1. Children at night may wake up and need light in their bedroom. Many parents find the need for a night lamp. However to leave a night lamp on throughout the night will consume electrical energy or quickly deplete its batteries. It will be convenient for parents to have an electronic system which switches on a night lamp that can be easily activated by the child and stays on for a period of time. The system should be activated when the child's hand approaches a light sensor. You are to produce this electronic system.

2. A health and safety company needs a new system for a fire alarm for public buildings. The fire alarm is activated by both a heat and light sensor. This will turn on the siren and flash lights for people with hearing impairment. You are to produce a model of the system with flashing lights and one sound device.

3. A toy company would like to produce a new puzzle game. The puzzle will include an electronic system which switches on flashing lights and a moving gadget for a short period when all pieces are in place. You are asked to produce a model of this system.
Food situations 2015

1. Schools have constantly worked to improve the level of education and over the years given importance to healthy aspects also. Schools can influence attitudes to food by providing students with healthy products in their tuck shop. A local food manufacturing company saw this as an opportunity to produce healthy innovative products and together with the school management decided to provide the school tuck shop with these healthy options. You are asked to take part in this process by preparing two prototype products; one savoury and one sweet.

2. Advertisements are a great influence on the food we choose to eat. Teenagers are becoming addict to promoted junk food. A food company wants to develop healthy fast food products. You are to take one of these popular unhealthy meals, analyse it and redesign it into a healthy alternative. Explain how your product will meet healthy eating guidelines.

3. The nutrients that are needed to keep ourselves fit and healthy vary throughout our life. During pregnancy, nutrients such as folate, calcium, iron, vitamin C and protein are very important because of the changes that take place in the body. Pregnant women should eat nutrient dense food. As a designer you are asked to produce a healthy meal which can be manufactured in batches aimed for expecting working mothers to be eaten during lunch hour at their work place.
1. Maltese museums will be launching a pilot project to encourage more families to visit museums as a recreational outing. As part of this project, each museum will have a children’s corner with games and activities held in relation to the specific museum. One of these games shall involve two children playing some kind of mechanical game. Identify one particular museum in Malta or Gozo and produce such an interactive mechanical game related to the theme of the museum you have chosen.

2. Several local councils are operating differentiated waste collection in their villages. This procedure resulted in families having different bins for different types of waste. A local manufacturer has therefore decided to produce waste bins which contain five different compartments for different waste material, these being: general waste, paper, metal, plastic and glass. The bin should have one common lid which has to be pedal-operated. The user should be able to choose the compartment in which to throw the waste material. The bin has to be large enough to contain the recyclable waste of an average family for three days except for the general waste compartment which can be emptied daily. You are to limit the use of material and produce a model of the bin which is half the actual size.

3. A company producing bathroom accessories wants to invest in a new product aimed to promote personal care and hygiene with growing children. The accessory shall consist of a combined three-in-one product which includes:
   - a soap bar holder,
   - a shampoo bottle holder, and
   - a bath toy.

The toy can either be part of the whole holder or else a separate piece on its own. In the latter case, you still need to design the toy together with the accessory and leave adequate space for its storage. This accessory can either be fixed to the wall of the bathroom or placed on a shelf near the bath.
Textiles situations 2015

1. The use of tablet computers today is popular with people of all ages. During the winter months many use the tablet while in bed under a warm blanket to watch films, read or browse the internet. As a designer you are to create a pre-production tablet holder that will hold the tablet in an upright position when one is using the tablet while in bed. The tablet holder has to be soft but sturdy.

2. ‘Triple R’ is a new company that is going to invest in producing new bedroom accessories from old clothes. You are part of a team of designers that ‘Triple R’ has employed. You are to develop three different items and produce a sample of each.

3. A local company is investing in textile items for teenagers. The company’s market research team found out that in many teenagers’ rooms underwear and socks are dispersed all over the place. The manufacturer wants you to design a trendy innovative textile item that will help teenagers systematise their clothing.