

1. Module details

Module name

Level II Chainsaws for the Electrical Environment (Above Ground)

Module duration

It is expected that students with the appropriate entry knowledge and skills will successfully complete this module in 36 - 40 hours.

Module code

NUE266

Discipline code

0703130

2. Module purpose

The purpose of this module is to provide participants with the knowledge and skills to remove trees safely in proximity to powerlines
 By completing this module participants will be able to determine trees natural lean, remove obstructions within the fall zone, determine felling methods, access trees to install restraints, remove trees in a safe manner, and clear debris from felling site

3. Prerequisites

NBB002 Occupational Health and Safety.
 Common Compulsory Core (All modules)
 Introduction to Tree Climbing

4. Relationship to competency standards

NES101, NES450, NES604, RUH HRT209, RUH HRT223

5. Content

- Fall site topography and conditions**
- Preparation for removal operations, including drop zone clearance**
- Calculate trees dimensions**
- Install signage/barriers**
- Inspect and use personnel protective equipment**
- Clear felling in electrical environments**
- Tree rigging and restraint techniques.**
- Accessing trees**
- Felling trees under restraint**

Make felling cuts with chainsaws

Cut up and remove debris

Safe work practices

Note: Equipment may include: axe, wedges, hand or power winches, tools, chipper, WP, crane, climbing via rope harness and spurs, chainsaws, pulleys, low friction device, work ropes, blocks, ladders, hydraulic equipment.

Safety equipment will include: steel cap boots, cut resistant trousers/chaps, combination safety helmet, earmuffs and visor and high visibility vest

6. Assessment strategy

Assessment methods

More than one learning outcome may be assessed at once. If appropriate, learning outcomes in this module may be assessed in conjunction with learning outcomes in other modules

Skills based learning outcomes should be assessed by practical demonstration with oral or written evidence where underpinning knowledge is required

Learning outcomes which do not require practical demonstration should be assessed using oral and/or written evidence such as assignments, reports, exercises, projects or presentations

Conditions of assessment

Access to appropriate site, resources, materials and equipment. Assessment must be conducted with reference to Power Line Clearance Codes of Practice in the participants State/Territory. Learning outcomes may be assessed either on or off the job or in a simulated work environment

7. Learning outcome details

Learning outcome 1

Assessment criteria

Prepare the felling site.

- 1.1 Assess topography and site conditions including weather, site location, position and lean of trees in relation to electrical conductors and consult supervisor for final decision.
- 1.2 Identify electrical voltage.
- 1.3 Determine if shut down is required.
- 1.4 Determine direction of fall including determination of: weight bias; canopy distribution; degree of lean; tree defects; topography; site conditions.
- 1.5 Determine clearance zone using calculations based on given mathematical principles.
- 1.6 Determine safety margins by identifying wind speed and direction at time of felling.
- 1.7 Inspect area for obstacles.
- 1.8 Remove obstructions from drop zone.
- 1.9 Erect barricading and signage to ensure protection for workers, public and clients.

Learning outcome 2

Assessment criteria

Select chainsaw and demonstrate manipulation procedures for felling cuts.

- 2.1 Observe safe work practices specific to the task at all times.
- 2.2 Determine and establish simulated escape routes from felling area.
- 2.3 Inspect and use personal protective clothing and equipment.
- 2.4 Demonstrate correct stance for cutting both horizontal and vertical cuts.
- 2.5 Start stop chainsaw and demonstrate a range of felling cuts.

Learning outcome 3

Assessment criteria

- 2.6 Determine depth of scarf, width and holding wood and step for release cut.
- 2.7 Cut scarf in the correct location and direction.
- 2.8 Cut using the most efficient engine speed (rpms).
- 2.9 Cut scarf without over or under cut.
- 2.10 Install felling aids (wedges).

Fell/remove trees.

- 3.1 Select chainsaws and appropriate equipment for tree felling.
- 3.2 Observe safe work practices pertinent to tree felling at all times.
- 3.3 Inspect and use personnel protective equipment.
- 3.4 Clear and prepare an appropriate escape route at 45 degree diagonal away from proposed line of fall.
- 3.5 Check site is free of unauthorised personnel prior to felling and other personnel at safe working distances.
- 3.6 Consult with work team and supervisors for final decision on selected felling cuts.
- 3.7 Make an appropriate scarf, mark out holding wood and release cut pattern, level and depth in preparation for felling.
- 3.8 Install felling aids.
- 3.9 Fell tree in one piece, into the drop zone using a standard technique.
- 3.10 Proceed up established escape route.

Learning outcome 4

Assessment criteria

Climb trees using climbers (spurs).

- 4.1 Inspect trees position with respect to overhead conductors, consult supervisor if shutdown required.
- 4.2 Determine climbing path to appropriate anchor point.
- 4.3 Select, inspect climbing accessories and harness.
- 4.4 Inspect, fit and adjust climbing spurs.

Learning outcome 5

Assessment criteria

4.5 Demonstrate use of climbing spurs for ascending and descending trees for removal (climber must be attached at all times).

Apply and select restraint method for tree felling.

- 5.1 Identify with supervisor, restraint and access requirements for various tree in removal situations and access method.
- 5.2 Use and identify ropes, hitches, knots and accessories.
- 5.3 Inspect and select restraint devices.
- 5.4 Set up and access tree by EWP or climb tree using spurs.
- 5.5 Attach selected ropes to appropriate anchor point at least 2/3rd height of tree.
- 5.6 Select anchor point on ground assemble restraining devices and ropes and apply restraint via pulleys, winches, at a distance greater than height of tree.

Learning outcome 6

Assessment criteria

Fell/remove trees under restraint.

- 6.1 Prepare site for tree felling ensuring anchor points and rigging accessories are within safe work loads.
- 6.2 Select chainsaws and appropriate equipment for tree felling.
- 6.3 Observe safe work practices pertinent to tree felling at all times.
- 6.4 Inspect and use personnel protective equipment.
- 6.5 Clear and prepare an appropriate escape route at 45 degree diagonal away from proposed line of fall.
- 6.6 Select and mark out felling cuts.
- 6.7 Check all personnel are at safe working distances from felling area.
- 6.8 Install scarf cut.
- 6.9 Install felling/release cuts and felling aids whilst restraint is applied.
- 6.10 Proceed up established escape route.

6.11 Process worksite debris.

8. Delivery of the module

This module must be delivered sequentially in order to achieve learning outcomes. All or part of this module may be delivered through full or part time, on and off the job, and/or distance education modes. Practical components should be delivered in a way that ensures participant safety

Delivery methods must provide for the demonstration of skills and associated knowledge specified in all learning outcomes, either in work place or simulated work place conditions

Trainees are not expected to use chainsaws whilst climbing with spurs

Delivery should take into account current legislation, regulations and by-laws and be consistent with existing industry standards including Australian and International Standards

Delivery strategy

Experiential/action learning approach e.g. on the job simulation/on the job

Instructor guidance, demonstration and support one-to-one and group instruction

Site visits to a range of work environments for off the job delivery

Note: Practical components must be delivered under strict supervision to ensure participant safety

Resource requirements

Access to suitable sites, real and/or simulated, appropriate equipment including small chainsaw and tools, appropriate personal safety equipment and clothing.

Tree resources including use of logs and innovative ways of creating tree mass such as the attaching of pruned branches/leaders should be made available to provide participants with practice opportunities that support the conservation of trees within our environment.

Delivery of this module may be through flexible delivery, part time/full time and on the job/off the job

References

James, N: The Arboriculturalist's Companion A Guide to the Care of Trees. Basic Blackwell, London, UK, 1990

Lawrence, T. Norquay, P, & Liffman, K: Practical Tree Management An Arborists Handbook. Inkata Press, Melbourne, Vic, 1993

Royal Australian Institute: Trees: Management Issues for Urban Australia Parks and Recreation, Proceedings of the 1991 National Seminar, edited by A. Baird, Rapier, Canberra, ACT, 1991

Shigo, A: Tree Defects: A Photo Guide, Pa: US Department of Agriculture, Forest Services, Northeastern Forest Experiment Station, Broomall, 1983

Victoria Occupational Health and Safety Commission: Code of Practice: Safety in Forest Operations, Department of Labour, Melbourne, Vic, 1990

Video: Branching Out: An Introduction to Arboriculture Training and Safety Rpm Flix Richmond Vic 1990

Occupational health and safety requirements

The work practices must comply with code of practice, state Safety Requirements and federal occupational health and safety legislation