

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
(AUTONOMOUS)

**B.Tech. IV Year I Semester Regular & Supplementary Examinations October/November-2025**

**FIRE & SAFETY ENGINEERING**

Open Elective (OE) – III

**Time: 3 Hours**

**Max. Marks: 60**

(Answer all Five Units 5 x 12 = 60 Marks)

**UNIT-I**

- 1 a Discuss the role of public fire brigades in India and the scope of enhancing their role. CO1 L2 6M

- b What are the sources of fire statistics in India? CO1 L1 6M

**OR**

- 2 a Differentiate between piloted ignition and spontaneous ignition. CO1 L2 6M

- b Classify types of fuels and explain in detail about stages of fire. CO1 L2 6M

**UNIT-II**

- 3 a Define Heat of formation, Heat of reaction & Heat of combustion. CO2 L1 6M

- b Explain the working of gear pump with neat sketch. CO2 L2 6M

**OR**

- 4 a How the heat transformation occurs? Explain their modes. CO2 L2 6M

- b Write a note on heat transfer and heat flux. CO2 L3 6M

**UNIT-III**

- 5 a Name the different standards which prescribe time temperature curve in different countries. CO3 L3 6M

- b Explain the purpose of compartmentation in a building. How can the aim of compartmentation be defeated. CO3 L3 6M

**OR**

- 6 a Discuss the methods followed for fire protection and list the principle of passive fire protection methodology. CO3 L2 6M

- b What is the need for fire testing and what is the testing for resistance to fire? CO3 L2 6M

**UNIT-IV**

- 7 a Estimate the factors to be considered for the selection of fire detectors? CO4 L4 6M

- b Determine the purpose of ionization type fire detectors and explain their working? CO4 L3 6M

**OR**

- 8 a What are basic needs for fire detection and alarm system? CO4 L1 6M

- b Illustrate the purpose of fire alarm system in a building. CO4 L2 6M

**UNIT-V**

- 9 a What are the important characteristics of a fire fighting foams? How are they important in effective fire fighting. CO5 L2 6M

- b What is the need of draining out fire water? CO5 L2 6M

**OR**

- 10 a Describe about water mist system to extinguish fire. CO5 L2 6M

- b Explain about carbon dioxide flooding systems to extinguish fire. CO5 L1 6M

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