

IGCSE – The British School Kathmandu. 2 Year Curriculum overview

Year 10 Term 1 Aug-Oct	Year 10 Term 2 Oct-Dec	Year 10 Term 3 Jan-April	Year 10 Term 4 April-July	Year 11 Term 1&2 Aug-Dec	Year 11 Term 3 Jan-April
Component 1 - Core Theory aligned with practical support	Component 1 - Core Theory aligned with practical support	Component 1 - Materials Category aligned with practical support	Component 1 - Materials Category aligned with practical support	Component 2 - Contextual Challenge	Component 2 - Contextual Challenge
<p>Practical outcome:</p> <p>Students will work to design and make a lamp. During this process they will learn about CAD/CAM both 2D and 3D. They will also learn how to use hand tools correctly and independently. Students will be taught correct and accurate drawing techniques and learn how to present their work properly in an online portfolio.</p> <p>Communication: Isometric drawing Orthographic projection Sectional views</p> <p>THEORY AND KNOWLEDGE</p> <p>The impact of new and emerging technologies. <i>What students need to learn:</i> To apply a breadth of technical knowledge and understanding of the characteristics, advantages and disadvantages of the following in relation to new and emerging technologies.</p> <p>How the critical evaluation of new and emerging technologies informs design decisions; considering contemporary and potential future scenarios from different perspectives, such as ethics and the environment <i>What students need to learn:</i> To recognise the importance of the evaluative process and respective criteria when considering the impact of new and emerging technologies to a range of scenarios.</p> <p>The categorisation of the types, properties and structure of timbers and boards</p>	<p>Practical outcome continued from Term 1.</p> <p>All design and technological practice takes place within contexts which inform outcomes <i>What students need to learn:</i> Performance characteristics of a wide range of materials, components and manufacturing processes, in order to be able to discriminate between them and select appropriately.</p> <p>Communication: 1 and 2 point perspective Exploded views Thick and thin lines</p> <p>Investigate environmental, social and economic challenges when identifying opportunities and constraints that influence the processes of designing and making <i>What students need to learn:</i> Implications for designers and manufacturers of the following when developing designs and manufacturing products</p> <p>Investigate and analyse the work of past and present professionals and companies in order to inform design <i>What students need to learn:</i> Strategies, techniques and approaches employed when investigating and analysing the work of others.</p> <p>Use different design strategies to generate initial ideas and avoid design fixation. <i>What students need to learn:</i> Techniques employed when communicating and recording design ideas.</p>	<p>Windmill skills project. Students will make a windmill as an assessment of their skills. They will follow instructions and learn the processes of each of the machines. They will also be able to read engineering drawings and instructions in order to produce a working prototype.</p> <ul style="list-style-type: none"> - Line bending - Scroll saw - 3D printer - Laser cutter - Wood lathe - Hand tools - Soldering - Belt sander <p>Communication: Planometric and oblique Scaling images</p> <p>The sources, origins, physical and working properties of papers and boards and their social and ecological footprint. <i>What students need to learn:</i> To apply knowledge and understanding of the advantages, disadvantages and applications of the following materials, in order to be able to discriminate between them and select appropriately.</p> <p>The way in which the selection of papers and boards is influenced <i>What students need to learn:</i> The influence of Aesthetic factors Environmental factors Availability factors, cost factors, social factors, cultural and ethical factors, forces and stresses, reinforcement/stiffening techniques, stock forms/types, sizes.</p>	<p>Students will begin their IGCSE design and make project. Starting with:</p> <ul style="list-style-type: none"> - Investigation of needs and research - Product specification <p>Students will sit a mock exam to assess their learning so far on the course. This will mirror the exam they will sit the following June.</p> <p>Communication: Rendering Signs and symbols Lettering</p>	<p>Design ideas Review of initial ideas Development of design ideas into a chosen design Communication of design ideas Review of chosen design</p> <p>Students will also further learn drawing techniques in preparation for the exam alongside graphics theory.</p> <p>Appropriate surface treatments and finishes that can be applied to papers and boards for functional and aesthetic purposes <i>What students need to learn:</i> Application, advantages and disadvantages of the following finishing techniques and methods of preservation, in order to be able to discriminate between them and select appropriately for use.</p> <p>Specialist techniques, tools, equipment and processes that can be used to shape, fabricate, construct and assemble a high-quality paper and board prototype. <i>What students need to learn:</i> Application, advantages and disadvantages, of the following specialist techniques when manufacturing products, in order to be able to discriminate between them and select appropriately for use.</p>	<p>Manufacture Evaluation</p> <p>Revision of theory in preparation for forthcoming GCSE Examination.</p>

<p>Plywood MDF Hardwoods and softwoods</p> <p>The categorisation of the types, properties and structure of papers and boards</p> <p>Box board Grey board Foam board Corrugated cardboard (coreflute)</p>	<p>Develop, communicate, record and justify design ideas, applying suitable techniques.</p> <p><i>What students need to learn:</i> Develop and use a range of communication techniques and media to present the design ideas</p>	<p>Stock forms, types and sizes in order to calculate and determine the quantity of papers and boards required</p> <p><i>What students need to learn:</i> To apply knowledge and understanding of the advantages, disadvantages and applications of the different forms/sizes of materials, in order to be able to discriminate between them and select appropriately.</p> <p>Alternative processes that can be used to manufacture paper and board products to different scales of production.</p> <p><i>What students need to learn:</i> Application, advantages and disadvantages, of the following processes, scales of production and techniques when manufacturing products, in order to be able to discriminate between them and select appropriately for use.</p>			
<p>COMMUNICATION SKILLS</p> <p>Onshape, illustrator and CAM applications in order to produce effective engineering drawings, laser cutting files and 3D printed parts.</p>	<p>Sketching and drawing skills Techniques employed to transfer images. Scale, shading and developing a detailed and well proportioned 3D image</p>	<p>Perspective drawing - single and two point perspective. Creating rounded surfaces in perspective, arcs and circles. Orthographic Drawing First and Third Angle Projection techniques.</p>		<p>Isometric drawing and the use of grid paper to form basic shapes and images. Data collection and graphic representation</p>	<p>Presentation and organisation skills - portfolio layout</p>
<p>MANUFACTURING SKILLS</p> <p>Fundamental marking out and measuring skills and the manufacture of a animal themed lamp. Using CAD/CAM to cut out and model parts.</p>	<p>Forming and shaping of materials in regard to product design. The versatility of plastics and their usefulness</p>	<p>Net developments and model making using board and card. Properties of materials</p>	<p>CAD/CAM application and workshop practise. The application and advantages of technology in designing and making.</p>	<p>Material testing/properties of materials, joining and shaping methods. Finishing styles and techniques.</p>	
<p>The theory content is supported by a range of practical activities that help to reinforce the knowledge and skills required to follow Component 2 - Contextual Challenge</p>					
<p>Assessment Opportunities: All work assessed against Assessment Objectives CAIE Level 2 IGCSE Design and Technology 0445 Theoretical content assessed through formative and summative methods</p> <p>Observational drawing Accuracy and measurement Mathematical skills Rendering techniques Manufacturing Design Form and function</p>	<p>Assessment Opportunities: All work assessed against Assessment Objectives CAIE Level 2 IGCSE Design and Technology 0445 Theoretical content assessed through formative and summative methods</p> <p>Craftsmanship Use of materials Understanding of process Use of tools and machinery Research Drawing technique Design ideas and development</p>	<p>Assessment Opportunities: All work assessed against Assessment Objectives CAIE Level 2 IGCSE Design and Technology 0445 Theoretical content assessed through formative and summative methods</p> <p>Development of practical knowledge Understanding the properties of materials Material selection Conceptual knowledge Spatial awareness Modification</p>	<p>Assessment Opportunities: All work assessed against Assessment Objectives CAIE Level 2 IGCSE Design and Technology 0445 Theoretical content assessed through formative and summative methods</p> <p><i>Y10 Mock (May/June) including assessment of theory paper and Mini Contextual Challenge</i></p> <p>Skills in the use of technology Developing appropriate solutions</p>	<p>Assessment Opportunities: All work assessed against Assessment Objectives CAIE Level 2 IGCSE Design and Technology 0445 Theoretical content assessed through formative and summative methods</p> <p>Assessment of Contextual Challenge Reference to the Non Examined Assessment Criteria, levels, grades and descriptors provided by Pearson</p> <p>Graphical communication skills Drawing technique</p>	<p>Assessment Opportunities: All work assessed against Assessment Objectives CAIE Level 2 IGCSE Design and Technology 0445 Theoretical content assessed through formative and summative methods</p> <p>Assessment of Contextual Challenge Reference to the Non Examined Assessment Criteria, levels, grades and descriptors provided by Pearson</p>

