

Conceptual Design Generation Checklist

CONCEPT QUESTIONS (ANSWER IN THE BRAINSTORMING PHASE):

1. **Does the design satisfy all constraints noted in the [project description](#)?**
2. **Have realistic materials been selected for each part of the design and justified using the [background research](#)?** *This is the stage at which you investigate material choices; if you haven't done so, you haven't finished your research.*
3. **Can all mechanisms and components used in the proposed design be purchased for the allowable budget or manufactured using laboratory resources?** *If not, you need to do more research and speak with course TAs or the instructor prior to D.R.1 submission.*

ORTHOGRAPHIC & ISOMETRIC VIEWS:

1. **Are sketches drawn on the proper side of the proper paper and in the correct orientation?** Ortho views should be drawn on standard green engineer paper and iso views should be drawn on [the provided iso template](#). All sketches should be drawn on the lighter side of the page so the provided graph lines do not obscure your sketch lines. In other words, printed grid lines should be on the back side of the page. Hole punch pages before you begin sketching and landscape oriented pages should always have the hole punches at the top of the page.
2. **Are front, side, top, and iso views of entire design neatly drawn as large as possible and on separate pages?** If more space is needed than an 8.5x11" sheet provides, use multiple pages or an 11x17" sheet folded to fit inside the 3-ring binder. Use unique & sequential figure numbers and place the drawer's name on each sketch and in each report section, as shown in this template.
3. **Does each view show clear and substantial detail of the entire design,** including the frame, control box, motors, wheels, hubs, mechanism(s), attachment methods/brackets, and each object being manipulated?
4. **Are all parts drawn to scale and clearly dimensioned?** Include **explicit** dimensions showing overall size of robot, frame, control box, motors, wheels, hubs, mechanism(s), attachment brackets, and any objects which must be manipulated.
5. **Are leaders included to clearly label components and material selections** which are discussed in the written description? Do not include lengthy explanations on drawings; those explanations should be in the written description.

DETAILED VIEWS OF OTHER MECHANISMS (MANIPULATORS, HOPPERS, DISPENSERS, ETC.):

1. **Is each mechanism neatly drawn as large as possible and on separate pages?** If more space is needed than an 8.5x11" sheet provides, use multiple pages or an 11x17" sheet folded to fit inside the 3-ring binder. Use unique & sequential figure numbers and place the drawer's name on each sketch and in each report section, as shown in this template.
2. **Does each view show clear and substantial detail,** including attachment method / bracket(s)? Include at least two orthographic views and an isometric view of each mechanism, and include details of any objects being manipulated.
3. **Are all parts drawn to scale and clearly dimensioned?**
4. **Are leaders included to clearly label components and material selections** which are discussed in the written description?

WRITTEN DESCRIPTION:

1. **Is the description typed and placed at the beginning of your *Conceptual Design Generation* report section?** Use the format in this template and print single sided.
2. **Does the description clearly explain how each part of the design works while referencing each sketch by figure number?** If you have nothing meaningful to say about a sketch, do not include it in the report.
3. **Does the description clearly justify each design choice made in your conceptual design drawings based on the background research or physical testing?** For example, why was a certain type of mobile platform or steering mechanism selected, from what material is each part of your design made and why was each material selected? If you are unsure about the reasons for any of your choices, return to the background research and speak with course TAs or the instructor. **Statements lacking logical justifications are conjecture and should be avoided.**
4. **Does the description include the maximum robot velocity estimation for your selected drive wheels and motors?** Pay attention to the units noted on the robot velocity chart and make sure your wheel and motor combination offer an appropriate balance of controllability and speed by testing the example mobile platforms found in lab during office hours.
5. **Is the description well written?** Does each sentence flow logically with the next? Are paragraphs used to clearly organize thoughts? Is the description clear and concise, like all good technical writing? No one is going to give your ideas the consideration they deserve if you can't explain them effectively. If your opening paragraph is difficult to read or full of errors, can you blame us if we don't want to read the rest? You are obviously quite bright to be at UF and in this course, so please use your intellect to submit a well written design description.