Open Platforms and Advanced Manufacturing Technologies L1

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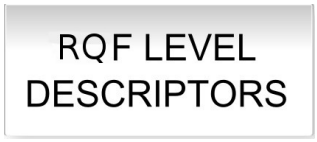

[3]

Level 1

Level 1, Unit 1 - The Understanding of Rocket Design and Manufacture (3 credits)

1. 1. Understanding the environment rockets work in and the materials used

1.1 I can list a number of materials used for rocket manufacture [4]

1.2 I can explain some of the material properties [7]

1.3 I can list the environmental issues that inform rocket manufacture [10]

1.4 I can explain how the environment affects design decisions [13]

1.5 I can explain my findings and thoughts to an audience for feedback [16]

2. 2. Testing and making a variety of rockets and exploring their construction

2.1 I can experiment with materials and make notes for manufacture [5]

2.2 I can test the aspects of materials for rocket making [8]

2.3 I can explain the properties of materials and relate these to the rocket's possible success [11]

2.4 I can test built rockets on simple flight tasks [14]

2.5 I can summarise my findings in a clear way [17]

3. 3. Investigating uses for rockets and materials

3.1 I can list the different ways rockets are currently used [6]

3.2 I can common on future uses for rocket technology [9]

3.3 I can explain new manufacturing tools and techniques used for rocket production [12]

3.4 I can explain the most suitable approaches to manufacturing I have discovered [15]

3.5 I can predict some developments in rocket manufacturing in the coming years [18]

Level 1, Unit 2 - The Understanding of Microsatellite Design and Manufacture (3 credits)

1. 1. Understanding why microsatellites are made and the manufacturing guidelines

1.1 I can list some of the current uses of microsatellites [20]

1.2 I can explain some of the dangers of microsatellites [23]

1.3 I can list the advances in manufacturing that have helped microsatellite production [26]

1.4 I can list the materials used in microsatellites [29]

1.5 I can comment on the suitability of manufacturing materials and processes [32]

2. 2. Designing, creating and testing a microsatellite

2.1 I can create some rough sketched designs of a new microsatellite [21]

2.2 I can label my designs for clarity and explain their purpose [24]

2.3 I can turn my sketches into digital images [27]

2.4 I can explain the equipment used in my design [30]

2.5 I can include the needs of a potential client in my designs [33]

3. 3. Explaining how and why my microsatellite will be used

3.1 I can list the main uses of microsatellites [22]

3.2 I can explain the data microsatellites can capture [25]

3.3 I can explain, with examples, the features of my microsatellite [28]

3.4 I can list the uses for my design [31]

3.5 I can explain to a potential client the purpose of my microsatellite design [34]

Level 1, Unit 3 - The Exploration of Robotics and Artificial Intelligence (3 credits)

1. 1. Understanding the different uses for robots and AI

1.1 I can list the different types of robot used by sector [36]

1.2 I can list the way AI is

2. 2. Testing different robot devices and AI systems

2.1 I can explain with an industry example how robots are controlled [37]

2.2 I can investigate some

3. 3. Exploring the future uses of robotics and AI and the impact on my world

3.1 I can make a prediction about the uses of robots in the future [38]

3.2 I can make a

used in different sectors [39]

1.3 I can explain the ways robots are controlled [42]

1.4 I can comment on some of the issues for society posed by robots and AI [45]

1.5 I can explain my concerns about robots and AI [48]

of the materials used in robot manufacture [40]

2.3 I can practice controlling a robot [43]

2.4 I can list how AI is used in key industries [46]

2.5 I can test the AI functions of a common system [49]

prediction about the use of AI in the future [41]

3.3 I can explain how robots and AI might affect my future [44]

3.4 I can discuss ways that robots and AI will help the world [47]

3.5 I can discuss the ways robots and AI might harm the world [50]

Level 1, Unit 4 - Working with and Understanding Unmanned Vehicles (3 credits)

1. 1. Understanding the range of unmanned vehicles

1.1 I can list a variety of unmanned vehicles [52]

1.2 I can list some of the uses for unmanned vehicles [55]

1.3 I can explain some of the uses of unmanned vehicles [58]

1.4 I can explain some of the limitations of unmanned vehicles [61]

1.5 I can explain some future uses of unmanned vehicles [64]

2. 2. Testing and evaluating unmanned vehicles for particular uses

2.1 I can list materials used in unmanned vehicles [53]

2.2 I can explain the choice of materials used in unmanned vehicles [56]

2.3 I can test the basic functions of an unmanned vehicle [59]

2.4 I can explain the limitations of unmanned vehicles I have found [62]

2.5 I can explain the impact of unmanned vehicles on general manufacturing processes [65]

3. 3. Exploring the use of unmanned vehicles and their future uses

3.1 I can comment on the need for unmanned vehicles [54]

3.2 I can explain the issues surrounding unmanned vehicles [57]

3.3 I can list the benefits of unmanned vehicles [60]

3.4 I can explain the dangers of unmanned vehicles [63]

3.5 I can present my findings on the future of unmanned vehicles [66]

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