**­­Ormiston Park Academy Curriculum Map (Yrs 7-11) Updated September 2019 Department: DESIGN AND TECHNOLOGY Curriculum Leader: C BERRY**

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| --- | --- | --- | --- | --- | --- | --- |
|  | HT1 | HT2 | HT3 | HT4 | HT5 | HT6 |
| **Year 11****2020** | Key Content: Revision: Exam 28th November 2019 AM* 1.2 – The Health and Safety Legislation Governing Engineering
* 1.1 – Engineering Discipline through Projects and Products
* 2.1 – Application of SI Units of Measurements
* 2.2 – Equations used to Describe and Calculate Energy, Forces and Motion, Electrical, Geometry
* 3.1 – Reading Engineering Drawings
* 4.1 – Properties and Characteristics of Materials

Homework:* Engineering Workbook
* Exam Practice
 | Key Content: Revision: Exam 28th November 2019 AM* 5.1 – Tools, Equipment and Machines
* 5.2 – Safe and Correct Use

Synopsis preparation and introduction* 1.1 – Engineering Drawings – Hand drawn
* 2.1 – Engineering Drawings – CAD

Homework:* Engineering Workbook
* Exam Practice
 | Key Content: Externally Set Synopsis – Deadline for completion 13th March 2020* 1.1 – Engineering Drawings – Hand drawn
* 2.1 – Engineering Drawings – CAD
* 3.1 – Production Planning
* 4.1 – Skills and Techniques
* 4.2 – Safe and Correct Use of Tools, Equipment and Machines

Resit Revision (If needed): Exam Date 19th March 2020* 1.2 – The Health and Safety Legislation Governing Engineering
* 1.1 – Engineering Discipline through Projects and Products
* 2.1 – Application of SI Units of Measurements
* 2.2 – Equations used to Describe and Calculate Energy, Forces and Motion, Electrical, Geometry
* 3.1 – Reading Engineering Drawings
* 4.1 – Properties and Characteristics of Materials
* 5.1 – Tools, Equipment and Machines
* 5.2 – Safe and Correct Use

Homework:* Engineering Workbook
* Exam Practice
* Synopsis
 | Key Content:Externally Set Synopsis – Deadline for completion 13th March 2020* 4.1 – Skills and Techniques
* 4.2 – Safe and Correct Use of Tools, Equipment and Machines

Resit Revision (If needed): Exam Date 19th March 2020* 1.2 – The Health and Safety Legislation Governing Engineering
* 1.1 – Engineering Discipline through Projects and Products
* 2.1 – Application of SI Units of Measurements
* 2.2 – Equations used to Describe and Calculate Energy, Forces and Motion, Electrical, Geometry
* 3.1 – Reading Engineering Drawings
* 4.1 – Properties and Characteristics of Materials
* 5.1 – Tools, Equipment and Machines

5.2 – Safe and Correct UseHomework:* Engineering Workbook
* Exam Practice
* Synopsis
 | Key Content: Externally Set Synopsis – Deadline for completion TBC* 1.1 – Engineering Drawings – Hand drawn
* 2.1 – Engineering Drawings – CAD
* 3.1 – Production Planning
* 4.1 – Skills and Techniques
* 4.2 – Safe and Correct Use of Tools, Equipment and Machines

Homework:* Synopsis
 | Key Content:  |
| **Assessment Opportunities** | Mock Paper 1 | Mock Paper 2 | Mock Paper 1Synopsis assessment criteria | Mock Paper 2Synopsis assessment criteria | Synopsis assessment criteria |  |
|  | Key Skills: * Key Terminology
* Research and Analysis
* Exam skills and terms
 | Key Skills: * Hand tools and manufacturing processes
* Precision and accuracy
* Analysis and working to a criteria
* Exam skills and terms
 | Key Skills: * Hand tools and manufacturing processes
* Precision and accuracy
* Analysis and working to a criteria
* Exam skills and terms
 | Key Skills: * Hand tools and manufacturing processes
* Precision and accuracy
* Analysis and working to a criteria
* Exam skills and terms
 | Key Skills: * Hand tools and manufacturing processes
* Precision and accuracy
* Analysis and working to a criteria
 |  |
| Y**ear 10****2021**Switch to NCFE Technical Award EngineeringNovember 2018 | Key Content:* The Health and Safety Legislation Governing Engineering
* Application of SI Units of Measurements
* Engineering Discipline through Projects and Products
	+ Aerospace Engineering
	+ Communications Engineering
	+ Chemical Engineering
	+ Civil engineering
	+ Automotive Engineering
	+ Biomedical Engineering
	+ Software Engineering

Homework:* Engineering Workbook
* Exam Practice
 | Key Content: * Equations used to Describe and Calculate Energy, Forces and Motion, Electrical, Geometry
* Reading Engineering Drawings
* Properties and Characteristics of Materials
	+ Properties in all sectors
	+ Characteristics – Aesthetics and Environmental impact
	+ Materials – Metals, Polymers, Woods (recap) Ceramics Composites
* Material investigation

Revision and exam preparation:* The Health and Safety Legislation Governing Engineering
* Engineering Discipline through Projects and Products
* Application of SI Units of Measurements

Homework:* Engineering Workbook
* Exam Practice
 | Key Content: Properties and Characteristics of Materials:* Properties in all sectors
* Characteristics – Aesthetics and Environmental impact
* Materials – Metals, Polymers, Woods (recap) Ceramics Composites

Safe and Correct Uses:* Quality Control
* Quality Assurance

Tools, Equipment and Machines:* Introduction to the workshop practices for engineering

Revision and exam preparation::* Application of SI Units of Measurement
* Equations – Energy, Force, and Motion & Electrical and Geometric
* Health and Safety Act

Homework:* Engineering Workbook
* Exam Practice
 | Key Content: Synopsis preparation* 1.1 – Engineering Drawings – Hand drawn

2.1 – Engineering Drawings – CADRevision and exam preparation::* 1.2 – The Health and Safety Legislation Governing Engineering
* 1.1 – Engineering Discipline through Projects and Products
* 2.1 – Application of SI Units of Measurements

Homework:* Engineering Workbook
* Exam Practice
 | Key Content:* Mock Synopsis Task – Crane Task
	+ 1.1 – Engineering Drawings – Hand drawn
	+ 2.1 – Engineering Drawings – CAD
	+ 3.1 – Production Planning
	+ 4.1 – Skills and Techniques
	+ 4.2 – Safe and Correct Use of Tools, Equipment and Machines

Revision and exam preparation:* 4.1 – Properties and Characteristics of Materials
* 5.1 – Tools, Equipment and Machines
* 5.2 – Safe and Correct Use

Homework:* Engineering Workbook
* Exam Practice
 | Key Content:* Mock Synopsis Task – Crane Task
	+ 1.1 – Engineering Drawings – Hand drawn
	+ 2.1 – Engineering Drawings – CAD
	+ 3.1 – Production Planning
	+ 4.1 – Skills and Techniques
	+ 4.2 – Safe and Correct Use of Tools, Equipment and Machines

Homework:* Engineering Workbook
* Exam Practice
 |
| **Assessment Opportunities** | End of Half Term Assessment | Mock Paper 1 | End of Half Term Assessment | Mock Paper 2Synopsis assessment criteria | End of Half Term AssessmentSynopsis assessment criteria | Mock Paper 3Synopsis assessment criteria |
|  | Key Skills: * CAD/CAM – further skills
* Hand tools and manufacturing processes
* Precision and accuracy
* Researching
* Analysis and
* working to a criteria
 | Key Skills: * Hand tools and manufacturing processes
* Precision and accuracy
* Researching
* Analysis and working to a criteria
* Understanding mechanisms
* Understanding types of mechanisms
 | Key Skills: * Hand tools and manufacturing processes – Soldering
* Use of CAD/CAM
* Precision and accuracy
* Researching
* Testing and Evaluating
* Exams skills
 | Key Skills: * Exam skills and terms
* Product Analysis
* Design and development
* Hand tools and manufacturing processes
* Precision and accuracy
* Researching
* Analysis and working to a criteria
* Use of CAD/CAM
 | Key Skills: * Exam skills and terms
* Understanding of CAD/CAM
* Product Analysis
* Design and development
* Hand tools and manufacturing processes
* Precision and accuracy
* Researching
* Analysis and working to a criteria
 | Key Skills: * Exam skills and terms
* Understanding of CAD/CAM
* Product Analysis
* Design and development
* Hand tools and manufacturing processes
* Precision and accuracy
* Researching
* Analysis and working to a criteria
 |
| Year 92022 | Key Content:* Brand Identity – Coca Cola (modelling)

Homework:* Health and Safety Quiz
* Keywords Spellings
 | Key Content: * Brand Identity – Coca Cola (modelling)

Homework:* Investigate and analyse the work of past and present design – Exam Style Questioning
* Keywords Spellings/Definitions
 | Key Content: Material Properties task - Polymers* CAD/CAM – Headphone wraps and product prototyping

Introduction to Engineering:* Electronics and Electrical engineering
* Aerospace Engineering
* Communications Engineering
* Chemical Engineering
* Sustainability
* Renewable Energy

Homework:* Engineering Case studies
 |
| **Assessment Opportunities** | End of Project Assessment | End of Term Assessment | End of Rotation Test |
|  | Key Skills: * CAD/CAM – further skills
* Hand tools and manufacturing processes
* Precision and accuracy
* Researching
* Analysis and
* working to a criteria
 | Key Skills: * Hand tools and manufacturing processes
* Precision and accuracy
* Researching
* Analysis and working to a criteria
* Understanding mechanisms
* Understanding types of mechanisms
 | Key Skills: * Hand tools and manufacturing processes – Soldering
* Use of CAD/CAM
* Precision and accuracy
* Researching
* Testing and Evaluating
* Exams skills
 |
| Year 82023 | Key Content: * Mechanisms, Cams and Levers – Pin Ball Toy

Homework:* Health and Safety Quiz
* Keywords Spellings
 | Key Content: * Mechanisms, Cams and Levers – Pin Ball Toy

Homework:* Investigate and analyse the work of past and present design – Exam Style Questioning
* Keywords Spellings/Definitions
 |  Content: * Mechanisms, Cams and Levers – Pin Ball Toy

Homework:* Investigate and analyse the work of past and present design – Exam Style Questioning
* Keywords Spellings/Definitions
 |
| **Assessment Opportunities** | End of Health and Safety Assessment | End of Project Assessment | End of Rotation Test |
|  | Key Skills: * Understanding of Mechanisms and Cams
* Research and analysis
* Design development
* Rendering and annotation
* Hand Tools – Coping saw, tenon saw, try square, drills
* Marking and measuring
 | Key Skills: * Understanding of Mechanisms and Cams
* Research and analysis
* Design development
* Rendering and annotation
* Hand Tools – Coping saw, tenon saw, try square, drills
* Marking and measuring
 | Key Skills: * Understanding of CAD
* Understanding of CAM
* Design development
* Rendering and annotation
* Materials processes – Vacuum Former
* Modelling/mould making
 |
| Year 72024 | Key Content: * Introduction to the workshop
* Baseline Assessment – Bird Memo Stands

Homework:* Health and Safety Quiz
* Keywords Spellings
 | Key Content: * Baseline Assessment – Bird Memo Stands
* Textiles - Monsters

Homework:* Investigate and analyse the work of past and present design – Exam Style Questioning
* Keywords Spellings/Definitions
 | Key Content: * Textiles - Monsters

Homework:* Investigate and analyse the work of past and present design – Exam Style Questioning
* Keywords Spellings/Definitions
 |
| **Assessment Opportunities** | End of Project Assessment | End of Project Assessment | End of Rotation Test |
|  | Key Skills: * Designing with simple annotations and introduction to rendering
* Cutting and shaping – coping saw
* Product finishes – smoothing and understanding of sand paper grading
* Drilling – hand drill
 | Key Skills: * Extended annotations with justifications
* Rendering skills
* Cutting and shaping – coping saw, tenon saw, and fret saw
* Product finishes – smoothing and quality of finish
* Understanding of Lamination
 | Key Skills: * Development of finishing techniques
* Colour theory
* Annotation and analysis skills
* Cutting and drilling – Pillar drill, Tenon saw, Coping saw, and fret saw
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