GUJARAT TECHNOLOGICAL UNIVERSITY

Syllabus for Bachelor of Vocation (B.Voc), 6th Semester
Branch: Sowtware Development
Subject Name: On-Job Training (Elective): Hardware Engineer
Subject Code: 1160208

Type of course: On-Job Training (Elective)

Prerequisite: Infrastructure Engineer

Rationale:- On-job training, also known as OJT, is a hands-on method of teaching the skills, knowledge, and competencies needed for students to perform a specific task within the workplace. Students learn in an environment where they will need to practice the knowledge and skills obtained during their training.

Teaching and Examination Scheme:

Teaching Scheme			Credit	Examination Marks				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE (E)	PA(M)	ESE (V)	PA(I)	
0	0	15	15	0	0	100	100	200

L- Lectures; T- Tutorial/Teacher Guided Student Activity; P- Practical; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment

OJT Hands on Exercise/Training:

Sr. No.	Training / Hands on Exercise	Hrs.
1	**Design electronic circuits** PC1. establish your role and responsibilities in designing electronic circuits PC2. establish design requirements and constraints PC3. identify any issues with design requirements or constraints and clarify these with appropriate people PC4. access reusable components, relevant best practices and design standards from your organization's knowledge base PC5. use standard tools to simulate, analyze and synthesize design options for electronic circuits PC6. select design options that comply with design requirements and constraints PC7. review design options with appropriate people and =incorporate their inputs PC8. document designs using standard templates and tools PC9. update your organization's knowledge base with new designs PC10. obtain advice and guidance on designing electronic circuits from appropriate people, where required PC11. comply with your organization's policies, procedures and guidelines when designing electronic circuits PC12. understand the firmware, load and use it	35
2	**Design electronic logic** PC1. Establish your role and responsibilities in designing electronic logic PC2. Establish design requirements and constraints PC3. Identify any issues with design requirements or constraints and clarify these with appropriate people PC4. Access reusable components, relevant best practices and design standards from your organization's knowledge base PC5. Use standard tools to simulate, analyze and synthesize design options for electronic logic PC6. Select design options that comply with design requirements and constraints PC7. Review design options with appropriate people and incorporate their inputs	30

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With effective from academic year 2018-19

	PC8. Document designs using standard templates and tools PC9. Update your organization's knowledge base with new designs PC10. Obtain advice and guidance on designing electronic logic from appropriate people, where required PC11. comply with your organization's policies, procedures and guidelines when designing electronic logic	
3	**Design firmware** PC1. Establish your role and responsibilities in designing firmware PC2. Establish firmware requirements and constraints PC3. Identify any issues with firmware requirements or constraints and clarify these with appropriate people PC4. Access reusable components, relevant best practices and design standards from your organization's knowledge base PC5. Create design options that comply with firmware requirements and constraints PC6. Review design options with appropriate people and incorporate their inputs PC7. Document designs using standard templates and tools PC8. Update your organization's knowledge base with new designs PC9. Obtain advice and guidance on designing firmware from appropriate people, where required PC10. comply with your organization's policies, procedures and guidelines when designing firmware	30
4	**Design printed circuit boards (PCBs)** PC1. Establish your role and responsibilities in designing PCBs PC2. Establish design requirements and constraints PC3. Identify any issues with design requirements or constraints and clarify these with appropriate people PC4. Access reusable components, relevant best practices and design standards from your organization's knowledge base PC5. Use standard tools to simulate, analyze and synthesize design options for PCBs PC6. Select design options that comply with design requirements and constraints PC7. Review design options with appropriate people and incorporate their inputs PC8. Document designs using standard templates and tools PC9. Update your organization's knowledge base with new designs PC10. Obtain advice and guidance on designing PCBs from appropriate people, where required PC11. comply with your organization's policies, procedures and guidelines when designing PCBs	30
5	**Validate electronic designs** PC1. Establish clearly your role and responsibilities within Design Validation Testing (DVT) plans PC2. Identify any issues in DVT plans and clarify these with appropriate people PC3. Carry out tests as per DVT plans using standard validation tools and probes PC4. Record testing processes and results accurately using standard tools and templates PC5. Analyze test results, where you are competent and required to do so PC6. Present test results clearly to appropriate people, using standard tools and templates PC7. Obtain feedback from appropriate people to finalize designs PC8. Communicate test results and required changes clearly to the design team	30

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	PC9. Obtain advice and guidance on validating electronic designs from appropriate people, where required PC10. comply with your organization's policies, standards, procedures and guidelines when validating electronic designs	
6	**Create documents for knowledge sharing** PC1. Establish with appropriate people the purpose, scope, formats and target audience for the documents PC2. Access existing documents, language standards, templates and documentation tools from your organization's knowledge base PC3. Liaise with appropriate people to obtain and verify the information required for the documents PC4. Confirm the content and structure of the documents with appropriate people PC5. Create documents using standard templates and agreed language standards PC6. Review documents with appropriate people and incorporate their inputs PC7. Submit documents for approval by appropriate people PC8. Publish documents in agreed formats PC9. Update your organization's knowledge base with the documents PC10. comply with your organization's policies, procedures and guidelines when creating documents for knowledge sharing	20
7	**Manage your work to meet requirements** PC1. establish and agree your work requirements with appropriate people PC2. keep your immediate work area clean and tidy PC3. utilize your time effectively PC4. use resources correctly and efficiently PC5. treat confidential information correctly PC6. work in line with your organization's policies and procedures PC7. work within the limits of your job role PC8. obtain guidance from appropriate people, where necessary PC9. ensure your work meets the agreed requirements	5
8	**Work effectively with colleagues** PC1. Communicate with colleagues clearly, concisely and accurately PC2. Work with colleagues to integrate your work effectively with them PC3. Pass on essential information to colleagues in line with organizational requirements PC4. work in ways that show respect for colleagues PC5. carry out commitments you have made to colleagues PC6. let colleagues know in good time if you cannot carry out your commitments, explaining the reasons PC7. identify any problems you have working with colleagues and take the initiative to solve these problems PC8. follow the organization's policies and procedures for working with colleagues PC9. provide complete, accurate and up-to-date data/information to the appropriate people in the required formats on time	5
9	**Maintain a healthy, safe and secure working environment** PC1. comply with your organization's current health, safety and security policies and procedures PC2. report any identified breaches in health, safety, and security policies and procedures to the designated person PC3. identify and correct any hazards that you can deal with safely, competently and	5

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	within the limits of your authority PC4. report any hazards that you are not competent to deal with to the relevant person in line with organizational procedures and warn other people who may be affected PC5. Follow your organization's emergency procedures promptly, calmly, and efficiently PC6. identify and recommend opportunities for improving health, safety, and security to the designated person PC7. complete any health and safety records legibly and accurately	
10	**Provide data/information in standard formats** PC1. Establish and agree with appropriate people the data/information you need to provide, the formats in which you need to provide it, and when you need to provide it PC2. obtain the data/information from reliable sources PC3. check that the data/information is accurate, complete and up-to-date PC4. obtain advice or guidance from appropriate people where there are problems with the data/information PC5. carry out rule-based analysis of the data/information, if required PC6. insert the data/information into the agreed formats PC7. check the accuracy of your work, involving colleagues where required PC8. report any unresolved anomalies in the data/information to appropriate people PC9. provide complete, accurate and up-to-date data/information to the appropriate people in the required formats on time	5
11	**Develop your knowledge, skills and competence** PC1. obtain advice and guidance from appropriate people to develop your knowledge, skills and competence PC2. identify accurately the knowledge and skills you need for your job role PC3. identify accurately your current level of knowledge, skills and competence and any learning and development needs PC4. agree with appropriate people a plan of learning and development activities to address your learning needs PC5. undertake learning and development activities in line with your plan PC6. apply your new knowledge and skills in the workplace, under supervision PC7. obtain feedback from appropriate people on your knowledge and skills and how effectively you apply them PC8. review your knowledge, skills and competence regularly and take appropriate action	5
	Total	**200**

Reference:

1. https://pursuiteproduction.s3.amazonaws.com/media/qp_attachments/QP__ERD__Hardware_Engineer_1.0_2018_Q4701.pdf