This might be a helpful screening list for senior design drawings/discussions.

Please note the following issues with your print. Some of these may simply be money wasters, others are show stoppers:

- Missing dimensions- If you don't know, we can't guess.
- Conflicting dimensions or tolerances- Please choose wisely.
- Confusing geometry- We see the lines but have no idea what the part is supposed to look like. Please add appropriate hidden lines, views and other clues as to what you want.
- Fuzzy figures- Please provide electronic copies with sufficient resolution that all numbers and details are clear.
- Tolerances too tight for proposed fabrication methods- If you don't want to pay for grinding, lapping and honing, move the decimal over by one or more places. That would be to the right, in case you were wondering.
- Tolerances too tight for any known fabrication method- Please allow your draftsperson/designer to see actual machine shop equipment and methods periodically.
- Tolerances inappropriate for the material being used- Teflon flows and Nylon absorbs water. The parts will be right when they come off the machine, but we can't predict what size they might be when you receive them. Actually we can predict; we predict they'll be out of tolerance.
- Part too large for available equipment- Yes; we know it fit on your computer screen when you drew it, but so would the Queen Mary. Even if you can steam the boat up our driveway, that doesn't mean we have a machine big enough to work on it.
- Part too small for available equipment- Yes; it looked easy when you drew it at 1000X scale. So do the parts in a ladies wristwatch. We are not watchmakers but can recommend both watchmakers and other shops that specialize in this sort of work. In either case they will lighten your wallet by remarkably disproportionate amounts as your parts shrink.
- Length to diameter ratio impractical for the features desired- You may want to talk to someone with a Swiss screw machine or who can do center-less plunge grinding. Neither is an economical small quantity process.
- Features in inaccessible areas- If we can't get to it, we can't machine it.
- Sharp internal corners- There is no such thing as a perfectly sharp tool and thus, no perfectly sharp internal corners. You can however, be sharp enough to tell us what radius is acceptable, or if we need to machine an undercut.
- Extreme surface finish requirements in areas where lapping and polishing processes can't be applied.
- Extremely thin or negative wall thicknesses- We charge the same amount for machining even if your part is gone when we're done. We'll probably also check this box if you have counter-bores that just start to break out or threads that deform or break into adjacent walls, making those nice parallel lines or slots.
- Non-standard drilled holes- Please note the sizes of #1-60, A-Z and fractional size drill bits and use those sizes on your prints. Seriously, this one annoys the hell out of us.
- Tiny/deep drilled holes and tapped holes- Check the size and L/D ratio of your holes. We don't like to remove broken drills and taps from parts and if the yield goes down you won't like to pay for it.
- Tolerances too tight on thread depths/lengths- Allow two thread pitches of relief next to shoulders and don't over specify tapped thread depths. Go through or drill deep enough to allow some room for chips and so the use of spiral flutes and bottoming taps can be avoided. Or not. It's ~~your~~ our money!
- Metric warning- In theory the ease and cost of a metric part should be identical to an imperial part. Because we've spent decades accumulating expensive inch-based tooling, the reality is somewhat different. We usually end up buying special metric sizes and the price of the parts will reflect this.

- Odd thread warning- Machinery's Handbook lists many hundreds of standard threads but no, you decided you simply had to invent a new one. OK, you're not the first and won't be the last. We can cut almost any thread, but expect higher prices if we have to buy special taps, inserts or gages.
- Customer supplied stock too small- There isn't enough material to clean up the surfaces and remain within tolerances. We tried squeezing the stock in the long dimension, hoping the middle would get bigger, but it didn't work. Please supply the next larger stock size.
- Customer supplied stock too large- The chips are piling up a lot faster than the parts. We're going to make a lot of money at the scrap yard. Not only did you pay too much for the stock, rest assured you'll pay more for your parts due to the longer cycle time.
- Customer supplied stock is rubbish- You get what you pay for and inexpensive, often imported, aluminum and other metals frequently don't meet machinability standards. We're sure it's metal of some sort, but have little interest in trying to machine it. Please stick with name brands of known composition.
- Material is unobtainable- Just because you found it listed in some table on the Internet doesn't mean you can buy less than a railroad car full, or that the mill will be making it anytime in this decade.
- Special heat treatment or cold working is unobtainable- No, it isn't really unobtainable, but the delivery time is two orders of magnitude beyond your expectation for the finished parts, as is the cost.

One of the following actions will apply:

- A quotation has been supplied as we believe the above issues will be easily resolved with little impact on the price.
- We are responding with a NO-BID because we simply aren't set up to efficiently do this type of part or the quantities requested.
- No quotation will be supplied but we do invite you to resubmit the RFQ with the above items addressed and we'll be happy to reload our guns and take another shot at it.

We've tried to respond with some typical snarky machinist humor to get your attention and keep your day interesting. If we've gone so far as to check any of the boxes below it suggests you may want to examine your business relationships and maybe adjust your expectations as to what a machine shop requires to make a part and what we can and can't supply, while still making enough profit to remain in business.

- An astonishingly high quotation has been supplied as we believe the above issues will be resolved only with much confusion, many wasted hours and bad feelings had by all parties. Extra margin has also been included to cover the inevitable rework and replacement parts we expect you to demand, resulting from unclear drawings and limited access to the people who can actually answer our questions and approve changes.
- We are responding with a NO-BID because we do not believe the above issues can be successfully resolved prior to hell freezing over.
- We are responding with a NO-BID because the desired delivery time occurs either in the past, a few hours from now, or suggests that you have no clue about material lead times and what it takes to make the part.
- We are responding with a NO-BID because you have consistently wasted our time quoting parts that you obviously have no intention of ordering.
- We are responding with a NO-BID because you haven't paid for your previous orders and don't appear to have any intention of doing so.
- We are responding with a NO-BID because we have made this part before, or a very similar one, and our entire workforce has threatened to quit if we ever have to make it again.
- We are responding with the name of one of our most respected competitors, with our highest recommendations, in hopes that they will get suckered into this money losing disaster, while we work on parts that will at least allow us to break even.