



Australian Government

Department of Education, Employment and Workplace Relations

AURB332301A Specify and select components for a custom bicycle

Release: 1

AURB332301A Specify and select components for a custom bicycle

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to calculate measurements and select bicycle components to meet the client's cycling requirements. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.
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Application of the Unit

Application of the unit	This unit applies to individuals who advise on the selection of stock bicycle frames and bicycle components to build a custom bicycle. It applies to individuals working in a bicycle retail, service and repair environment. Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.
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Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Gather information about the client	1.1. Check and confirm customer requirements, including price range and intended use of the unit 1.2. Assess physical attributes and riding style of customer by discussion, observation and measurements 1.3. Discuss features and benefits of various frame materials and designs with customer 1.4. Use sizing cycle, or other methods, to analyse optimum bicycle measurements and set-up
2. Select bicycle frame or specify measurements for custom frame	2.1. Identify suitable frame types and configurations to match customer requirements 2.2. Research bicycle design principles and check available custom builders, stock item suppliers and specifications 2.3. If stock frame preferred, check frame measurements and select frame to match rider's size and intended use 2.4. If custom frame preferred, calculate measurements and decide on frame material and build method
3. Select wheels or specify wheel building requirements	3.1. Determine wheel size to suit frame measurements 3.2. Identify rims, spokes and hub types to suit intended use of unit 3.3. Discuss features and benefits of various wheel designs and components with customer 3.4. Select stock wheels and components or calculate specifications and design for custom wheels
4. Select bicycle components	4.1. Research catalogues and suppliers of bicycle components and discuss options with customer 4.2. Select components to suit bicycle design and intended use within price range
5. Confirm details for custom bicycle	5.1. Specify custom paint requirements, if required 5.2. Prepare parts list and determine availability 5.3. Calculate and document costs and obtain customer approval
6. Prepare bicycle for delivery	6.1. Check the assembled custom bicycle for correct operation and specifications 6.2. Make adjustments, if required, and prepare unit for delivery to the customer

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to safely use bicycle fitting equipment, perform tests and to fit and adjust bicycle components
- communication skills to the level required to confirm work requirements and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to report work outcomes and problems, and to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities
- literacy skills to the level required to research information related to bicycle design and components and interpret technical information and specifications
- numeracy skills to the level required to correctly complete tests and measurements, calculate ratios and interpret specifications
- problem-solving skills to the level required to apply bicycle design principles and measurements to specify and select suitable components for a custom bicycle
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- bicycle classification and terminology
- application of mechanical principles
- biomechanical principles of cycling
- design requirements of bicycle frames and wheels
- classification and identification of bicycle frames, wheels and components
- purpose and relationships of bicycle frames, wheels, suspension, drivetrain and steering systems
- material used in bicycle frames, wheels and components
- manufacturer and/or component supplier specifications
- testing procedures and adjustment methods
- tools and equipment used in bicycle adjustment
- Australian standards applicable to bicycles
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including occupational health and safety (OHS), personal safety

REQUIRED SKILLS AND KNOWLEDGE

- and environment, relevant to designing bicycles
- organisational policies and procedures, including quality requirements, reporting and recording procedures, and work organisation and planning processes, related to designing bicycles

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with customer to determine requirements • identify and assess variables that affect cycling comfort, stability, efficiency and aerodynamics • apply mechanical principles and measurements to select or design a bicycle frame to meet client and intended use requirements • select components to complement the bicycle design and to meet client and intended use requirements • check the custom bicycle operation, make adjustments and prepare for delivery to the customer.
Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment. • Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints. • Assessment is to comply with relevant regulatory requirements, including specified Australian standards. • Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability. • The following resources should be made available: • a range of bicycle frames and components • fitting equipment (e.g. sizing bicycle, video equipment and measuring equipment) • equipment and tools appropriate to adjusting bicycles • technical specifications and standards • workplace documentation.
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package.

EVIDENCE GUIDE	
	- Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. - Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. - Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. - Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. - Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Bicycles	Bicycles may include: mountain, road, hybrid, touring, BMX, track and trials models
Bicycle measurements	Bicycle measurements may include: - fork rake or offset - fork trail - head tube length and angle (steering axis) - wheelbase

RANGE STATEMENT	
	• front centre • bottom bracket drop • seat tube length and angle • top tube length • setback • stem length • saddle height
Client physical attributes	Client physical attributes to be considered may include: • height • body shape and weight distribution • length of arms and legs • fitness, injuries and style of cycling
Bicycle frames	Bicycle frames may include: • steel, lugged, brazed or welded • titanium • composite material • lugged, brazed or welded • carbon fibre • stock items or custom built
Bicycle components	Bicycle components may include: • wheels, rims, spokes and hubs • handlebars and headset • forks and suspension • saddle and seat post • cassette, chain rim, chain and crank • pedals • front and rear derailleur • bottom bracket • brake, brake lever and brake shift • racks, lights and other accessories
Information/documents	Information/documents may include: • hardcopy and electronic media • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches • safe work procedures related to designing

RANGE STATEMENT	
	bicycles • regulatory/legislative requirements pertaining to bicycle safety • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian standards
OHS requirements	OHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • OHS • the environment • equal opportunity • anti-discrimination • relevant industry codes of practice • duty of care
Environmental requirements	Environmental requirements may include: • waste management

RANGE STATEMENT	
	• noise • dust • clean-up management
Quality requirements	Quality requirements may include: • regulations, including Australian standards • internal organisational quality policies and procedures • enterprise operations and procedures
Organisational policies and procedures	Organisational policies and procedures may include: • quality policy and procedures, including Australian standards • OHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Bicycle
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Co-requisite units

Co-requisite units		

Competency field

Competency field	
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