

| Requirement | Points per event | Total Max points |
|--|------------------|------------------|
| General requirements: | N/A | N/A |
| Mission time limit: 20 minutes | N/A | N/A |
| Video- only source of information from the pool | N/A | N/A |
| Materials will not contaminate the water | N/A | N/A |
| Materials will not damage pool | N/A | N/A |
| ROV weight limit: 100 lbs | N/A | N/A |
| Voltage limit of 50 Vdc | N/A | N/A |
| ROV system power breaker required to limit ROV power to 1000W | N/A | N/A |
| ROV system power breaker requires manual reset | N/A | N/A |
| kill switch to cut power must be demonstrated to pass inspection | N/A | N/A |
| Recommended fuses with circuitry to protect ROV | N/A | N/A |
| All power must be from batteries | N/A | N/A |
| Pit area - safety glasses not required | N/A | N/A |
| Pit area - one power strip provided | N/A | N/A |
| Work area - all required work on materials will be done in this area; safety glasses required | N/A | N/A |
| Batteries to be charged in designated charging area | N/A | N/A |
| competition: 5 minute set up time; 5 minute breakdown time | N/A | N/A |
| Tether management person is only one that can look into pool | N/A | N/A |
| tether management person not allowed to talk with other team members during competition time | N/A | N/A |
| Must provide video stream from ROV to NURC officials; can be either analog signal or HDMI output from laptop | N/A | N/A |
| Journal paper: Max 10 pages | N/A | N/A |
| Journal paper: 12 new times roman front | N/A | N/A |
| Journal paper: submit 1 week prior to competition (via email) | N/A | N/A |
| Team Poster: technical poster on ROV | N/A | N/A |
| Team website: due on 21 Jun | N/A | N/A |
| Team presentation: 30 minute time limit | N/A | N/A |
| Qualifying: 9' dive to retrieve diving ring | N/A | N/A |
| Distinguish color (pink vs white) (derived requirement) | N/A | N/A |

| | | |
|--|-----|-----|
| Size: needs to move through 3' diameter aorta opening (derived requirement) | N/A | N/A |
| Take measurements up to 15' (derived requirement) | N/A | N/A |
| Locate Service Tray | 5 | 5 |
| remove Kidney stones | | |
| * Identify kidney location | 5 | 5 |
| * Identify kidney stones - pink golf balls (2) | 5 | 10 |
| * Remove target kidney stone | 10 | 20 |
| * Return kidney stone to surface | 20 | 40 |
| * remove non target stone - white golf balls (2) | -2 | -40 |
| Repair Liver Damage | | |
| * Identifying Liver | 5 | 5 |
| * Identify target liver sample | 5 | 5 |
| * remove target sample from liver | 10 | 10 |
| * Return target sample to poolside | 10 | 10 |
| * Replace liver sample with medicine from ser | 10 | 10 |
| * Activate medicine 1 full rotation clockwise | 20 | 20 |
| Measure Blood Pressure | | |
| * measure depth of marker | 0 | 30 |
| (calculated $30 - (\text{abs}(\text{target value} - \text{measured value}) * 2)$) | | |
| Measure blood sugar | | |
| * measure distance between 2 12'x12' plates | 0 | 30 |
| (calculated $30 - (\text{abs}(\text{target value} - \text{measured value}) * 2)$) | | |
| Use enzyme to open aorta valve | | |
| * Identify aorta and enzyme injection point | 5 | 5 |
| * move enzyme from service tray to injection p | 5 | 5 |
| * place enzyme into injection point | 10 | 10 |
| * Navigate aorta (8' longx 3' diameter) | 10 | 10 |
| Brain | | |
| * Identify the brain after navigating aorta | 10 | 10 |
| * Identify clots (up to 4) | 5 | 20 |
| * remove clots (up to 4) | 5 | 20 |
| * return clot to poolside | 10 | 40 |
| * move stent from service tral to brian cavity | 5 | 20 |
| * install stent to clot location | 10 | 40 |