**Design for Success—Tips of Effective Active Learning Activities**

To promote deep learning, the active learning activities should embrace the key elements of natural learning process shown in the Table below.

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| **Key Element** | **Description** | **Sample Practice** |
| Incentive to Learn | To motivate and engage students in the learning process | * Make the content of the learning activity interesting and relevant (authentic content; link to real-world practice) * Set positive expectation: e.g. students can gain useful skills required in the profession; students can earn points toward their grades. |
| Reflection | To provide opportunity for students to review, reinforce, and abstract their existing knowledge/skills | * Use surveys, essays, or discussion to allow students reflect on their learning * Use exercises to reinforce the learning * Encourage students to articulate what they learned |
| Expert Guidance | To provide students with essential knowledge, skills, support and feedback to allow them complete the activity/learning process | * Explicit instruction * Provide tools to support learning (video, reading materials, handouts, manuals, etc.) * Model the process (demo the steps to do experiments, show how to use a software, etc.) * Q/A, timely feedback/assessment, and other types of professor-student interactions |
| Exploration | To provide students with opportunity to go above and beyond what they have learned | * Inquiry-based activity to allow students “discovery new knowledge” * Observation, experiments, simulations that lead to learning new knowledge * Encourage students to think “beyond” and discuss idea to improve / extend existing method/knowledge * Provide opportunity to allow students solve their own problems. * Provide opportunity for students to do research |
| Community Inquiry | To allow collaborative construction of knowledge | * Group or class discussion * Student presentation, or any form of knowledge sharing in public * Peer instruction |

Please use the following questions to help develop your active learning activity (including **project**):

1. (Incentive to Learn) How do you keep the students motivated to work on the activity?
2. (Reflection) What prerequisite knowledge/skills are required to conduct your proposed activity? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Do you want to provide opportunities for students to reinforce/abstract their existing knowledge? If yes, how?*

*Do you want to provide opportunities for students to form initial thoughts based on existing knowledge to solve problems or address design challenges? If yes, how?*

*Do you want to provide opportunities for students to articulate their knowledge? If yes, how?*

1. (Expert Guidance) What new knowledge/skills will students need to conduct your proposed activity? How do you plan to provide them to the students?
2. (Expert Guidance) What type of support will be provided to the students during the activity?
3. (Expert Guidance) How do you plan to assess the students’ learning during the activity?
4. (Exploration) Do you plan to provide opportunities for students to extend their learning, or construct new knowledge by themselves during the activity? If yes, how (e.g. research activity, critical thinking, solving open-ended problems)?
5. (Community inquiry) How do you plan to ask the students to share their thoughts, their observation, discovery or design results?