GUJARAT TECHNOLOGICAL UNIVERSITY

**Syllabus for Bachelor of Vocation (B.Voc), 4ᵗʰ Semester
Branch: Software Development
Subject Name: Software Engineer
Subject Code: 21140207**

With effective from academic year 2022-23

Type of course: On-Job Training (Elective)

Prerequisite: NA

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE (E)	PA (M)	ESE (V)	PA (I)	
-	-	15	15	-	-	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.	Content	Total Hrs.	% Weightage
1	**Contribute to the design of embedded software modules** PC1. establish your role and responsibilities in contributing to the design of embeddedsoftware modules PC2. establish clearly module requirements and constraints PC3. identify any issues with module requirements or constraints and clarify these withappropriate people PC4. access reusable components, relevant best practices and design standards from yourorganization's knowledge base PC5. create design options that comply with module 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 embedded software modules fromappropriate people, where required PC10. comply with your organization's policies, procedures and guidelines when contributing to the design of embedded software modules	50	20
2	**Develop software code and to specification** PC1. check your understanding of the Business Requirements Specification (BRS), Software Requirements Specification (SRS), High Level Design (HLD) and Low Level Design (LLD) with appropriate people PC2. access reusable components, code generation tools and unit testing tools from yourorganization's knowledge base PC3. convert technical specifications into code to meet the equirements, leveragingreusable components, where available PC4. create appropriate unit test cases (UTCs) PC5. review codes and UTCs with appropriate people PC6. execute UTCs and document results	50	20

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	PC7. rework the code and UTCs to fix identified defects PC8. analyze inputs from appropriate people to inform future designs PC9. record corrective actions for identified defects to inform future designs PC10. submit tested code for approval by appropriate people PC11. update your organization's knowledge base with your experiences of the codedeveloped PC12. comply with your organization's policies, procedures and guidelines whendeveloping software code to specification		
3	**Create documents for knowledge sharing** PC1. establish with appropriate people the purpose, scope, formats and target audiencefor the documents PC2. access existing documents, language standards, templates and documentation toolsfrom your organization's knowledge base PC3. liaise with appropriate people to obtain and verify the information required for thedocuments 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 whencreating documents for knowledge sharing	50	10
4	**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	10	10
5	**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 tosolve these problems	10	10

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	PC8. follow the organization's policies and procedures for working with colleagues PC9. provide complete, accurate and up-to-date data/information to the appropriatepeople in the required formats on time		
6	**Maintain a healthy, safe and secure working environment** PC1. comply with your organization's current health, safety and security policies andprocedures PC2. report any identified breaches in health, safety, and security policies andprocedures to the designated person PC3. identify and correct any hazards that you can deal with safely, competently and 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	10
7	**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 withthe 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 appropriatepeople in the required formats on time	10	10
8	**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 anylearning and development needs PC4. agree with appropriate people a plan of learning and development activities toaddress 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 howeffectively you apply them	10	10

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	PC8. review your knowledge, skills and competence regularly and take appropriateaction		
	Total	**200**	**100**

Course Outcomes:

Sr. No.	CO Statement	Marks % Weightage
CO-1	Understand basics of Software Engineering	30
CO-2	Contribute to the design of embedded software modules	20
CO-3	To understand and develop software code	30
CO-4	To understand and develop SRS and software	20

Reference:
https://nsdcindia.org/sites/default/files/QP_SSC-Q4601_Software-Engineer.pdf