



**PROCESS DESCRIPTION
CODING**

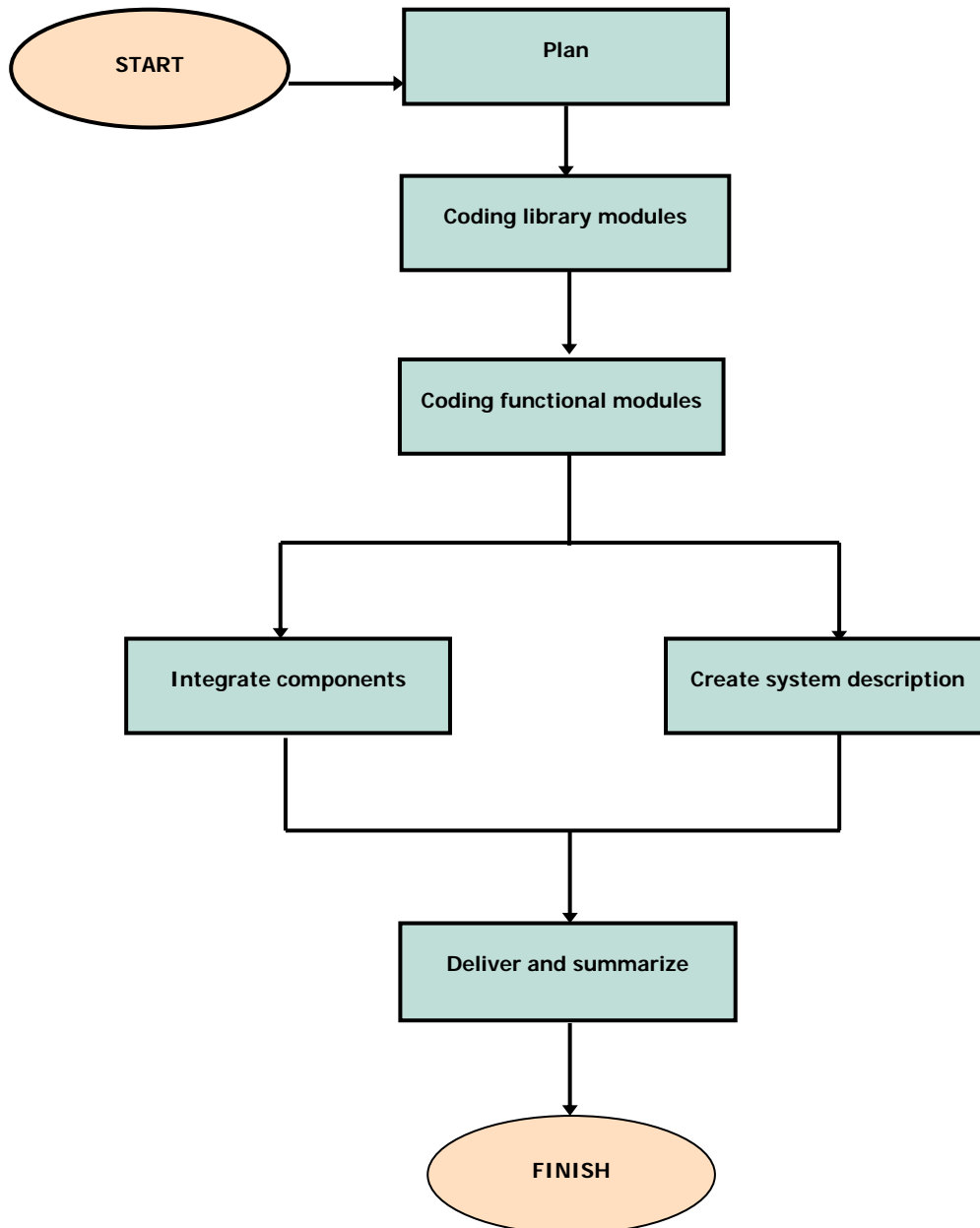
**Code: 04e-QT/PM/HDCV/FSOFT
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1 PURPOSE

Develop software including software components, software system according standards and defined requirements.

2 WORK FLOW



3 PROCESS CHARACTERISTICS

Characteristic	Description	Requirements
Input		
	Design results	Approved by PL
	Change request	Approved by PL
Output		
	Software package	Approved by PL
	User's guide	Approved by PL
	System description (if needed)	Approved by PL
	Guideline for installation	Approved by PL
	Tools for installation (if needed)	Approved by PL
Implementation condition		
	Tools for coding, integrating, test, configuration management	Verified before use
	Environment and resources for coding	Follow project plan
Performance criteria		
	Percentage of actual coding productiveness to required	$\geq 90\%$
	Number of system test defects per coding effort (person-day)	≤ 0.7
	Percentage of deliverables in time	$\geq 75\%$
	Achievement of quality requirements of software package and documents	$\geq 90\%$
	Percentage of actual duration to planned duration	$\leq 110\%$
	Percentage of actual effort to planned effort	$\leq 120\%$
Related processes		
	Software design	Design results
	Software project management	Coding and integration plan Problems and requirements
	Test	Source code and test requirements Test report
	Configuration management	Source code and documents Change request

4 STEPS AND ACTIVITIES

4.1 Plan

No	Activity	Deliverable	Doer	Reference
1.	Study design results	Data for planning	Developer	
2.	Define and prepare resources and conditions for coding, unit test and modules integrating (if needed)	Data for planning	Coding leader	
3.	Create coding plan including targets, scope, required deliverables and acceptance requirements, task and schedule, responsibilities	Coding plan ¹	Coding leader	
4.	Review and approve coding plan	Approved coding plan	PL	
5.	Create coding standards	Coding standards	Coding leader	02e-TC/PM/HDCV/FPT
6.	Review and approve coding standards	Approved coding standards	PL	
7.	Verify tools for coding (if needed)	Tool inspection records	Developer	

4.2 Coding library modules

No	Activity	Deliverable	Doer	Reference
1.	Create detail design for library modules	Detail library module design	Coding leader	
2.	Library modules coding	Library modules	Developer	
3.	Review code of library modules	Detected defects and problem report (if any)	Developer	28e-BM/PM/HDCV/FPT 31e-CL/PM/HDCV/FSOFT 03e-HD/PM/HDCV/FPT
4.	Bug fix for library modules (if needed)	Created defects	Developer	
5.	Summarize related documents		Developer	

¹ Coding plan may be a part of project plan or plan for project stage. The sequence in which code units are developed is based on a plan that accounts for factors such as criticality, difficulty, integration and test issues, and needs of the customer and end users, as appropriate.

4.3 Coding functional modules

No	Activity	Deliverable	Doer	Reference
1.	Create detail design for modules and program units, if required in design documents	Detail design for modules and program units	Coding leader	
2.	Modules and program units coding	Modules and program units	Developer	
3.	Review code	Detected defects and problem report (if any)	Developer	28e-BM/PM/HDCV/FPT 31e-BM/PM/HDCV/FSOFT 03e-HD/PM/HDCV/FPT
4.	Bug fix for modules and program units (if needed)	Cleared defects	Developer	
5.	Summarize and deliver results to coding leader	Code result	Developer	

4.4 Integrate components

No	Activity	Deliverable	Doer	Reference
1.	Create integration plan (if needed)	Integration plan ²	Coding leader	
2.	Integrate modules	Integrated software	Developer	
3.	Evaluate integration results, conduct cause analysis, raise change request (if needed)	Change request (if any)	Coding leader	61e-BM/PM/HDCV/FPT
4.	Review and approve results of integration	Integrated software	PL	

4.5 Create system description

No	Activity	Deliverable	Doer	Reference
1.	Make overview on system	System overview	Developer	04be-BM/PM/HDCV/FSOFT
2.	Describe sub-systems and main functions including system structure scheme, flow charts, system interfaces, data flows	System functions	Developer	04be-BM/PM/HDCV/FSOFT

² Integration plan may be a part of coding plan

No	Activity	Deliverable	Doer	Reference
3.	Describe system requirements including support data, memory capability, CPU and I/O requirements, storage capability, data for internal and external interfaces	System requirements	Developer	04be-BM/PM/HDCV/FSOFT
4.	Describe software structure including library of source codes (for system, sub-systems, objects) library of executive and supporting programs	Libraries of source codes and programs	Developer	04be-BM/PM/HDCV/FSOFT
5.	Review and approve system description	Approved system description	PL	03e-HD/PM/HDCV/FPT 28e-BM/PM/HDCV/FPT

4.6 Deliver and summarize

No	Activity	Deliverable	Doer	Reference
1.	Study needs, design, create and test installation tools (if needed)	Installation tools	Developer	
2.	Create guideline for installation	Guideline for installation	Developer	
3.	Create user's guide	User's guide	Analyst	
4.	Review, inspect and summarize software products including documents	Software package	Developer, CC	12e-CL/PM/HDCV/FSOFT
5.	Deliver to test team and customer (if needed)	Software package has been delivered	Coding leader, PL (if needed)	
6.	Create coding summary report	Coding summary report ³	Coding leader	16e-BM/PM/HDCV/FPT
7.	Maintain documents, records	Records	Developer	01e-TC/PM/HDCV/FPT 04e-HD/PM/HDCV/FPT

5 RECORDS

No	Record	Creator	Retention period (year)	Severity
1.	Coding plan	Coding leader	5	Medium
2.	Coding standards	Coding leader	5	Medium

³ Coding summary report may be a part of milestone report or project post mortem report

No	Record	Creator	Retention period (year)	Severity
3.	Tool inspection records	Developer	3	Medium
4.	Detail module design	Coding leader	5	Medium
5.	Integration plan	Coding leader	5	Medium
6.	System description	Developer	5	Medium
7.	Problem report	PL, Coding leader, Developer, Tester	5	Medium
8.	Guideline for installation	Developer	5	Medium
9.	User's guide	Analyst	5	Medium
10.	Coding summary report	Coding leader	5	Medium
11.	Software package	Developer	5	Medium

Approver	Reviewer	Creator
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