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| Ramaiah Skill Academy | | | | | | |
| Program | VLSI SOC Design | | | | Embedded System Design | |
| Batch | Goodwill | | | | Course Start Date | 16/10/2024 |
| Assignment No. | 1 | | Assignment Submission Date: | | | 20/10/2024 |
| Trainee Name |  | | | | | |
| Register No. |  | Email-Id | |  | | |
| Program Leader(s) |  | | | | | |

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| Provide details of team members if assignment work is done by a team | | |
| Register No. | Name of the Trainee | Email -ID |
| VLSI06 | Chandan B K | Chaithra7204@gmail.com |
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| To Be Filled by the Faculty Members | | | | | |
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| Sections | Marking Scheme | | | `Marks | |
| Max | Examiner |
| Part-A | A.1 | Introduction to the Problem Statement | |  |  |
| A.2 | Envisaged Outcomes | |  |  |
| A.3 | Relevance of the Problem | |  |  |
| Sub-Total | | |  |  |
| **Part-B** | B.1 | Proposed Solution / Approach -1 | |  |  |
| B.2 | Proposed Solution / Approach -2 | |  |  |
| B.3 | Proposed Solution / Approach -3 | |  |  |
| Sub-Total | | |  |  |
| Part-C | C.1 | | Description of work done in the identified paper/article |  |  |
| C.2 | | Merits and methods of work done in the identified paper |  |  |
| C.3 | | Gaps or limitations of the work and methodology in the identified paper |  |  |
| C.4 | | Possible solutions to overcome gaps in the work done |  |  |
| C.5 | | Relationship of work done to the problem statement |  |  |
| C.6 | | Adoption of work done to solve problem statement |  |  |
| C.7 | | Novelty and Difference in developed solution as compared to work done in identified paper |  |  |
| Sub-Total | | |  |  |
| Part -D | C.1 | Methods and Methodology/process adopted for solving the problem | |  |  |
| C.2 | Algorithms, Hardware and Software models developed | |  |  |
| C.3 | Testing and Evaluation | |  |  |
| C.4 | Results obtained and inferences drawn | |  |  |
| C.1 | Importance and Social Relevance of the work done | |  |  |
|  | **Sub-Total** | |  |  |

| Sections | Marking Scheme | | `Marks | |
| --- | --- | --- | --- | --- |
| Max | Examiner |
| Part-E | E.1 | Justification of the solution methodology, |  |  |
| E.2 | Justification of the algorithm and coding method used; results obtained |  |  |
| E.3 | Justification of hardware and software tools used solution obtained |  |  |
| Sub-Total | |  |  |
| **Part-F** | F.1 | Flow charts and Block Diagrams |  |  |
| F.2 | Pseudo Codes |  |  |
| F.3 | Graphs and Tables |  |  |
| F.4 | Any other relevant information |  |  |
| Sub-Total | |  |  |
| Grand Total | | |  |  |

**Please note:**

1. Documental evidence for all the components/parts of the assessment such as the reports, presentation slides, posters, laboratory exam tool tests, tutorials, case studies are required to be attached to the assignment report in proper order.
2. The marks for all the questions of the assignment have to be written only in the boxes provided in the table**.**

**Instructions to students:**

1. The assignment consists of 6 parts.
2. The assignment has to be neatly word-processed as per the prescribed format.
3. The maximum number of pages should be restricted as mentioned in each part of the assignment
4. Use only SI units.
5. **Submission Date:**
6. **Submission after the due date is not permitted.**
7. Method of evaluation as per the submission and marking scheme

**NOTE**: All the sources used in preparation for the assignment must be suitably referenced in the text.

#### ASSIGNMENT

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#### Part- A: Problem Statement

**Signal Generator and Visualizer (Python) Problem Statement:** **Team 4** Build a Python program that generates basic waveforms (sine, square, and triangular) and plots them using Matplotlib. Users should be able to control parameters like frequency, amplitude, and phase.

**Tasks to Collaborate on:**

Team 1: Implement waveform generation logic Team 2: Develop the plotting and visualization module Team 3: Create the README and a user guide with example inputs Outcome: An easy-to-use signal generator hosted on GitHub, demonstrating teamwork and programming skills

#### Part- B: Proposed Solution XXX Marks

In the context of the description provided in part-A, write a short note on the proposed solution. It is encouraged to incorporate more than two possible solutions or approaches for the problem defined. The description should be less than 300 words and not have any block diagrams or flow charts.

#### Part- C: Nearest Neighborhood Paper XXX Marks

It is required to identify similar solutions already published in journal papers, white papers, product documents and other sources. Referring to patent documents is recommended.

1. Write a note on existing work reported in the paper that you have identified.
2. Briefly describe the merits and methods.
3. Highlight the gaps or limitations of the work and methodology.
4. Write a brief note on the possible solutions to overcome the gaps in the reference.
5. Report on how this work can be related to your problem statement.
6. What is the major understanding from this reference that you have adopted to solve the problem statement?
7. How is the proposed solution different from the method reported in the reference paper?

Complete this part in less than 1000 words. Do not include any figures in this section.

**Part- D: Nearest Neighborhood Paper XXX Marks**

List the activities carried out to solve the problem like methods, algorithms, coding methodology or process, hardware or software models developed, test vectors for evaluation, results obtained and its inferences, importance of this work, social relevance, use of this work as a module in a bigger project, use of this solution for many other applications and novel methods. All points should be in bullet form.

**Part- E Design Your Evaluation XXX Marks**

Write in less than 300 words highlighting why this solution is the best by justifying the results obtained, methodology used, design of algorithm, coding method used, hardware and software resources required to complete the task and applications.

**Part- F Visual Elements XXX Marks**

Include all the diagrams (flow chart, block diagram, pseudo code, graphs, tables, or any other relevant information other than texts). Each of the articles here needs to have a title and a short description (of less than 3 sentences).

#### Guidelines for Submission

* ***Citation of the references in the text is necessary in all parts.***
* ***Restrict your report to the number of pages indicated in each part of the assignment***
* ***All other relevant information required for submission of assignment need to be uploaded in the GitHub repository for evaluation. The details provided here should not be part of any repository.***
* ***Please note: Marks will be awarded only to the sections and sub-sections clearly indicated as per the problem statement.***
* ***A presentation on the assignment should be given to the Examiner in RSA format only.***

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