Open Systems and Advanced Manufacturing Technologies L1



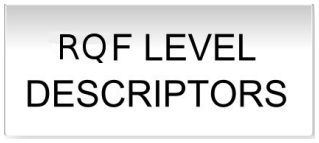
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Level 1

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]

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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

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used in different sectors [39]	of the materials used in robot manufacture [40]	prediction about the use of AI in the future [41]
1.3 I can explain the ways robots are controlled [42]	2.3 I can practice controlling a robot [43]	3.3 I can explain how robots and AI might affect my future [44]
1.4 I can comment on some of the issues for society posed by robots and AI [45]	2.4 I can list how AI is used in key industries [46]	3.4 I can discuss ways that robots and AI will help the world [47]
1.5 I can explain my concerns about robots and AI [48]	2.5 I can test the AI functions of a common system [49]	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	2. 2. Testing and evaluating unmanned vehicles for particular uses	3. 3. Exploring the use of unmanned vehicles and their future uses
1.1 I can list a variety of unmanned vehicles [52]	2.1 I can list materials used in unmanned vehicles [53]	3.1 I can comment on the need for unmanned vehicles [54]
1.2 I can list some of the uses for unmanned vehicles [55]	2.2 I can explain the choice of materials used in unmanned vehicles [56]	3.2 I can explain the issues surrounding unmanned vehicles [57]
1.3 I can explain some of the uses of unmanned vehicles [58]	2.3 I can test the basic functions of an unmanned vehicle [59]	3.3 I can list the benefits of unmanned vehicles [60]
1.4 I can explain some of the limitations of unmanned vehicles [61]	2.4 I can explain the limitations of unmanned vehicles I have found [62]	3.4 I can explain the dangers of unmanned vehicles [63]
1.5 I can explain some future uses of unmanned vehicles [64]	2.5 I can explain the impact of unmanned vehicles on general manufacturing processes [65]	3.5 I can present my findings on the future of unmanned vehicles [66]

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[3] https://theingots.org/community/RQF_Levels
[4] https://theingots.org/community/osamtl1u1x#1.1
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[66] https://theingots.org/community/osamtl1u4x#3.5
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