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| **Course Name:** | **Microprocessors and Peripherals (2UXC404)** | **Semester:** | **IV** |
| **Date of Performance:** | 1-04-2021 | **Batch No:** | B2 |
| **Faculty Name:** | KCS | **Roll No:** | 1912052 |
| **Faculty Sign & Date:** |  | **Grade/Marks:** | \_\_\_/25 |

**Experiment No: 5**

**Title:** Proigrammable Delays

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| **Aim and Objective of the Experiment:** |
| **Aim:** Write an 8086 based ALP to   1. Generate delay with software instructions using intrasegment and intersegment procedures   Case study: Display two strings on monitor wth a delay of 100ms using near and far procedures.  **Objectives:**   1. To study far and near call techniques in programming of 8086 2. To study procedures and macros 3. To study timing calculations of instructions 4. To study DOS interrupts   This experiment covers   * + - 1. Data transfer instructions       2. DOS interrupts for displaying strings and characters on monitor.       3. Delay calculations |

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| **COs to be achieved:** |
| **CO 2.** Develop 8086 based assembly language programs for various applications. |

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| **Useful links** |
| NASM Assembler  <https://www.tutorialspoint.com/compile_assembly_online.php>  Simulator/Emulator:  <https://emu8086-microprocessor-emulator.en.softonic.com/download>  DOSBox x86 emulator  <https://sourceforge.net/projects/dosbox/>  MASM/TASM assembler |

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| **Work to be done** |
| 1. Upload image of handwritten algorithm/flowchart and lst file of the program and output screenshots . Also upload results for post lab questions.   data segment  msg1 db "Name",'$'  msg2 db 09,"Vedant",10,13,'$'  data ends  stack segment  dw 100 dup(0)  stack\_top label word  stack ends  code segment  assume sc:code, ds:data, ss:stack  start:mov ax,data  mov ds,ax  all:mov ah,09  lea dx,msg1  int 21h  call delay    mov ah,09  lea dx,msg2  int 21h  call delay    jmp all    delay proc near  mov bx,0fh  repeat:mov cx,0fH  back:loop back  dec bx  jnz repeat  ret  delay endp    mov ah,4ch  int 21h  code ends  end start |

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| **Post Lab Subjective/Objective type Questions:** |
| Q1. Write an 8086 based ALP to display character ‘A’ to ‘Z’ on the screen. Use macro.  code segment  assume cs:code, ds:data, ss:stack  mov ah,02h  mov cx,26  mov dl,41h  back:  int 21h  inc dl  loop back  mov ah,4ch  int 21h  code ends    Q2. What is the maximum delay that can be achieved using 16 bit register,Show calculations    Q3. What are limitations of software time delays?  Here are a couple of drawbacks of using delay :   * Inaccuracy * Unable to multitask |

**Conclusion:** Display two strings on monitor wth a delay of 100ms using emu 8086.

**Signature of faculty in-charge with Date:**