

# Generic Checklist for Code Reviews

## **Structure**

- ☐ Does the code completely and correctly implement the design?
- ☐ Does the code conform to any pertinent coding standards?
- ☐ Is the code well-structured, consistent in style, and consistently formatted?
- ☐ Are there any uncalled or unneeded procedures or any unreachable code?
- ☐ Are there any leftover stubs or test routines in the code?
- ☐ Can any code be replaced by calls to external reusable components or library functions?
- ☐ Are there any blocks of repeated code that could be condensed into a single procedure?
- ☐ Is storage use efficient?
- ☐ Are symbolics used rather than “magic number” constants or string constants?
- ☐ Are any modules excessively complex and should be restructured or split into multiple routines?

## **Documentation**

- ☐ Is the code clearly and adequately documented with an easy-to-maintain commenting style?
- ☐ Are all comments consistent with the code?

## **Variables**

- ☐ Are all variables properly defined with meaningful, consistent, and clear names?
- ☐ Do all assigned variables have proper type consistency or casting?
- ☐ Are there any redundant or unused variables?

## **Arithmetic Operations**

- ☐ Does the code avoid comparing floating-point numbers for equality?
- ☐ Does the code systematically prevent rounding errors?
- ☐ Does the code avoid additions and subtractions on numbers with greatly different magnitudes?
- ☐ Are divisors tested for zero or noise?

## **Loops and Branches**

- ☐ Are all loops, branches, and logic constructs complete, correct, and properly nested?
- ☐ Are the most common cases tested first in IF- -ELSEIF chains?
- ☐ Are all cases covered in an IF- -ELSEIF or CASE block, including ELSE or DEFAULT clauses?
- ☐ Does every case statement have a default?
- ☐ Are loop termination conditions obvious and invariably achievable?
- ☐ Are indexes or subscripts properly initialized, just prior to the loop?
- ☐ Can any statements that are enclosed within loops be placed outside the loops?
- ☐ Does the code in the loop avoid manipulating the index variable or using it upon exit from the loop?

## **Defensive Programming**

- ☐ Are indexes, pointers, and subscripts tested against array, record, or file bounds?
- ☐ Are imported data and input arguments tested for validity and completeness?
- ☐ Are all output variables assigned?
- ☐ Are the correct data operated on in each statement?
- ☐ Is every memory allocation deallocated?
- ☐ Are timeouts or error traps used for external device accesses?
- ☐ Are files checked for existence before attempting to access them?
- ☐ Are all files and devices left in the correct state upon program termination?