Design, Technology and Engineering (from 2020)

The new Design, Technology and Engineering subjects will replace the Stage 1 and Stage 2 Design and Technology subjects from 2020.

Design, Technology and Engineering is organised into four contexts: digital communication solutions, industry and entrepreneurial solutions, material solutions and robotic and electronic systems.

The contexts provide opportunities to develop design thinking, to investigate engineering solutions, to develop a plan, realise the solution and evaluate the outcome. The context is chosen by the school to meet student needs and interests, taking into account the resources available.

Each of these contexts: digital communication solutions, industry and entrepreneurial solutions, material solutions and robotic and electronic systems provides a separate enrolment option for students.

Stage 1

In Stage 1 students use the design and realisation process. They learn to create a design brief that provides the basis for the development of potential solutions to design problems and review design features, processes, materials and production techniques to assist with the realisation of the solution.

A solution in this subject is an outcome of the design and realisation process in relation to the chosen context. A solution could be fully realised or a model, prototype, system, part, process (i.e. procedures to output a product) or product.

Students analyse influences on a product or system including ethical, legal, economic, and/or sustainability issues. They consider the practical implication of these issues on society or design solutions.

Students apply appropriate skills, processes, procedures and techniques whilst implementing safe work practices in the creation of the solution.

Digital Communication Solutions (1DCS10, 1DCS20)

This context involves using symbols, signs, speech, light, images, sound, or other data to design and make products that communicate information. Students produce outcomes that demonstrate the knowledge and skills associated with manipulation of digital communication media.

Industry and Entrepreneurial Design Solutions (1IES10, 1IES20)

This context involves the designing of solutions to meet industry requirements or to invent an entrepreneurial product that meets a need or solves a problem. This could be achieved using design programs, such as computer aided design, to develop prototypes or products. Students demonstrate knowledge and skills associated with systems, processes and materials appropriate for the prototype and final solution.

Material Solutions (1MRS10, 1MRS20)

This context involves the use of a diverse range of manufacturing technologies such as tools, machines, and/or systems to create a product using appropriate materials. Students produce outcomes that demonstrate the knowledge and skills associated with using systems, processes, and materials such as metals, plastics, wood, composites, ceramics, textiles, and foods.

Robotic and Electronic Systems (1RES10, 1RES20)

In this context, students can use a variety of hardware (components) which may be combined with software to design and realise a solution such as a device or system. Students produce outcomes that demonstrate the knowledge and skills associated with using electronic, mechatronic, electrical or pneumatic systems. These can include electronic components, circuit design and assembly, robotic components, programming, wiring, gears, simulation or systems integration.

Stage 2

In Stage 2 students use an iterative design process to explore possible solutions to a problem or opportunity. They investigate and analyse the purpose, design features, materials and production techniques used in diverse situations including industry, community and tertiary organisations. This information is used to create a design brief that provides the basis for the development of potential solutions. The importance of the design process as a preliminary to the realisation process is emphasised, as is ongoing evaluation of the solution and vice versa.

A solution in this subject is an outcome of the design and realisation process in relation to the chosen context. A solution could be fully realised or a model, prototype, system, part, process (i.e. procedures to output a product) or product.

Students analyse influences on a solution including ethical, legal, economic, and/or sustainability issues. They consider the practical implication of these issues on society or design solutions.

Students apply appropriate skills, processes, procedures and techniques whilst implementing safe work practices in the creation of the solution.

Digital Communication Solutions (2DCS20)

This context involves using symbols, signs, speech, light, images, sound, or other data to design and make products that communicate information. Students produce outcomes that demonstrate the knowledge and skills associated with manipulation of digital communication media.

Industry and Entrepreneurial Design Solutions (2IES20)

This context involves the designing of solutions to meet industry requirements or to invent an entrepreneurial product that meets a need or solves a problem. This could be achieved using design programs, such as computer aided design, to develop prototypes or products. Students demonstrate knowledge and skills associated with systems, processes and materials appropriate for the prototype and final solution.

Material Solutions (2MRS20)

This context involves the use of a diverse range of manufacturing technologies such as tools, machines, and/or systems to create a product using appropriate materials. Students produce outcomes that

demonstrate the knowledge and skills associated with using systems, processes, and materials such as metals, plastics, wood, composites, ceramics, textiles, and foods.

Robotic and Electronic Systems (2RES20)

In this context, students can use a variety of hardware (components) which may be combined with software to design and realise a solution such as a device or system. Students produce outcomes that demonstrate the knowledge and skills associated with using electronic, mechatronic, electrical or pneumatic systems. These can include electronic components, circuit design and assembly, robotic components, programming, wiring, gears, simulation or systems integration.

Precluded subjects for SACE completion

2DCS20 - Digital Communication Solutions	2CCA10 - Communication Products I 2CCA20 - Communication Products I 2CCB10 - Communication Products II 2CCB20 - Communication Products II 2CPA1 - Communication Products A 2CPA2 - Communication Products A 2CPB1 - Communication Products B 2CPB2 - Communication Products B
2IES20 - Industry and Entrepreneurial Solutions	No preclusions
2MRS20 - Material Solutions	2MMA10 - Material Products I 2MMA20 - Material Products I 2MMB10 - Material Products II 2MMB20 - Material Products II 2MDA1 - Material Products A 2MDA2 - Material Products A 2MDB1 - Material Products B 2MDB2 - Material Products B
2RES20 - Robotic and Electronic Systems	2SSA10 - Systems and Control Products I 2SSA20 - Systems and Control Products I 2SSB10 - Systems and Control Products II 2SSB20 - Systems and Control Products II 2SCA1 - Systems and Control Products A 2SCA2 - Systems and Control Products A 2SCB1 - Systems and Control Products B 2SCB2 - Systems and Control Products B

Tertiary Admissions Subjects status, precluded combinations, and counting restrictions for ATAR

The South Australian Tertiary Admissions Centre (SATAC) will notify schools about the Tertiary Admissions Subject (TAS) status, precluded combinations, and counting restrictions for the four Design, Technology and Engineering subjects in late June 2019. The information will also be available in the *SATAC Tertiary Entrance* booklet when it becomes available.