

# Mentor - Mentee Training Plan

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**AIS Solutions 2 Group**

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Jun 2017

# AGENDA

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# TARGET

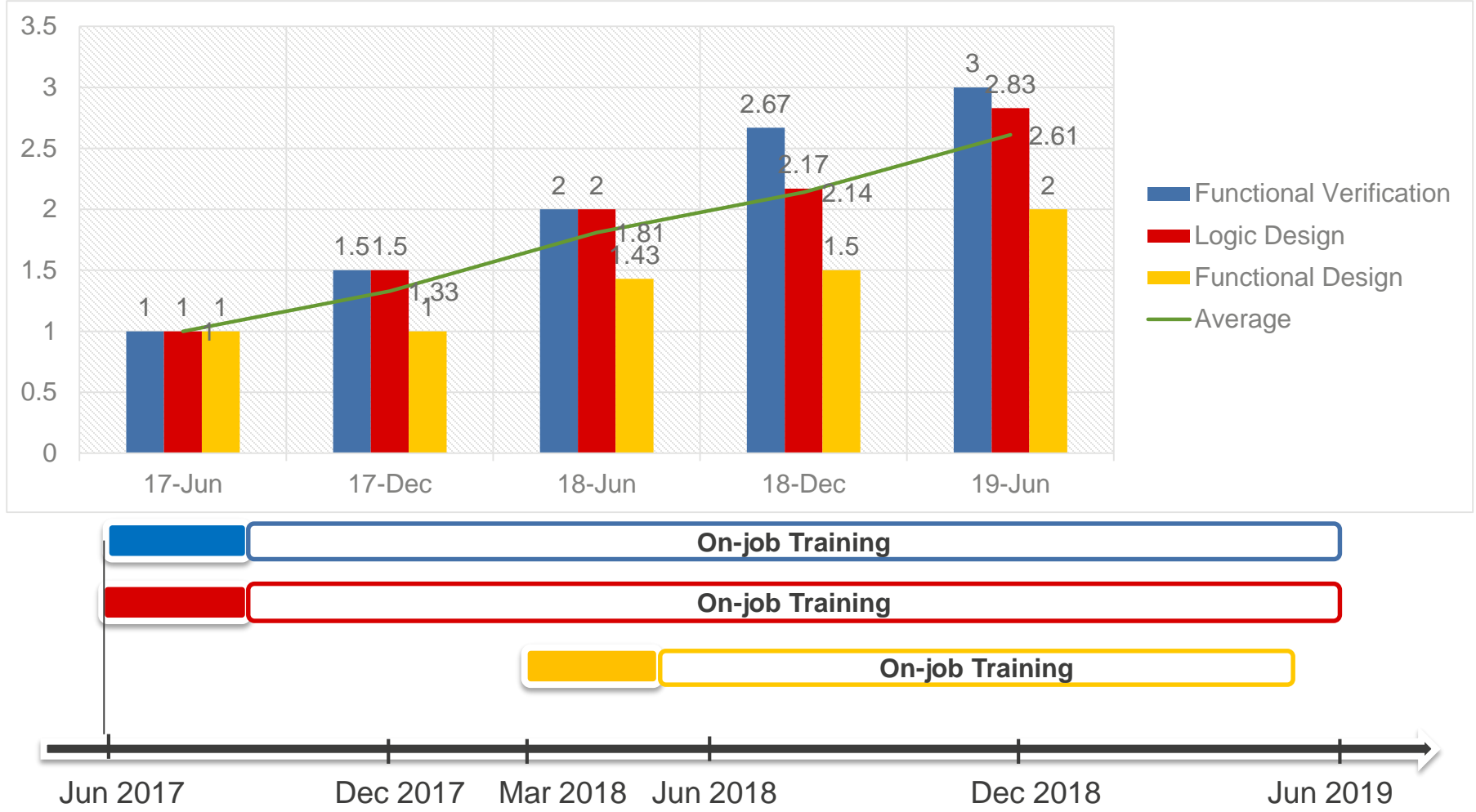
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Become a **Functional Verification Engineer** with level 3 in Jun 2019.

ROLES	CURRENT LEVEL	TARGETED LEVEL
Functional Verification	1	3
Logic design	1	2.83
Functional Design	1	2
Average	1	2.61

	Skill	17-Jun	17-Dec	18-Jun	18-Dec	19-Jun
Functional Verification	To determine verification strategy	1	1	2	2	3
	To check specification	1	1	2	2	3
	To create verification item list (checklist)	1	2	2	3	3
	To create test patterns for functional verification	1	2	2	3	3
	To conduct test patterns verification of RTL	1	1	2	3	3
	To evaluate functional verification result	1	2	2	3	3
	Average	1	1.5	2	2.67	3
Logic Design	To synthesis and to do formal verification	1	2	2	3	3
	To determine checker strategy	1	1	2	2	3
	To analyze and fix checker errors (HLDRC, DFTcheck)	1	2	2	2	3
	To analyze and fix checker errors (STAcheck)	1	2	2	2	3
	To create SDC (Synopsys design constraint)	1	1	2	2	2
	To analyze timing report and optimize timing	1	1	2	2	3
	Average	1	1.5	2	2.17	2.83
Functional Design	To create functional/logic specifications for chip design	1	1	1	1	2
	To create module design specifications	1	1	1	1	2
	To create LSI functional description at behavior level	1	1	1	1	2
	To create RTL description	1	1	2	2	2
	To create top level netlist	1	1	2	2	2
	To create timing budget	1	1	2	2	2
	To determine strategies of evaluation and testing	1	1	1	2	2
	Average	1	1	1.43	1.57	2
	Summary	1	1.33	1.81	2.14	2.61

# SCHEDULE



— review point

# PLAN TO ACHIEVE Functional Verification

**Module: LBSC/LPD**

Skill	Input	Action	Output
To determine verification strategy (verification policy)	<ul style="list-style-type: none"> <li>- Verification phase of project demand</li> <li>- Guideline</li> </ul>	<ul style="list-style-type: none"> <li>- Investigate design and choose verification solution</li> <li>- Make basic checking item list and its priority in verification</li> </ul>	<ul style="list-style-type: none"> <li>- Basic checking item lists</li> <li>- Checking item priority</li> <li>- Verifications plan and schedule</li> </ul>
To check specification	<ul style="list-style-type: none"> <li>- Hardware manual</li> <li>- Basic checking item of project</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze basic checking item of the project</li> <li>- Self-investigate chip and module specification</li> <li>- Make document to explanation purpose</li> </ul>	<ul style="list-style-type: none"> <li>- Module checking items</li> <li>- Document explains for checking item</li> </ul>
To create verification item list (checklist)	<ul style="list-style-type: none"> <li>- Basic checklist of project</li> <li>- Hardware manual</li> <li>- Checking items</li> <li>- Verification plan</li> </ul>	<ul style="list-style-type: none"> <li>- Investigate module hardware manual.</li> <li>- Analyze basic checklist and module checking item</li> <li>- Create module verification checklist</li> </ul>	Module verification item lists
To create test patterns for functional verification.	<ul style="list-style-type: none"> <li>- Module verification checklist</li> <li>- Hardware manual, spec</li> <li>- RTL, net list</li> </ul>	<ul style="list-style-type: none"> <li>- Investigate module hardware manual and sample pattern</li> <li>- Create pattern cover check list</li> </ul>	<ul style="list-style-type: none"> <li>- Test pattern (CT,UT)</li> <li>- Test pattern description</li> </ul>
To conduct functional verification of RTL	<ul style="list-style-type: none"> <li>- Module verification item lists (CT,UT)</li> <li>- Module modification record</li> <li>- Module verification plan</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze verification item lists</li> <li>- Analyze modification record</li> <li>- Estimate the bug curve of project</li> <li>- Modify inputs data if errors are found</li> </ul>	<ul style="list-style-type: none"> <li>- Bug-curve estimation (doc)</li> <li>- Verification coverage</li> <li>- Verification results</li> </ul>
To evaluate functional verification result	<ul style="list-style-type: none"> <li>- Module checklist and hardware manual.</li> <li>- Test pattern description</li> <li>- Verification result</li> </ul>	<ul style="list-style-type: none"> <li>-Analyze test pattern description, module checklist and hardware manual</li> <li>- Reading test pattern description</li> <li>- Evaluate coverage result</li> <li>- Using checker to judge verification</li> </ul>	<ul style="list-style-type: none"> <li>- Checked verifications result</li> <li>- Coverage result</li> </ul>

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Skill

Input

Action

Output

Target Level

To determine verification strategy  
(verification policy)

1

To check specification

1

To create verification item list (checklist)

- Basic checklist of project
- Hardware manual
- Checking items
- Verification plan

- Investigate module hardware manual.
- Analyze basic checklist and module checking item
- Q&A, confirm with mentor

Module verification item lists

2

To create test patterns for functional  
verification.

To conduct functional verification of  
RTL

- Module verification item lists  
(CT,UT)
- Module modification record
- Module verification plan

- Analyze verification item lists
- Analyze modification record
- Confirm result with mentor

- Verification coverage
- Verification results

2

To evaluate functional verification result

- Module checklist and hardware  
manual.
- Test pattern description
- Verification result

- Analyze test pattern description, module checklist  
and hardware manual
- Reading test pattern description
- Q&A, confirm with mentor

- Checked verifications result
- Coverage result

2

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Module: LBSC/LPD

Skill	Input	Action	Output	Target Level
To determine verification strategy (verification policy)	<ul style="list-style-type: none"> <li>- Verification phase of project demand</li> <li>- Guideline</li> </ul>	<ul style="list-style-type: none"> <li>- Investigate design</li> <li>- Make basic checking item list and its priority in verification</li> <li>- Investigate and confirm result with mentor</li> </ul>	<ul style="list-style-type: none"> <li>- Basic checking item lists</li> <li>- Checking item priority</li> <li>- Verifications plan and schedule</li> </ul>	2
To check specification	<ul style="list-style-type: none"> <li>- Hardware manual</li> <li>- Basic checking item of project</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze basic checking item of the project</li> <li>- Investigate and confirm understand with mentor</li> </ul>	<ul style="list-style-type: none"> <li>- Module checking items</li> </ul>	2
To create verification item list (checklist)	<ul style="list-style-type: none"> <li>- Basic checklist of project</li> <li>- Hardware manual</li> <li>- Checking items</li> <li>- Verification plan</li> </ul>	<ul style="list-style-type: none"> <li>- Investigate module hardware manual.</li> <li>- Analyze basic checklist and module checking item</li> <li>- Q&amp;A, confirm with mentor</li> </ul>	Module verification item lists	2
To create test patterns for functional verification.	<ul style="list-style-type: none"> <li>- Module verification checklist</li> <li>- Hardware manual, spec</li> <li>- RTL, net list</li> </ul>	<ul style="list-style-type: none"> <li>- Investigate module hardware manual and sample pattern</li> <li>- Create pattern cover check list</li> <li>- Confirm result with mentor</li> </ul>	<ul style="list-style-type: none"> <li>- Test pattern (CT,UT)</li> <li>- Test pattern description</li> </ul>	2
To conduct functional verification of RTL	<ul style="list-style-type: none"> <li>- Module verification item lists (CT,UT)</li> <li>- Module modification record</li> <li>- Module verification plan</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze verification item lists</li> <li>- Analyze modification record</li> <li>- Confirm with mentor</li> </ul>	<ul style="list-style-type: none"> <li>- Verification coverage</li> <li>- Verification results</li> </ul>	2
To evaluate functional verification result	<ul style="list-style-type: none"> <li>- Module checklist and hardware manual.</li> <li>- Test pattern description</li> <li>- Verification result</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze test pattern description, module checklist and hardware manual</li> <li>- Reading test pattern description</li> <li>- Q&amp;A, confirm with mentor</li> </ul>	<ul style="list-style-type: none"> <li>- Checked verifications result</li> <li>- Coverage result</li> </ul>	2



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Skill	Input	Action	Output	Target Level
To determine verification strategy (verification policy)	<ul style="list-style-type: none"> <li>- Verification phase of project demand</li> <li>- Guideline</li> </ul>	<ul style="list-style-type: none"> <li>- Investigate design and choose verification solution</li> <li>- Make basic checking item list and its priority in verification</li> <li>- Investigate and confirm result with mentor</li> </ul>	<ul style="list-style-type: none"> <li>- Basic checking item lists</li> <li>- Checking item priority</li> <li>- Verifications plan and schedule</li> </ul>	2
To check specification	<ul style="list-style-type: none"> <li>- Hardware manual</li> <li>- Basic checking item of project</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze basic checking item of the project</li> <li>- Investigate and confirm understand with mentor</li> </ul>	<ul style="list-style-type: none"> <li>- Module checking items</li> <li>- Document explains for checking item</li> </ul>	2
To create verification item list (checklist)	<ul style="list-style-type: none"> <li>- Basic checklist of project</li> <li>- Hardware manual</li> <li>- Checking items</li> <li>- Verification plan</li> </ul>	<ul style="list-style-type: none"> <li>- Investigate module hardware manual.</li> <li>- Analyze basic checklist and module checking item</li> <li>- Create module verification checklist</li> </ul>	Module verification item lists	3
To create test patterns for functional verification.	<ul style="list-style-type: none"> <li>- Module verification checklist</li> <li>- Hardware manual, spec</li> <li>- RTL, net list</li> </ul>	<ul style="list-style-type: none"> <li>- Investigate module hardware manual</li> <li>- Create pattern cover check list</li> <li>- Make plan and evaluate results</li> </ul>	<ul style="list-style-type: none"> <li>- Test pattern (CT,UT)</li> <li>- Test pattern description</li> <li>- Verification plan report</li> </ul>	3
To conduct functional verification of RTL	<ul style="list-style-type: none"> <li>- Module verification item lists (CT,UT)</li> <li>- Module modification record</li> <li>- Module verification plan</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze verification item lists</li> <li>- Analyze modification record</li> <li>- Estimate the bug curve of project</li> <li>- Modify inputs data if errors are found</li> </ul>	<ul style="list-style-type: none"> <li>- Bug-curve estimation (doc)</li> <li>- Verification coverage</li> <li>- Verification results</li> </ul>	3
To evaluate functional verification result	<ul style="list-style-type: none"> <li>- Module checklist and hardware manual.</li> <li>- Test pattern description</li> <li>- Verification result</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze test pattern description, module checklist and hardware manual</li> <li>- Reading test pattern description</li> <li>- Evaluate coverage result</li> <li>- Using checker to judge verification</li> <li>- Make verification report</li> </ul>	<ul style="list-style-type: none"> <li>- Checked verifications result</li> <li>- Coverage result</li> <li>- Verification report</li> </ul>	3

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Skill	Input	Action	Output	Target Level
To determine verification strategy (verification policy)	<ul style="list-style-type: none"> <li>- Verification phase of project demand</li> <li>- Guideline</li> </ul>	<ul style="list-style-type: none"> <li>- Investigate design and <b>choose verification solution</b></li> <li>- Make basic checking item list and its priority in verification</li> </ul>	<ul style="list-style-type: none"> <li>- Basic checking item lists</li> <li>- Checking item priority</li> <li>- Verifications plan and schedule</li> </ul>	3
To check specification	<ul style="list-style-type: none"> <li>- Hardware manual</li> <li>- Basic checking item of project</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze basic checking item of the project</li> <li>- <b>Self-investigate chip and module specification</b></li> <li>- <b>Make document to explanation purpose</b></li> </ul>	<ul style="list-style-type: none"> <li>- Module checking items</li> <li>- Document explains for checking item</li> </ul>	3
To create verification item list (checklist)	<ul style="list-style-type: none"> <li>- Basic checklist of project</li> <li>- Hardware manual</li> <li>- Checking items</li> <li>- Verification plan</li> </ul>	<ul style="list-style-type: none"> <li>- Investigate module hardware manual.</li> <li>- Analyze basic checklist and module checking item</li> <li>- Create module verification checklist</li> </ul>	Module verification item lists	3
To create test patterns for functional verification.	<ul style="list-style-type: none"> <li>- Module verification checklist</li> <li>- Hardware manual, spec</li> <li>- RTL, net list</li> </ul>	<ul style="list-style-type: none"> <li>- Investigate module hardware manual and sample pattern</li> <li>- Create pattern cover check list</li> </ul>	<ul style="list-style-type: none"> <li>- Test pattern (CT,UT)</li> <li>- Test pattern description</li> <li>- Confirm result with mentor</li> </ul>	3
To conduct functional verification of RTL	<ul style="list-style-type: none"> <li>- Module verification item lists (CT,UT)</li> <li>- Module modification record</li> <li>- Module verification plan</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze verification item lists</li> <li>- Analyze modification record</li> <li>- Estimate the bug curve of project</li> <li>- Modify inputs data if errors are found</li> </ul>	<ul style="list-style-type: none"> <li>- Bug-curve estimation (doc)</li> <li>- Verification coverage</li> <li>- Verification results</li> <li>- Confirm result with mentor</li> </ul>	3
To evaluate functional verification result	<ul style="list-style-type: none"> <li>- Module checklist and hardware manual.</li> <li>- Test pattern description</li> <li>- Verification result</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze test pattern description, module checklist and hardware manual</li> <li>- Reading test pattern description</li> <li>- Evaluate coverage result</li> <li>- Using checker to judge verification</li> </ul>	<ul style="list-style-type: none"> <li>- Checked verifications result</li> <li>- Coverage result</li> <li>- Confirm check item or bug</li> </ul>	3

# PLAN TO ACHIEVE Logic design

Module: LBSC/LPD

Skill	Input	Action	Output
To synthesize and do formal verification.	<ul style="list-style-type: none"> <li>- Synthesis Env document.</li> <li>- Module RTL/IO file.</li> </ul>	<ul style="list-style-type: none"> <li>- Read synthesis environment document, focus to synthesis constrain and option</li> <li>- Investigate Formality document and do formality verification</li> <li>- Run synthesis and analyze log file and check result. Optimize net-list to solve timing error</li> </ul>	<ul style="list-style-type: none"> <li>- Synthesis Constraint explanation document.</li> <li>- Optimization guideline.</li> <li>- Gate net-list met project demand (timing, area...)</li> </ul>
To determine checker strategy	<ul style="list-style-type: none"> <li>- Project demand for checker item.</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze project demand for checker item</li> <li>- Create checker running constrain</li> <li>- Give feedback to checker leader about checker running constrain</li> </ul>	<ul style="list-style-type: none"> <li>- Checker running constrain.</li> </ul>
To analyze and fix checker error (HLDRC)	<ul style="list-style-type: none"> <li>- HLDRC User's Guide.</li> <li>- Gate net-list.</li> </ul>	<ul style="list-style-type: none"> <li>- Read HLDRC User's guide</li> <li>- Make document to explain HLDRC error</li> </ul>	<ul style="list-style-type: none"> <li>- HLDRC contrains explantation (document).</li> <li>- HLDRC Error explanation (document).</li> </ul>
To analyze and fix checker error (DFTcheck)	<ul style="list-style-type: none"> <li>- DFT User's Guide.</li> <li>- Gate net-list.</li> </ul>	<ul style="list-style-type: none"> <li>- Read DFT User's guide</li> <li>- Make document to explain DFT error and DFT constrain</li> </ul>	<ul style="list-style-type: none"> <li>- DFTCheck constrain explanation (document).</li> <li>- DFTCheck Error explanation (document).</li> </ul>
To analyze and fix checker error (STACheck)	<ul style="list-style-type: none"> <li>- STACheck design rule.</li> <li>- Gate netlist</li> </ul>	<ul style="list-style-type: none"> <li>- Read STACheck design rule</li> <li>- Make document to explain STA error and STA constrain</li> </ul>	<ul style="list-style-type: none"> <li>- STACheck constrain explanation (document).</li> <li>- STACheck Error explanation (document).</li> </ul>
To create SDC (synopsys design constraint)	<ul style="list-style-type: none"> <li>- Module specification</li> <li>- SDC document</li> <li>- Sample individual constraint</li> <li>- Guideline</li> </ul>	<ul style="list-style-type: none"> <li>- Read module's Hardware manual</li> <li>- Learn how to make SDC file</li> <li>- Debug on STA environment</li> <li>- Confirm with mentor</li> </ul>	SDC file
To analyze timing report and optimize timing	<ul style="list-style-type: none"> <li>- Timing report</li> <li>- Module STA constrain.</li> </ul>	<ul style="list-style-type: none"> <li>- Check timing report and analyze each violation point.</li> <li>- Make Timing ECO to solve timing violation.</li> </ul>	<ul style="list-style-type: none"> <li>- Timing ECO command</li> <li>- No timing violation</li> </ul>

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Module: LBSC/LPD

Skill	Input	Action	Output	Target Level
To synthesize and do formal verification.	- Synthesis Env document. - Module RTL/IO file.	- Read synthesis environment document, focus to synthesis constrain and option - Investigate Formality document and do formality verification - Confirm each error/warning with mentor	- Synthesis Constraint explanation document. - Optimization guideline.	2
To determine checker strategy				
To analyze and fix checker error (HLDRC)	- HLDRC User's Guide. - Gate net-list.	- Read HLDRC User's guide - Q&A, confirm each analysis with IP designer - Confirm each analysis with mentor	- HLDRC constrains explanation (document). - HLDRC Error explanation (document).	2
To analyze and fix checker error (DFTcheck)	- DFT User's Guide. - Gate net-list.	- Read DFT User's guide - Q&A, confirm each analysis with IP designer - Confirm each analysis with mentor	- DFTCheck constrain explanation (document). - DFTCheck Error explanation (document).	2
To analyze and fix checker error (STACheck)	- STACheck design rule. - Gate netlist	- Read STACheck design rule - Q&A, confirm each analysis with IP designer - Confirm each analysis with mentor	- STACheck constrain explanation (document). - STACheck Error explanation (document).	2
To create SDC (synopsys design constraint)				
To analyze timing report and optimize timing				

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Skill	Input	Action	Output	Target Level
To synthesize and do formal verification.	- Synthesis Env document. - Module RTL/IO file.	- Read synthesis environment document, focus to synthesis constrain and option - Investigate Formality document and do formality verification - Confirm each error/warning with mentor	- Synthesis Constraint explanation document. - Optimization guideline.	2
To determine checker strategy	- Project demand for checker item.	- Analyze project demand for checker item - Confirm each analysis with mentor	- Checker running constrain.	2
To analyze and fix checker error (HLDRC)	- HLDRC User's Guide. - Gate net-list.	- Read HLDRC User's guide - Q&A, confirm each analysis with IP designer - Confirm each analysis with mentor	- HLDRC constrains explanation (document). - HLDRC Error explanation (document).	2
To analyze and fix checker error (DFTcheck)	- DFT User's Guide. - Gate net-list.	- Read DFT User's guide - Q&A, confirm each analysis with IP designer - Confirm each analysis with mentor	- DFTCheck constrain explanation (document). - DFTCheck Error explanation (document).	2
To analyze and fix checker error (STACheck)	- STACheck design rule. - Gate netlist	- Read STACheck design rule - Q&A, confirm each analysis with IP designer - Confirm each analysis with mentor	- STACheck constrain explanation (document). - STACheck Error explanation (document).	2
To create SDC (synopsys design constraint)	- Module specification - SDC document - Sample individual constraint - Guideline	- Read module's Hardware manual - Learn how to make SDC file - Debug on STA environment - Confirm with mentor about constraint	SDC file	2
To analyze timing report and optimize timing	- Timing report - Module STA constrain.	- Check timing report and analyze each violation point - Solving solution with mentor	- Timing ECO command - No timing violation	2

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Skill	Input	Action	Output	Target Level
To synthesize and do formal verification.	<ul style="list-style-type: none"> <li>- Synthesis Env document.</li> <li>- Module RTL/IO file.</li> </ul>	<ul style="list-style-type: none"> <li>- Read synthesis environment document, focus to synthesis constrain and option</li> <li>- Investigate Formality document and do formality verification</li> <li>- Run synthesis and analyze log file and check result. Optimize net-list to solve timing error</li> </ul>	<ul style="list-style-type: none"> <li>- Synthesis Constraint explanation document.</li> <li>- Optimization guideline.</li> <li>- Gate net-list met project demand (timing, area...)</li> </ul>	3
To determine checker strategy	<ul style="list-style-type: none"> <li>- Project demand for checker item.</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze project demand for checker item</li> <li>- Create checker running constrain</li> <li>- Give feedback to checker leader about checker running constrain</li> </ul>	<ul style="list-style-type: none"> <li>- Checker running constrain.</li> </ul>	2
To analyze and fix checker error (HLDRC)	<ul style="list-style-type: none"> <li>- HLDRC User's Guide.</li> <li>- Gate net-list.</li> </ul>	<ul style="list-style-type: none"> <li>- Read HLDRC User's guide</li> <li>- Make document to explain HLDRC error</li> <li>- Confirm each analysis with mentor</li> </ul>	<ul style="list-style-type: none"> <li>- HLDRC contrains explantation (document).</li> <li>- HLDRC Error explanation (document).</li> </ul>	2
To analyze and fix checker error (DFTcheck)	<ul style="list-style-type: none"> <li>- DFT User's Guide.</li> <li>- Gate net-list.</li> </ul>	<ul style="list-style-type: none"> <li>- Read DFT User's guide</li> <li>- Make document to explain DFT error and DFT constrain</li> <li>- Confirm each analysis with mentor</li> </ul>	<ul style="list-style-type: none"> <li>- DFTCheck constrain explanation (document).</li> <li>- DFTCheck Error explanation (document).</li> </ul>	2
To analyze and fix checker error (STACheck)	<ul style="list-style-type: none"> <li>- STACheck design rule.</li> <li>- Gate netlist</li> </ul>	<ul style="list-style-type: none"> <li>- Read STACheck design rule</li> <li>- Make document to explain STA error and STA constrain</li> <li>- Confirm each analysis with mentor</li> </ul>	<ul style="list-style-type: none"> <li>- STACheck constrain explanation (document).</li> <li>- STACheck Error explanation (document).</li> </ul>	2
To create SDC (synopsys design constraint)	<ul style="list-style-type: none"> <li>- Module specification</li> <li>- SDC document</li> <li>- Sample individual constraint</li> <li>- Guideline</li> </ul>	<ul style="list-style-type: none"> <li>- Read module's Hardware manual</li> <li>- Learn how to make SDC file</li> <li>- Debug on STA environment</li> <li>- Confirm with mentor about constraint</li> </ul>	SDC file	2
To analyze timing report and optimize timing	<ul style="list-style-type: none"> <li>- Timing report</li> <li>- Module STA constrain.</li> </ul>	<ul style="list-style-type: none"> <li>- Check timing report and analyze each violation point</li> <li>- Make Timing ECO to solve timing violation</li> <li>- Solving solution with mentor</li> </ul>	<ul style="list-style-type: none"> <li>- Timing ECO command</li> <li>- No timing violation</li> </ul>	2

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Skill	Input	Action	Output	Target Level
To synthesize and do formal verification.	<ul style="list-style-type: none"> <li>- Synthesis Env document.</li> <li>- Module RTL/IO file.</li> </ul>	<ul style="list-style-type: none"> <li>- Read synthesis environment document, focus to synthesis constrain and option</li> <li>- Investigate Formality document and do formality verification</li> <li>- Run synthesis and analyze log file and check result. Optimize net-list to solve timing error</li> </ul>	<ul style="list-style-type: none"> <li>- Synthesis Constraint explanation document.</li> <li>- Optimization guideline.</li> <li>- Gate net-list met project demand (timing, area...)</li> </ul>	3
To determine checker strategy	<ul style="list-style-type: none"> <li>- Project demand for checker item.</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze project demand for checker item</li> <li>- Create checker running constrain</li> <li>- Give feedback to checker leader about checker running constrain</li> </ul>	<ul style="list-style-type: none"> <li>- Checker running constrain.</li> </ul>	2
To analyze and fix checker error (HLDRC)	<ul style="list-style-type: none"> <li>- HLDRC User's Guide.</li> <li>- Gate net-list.</li> </ul>	<ul style="list-style-type: none"> <li>- Read HLDRC User's guide</li> <li>- Q&amp;A, confirm each analysis with IP designer</li> <li>- <a href="#">Make document to explain HLDRC error</a></li> <li>- <a href="#">Self-investigate and give solution for each error/warning</a></li> </ul>	<ul style="list-style-type: none"> <li>- HLDRC contrains explanation (document).</li> <li>- HLDRC Error explanation (document).</li> </ul>	3
To analyze and fix checker error (DFTcheck)	<ul style="list-style-type: none"> <li>- DFT User's Guide.</li> <li>- Gate net-list.</li> </ul>	<ul style="list-style-type: none"> <li>- Read DFT User's guide</li> <li>- Q&amp;A, confirm each analysis with IP designer</li> <li>- <a href="#">Make document to explain DFT error and DFT constrain</a></li> <li>- <a href="#">Self-investigate and give solution for each error/warning</a></li> </ul>	<ul style="list-style-type: none"> <li>- DFTCheck constrain explanation (document).</li> <li>- DFTCheck Error explanation (document).</li> </ul>	3
To analyze and fix checker error (STAccheck)	<ul style="list-style-type: none"> <li>- STAccheck design rule.</li> <li>- Gate netlist</li> </ul>	<ul style="list-style-type: none"> <li>- Read STAcCheck design rule</li> <li>- Q&amp;A, confirm each analysis with IP designer</li> <li>- <a href="#">Make document to explain STA error and STA constrain</a></li> <li>- <a href="#">Self-investigate and give solution for each error/warning</a></li> </ul>	<ul style="list-style-type: none"> <li>- STAccheck constrain explanation (document).</li> <li>- STAccheck Error explanation (document).</li> </ul>	3
To create SDC (synopsys design constraint)	<ul style="list-style-type: none"> <li>- Module specification</li> <li>- SDC document</li> <li>- Sample individual constraint</li> <li>- Guideline</li> </ul>	<ul style="list-style-type: none"> <li>- Read module's Hardware manual</li> <li>- Learn how to make SDC file</li> <li>- Debug on STA environment</li> <li>- Confirm with mentor about constraint</li> </ul>	SDC file	2
To analyze timing report and optimize timing	<ul style="list-style-type: none"> <li>- Timing report</li> <li>- Module STA constrain.</li> </ul>	<ul style="list-style-type: none"> <li>- Check timing report and analyze each violation point</li> <li>- <a href="#">Make Timing ECO to solve timing violation</a></li> <li>- <a href="#">Self-investigate and give solution for any violation</a></li> </ul>	<ul style="list-style-type: none"> <li>- Timing ECO command</li> <li>- No timing violation</li> </ul>	3

# PLAN TO ACHIEVE Functional design

## Module: LBSC/LPD

Skill	Input	Action	Output
To create functional/logic specifications for chip design	<ul style="list-style-type: none"> <li>- Module design requirement</li> <li>- Module hardware manual</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze design requirement and module hardware manual</li> <li>- Make the schematic to explain the connection between in-charged module and other modules</li> </ul>	<ul style="list-style-type: none"> <li>- Connection schematic between module with others in whole chip</li> </ul>
To create module design specifications	<ul style="list-style-type: none"> <li>- Required specification</li> <li>- Module hardware manual</li> <li>- Reference output from project</li> <li>- Guideline</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze module design requirement, module hardware manual</li> <li>- Make design specification</li> <li>- Confirm with mentor</li> </ul>	<ul style="list-style-type: none"> <li>- Design specification</li> <li>- Interface specification</li> </ul>
To create LSI functional description at behavior level	<ul style="list-style-type: none"> <li>- Design document</li> <li>- Original IO</li> <li>- Module hardware manual</li> </ul>	<ul style="list-style-type: none"> <li>- Investigate module hardware manual and design document.</li> <li>- Change module IO file.</li> </ul>	<ul style="list-style-type: none"> <li>- Modified IO</li> <li>- Behavior description</li> </ul>
To create RTL description	<ul style="list-style-type: none"> <li>- Modification specification</li> <li>- Legacy design (RTL)</li> </ul>	<ul style="list-style-type: none"> <li>- Make RTL description</li> <li>- Code review and design review with mentor</li> </ul>	<ul style="list-style-type: none"> <li>- Modified RTL without errors</li> </ul>
To analyze and fix RTL checker (Spyglass)	<ul style="list-style-type: none"> <li>- Modified RTL file</li> <li>- Spyglass document</li> <li>- Spyglass environment</li> </ul>	<ul style="list-style-type: none"> <li>- Run spyglass.</li> <li>- Check spyglass log file and analysis each warning/error</li> <li>- Fix warning/error and run spyglass again to confirm</li> <li>- Check the result</li> </ul>	<ul style="list-style-type: none"> <li>- Spyglass log file</li> <li>- Spyglass Error explanation (document)</li> <li>- Final RTL</li> </ul>
To create top level netlist	<ul style="list-style-type: none"> <li>- Modified RTL/IO</li> <li>- Synthesis env.</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze synthesis environment and make document to explain about synthesis constrain.</li> <li>- Run synthesis.</li> <li>- Analyze synthesis result, solve timing violation and checker error.</li> </ul>	<ul style="list-style-type: none"> <li>- Synthesis constrain explanation.</li> <li>- Chip top netlist.</li> <li>- Checker error explanation &amp; confirmation (document)</li> </ul>
To create timing budget	<ul style="list-style-type: none"> <li>- Original IO file</li> <li>- IO timing budget constrain of project.</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze original IO file and timing constrain of project.</li> <li>- Modified timing budget of module IO file.</li> </ul>	<ul style="list-style-type: none"> <li>- New IO timing budget for module</li> </ul>



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## Module: LBSC/LPD

Skill	Input	Action	Output	Target Level
To create functional/logic specifications for chip design	<ul style="list-style-type: none"> <li>- Module design requirement</li> <li>- Module hardware manual</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze design requirement and module hardware manual</li> <li>- Make the schematic to explain the connection between in-charged module and other modules</li> <li>- Confirm result with mentor</li> </ul>	- Connection schematic between module with others in whole chip	1
To create module design specifications	<ul style="list-style-type: none"> <li>- Required specification</li> <li>- Module hardware manual</li> <li>- Reference output from project</li> <li>- Guideline</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze module design requirement, module hardware manual</li> <li>- Make design specification</li> <li>- Confirm with mentor</li> </ul>	<ul style="list-style-type: none"> <li>- Design specification</li> <li>- Interface specification</li> </ul>	1
To create LSI functional description at behavior level	<ul style="list-style-type: none"> <li>- Design document</li> <li>- Original IO</li> <li>- Module hardware manual</li> </ul>	<ul style="list-style-type: none"> <li>- Investigate module hardware manual and design document.</li> <li>- Change module IO file.</li> </ul>	<ul style="list-style-type: none"> <li>- Modified IO</li> <li>- Behavior description</li> </ul>	1
To create RTL description	<ul style="list-style-type: none"> <li>- Modification specification</li> <li>- Legacy design (RTL)</li> </ul>	<ul style="list-style-type: none"> <li>- Make RTL description</li> <li>- Code review and design review with mentor</li> </ul>	- Modified RTL without errors	1
To analyze and fix RTL checker (Spyglass)	<ul style="list-style-type: none"> <li>- Modified RTL file</li> <li>- Spyglass document</li> <li>- Spyglass environment</li> </ul>	<ul style="list-style-type: none"> <li>- Run spyglass.</li> <li>- Check spyglass log file and analysis each warning/error</li> <li>- Fix warning/error and run spyglass again to confirm</li> <li>- Check the result</li> </ul>	<ul style="list-style-type: none"> <li>- Spyglass log file</li> <li>- Spyglass Error explanation (document)</li> <li>- Final RTL</li> </ul>	1
To create top level netlist	<ul style="list-style-type: none"> <li>- Modified RTL/IO</li> <li>- Synthesis env.</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze synthesis environment and make document to explain about synthesis constrain.</li> <li>- Run synthesis.</li> <li>- Analyze synthesis result, solve timing violation and checker error.</li> </ul>	<ul style="list-style-type: none"> <li>- Synthesis constrain explanation.</li> <li>- Chip top netlist.</li> <li>- Checker error explanation &amp; confirmation (document)</li> </ul>	1
To create timing budget	<ul style="list-style-type: none"> <li>- Original IO file</li> <li>- IO timing budget constrain of project.</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze original IO file and timing constrain of project.</li> <li>- Modified timing budget of module IO file.</li> </ul>	- New IO timing budget for module	1

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Skill	Input	Action	Output	Target Level
To create functional/logic specifications for chip design				1
To create module design specifications				1
To create LSI functional description at behavior level				1
To create RTL description	<ul style="list-style-type: none"> <li>- Modification specification</li> <li>- Legacy design (RTL)</li> </ul>	<ul style="list-style-type: none"> <li>- Make RTL description</li> <li>- Code review and design review with mentor</li> </ul>	<ul style="list-style-type: none"> <li>- Modified RTL without errors</li> </ul>	2
To analyze and fix RTL checker (Spyglass)	<ul style="list-style-type: none"> <li>- Modified RTL file</li> <li>- Spyglass document</li> <li>- Spyglass environment</li> </ul>	<ul style="list-style-type: none"> <li>- Run spyglass.</li> <li>- Check spyglass log file and analysis each warning/error</li> <li>- Fix warning/error and run spyglass again to confirm</li> <li>- Check the result and confirm with mentor</li> </ul>	<ul style="list-style-type: none"> <li>- Spyglass log file</li> <li>- Spyglass Error explanation (document)</li> <li>- Final RTL</li> </ul>	2
To create top level netlist	<ul style="list-style-type: none"> <li>- Modified RTL/IO</li> <li>- Synthesis env.</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze synthesis environment and make document to explain about synthesis constrain.</li> <li>- Run synthesis.</li> <li>- Analyze synthesis result, solve timing violation and checker error confirmation (document)</li> <li>- Confirm result with mentor</li> </ul>	<ul style="list-style-type: none"> <li>- Synthesis constrain explanation.</li> <li>- Chip top netlist.</li> <li>- Checker error explanation &amp; confirmation (document)</li> </ul>	2
To create timing budget				1

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## Module: LBSC/LPD

Skill	Input	Action	Output	Target Level
To create functional/logic specifications for chip design				1
To create module design specifications				1
To create LSI functional description at behavior level				1
To create RTL description	<ul style="list-style-type: none"> <li>- Modification specification</li> <li>- Legacy design (RTL)</li> </ul>	<ul style="list-style-type: none"> <li>- Make RTL description</li> <li>- Code review and design review with mentor</li> </ul>	<ul style="list-style-type: none"> <li>- Modified RTL without errors</li> </ul>	2
To analyze and fix RTL checker (Spyglass)	<ul style="list-style-type: none"> <li>- Modified RTL file</li> <li>- Spyglass document</li> <li>- Spyglass environment</li> </ul>	<ul style="list-style-type: none"> <li>- Run spyglass.</li> <li>- Check spyglass log file and analysis each warning/error</li> <li>- Fix warning/error and run spyglass again to confirm</li> <li>- Check the result</li> </ul>	<ul style="list-style-type: none"> <li>- Spyglass log file</li> <li>- Spyglass Error explanation (document)</li> <li>- Final RTL</li> </ul>	2
To create top level netlist	<ul style="list-style-type: none"> <li>- Modified RTL/IO</li> <li>- Synthesis env.</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze synthesis environment and make document to explain about synthesis constrain.</li> <li>- Run synthesis.</li> <li>- Analyze synthesis result, solve timing violation and checker error</li> <li>- Confirm result with mentor</li> </ul>	<ul style="list-style-type: none"> <li>- Synthesis constrain explanation.</li> <li>- Chip top netlist.</li> <li>- Checker error explanation &amp; confirmation (document)</li> </ul>	2
To create timing budget	<ul style="list-style-type: none"> <li>- Original IO file</li> <li>- IO timing budget constrain of project.</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze original IO file and timing constrain of project.</li> <li>- Modified timing budget of module IO file.</li> <li>- Review result with mentor</li> </ul>	<ul style="list-style-type: none"> <li>- New IO timing budget for module</li> </ul>	2

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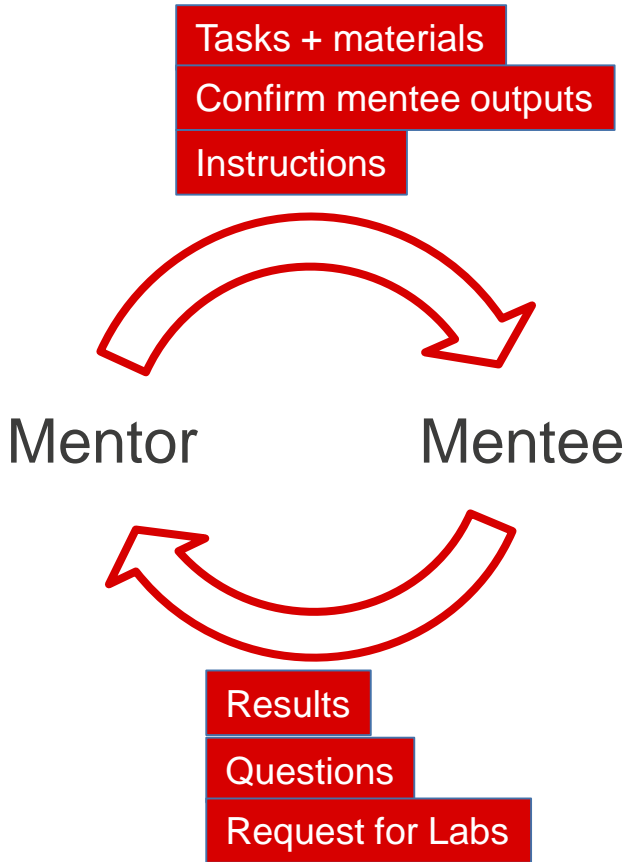
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Skill	Input	Action	Output	Target Level
To create functional/logic specifications for chip design	<ul style="list-style-type: none"> <li>- Module design requirement</li> <li>- Module hardware manual</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze design requirement and module hardware manual</li> <li>- Make the schematic to explain the connection between in-charged module and other modules</li> <li>- Confirm result with mentor</li> </ul>	<ul style="list-style-type: none"> <li>- Connection schematic between module with others in whole chip</li> </ul>	2
To create module design specifications	<ul style="list-style-type: none"> <li>- Required specification</li> <li>- Module hardware manual</li> <li>- Reference output from project</li> <li>- Guideline</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze module design requirement, module hardware manual</li> <li>- Make design specification</li> <li>- Confirm with mentor</li> </ul>	<ul style="list-style-type: none"> <li>- Design specification</li> <li>- Interface specification</li> </ul>	2
To create LSI functional description at behavior level	<ul style="list-style-type: none"> <li>- Design document</li> <li>- Original IO</li> <li>- Module hardware manual</li> </ul>	<ul style="list-style-type: none"> <li>- Investigate module hardware manual and design document.</li> <li>- Change module IO file.</li> </ul>	<ul style="list-style-type: none"> <li>- Modified IO</li> <li>- Behavior description</li> </ul>	2
To create RTL description	<ul style="list-style-type: none"> <li>- Modification specification</li> <li>- Legacy design (RTL)</li> </ul>	<ul style="list-style-type: none"> <li>- Make RTL description</li> <li>- Code review and design review with mentor</li> </ul>	<ul style="list-style-type: none"> <li>- Modified RTL without errors</li> </ul>	2
To analyze and fix RTL checker (Spyglass)	<ul style="list-style-type: none"> <li>- Modified RTL file</li> <li>- Spyglass document</li> <li>- Spyglass environment</li> </ul>	<ul style="list-style-type: none"> <li>- Run spyglass.</li> <li>- Check spyglass log file and analysis each warning/error</li> <li>- Fix warning/error and run spyglass again to confirm</li> <li>- Check the result</li> </ul>	<ul style="list-style-type: none"> <li>- Spyglass log file</li> <li>- Spyglass Error explanation (document)</li> <li>- Final RTL</li> </ul>	2
To create top level netlist	<ul style="list-style-type: none"> <li>- Modified RTL/IO</li> <li>- Synthesis env.</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze synthesis environment and make document to explain about synthesis constrain.</li> <li>- Run synthesis.</li> <li>- Analyze synthesis result, solve timing violation and checker error</li> <li>- Confirm result with mentor</li> </ul>	<ul style="list-style-type: none"> <li>- Synthesis constrain explanation.</li> <li>- Chip top netlist.</li> <li>- Checker error explanation &amp; confirmation (document)</li> </ul>	2
To create timing budget	<ul style="list-style-type: none"> <li>- Original IO file</li> <li>- IO timing budget constrain of project.</li> </ul>	<ul style="list-style-type: none"> <li>- Analyze original IO file and timing constrain of project.</li> <li>- Modified timing budget of module IO file.</li> <li>- Review result with mentor</li> </ul>	<ul style="list-style-type: none"> <li>- New IO timing budget for module</li> </ul>	2

# MENTOR – MENTEE INTERACTION



Convention		
Discussion channel	Email (Q&A, Weekly report)	
	Direct contact at desk	
	Meeting	
Review	6-month review	<ul style="list-style-type: none"><li>- Evaluate the result, compare with training plan target</li><li>- Propose the next activities for the next 6-month</li></ul>
	3-month review	<ul style="list-style-type: none"><li>- Check the progress of training</li><li>- Check whether the results are mapped with training plan</li><li>- Propose the next activities to reach the 6-month target</li></ul>
	Monthly	<ul style="list-style-type: none"><li>- Summarize the results of tasks</li></ul>
	Weekly	<ul style="list-style-type: none"><li>- Review the task process</li></ul>



**THANK YOU FOR YOUR ATTENTION**  
**Q&A**