Surface Grinder Setup & Operation Checklist

Step 1: Job Planning

- - [ ] Review print or drawing thoroughly.
- - [ ] Identify critical surfaces and tolerances.
- - [ ] Determine material type and dimensions.
- - [ ] Select appropriate grinding wheel (material, grit, hardness).
- - [ ] Plan grinding sequence (rough roughing passes, then finishing passes).

Step 2: Machine Preparation

- - [ ] Inspect grinder for cleanliness and function.
- - [ ] Verify coolant system (if used) is operational.
- - [ ] Dress grinding wheel if necessary.
- - [ ] Confirm machine guards and emergency stops are functional.

Step 3: Workpiece Preparation

- - [ ] Clean workpiece surfaces.
- - [ ] Verify dimensions of raw stock.
- - [ ] Deburr sharp edges if necessary.

Step 4: Workholding Setup

- - [ ] Clean magnetic chuck thoroughly.
- - [ ] Place workpiece on chuck; ensure full contact.
- - [ ] Activate magnetic chuck and verify secure hold.
- - [ ] If necessary, use parallels or stop blocks for alignment.

Step 5: Indicating and Zeroing

- - [ ] Gently bring wheel close to part surface without contact.
- - [ ] Touch off lightly to establish Z-zero.
- - [ ] Plan depth of cut (light passes for finish).
- - [ ] Set table travel limits for safe grinding motion.

Step 6: Grinding Operations

- - [ ] Start coolant flow (if available).
- - [ ] Begin with a light spark-out pass to verify setup.
- - [ ] Perform rough passes with slightly deeper cuts.
- - [ ] Finish grind with lighter passes to achieve surface finish.
- - [ ] Adjust crossfeed increment as needed for even coverage.

Step 7: Measurement and Inspection

- - [ ] Measure thickness and parallelism using micrometers and surface plate.
- - [ ] Inspect surface finish visually and by touch.
- - [ ] Compare measurements to blueprint tolerances.
- - [ ] Record all findings for review.

Step 8: Cleanup and Review

- - [ ] Turn off magnetic chuck and remove part safely.
- - [ ] Clean the grinder and remove all grinding dust.
- - [ ] Dress wheel again if needed for next use.
- - [ ] Reflect on process: What went well? What could be improved?