
TRINIDAD STATE COLLEGE

**TRAIL MANAGEMENT AND
CONSTRUCTION**

Spring 2022



**Prepared in association with the
Professional Trail Builders Association**



**Timberline
TrailCraft**



**Tony Boone
Trails**



Trail Management and Construction

Course of Study

Trinidad State Has developed a fully accredited course of study in trail building. TSC, working with industry partners, offers a rigorous curriculum covering all aspects of sustainable trail building and maintenance from initial concept to reclamation. The initial offering is a 24-credit-hour level one semester course (Appendix). This includes both classroom and hands-on field experiences. As noted in the Appendix, there may also be an opportunity to deliver some of the course work online or as a hybrid offering. While all of the courses have been approved and are accredited, the Certificate of Completion and the AAS degree in Trail Management and Construction are pending final approval from the Higher Learning Commission and the US Department of Education. In the meantime, all Trail Building courses apply toward an AAS degree in Applied Technology.

As a fully accredited member of the Colorado Community College System, Trinidad State is able to offer Financial Aid and VA benefits to eligible students, thus reducing the out of pocket expense of attending classes. Knowing that many trail building professionals may want to pursue this nationally recognized certificate, TSC has in place a Prior Learning Assessment (PLA) program whereby students may document appropriate work/life experiences that may be substituted for specific courses within the Trail Building Certificate program. For more information on PLA visit:
<https://internal.cccs.edu/academic-affairs/career-college-readiness/prior-learning-assessment/>

The Trinidad area offers a vast array of outdoor locations for the fieldwork components of the program. From the mountain trails in the San Isabel National Forest to the high desert trails of the Comanche National Grasslands, most environments of the North American West are available for our students to study and work in. In addition Trinidad is home to two Colorado State Parks, Trinidad Lake State Park and the new 19,000+ acre Fisher's Peak State Park.

TSC has drawn on subject matter experts among PTBA members and other industry partners to develop the curriculum for the Trail Management and Construction course of study. Currently we are forming a program advisory committee, made up of industry professionals, to assist in program development, including curriculum, marketing strategies, and identifying potential instructors.

Trinidad State looks forward to cementing its partnership with the Professional Trail Builders Association to establish the first nationally recognized Trail Management and Construction Certificate program. The PTBA/TSC Trail Building department will provide a rigorous course of training based on industry best practices as identified by PTBA, with courses to be taught in a standardized format and validated through written and performance testing. Leveraging the strengths of both organizations, the PTBA/TSC Trail Management and Construction school will become the “gold standard” in training for trail building professionals from around the globe.

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TRINIDAD STATE JUNIOR COLLEGE - Trail Management and Construction - 17 Credit Hours
Courses approved – Certificate pending approval

Approved Courses	Time Needed	Credit Hours	Delivery Mode
TMC 101 Introduction to Trails	30 Hours Lecture	2	Traditional, Online or Hybrid
Introduces sustainable trail concepts, including ways trails impact the landscape and ecology, land management and recreation, basic geography and maps, types of trails and trail users, basic sustainability concepts, and implementation of a new trail project			<ol style="list-style-type: none"> 1. Identify ways that trails fit into the landscape. 2. Describe how trails affect the ecology of the area. 3. Describe basic land management practices. 4. Discuss the role of recreation in the land management process. 5. Identify various geographic features and their implication for sustainable trails. 6. Locate common landforms represented on topographic maps. 7. Describe the common types of trails. 8. Discuss the diverse users of trail systems. 9. Identify basic sustainability concepts for trail systems. 10. Describe the basic implementation steps for a new trail building project.
TMC 103 Introduction to Trail Maintenance	30 Hours Lecture	2	Traditional or Hybrid
Introduces sustainable trail maintenance practices including evaluation of trail condition, coordinating with land managers; tool selection, use and maintenance, and personal and crew safety considerations. Developing maintenance plans and basic trail maintenance techniques are also covered in this course.			<ol style="list-style-type: none"> 1. Evaluate the overall condition of an existing trail segment. 2. Develop an improvement plan for an existing trail segment. 3. Discuss strategies for working with landowners and trail managers. 4. Demonstrate correct use of tools commonly used in trail maintenance. 5. Demonstrate proper maintenance of tools commonly used in trail maintenance. 6. Describe basic trail maintenance techniques. 7. Describe safety considerations for trail maintenance crews.
TMC 110 Planning Sustainable Trails I	30 Hours Lecture	2	Traditional or Hybrid
Covers sustainable trail planning considerations, including route planning, types of trails, an introduction to Geographic Information Systems (GIS) and map reading, mathematical calculations, accessibility requirements, and signage. The course also explores trail building opportunities and design constraints, and environmental impact considerations.			<ol style="list-style-type: none"> 1. Distinguish between the requirements for various trail types. 2. Perform a site evaluation for a proposed trail system. 3. Describe applications of GIS technology for Trail builders. 4. Develop a route plan for a proposed trail based on site evaluations. 5. Perform calculations related to trail route planning and construction. 6. Discuss possible environmental impacts of a proposed trail system. 7. Develop an accessibility plan for a proposed trail system. 8. Discuss the signage requirements of trail systems.

TMC112 Planning Sustainable Trails II	15 Hours Classroom 30 Hours Fieldwork	2	Traditional
Expands upon topics introduced in TMC 110 and introduces cost-estimating, bonding, permitting, and funding opportunities. This course also explores trail management and infrastructure needs.		<ol style="list-style-type: none"> 1. Prepare a cost-estimate for construction of a proposed trail segment. 2. Discuss permitting and licensing requirements for trail projects. 3. Identify funding opportunities for trail projects. 4. Develop trail management objectives for a proposed trail segment. 5. Identify environmental concerns for a proposed trail segment. 6. Discuss trailhead infrastructure requirements. 	
TMC 120 Designing Sustainable Trails I	15 Hours Classroom 30 Hours Fieldwork	2	Traditional or Possible Hybrid
Explores sustainable trail design considerations. Topics include safety and risk management, sustainability, control points, user experience, slopes, water control, environmental impact, basic surveying techniques, trail types, and trail standards and guidelines.		<ol style="list-style-type: none"> 1. Discuss safety and risk management strategies. 2. Describe best practices for sustainability. 3. Describe ways to optimize trail user experiences. 4. Discuss the use of control points to optimize trail alignment. 5. Examine the effects of slope on trail design. 6. Discuss water control techniques for trail design. 7. Prepare an environmental impact study for a proposed trail system. 8. Demonstrate basic surveying techniques. 9. Describe design requirements for the various types of trails. 10. Discuss established trail design standards and guidelines. 	
TMC122 Designing Sustainable Trails II	15 Hours Classroom 30 Hours Fieldwork	2	Traditional
Expands upon TMC120, exploring the diversity of trail users and examining trail design features to correctly address the needs of each group.		<ol style="list-style-type: none"> 1. Compare and contrast trail needs for diverse users. 2. Discuss sustainable trail design for diverse users. 3. Design a trail segment for a specific user group and difficulty level. 	
TMC 130 Trail Construction I	15 Hours Classroom 30 Hours Fieldwork	2	Traditional
Introduces sustainable trail building concepts, including safety, utilities location, tool usage and maintenance, soil types, mitigation of environmental impact, and basic first aid.		<ol style="list-style-type: none"> 1. Identify safe work practices for trail builders. 2. Describe procedures for utilities location. 3. Demonstrate correct use of tools commonly used in trail building. 4. Demonstrate maintenance procedures for trail building tools. 5. Demonstrate basic building techniques for sustainable trails. 6. Discuss considerations for hand building vs machine building trail construction methods. 7. Describe how different soil types affect the trail building process. 	

		8. Describe methods to mitigate the environmental impact of a trail construction project. 9. Demonstrate basic first aid practices.	
TMC 132 Trail Construction II	15 Hours Classroom 30 Hours Fieldwork	2	Traditional
Builds on sustainable trail building concepts including safety, removal of obstacles, water control elements, elevation change elements, control points, trail hardening, chainsaw safety, and risk management.		<ol style="list-style-type: none"> 1. Identify safe work practices for trail builders. 2. Describe procedures removing obstacles in trail building. 3. Discuss the benefits of various water control elements used in trail building. 4. Demonstrate construction of water control elements. 5. Describe commonly used elevation change elements. 6. Demonstrate construction of elevation change elements. 7. Discuss the construction of special features. 8. Describe trail hardening and armoring techniques. 9. Demonstrate the safe use of chainsaws. 10. Describe risk management strategies for trail construction. 	
TMC134 Sustainable Trail Construction III	15 Hours Classroom 30 Hours Fieldwork	2	Traditional
Continues the work of TMC 130 and 132, concentrating on challenging terrain, basic stonework, technical trail features, trail surfaces, and includes trail building machine basics.		<ol style="list-style-type: none"> 1. Discuss construction techniques for building in challenging terrain and environs. 2. Demonstrate basic stonework techniques. 3. Discuss the advantages and disadvantages of wooden trail features. 4. Describe common trail surfacing options. 5. Compare and contrast hand-built vs. machine-built trails. 6. Demonstrate the basic operation of trail building machines. 	
TMC152 Trail Rerouting, Reclamation, Closure, and Obliteration	15 Hours Classroom 30 Hours Fieldwork	2	Traditional
Provides an introduction to methods and concerns related to the reclamation and restoration of existing trails, structures and features. Also includes discussion of methods to monitor the success of reclamation projects.		<ol style="list-style-type: none"> 1. Discuss methods for restoring effective hydrology. 2. Identify erosion mitigation techniques for trail reclamation. 3. Develop a revegetation plan for a proposed trail obliteration project. 4. Describe methods to limit access to reclaimed areas. 5. Discuss ways to monitor the success of trail reclamation or closure efforts. 	
TMC 160 Trail Operations & Maintenance Planning	15 Hours Classroom 30 Hours Fieldwork	2	Traditional or Possible hybrid
Explores the various types of trail maintenance evaluation methods and the advantages and disadvantages of each.		<ol style="list-style-type: none"> 1. Discuss trail maintenance analysis and evaluation plans. 2. Explain best management practices for trails. 3. Develop a trail safety inspections checklist. 4. Perform trail safety inspections. 	

		<ul style="list-style-type: none"> 5. Perform trail structure safety inspections. 6. Perform trail bridge safety inspections. 7. Develop a trail maintenance log. 8. Develop a maintenance plan for an existing trail section. 9. Develop a risk management plan for a proposed trail. 10. Explain trail maintenance strategies to maintain accessibility. 11. Develop a trail signage maintenance check list. 	
TMC 238 Introduction to Mechanized Trail Construction	15 Hours Classroom 30 Hours Fieldwork	2	Traditional
Explores the use of trail dozers and mini excavators in trail building applications. This course includes managing environmental impacts and field operations.		<ul style="list-style-type: none"> 1. Describe the benefits of using trail dozers and mini excavators in trail construction. 2. Identify reasons to avoid the use of machinery in trail construction. 3. Demonstrate techniques to manage the environmental impacts of using machinery in trail building. 4. Develop a spill prevention plan for a proposed worksite. 5. Demonstrate the safe operation of a trail dozer. 6. Demonstrate the safe operation of a mini excavator. 	

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