

## **Technological Fluency Competencies**

### **Key Elements and Learning Goals**

**I. Common Tasks – Solving problems, accessing information, and communicating information and ideas using appropriate technologies**

All 6 learning goals must be met at the essential level.

- A. Students will be able to engage in electronic collaboration.
- B. Students will be able to use and create structured electronic documents.
- C. Students will be able to do technology-enhanced presentations.
- D. Students will be able to use databases to manage information.
- E. Students will be able to use spreadsheets to manage information.
- F. Students will be able to use graphical and multimedia technologies.

**II. Focus – Using emergent or recently developed technologies (hardware or software) to address specialized tasks**

- A. Students will have a working knowledge to perform basic operations in at least one current technology platform, or
- B. Students will acquire advanced level skills in three out of six of the Common Tasks listed in (I).

**III. Future Technological Change – Navigating and adapting to future technological developments**

- A. Students will be able to use electronic tools to navigate, to compare or contrast, to research and to know enough to evaluate the technology as a tool.

**IV. Broader Implications – Being cognizant of ethical and social implications of revolutionary technologies, including but not limited to their impact on security, privacy, censorship, intellectual property, and the reliability of information**

- A. Students will be familiar with major legal, ethical, privacy and security issues in information technology

## **Learning Goals Elaborated: performance indicators and demonstrations**

### **1A. Students will be able to engage in electronic collaboration.**

Essential level:

- a. Send and receive e-mail, with and without attachments.
- b. Participate in group electronic communication, e.g. discussion forum, bulletin board, synchronous/ asynchronous chat.
- c. Understand the principles of appropriate conduct in electronic communication (netiquette).

Advanced level:

- a. Participate in collaborative writing of a document.
- b. Conference electronically using web conferencing or video conferencing.
- c. Complete a group project using advanced communication tools.

### **1B. Students will be able to use and create structured electronic documents.**

Essential level:

- a. Create, format, and edit a document using a word processing program.
- b. Introduce links into an electronic document.
- c. Understand the principles of organization and navigation in hypertext documents.
- d. Design a new web page.
- e. Insert graphics into a web page.

Advanced level:

- a. Use templates, macros, and mail merge to automate repetitious tasks.
- b. Insert audio and video files into web pages.
- c. Use industry-standard desktop publishing programs.

### **1C. Students will be able to do technology-enhanced presentations.**

Essential level:

- a. Use a presentation software package to create, format, and edit an electronic presentation.
- b. Insert graphics and web links into an electronic presentation.
- c. Understand the effective and ineffective use of technology in presentations (e.g. knowing when to insert graphics, knowing how much is too much.)

Advanced level:

- a. Modify / customize standard templates and tools for presentations.
- b. Use transitions, animations, and other tools effectively to enhance presentations.
- c. Insert various kinds of media into a presentation (sound files, video, etc.).

#### **1D. Students will be able to use databases to manage information.**

Essential level:

- a. Enter data into a pre-existing database.
- b. Conduct simple queries of a database.
- c. Sort records on multiple sort keys.
- d. Generate a report from a database.
- e. Understand appropriate applications for databases.

Advanced level:

- a. Understand the difference between a flat file and a relational database.
- b. Set up a relational database (e.g. define fields, add labels, and enter data), using multiple tables.
- c. Construct a query for a simple relational database.
- d. Design and generate reports from a relational database.

#### **1E. Students will be able to use spreadsheets to manage information.**

Essential level:

- a. Enter data into a new or existing spreadsheet.
- b. Format the layout of a spreadsheet.
- c. Perform basic algebraic calculations within a spreadsheet using cell addresses and formulas.
- d. Create and customize the format of simple graphs of data from a spreadsheet.
- e. Choose an appropriate chart or graph for effective visualization of information.

Advanced level:

- a. Use templates and macros to automate repetitious tasks.
- b. Use statistical, logical, and financial formulas.
- c. Filter data to import into and export from spreadsheets.

**1F. Students will be able to use graphical and multimedia technologies.**

Essential level:

- a. Perform simple manipulations on an existing image (download, upload, resize, crop, change format from one kind to another).
- b. Understand the different types of images (.gif, .jpg, .bitmap) and their characteristics and be able to choose among them appropriately.
- c. Insert an image into text, presentation, and / or website.

Advanced level:

- a. Add special effects to an image (color, lighting, reverse image, etc.).
- b. Create a new image and perform advanced manipulations of the image.
- c. Perform simple manipulations on an existing digital video clip (download, upload, cut/paste/delete, add titles, transitions, etc.).
- d. Use geographical information systems to handle and present geographical data.

**2A. Students will have a working knowledge to perform basic operations on at least one emergent technology platform, or**

- a. Perform basic operations on at least one emergent technology platform (e.g. computer platform, video production, GIS, nanotechnology).
- b. Understand the emergent technology platform as a relatively up-to-date technology domain.
- c. Able to interface the emergent technology with other peripheral devices.
- d. Conversant with the technology in career preparation.
- e. Cognizant of the direction of future development of the technology.

**2B. Students will acquire advanced level skills in three out of six of the Common Tasks listed in (I).**