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2nd Gear Locksmithing: ENHANCING YOUR JOURNEY

Course Duration: (3 Hours)

Section 1: Introduction to Key Cutting

- **What is Key Cutting?**
 - Definition and purpose of key cutting.
 - Importance of precision and accuracy.
 - **Types of Keys and Blanks**
 - Standard mechanical keys, high-security keys, laser-cut keys, dimple keys.
 - Identifying key blanks for different applications.
 - **Types of Key Cutting Machines**
 - Manual vs. automatic key cutting machines.
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Section 2: Understanding the Key Cutting Machine

- **Machine Components and Functions**
 - Key clamps, cutting wheel, guide, brush, calibration system.
 - **Safety Precautions**
 - Protective gear, handling sharp tools, maintaining a clean workspace.
 - **Basic Machine Setup**
 - Adjusting calibration.
 - Checking the cutting wheel and guide alignment.
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Section 3: Step-by-Step Key Cutting Process

(Live demonstration recommended for this section.)

A. Duplicating a Standard Key

1. Selecting the correct key blank.
2. Securing the original key and blank in the clamps.
3. Aligning the key with the cutting wheel.
4. Making the cut and smoothing rough edges.
5. Testing the new key for proper function.

B. Cutting High-Security and Laser-Cut Keys

1. Using a laser key cutting machine.
2. Handling angled and dimple keys.
3. Ensuring precision cutting.

C. Cutting Keys by Code

1. Understanding key code systems.
 2. Using a code-cutting machine or software.
 3. Inputting the correct specifications and making the cut.
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Section 4: Troubleshooting and Maintenance

- **Common Issues and Fixes**
 - Key not working – misalignment, incorrect blank, calibration issues.
 - Machine errors – worn cutting wheels, improper clamping.
 - **Regular Machine Maintenance**
 - Cleaning debris and shavings.
 - Lubrication and blade replacement.
 - Calibrating for precision.
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Section 5: Useful Resources and Tools

- **Recommended Online Resources for Key Cutting:**
 - [LockCodes.com](https://lockcodes.com) – Key code lookup.
 - [RoyalKeySupply.com](https://royalkey.com) – Tools, parts, and technical support.
 - **Manufacturer Websites & Forums** – Updates on new key cutting techniques.
 - **Essential Tools for Key Cutting**
 - Deburring brush, calibration tools, depth keys, micrometers.
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Section 6: Demonstration

- **Instructor performs a key cutting demonstration.**
 - **Covers key duplication, laser cutting, and code cutting.**
 - **Real-time troubleshooting examples.**
 - **Opportunity for student observation and Q&A during the process.**
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Section 7: Conclusion and Final Tips

- **Key Takeaways**
 - Importance of precision and calibration.
 - Knowing the right blanks and machines for different keys.
 - Regular maintenance for longevity and accuracy.
- **Final Thoughts & Additional Learning Opportunities**
 - Where to get further training or certification.
 - Encouraging practice and skill refinement.

- **Thank You & Contact Information**
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Calibrating a Key Cutting Machine

Section 1: Introduction to Key Cutting Machine Calibration

- **Why Calibration is Essential**
 - Ensures accurate key cuts and prevents miscuts.
 - Extends the lifespan of the machine and cutting wheel.
 - **When to Calibrate**
 - After installing a new cutting wheel.
 - If keys are not cutting accurately.
 - Regular maintenance schedule (weekly/monthly checks).
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Section 2: Understanding Machine Components

- **Key Parts Involved in Calibration**
 - Cutter wheel
 - Guide/Tracer
 - Clamps and alignment pins
 - **Different Types of Key Cutting Machines**
 - Manual vs. Automatic vs. Laser vs. Code Cutting Machines
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Section 3: Step-by-Step Calibration Process

(Live demonstration or step-by-step slides recommended.)

1. **Initial Inspection**
 - Checking for debris or worn-out parts.
 2. **Aligning the Cutter and Tracer**
 - Ensuring both are at the same height.
 - Adjusting depth calibration screws.
 3. **Testing Depth and Spacing Accuracy**
 - Using a depth key gauge or micrometer.
 - Making fine-tune adjustments.
 4. **Final Test Cuts**
 - Cutting a test key and comparing it to the original.
 - Troubleshooting any inconsistencies.
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Section 4: Common Calibration Issues and Fixes

- **Cutting too deep or too shallow** → Adjust depth settings.
- **Keys not aligning properly** → Recalibrate the guide/tracer.
- **Worn-out cutting wheel affecting accuracy** → Replace and recalibrate.

Section 5: Maintenance Tips and Best Practices

- **Regular cleaning and lubrication**
 - **Checking calibration after heavy use**
 - **Proper storage and handling of calibration tools**
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Section 6: Q&A and Conclusion

- **Recap of Key Takeaways**
 - The importance of precise calibration.
 - Step-by-step adjustments for accuracy.
 - Routine maintenance for long-term efficiency.
 - **Final Thoughts & Additional Learning Resources**
 - Manufacturer manuals and support.
 - Online training videos and locksmith forums.
 - **Thank You & Contact Information**
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Obtaining Toyota Rolling PIN Codes Using TIS

Section 1: Introduction to Toyota Rolling PIN Codes

- **What Are Rolling PIN Codes?**
 - Definition and purpose in Toyota's security system.
 - Why Toyota uses rolling PIN codes for key programming.
 - **Understanding TIS (Toyota Information System)**
 - Overview of Toyota's online platform for vehicle security and diagnostics.
 - Access levels: Standard vs. Security Professional accounts.
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Section 2: Setting Up and Accessing TIS

- **TIS Account Registration and Requirements**
 - Who can register (locksmiths, authorized technicians).
 - Required credentials and certifications.
 - **Logging Into TIS and Navigating the Interface**
 - Overview of key menu options.
 - Accessing security functions for key programming.
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Section 3: Retrieving Toyota Rolling PIN Codes

(Live demonstration or step-by-step screenshots recommended.)

1. **Vehicle Identification**

- Entering VIN and verifying vehicle compatibility.
 - 2. **Requesting a Rolling PIN Code**
 - Navigating to the Immobilizer Reset section.
 - Submitting a security professional request.
 - Understanding the time-sensitive nature of rolling PINs.
 - 3. **Using the Rolling PIN Code for Key Programming**
 - Entering the code into a key programming tool.
 - Finalizing the key registration process.
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Section 4: Troubleshooting and Best Practices

- **Common Issues and Fixes**
 - PIN request delays.
 - Incorrect PIN errors.
 - VIN mismatch issues.
 - **Best Practices for Smooth PIN Code Retrieval**
 - Ensuring correct vehicle details.
 - Keeping software and key programming tools updated.
 - Safeguarding PIN codes for single-use access.
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Section 5: Q&A and Conclusion

- **Recap of Key Takeaways**
 - Importance of rolling PIN codes in Toyota security.
 - Navigating TIS efficiently for fast PIN retrieval.
 - Avoiding common mistakes in the process.
 - **Final Thoughts & Additional Learning Resources**
 - Where to get further training and support.
 - **Thank You & Contact Information**
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OEM SOFTWARE OVERVIEW

SPS2 Techline Connect is General Motors' (GM) official software for programming vehicle modules. It is integrated into **Techline Connect (TLC)**, GM's diagnostic and service software platform. **SPS2 (Service Programming System 2)** allows technicians to update, reprogram, and replace control modules, including ECMs, BCMs, and other electronic components.

Key Features of SPS2 Techline Connect:

- **Module Programming & Updates** – Enables flashing and reprogramming of GM vehicle modules.
- **VIN-Based Calibration Selection** – Ensures correct software is applied to the vehicle.
- **Secure Network Connectivity** – Requires an internet connection to download and install calibrations.
- **Subscription-Based Access** – Requires a GM **Techline subscription** for use.
- **J2534 Pass-Thru Support** – Compatible with GM MDI/MDI2 and J2534-compliant devices for programming.

FDRS (Ford Diagnostic and Repair System) is Ford's official **OEM diagnostic software** designed for **module programming, diagnostics, and repair** of Ford and Lincoln vehicles. It is the successor to **Ford IDS** for newer models and provides enhanced functionality for **2020+ vehicles**.

Key Features of FDRS:

- **Advanced Diagnostics** – Reads and clears DTCs, monitors live data, and performs bi-directional tests.
- **Module Programming & Updates** – Allows ECU reprogramming and calibration updates.
- **VIN-Based System** – Automatically detects vehicle configurations for accurate diagnostics.
- **Online Connectivity** – Requires an internet connection for software updates and security access.
- **Compatible with VCM II/VCM3** – Works with Ford's **VCM II**, **VCM3**, and **J2534-compliant** devices.

wiTECH is **Chrysler, Dodge, Jeep, RAM, and Fiat's** official **OEM diagnostic and programming software**, used by dealerships and authorized repair facilities. It is designed for **module programming, diagnostics, and vehicle network analysis** on FCA (Stellantis) vehicles.

Key Features of wiTECH:

- **Comprehensive Diagnostics** – Reads and clears DTCs, performs system tests, and monitors live data.
- **Module Programming & Updates** – Supports ECU flashing and reprogramming.
- **Secure Gateway (SGW) Access** – Required for newer FCA vehicles (2018+).
- **Cloud-Based System** – Requires an internet connection and an active FCA subscription.
- **Works with MicroPod II & J2534 Devices** – Compatible with official **MicroPod II** and **J2534 pass-thru** tools.

ODIS (Offboard Diagnostic Information System) is **Volkswagen Group's** official **OEM diagnostic and programming software** used for **VW, Audi, Seat, Skoda, Bentley, and Lamborghini** vehicles. It is designed for dealership-level diagnostics, module programming, and guided repair procedures.

Key Features of ODIS:

- **Advanced Diagnostics** – Reads/clears DTCs, performs guided fault finding, and monitors live data.
- **Module Programming & Updates** – Supports ECU flashing, parameterization, and security access.
- **Online Access Required** – Needs an active VW Group subscription for coding and security functions.
- **Compatible with VAS & J2534 Devices** – Works with **VAS 6154**, **VAS 5054A**, and approved **J2534 pass-thru** tools.

Integrated Service Information – Links directly to OEM repair manuals and TSBs.