineering programs must demonstrate that their students attain an ability to identify, formulate, and solve engineering problems. |  |
| Standard 2. The information literate student accesses needed information effectively and efficiently. | Inquiry and Analysis,  Problem Solving | Creative Thinking -  Not only develops a logical, consistent plan to solve problem, but recognizes consequences of solution and can articulate reason for choosing solution. | Students collect and analyze data to identify solutions and/or make informed decisions; students understand and use technology systems; students select and use applications effectively and productively. | Twenty-first century readers and writers need to manage, analyze, and synthesize multiple streams of simultaneous information; students find relevant and reliable sources that meet their needs; students locate information from a variety of sources. | Access information efficiently (time) and effectively (sources); manage the flow of information from a wide variety of sources (Information, Media, and Technology Skills). | 1.1.4 Find, evaluate, and select appropriate sources to answer questions.  1.1.8 Demonstrate mastery of technology tools for accessing information and pursuing inquiry.  1.2.5 Demonstrate adaptability by changing the inquiry focus, questions, resources, or strategies when necessary to achieve success.  1.2.6 Display emotional resilience by persisting in information searching despite challenges.  1.2.7 Display persistence by continuing to pursue information to gain a broad perspective.  2.2.1 Demonstrate flexibility in the use of resources by adapting information strategies to each specific resource and by seeking additional resources when clear conclusions cannot be drawn. | Writing Standard 8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate and cite the information while avoiding plagiarism. |  | Engineering programs must demonstrate that their students attain and ability to use the techniques, skills, and modern engineering tools necessary for engineer practice. | Knowledge Acquisition, Construction, Integration, and Application – Connecting Knowledge to Other Knowledge, Ideas, and Experiences. Uses multiple sources of information and their synthesis to solve problems; knows how to access diverse sources of information such as the internet, text observations, and databases. |
| Standard 3. The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system. | Critical and Creative Thinking | Inquiry and Analysis - Synthesizes in-depth information from relevant sources representing various points of view/approaches.  Organizes and synthesizes evidence to reveal insightful patterns, differences, or similarities related to focus.  Critical Thinking -  Information is taken from source(s) with enough interpretation/evaluation to develop a comprehensive analysis or synthesis.  Viewpoints of experts are questioned thoroughly.  Problem Solving -  Evaluation of solutions is deep and elegant (for example, contains thorough and insightful explanation) and includes, deeply and thoroughly, all of the following: considers history of problem, reviews logic/reasoning, examines feasibility of solution, and weighs impacts of solution.  Lifelong Learning -  Makes explicit references to previous learning and applies in an innovative (new and creative) way that knowledge and those skills to demonstrate comprehension and performance in novel situations.  Reviews prior learning (past experiences inside and outside of the classroom) in depth to reveal significantly changed perspectives about educational and life experiences, which provide foundation for expanded knowledge, growth, and maturity over time.  Integrative Learning -  Independently creates wholes out of multiple parts (synthesizes) or draws conclusions by combining examples, facts, or theories from more than one field of study or perspective. | Students evaluate and select information sources and digital tools based on the appropriateness to specific tasks. | Twenty-first century readers and writers need to create, critique, analyze, and evaluate multi-media texts; students critically analyze a variety of information from a variety of sources; students analyze the credibility of information and its appropriateness in meeting their needs; students analyze and evaluate the multimedia sources that they use. | Effectively analyze and evaluate evidence, arguments, claims, and beliefs; analyze and evaluate major alternative points of view (Learning and Innovation Skills); evaluate information critically and competently (Information, Media, and Technology Skills). | 1.1.5 Evaluate information found in selected sources on the basis of accuracy, validity, appropriateness for needs, importance, and social and cultural context.  1.2.4 Maintain a critical stance by questioning the validity and accuracy of all information. | Reading Standard 1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.  Reading Standard 2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.  Reading Standard 8. Delineate and evaluate the reasoning and rhetoric within a text, including assessing whether the evidence provided is relevant and sufficient to support the text’s claim.  Speaking and Listening Standard 2. Integrate and evaluate information from multiple oral, visual, or multimodal sources in order to answer questions, solve problems, or build knowledge. | Students will apply effective reasoning skills. | Engineering programs must demonstrate that their students attain an ability to design and conduct experiments, as well as to analyze and interpret data. | Cognitive Complexity – Critical Thinking. Identifies important problems, questions, and issues; analyzes interprets and makes judgments of the relevance and quality of information; assesses assumptions and considers alternative perspectives and solutions.  Cognitive Complexity – Effective Reasoning. Uses complex information from a variety of sources including personal experience and observation to form a decision or opinion; is open to new ideas and perspectives. |
| Standard 4. The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose. | Written and Oral Communication,  Synthesis and Advanced Accomplishment across General and Specialized Studies | Written Communication -  Demonstrates a thorough understanding of context, audience, and purpose that is responsive to the assigned task(s) and focuses all elements of the work.  Demonstrates skillful use of high-quality, credible, relevant sources to develop ideas that are appropriate for the discipline and genre of the writing.  Oral Communication -  A variety of types of supporting materials (explanations, examples, illustrations, statistics, analogies, quotations from relevant authorities) make appropriate reference to information or analysis that significantly supports the presentation or establishes the presenter's credibility/authority on the topic. | Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology; students apply existing knowledge to generate new ideas, products, or processes; students create original works as a means of personal or group expression; students communicate information and ideas effectively to multiple audiences using a variety of media and formats; students contribute to project teams to produce original works or solve problems; students process data and report results. | Twenty-first century readers and writers need to design and share information for global communities to meet a variety of purposes; students select, organize and design information to be shared, understood, and distributed beyond their classrooms; students take responsibility for communicating their ideas in a variety of ways; students share and publish their work in a variety of ways; students create new ideas using knowledge gained; students synthesize information from a variety of sources; students manage new information to help them solve problems; students use information to make decisions as informed citizens; students communicate information and ideas in a variety of forms; students communicate information and ideas to different audiences; students articulate thoughts and ideas so that others can understand and act on them. | Develop, implement, and communicate new ideas to others effectively; synthesize and make connections between information and arguments; interpret information and draw conclusions based on the best analysis; articulate thoughts and ideas effectively using oral, written, and nonverbal communication skills in a variety of formats and contexts; use communication for a range of purposes (e.g. to inform, instruct, motivate, and persuade) (Learning and Innovation Skills); use information accurately and creatively for the issue or problem at hand (Information, Media, and Technology Skills). | 2.1.1 Continue an inquiry-based research process by applying critical thinking skills (analysis, synthesis, evaluation, organization) to information and knowledge in order to construct new understandings, draw conclusions, and create new knowledge.  2.1.2 Organize knowledge so that it is useful.  2.1.6 Use the writing process, media, and visual literacy, and technology skills to create products that express new understandings.  3.1.1 Conclude and inquiry-based research process by sharing new understandings and reflecting on the learning.  3.1.3 Use writing and speaking skills to communicate new understandings effectively.  3.1.4 Use technology and other information tools to organize and display knowledge and understanding in ways others can view, use, and assess. | Reading Standard 7. Synthesize and apply information presented in diverse ways in print and digital sources in order to answer questions, solve problems, or compare modes of presentation.  Writing Standard 6. Use technology, including the Internet, to produce, publish, and interact with others about writing.  Writing Standard 10. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes, and audiences.  Speaking and Listening Standard 4. Present information, evidence, and reasoning in a clear and well-structured way appropriate to purpose and audience.  Speaking and Listening Standard 5. Make strategic use of digital media and visual displays of data to express information and enhance understanding. | Students will demonstrate the ability to integrate and apply ideas and themes across the curriculum and co-curriculum.  Students will communicate effectively with others both verbally and in writing. |  | Practical Competence – Communicating Effectively. Conveys meaning in a way that others understand by writing and speaking coherently and effectively; writes and speaks after reflection; influences others through writing, speaking or artistic expression; effectively articulates abstract ideas; uses appropriate syntax and grammar; makes and evaluates presentations or performances; listens attentively to others and responds appropriately.  Knowledge Acquisition, Construction, Integration, and Application – Constructing Knowledge. Personalizes learning; makes meaning from text, instruction, and experience; uses experience and others sources of information to create new insights; generates new problem-solving approaches based on new insights; recognizes one’s own capacity to create new understandings from learning activities and dialogue with others. |
| Standard 5. The information literate student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally. | Ethical Reasoning and Action | Ethical Reasoning -  Student can recognize ethical issues when presented in a complex, multilayered (gray) context AND can recognize cross-relationships among the issues. | Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior; students advocate and practice safe, legal, and responsible use of information and technology. | Twenty-first century readers and writers need to attend to the ethical responsibilities required by these complex environments; students create products that are both informative and ethical. | Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information (Information, Media, and Technology Skills). | 3.1.6 Use information and technology ethically and responsibly. |  | Students will acquire ethical reasoning skills.  Students will develop a sense of personal integrity and clarify their personal values. | Engineering programs must demonstrate that their students attain an ability to communicate effectively. | Intrapersonal Development – Commitment to Ethics and Integrity. Incorporates ethical reasoning into action; explores and articulates the values and principles involved in personal decision-making; acts in congruence with personal values and beliefs; exemplifies dependability, honesty, and trustworthiness; accepts personal accountability.  Practical Competence – Technological Competence. Demonstrates technological literacy and skills; demonstrates the ethical application of intellectual property and privacy; uses technology ethically and effectively to communicate, solve problems, and complete tasks; stays current with technological innovations. |
| General Definition: The information literate An information literate individual is able to:   * Determine the extent of information needed * Access the needed information effectively and efficiently * Evaluate information and its sources critically * Incorporate selected information into one’s knowledge base * Use information effectively to accomplish a specific purpose * Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally | Information Literacy, Foundations and Skills for Lifelong Learning |  | Students apply digital tools to gather, evaluate, and use information; students locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media; students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources; students demonstrate personal responsibility for lifelong learning. |  | Use technology as a tool to research, organize, evaluate, and communicate information; use digital technologies (computers, PDAs, media players, GPS, etc.), communication/networking tools and social networks appropriate to access, manage, integrate, evaluate, and create information to successfully function in a knowledge economy (Information, Media, and Technology Skills); demonstrate commitment to learning as a lifelong process (Life and Career Skills). |  |  | Students will develop critical and reflective thinking abilities.  Students will cultivate a propensity for lifelong learning. | Engineering programs must demonstrate that their students attain a recognition of the need for, and an ability to engage in, life-long learning. |  |

Shared Learning Standards & Outcomes

From: Oakleaf, Megan.  "Are They Learning?  Are We?  Learning and the Academic Library."  *Library Quarterly*.  81(1).  2011.