A logo for a university

Description automatically generated**East West University**

**Lab Report**

**Semester:** Fall-2024

**Course Title:** Electronic Circuits **Course Code:** CSE251 **Sec:** 03

**Expt No**: 06

**Expt Name:** Single Integration Using 741 Op Amp

**Group No:** 07

**Submitted by-**

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Id: 2022-3-60-109

**Submitted to-**

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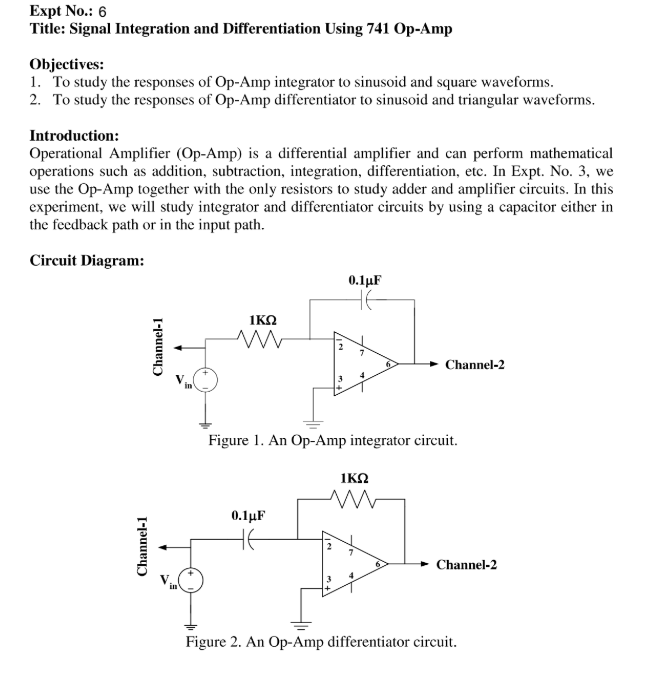
**Date of Performance:** 02-01-2025

**Date of Submission:** 16-01-2025

**Objectives:**

1. To study the responses of Op-Amp integrator to sinusoid and square waveforms

**Circuit Diagram:**

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**Answer to the Pre-Lab Questions:**

Here Given,

Vin​=Vp​sin(ωt)

R= 1kΩ = 1000Ω,

C= 0.1µF = 0.1×10−6 F

**So,** Vout​(t) = − ​∫Vin​(t)dt

= − ​∫ Vp​sin(ωt) dt

= − ​(−cos(ωt))

Vout​(t) = ​(cos(ωt))

Since ω=2πf, we rewrite:

Vout​(t) = ​(cos(2ft))

Again, the given output amplitude is 2Vp

So, Aout =

or, 2Vp =

or , =2

or, ω =

or, f =

f = = 795.77 Hz

|  |  |  |
| --- | --- | --- |
| Type of wave | Amplitude | Phase Difference |
| Sine Wave | Channer 1: 2.24 V  Channer 2: 2.16 V | 210 µs |
| Square wave | Channer 1: 2.01 V  Channer 2: 2.16 V | 450 µs |

**The input and output waveforms in voltage and time:**

A screen with a blue and yellow graph

Description automatically generatedA computer monitor with a blue screen

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**Answer to the Post-Lab Questions:**

Here , Vp = 2V, R = 1kΩ , C= 0.1 µF

But our measured value of R = 0.98 kΩ

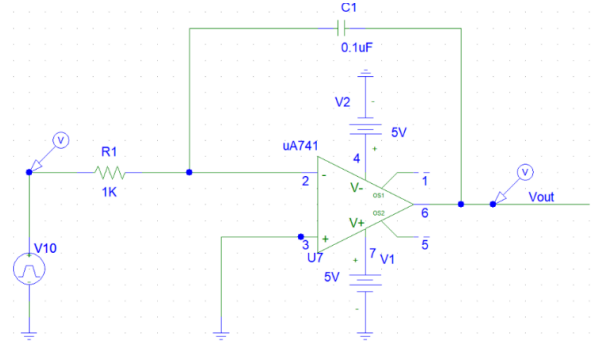
1. Vout​(t) = ​(cos(2ft))

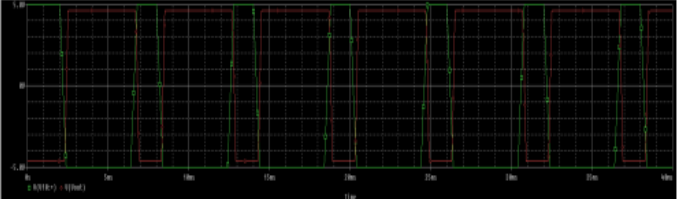
= ​(cos(2 x 795.77 t))

= 4.32 cos (2π×795.77×t) V

1. Vout = 2 x Vp

= 2 x 2.16





**Discussion:**

