**Faculty Member: Date:** .

**Semester: Section:** .

**EE-351 Communication Systems**

**Lab 12: AMPLITUDE AND FREQUENCY SHIFT KEYING MODULATION**

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|  |  | **PLO4-CLO4** | | **PLO5-CLO5** | **PLO8-CLO6** | **PLO9-CLO7** |
| **Name** | **Reg. No** | **Viva / Quiz / Lab Performance** | **Analysis of data in Lab Report** | **Modern Tool Usage** | **Ethics and Safety** | **Individual and Team Work** |
|  |  | **5 Marks** | **5 Marks** | **5 Marks** | **5 Marks** | **5 Marks** |
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**Lab 12: AMPLITUDE AND FREQUENCY SHIFT KEYING MODULTION (OPEN ENDED LAB)**

**Objectives**

To Understand the concept of Amplitude and Frequency Shift Keying Modulation with the help of **Simulink**.

**Lab Instructions**

* The students should perform and demonstrate each lab task separately for stepwise evaluation
* Each group shall submit lab report on LMS within 6 days after lab is conducted. Lab report submitted via email will not be graded.
* Students are however encouraged to practice on their own in spare time for enhancing their skills.
* Complete as many problems as you can within the allotted time.
* Talk to your classmates for help

**Lab Report Instructions**

All questions should be answered precisely to get maximum credit. Lab report must ensure following items:

* Lab objective
* Results (screen shots) duly commented and discussed.
* Conclusion

**Introduction:**

**Amplitude Shift Keying Modulation:**

Amplitude Shift keying is a type of Amplitude Modulation which represents the binary data in the form of variations in the amplitude of signal. The ASK modulator block diagram comprises of the carrier signal generator, the binary sequence from the message signal and the band limited filter.

**Frequency Shift Keying Modulation:**

Frequency-shift keying (FSK) is a [frequency modulation](https://en.wikipedia.org/wiki/Frequency_modulation) scheme in which digital information is encoded on a [carrier signal](https://en.wikipedia.org/wiki/Carrier_signal) by periodically shifting the [frequency](https://en.wikipedia.org/wiki/Frequency) of the carrier between several discrete frequencies.

**Questions:**

* **Define and differentiate the Digital Modulation Techniques & Analog Modulation techniques?**
* **What are the main building blocks to generate ASK?**

**Tasks**

* **Generate ASK wave with message as pulse signal using bernouli binary generator and carrier as sin signal with frequency =2\*pi\*4 and Amplitude =1 using SIMULINK.**

**Whereas:**

**sample time=0.01**

* **Demodulate the above generated ASK signal with sign block using SIMULINK.**
* **Generate FSK wave with message as pulse signal using bernouli binary generator and carrier1 as sin signal with frequency =2\*pi\*4 and Amplitude =1 and carrier2 as sin signal with frequency =2\*pi\*12 and Amplitude =1 using SIMULINK.**

**Whereas**

**Threshold of switch: 0.5**

* **Demodulate the above FSK signal using Simulink**
* **Sample time:0**

**Where parameters of charge pump PLL are:**

**Numerator: [2\*pi\*1]**

**Denominator: [1 2\*pi\*1]**

**VCO senstivity: 4**

**Frequency: 10**