The Cisco 360 Learning Program for Cisco CCIE Routing and Switching
Overview

The Cisco® 360 Learning Program for CCIE® Routing and Switching helps to develop expert-level routing and switching networking skills needed to achieve Cisco CCIE Routing and Switching certification. This Cisco authorized blended learning program combines live instruction, self-paced training modules, hands-on lab practice, and peer interaction to develop routing and switching network experts (see Figure 1).

The program is designed for routing and switching networking professionals with three to five years of job experience. The 360-degree approach allows students to assess, learn, practice, review, and demonstrate new skills in an integrated environment. The program components are easily accessed from an Internet portal, which also provides assessment results, performance feedback, and progress reports that are useful for individuals and their employers.

The Cisco 360 Learning Program is sold and delivered worldwide by Cisco Authorized Learning Partners who are specially trained and certified. To maximize the student’s expert learning and exam-preparation experience, these Cisco Authorized Learning Partners also offer complementary training services, such as curriculum planning and coaching by expert-level mentors.

For maximum effectiveness, Cisco recommends the entire Cisco 360 Learning Program, including training by Cisco Authorized Learning Partners. However, depending on the student’s experience and skill, select components can be purchased separately through the Cisco Learning Network store.

Figure 1. The Cisco 360 Learning Program
Overview | Components of the Program

Learning Management System
The Learning Management System is an online portal where students access learning components, review their results, and track their progress through the Cisco 360 Learning Program. Students can also schedule practice lab sessions and interact with their mentors. The portal offers both students and employers a summary of progress through the curriculum and the ability to set milestones and view success metrics.

Features
- Offers a comprehensive view of student progress
- Facilitates performance management with automatic performance appraisals and skills-gap analysis
- Supports collaborative learning through application-sharing and discussion threads
- Includes all-hours online access for flexible scheduling
- Stays active throughout the entire subscription period

Figure 2 shows a sample student performance chart. Figure 3 shows the main roadmap and FAQ page.

Figure 2. Sample Performance Assessment Chart

- Ability to filter by topic, complexity and technology
- Student’s score on a specific lab
- Average score across all Cisco 360 users
Learning Roadmap lays out systematic and thorough approach to training systematically.
Preassessment Lab

Cisco recommends that candidates take the Preassessment Lab after studying core routing and switching topics such as Link Layer, Frame Relay, Border Gateway Protocol and Interior Gateway Protocols. This lab is a 4-hour diagnostic assessment that is used to measure the student’s competency at the beginning of the program. An online score report helps the student select the appropriate curriculum and learning program components. To help ensure that students select the right curriculum, a mentor is available through a Cisco Authorized Learning Partner. Cisco recommends that students take the Preassessment Lab before beginning the program and prior to extensive preparation or study.

Features

- Measures baseline skills and provides a profile of each student’s technical ability
- Can be used to help create a customized learning program to close skill gaps
- Allows mentors to define a learning path and to determine progress

Figure 4. Sample Preassessment Report

<table>
<thead>
<tr>
<th>Score Card</th>
<th>Section Topic</th>
<th>Gained Points</th>
<th>Max Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Frame Relay and Serial Communications Configuration</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>Catalyst Configuration</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>OSPF Configuration</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>4</td>
<td>BGP Configuration</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>RIP Configuration</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>Redistribution and Obtaining Universal Connectivity</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>7</td>
<td>EIGRP Configuration</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>IPv4 Routing Configuration</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>Quality Of Service Configuration</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>Security Configuration</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

MultiPing table displays end-to-end IP reachability between devices (available in configuration lab reports).

Shows allocation of points by section and topic (by points gained vs. withheld)
## Practice Lab Workbook

The Practice Lab Workbook is a suite of 35, 8-hour, expert-level lab scenarios with detailed answer keys. Each scenario in the workbook covers topics required for passing the CCIE lab exam. A comprehensive “Spot the Issues” answer key provides a detailed description of the hidden issues in the lab, as well as hints and tips for solving the task. Each task is completely explained in the answer key.

Each workbook lab has embedded tools, including the Mentor Guide, to allow the learner to query online the state of a test pod that has been loaded with the correct final configuration for each scenario. The Mentor Guide also enables certified CCIE Routing and Switching instructors to mentor, consult, and coach students online through the rigorous program.

Learners must supply or rent lab equipment with which they can perform the workbook labs.

### Features
- Aligned to Cisco CCIE Routing and Switching certification
- Color-coded answer key allows students to match their work against correct configurations
- Each lab is assigned an online discussion forum for student collaboration
- Each lab includes a Mentor Guide to assist mentors in reviewing labs with students

Figure 5 shows a sample evaluation page from the Practice Lab Workbook.

Figures 6 and 7 show the topologies required to perform the labs.

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**Figure 5. Workbook Lab: Sample Evaluation Page**

Each lab comes with Mentor Guide and Verification tips.

Status check enables easy tracking by students and mentors.

Comment sends feedback to the Cisco 360 support team.
Overview | Components of the Program

Figure 6. Ethernet Cabling Topology for Workbook Lab

* Select and click to learn more
Figure 7. Frame Relay and Serial Cabling Topology for Workbook Lab
Overview | Components of the Program

Self-Paced Lessons
Self-Paced Lessons featuring audio and video instruction are available on demand from the Cisco 360 Learning Management System portal. Lessons typically include end-of-module quizzes to check understanding and a Mentor Guide that helps students apply their learning on the job. Most lessons include focused lab exercises for lab practice.

Features
- Lessons include multiple modules, each 15–30 minutes in length, to fit easily into the student’s schedule:
  - Core topics — Link Layer, Frame Relay, Border Gateway Protocol, Interior Gateway Protocols
  - Advanced topics — Multiprotocol Label Switching (MPLS), IPv6, Cisco Catalyst® quality of service (QoS), Cisco Router QoS, IP Multicast, Troubleshooting, RS v4.0 Upgrade
- Split-screen format uses video, audio, slides, and screen views.
- Lessons can be downloaded once and replayed as many times as needed.
- Lessons are recorded by certified Cisco CCIE Routing and Switching instructors, who explain key concepts.
Figure 8 shows a sample from an interactive Self-Paced Lesson.

**Figure 8.** Sample Page from a Self-Paced Lesson

**Building the SPT from the Last-Hop Router**

- R1 puts S1/1 on the OIL after receiving the join message from R3.
- Multicast traffic flows from the source to the client.

Lessons show CCIE instructor actually configuring technologies on a device, while simultaneously teaching the technology.
Overview | Components of the Program

Reference Library

The Reference Library features over 2000 technical articles (for example, explaining options analysis diagrams), as well as articles on exam preparation strategies. The library is available online through the Cisco 360 Learning Management System portal.

Features

- Searchable online material and downloadable PDF documents
- Articles on formulating Cisco CCIE Routing and Switching exam-preparation strategies and useful study tips

Figure 9 shows a sample page from the Reference Library.

Figure 9. Sample Reference Library Page
Performance Assessments

Taken independently or as part of a workshop, Performance Assessments measure the student’s ability to complete routing & switching over CCIE level configuration and troubleshooting tasks. Score reports are accessed online via the Cisco 360 Learning Management System and allow students to compare their work to the answer key and view detailed feedback on their performance. The program offers two types of assessments simulating the actual live lab exam experience:

- **11 full scale** performance assessments 8 hours long each. Full scale assessments include troubleshooting and configuration sections.
- **9 troubleshooting** assessments 2 hours long each. Only troubleshooting section is included in this type of performance assessment.

Features

- Students can compare the trend of their performance against successful Cisco CCIE Routing & Switching candidates
- Online assessment report offers personalized feedback, corrections, and explanations of best practices
- Saves study time by identifying exactly where students need extra preparation
- Assessments are offered at multiple levels of difficulty to aid students at each stage of preparation

Figures 10, 11, and 12 show sample pages from the Performance Assessments.

**Figure 10.** Sample Performance Assessment Chart
Figure 11. Mentor Guide Links in Performance Assessment

Each report comes with a Mentor Guide that provides side-by-side comparisons of student’s configurations with golden configurations.
Figure 12. Detailed Grading Report and Answer Key in Performance Assessments

Assessment report provides detailed answer keys, and automatically links to a Mentor Guide for sections on which the student missed points.
Overview | Components of the Program

Full Scale Performance Assessments - Beginning to Intermediate (in recommended order)
- Cisco 360 CCIE R&S Pre-Assessment 1 Lab (CIERS-GP-LAB01)
- Cisco 360 CCIE R&S Assessment 1 Lab v4.3 (CIERS1-CA-LAB01)
- Cisco 360 CCIE R&S Assessment 2 Lab v4.3 (CIERS1-TC-LAB02)

Full Scale Performance Assessments - Advanced (in recommended order)
- Cisco 360 CCIE R&S Assessment 5 Lab v4.3 (CIERS2-CA-LAB01)
- Cisco 360 CCIE R&S Assessment 6 Lab v4.3 (CIERS2-TC-LAB02)
- Cisco 360 CCIE R&S Assessment 7 Lab v4.3 (CIERS2-CA-LAB03)
- Cisco 360 CCIE R&S Assessment 8 Lab v4.3 (CIERS2-TC-LAB04)
- Cisco 360 CCIE R&S Assessment 9 Lab v4.3 (CIERS2-CA-LAB05)
- Cisco 360 CCIE R&S Assessment 3 Lab v4.3 (CIERS-TC-LAB01)
- Cisco 360 CCIE R&S Assessment 4 Lab v4.3 (CIERS-TC-LAB02)
- Cisco 360 CCIE R&S Assessment 10 Lab v4.3 (CIERS-TC-LAB03)
- Cisco 360 CCIE R&S Assessment 11 Lab v4.3 (CIERS-TC-LAB04)

Troubleshooting Assessments - Intermediate to Advanced (in recommended order)
- Cisco 360 CCIE R&S Troubleshooting Lab 1 (CIERS1-TU-LAB02)
- Cisco 360 CCIE R&S Troubleshooting Lab 2 (CIERS2-TU-LAB02)
- Cisco 360 CCIE R&S Troubleshooting Lab 3 (CIERS2-TU-LAB04)

Troubleshooting Assessments - Advanced (in recommended order)
- Cisco 360 CCIE R&S Troubleshooting Lab 4 (CIERS-TU-LAB01)
- Cisco 360 CCIE R&S Troubleshooting Lab 5 (CIERS-TU-LAB02)
- Cisco 360 CCIE R&S Troubleshooting Lab 6 (CIERS-TU-LAB03)
- Cisco 360 CCIE R&S Troubleshooting Lab 7 (CIERS-TU-LAB04)
- Cisco 360 CCIE R&S Troubleshooting Lab 8 (CIERS-TU-LAB05)
- Cisco 360 CCIE R&S Troubleshooting Lab 9 (CIERS-TU-LAB06)
Figure 13 shows an example of the Cisco 360 RS Troubleshooting Assessment lab topology.

**Figure 13. Sample Troubleshooting Assessment Topology**

Loopback0 IP address: 10.1.1.N/32, where N is Router number

Interface IP address: subnet.N, where N is Router number

Example: R16 E0/0 - 10.30.168.16/24
Example: R4 S1/0 - 10.1.26.4/24
Overview | Components of the Program

Instructor-Led Workshop

There are two 5-day live workshops available for delivery by Cisco CCSI certified instructors worldwide. Instructors are seasoned CCIE Routing and Switching professionals with proven expert-level skills. Authorized Cisco material is aligned to the most current Cisco CCIE Routing and Switching certification and is designed according to a set of formal learning objectives.

CIERS1 Workshop 1 (Figure 14) is approximately 40 percent lecture and 60 percent hands-on labs. The workshop teaches students how to use an expert-level, problem-solving process, including options analysis, to develop their skills. These live workshops are part of a blended learning curriculum that aids learners in preparation for the Cisco CCIE Routing and Switching lab exam. The workshop also includes two 8-hour Performance Assessments, which are graded and returned with mentor feedback. A Preassessment Lab, included with the workshop, may be taken before or after the class.

Figure 14. Agenda for Instructor-Led Workshop 1

Overview | Components of the Program

Instructor-Led Workshop

Suggested Learning Roadmap

Ordering and Availability

Instructor-Led Training Bundles

Self-Study Bundles

Flexible Lab and Lesson Bundles
CIERS2 Workshop 2 (Figure 15) is approximately 20 percent lecture and 80 percent hands-on labs. The workshop teaches students how to use an expert-level, problem-solving process, including options analysis, to support Cisco Unified Communications technologies and topologies. With the increased hands-on labs, the mentoring relationship continues to evolve to the candidates’ needs and depth of knowledge. The workshop also includes five 8-hour performance assessments, which are graded and returned with mentor feedback. A Preassessment Lab, included with the workshop, may be taken before or after the class.

Features
- Live instruction offers an opportunity for class discussion and professional collaboration.
- Each workshop includes hands-on labs covering challenging, expert-level configuration and troubleshooting scenarios.
- All instructors have CCIE Routing and Switching and Cisco Authorized CCSI certifications.

Figure 15. Agenda for Instructor-Led Workshop 2
Table 1 shows the suggested sequence of tasks and modules for the program.

Table 1.  Suggested Learning Roadmap

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Study on Your Own</th>
<th>Instructor-Led</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Read section 1 of the Reference Library about Cisco 360 “Options Analysis” Problem Solving Approach</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>Go through Self-Paced Lessons on Core Topics: Link Layer, Frame Relay, IGP, BGP; perform hands-on technology exercises</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>Workbook Labs 1-17</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>Take Preassessment Lab CIERS-GP-LAB01</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>Go through Self-Paced Lessons on Advanced Topics: IPv6, MPLS, Multicast, Catalyst QoS, Router QoS, Troubleshooting, v4 Update; perform hands-on technology exercises</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td>Take CIERS1 Workshop (includes CIERS1-CA-LAB01 and CIERS1-TC-LAB02)</td>
<td>-</td>
<td>X</td>
</tr>
<tr>
<td>7</td>
<td>Workbook Labs 18-35</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>Take CIERS2 Workshop (includes CIERS2-CA-LAB01 through CIERS1-CA-LAB05)</td>
<td>-</td>
<td>X</td>
</tr>
<tr>
<td>9</td>
<td>Take standalone graded assessment and/or troubleshooting assessment labs</td>
<td>X</td>
<td>-</td>
</tr>
</tbody>
</table>

For a more detailed Learning Roadmap, please contact your Learning Partner or the Cisco 360 team at 360-admin@external.cisco.com.
Ordering and Availability


Instructor-Led Training Bundles

Table 2 lists some of the ILT bundles frequently considered by CCIE Routing and Switching candidates and offered through Cisco 360 Learning Partners.

**Table 2. Instructor-Led Training Bundles**

<table>
<thead>
<tr>
<th>Bundle Name</th>
<th>Cisco 360 Product SKU</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIERS1 Value ILT</td>
<td>CIERS1-VALUE</td>
<td>Ideal for starting students who plan on doing a lot of self-study and practice. Value bundles include materials (e.g. Workbook and Reference Library) that can be worked on prior to or after the Cisco 360 Instructor-Led Training Workshop 1.</td>
</tr>
<tr>
<td>CIERS2 Value ILT</td>
<td>CIERS2-VALUE</td>
<td>Ideal for advanced students who are close to taking the CCIE Lab exam. The focus is heavily on hands-on practice. Value bundles include materials (e.g. Workbook and Reference Library) that can be worked on prior to or after the Cisco 360 Instructor-Led Training Workshop 2.</td>
</tr>
<tr>
<td>Premium ILT Bundles</td>
<td>CIERSBASICWKSHPALL CIERSBASICWKSHP1 CIERSBASICWKSHP2</td>
<td>Comprehensive CCIE lab exam training that includes choice of instructor-led workshops (CIERS1, CIERS2 or both), as well as full set of study materials (all VoDs, preassessment, graded assessments, workbook, reference library).</td>
</tr>
</tbody>
</table>
Table 3 compares the components included with Cisco 360 Learning ILT bundles.

**Table 3. Feature Comparison for Instructor-Led Training Bundles**

<table>
<thead>
<tr>
<th>Cisco 360 Component</th>
<th>CIERS1 Value Bundle</th>
<th>CIERS2 Value Bundle</th>
<th>Premium Bundle</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning Management System</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Online portal for program access</td>
</tr>
<tr>
<td>Practice Lab Workbook</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Includes 35 expert-level scenarios for hands-on practice on student’s own or rented equipment</td>
</tr>
<tr>
<td>Reference Library</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>More than 2000 pages of technical material</td>
</tr>
<tr>
<td>Preassessment Lab</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Assessment of baseline skills</td>
</tr>
<tr>
<td>Performance Assessments (8-hour graded labs)</td>
<td>2 Labs</td>
<td>5 Labs</td>
<td>11 Labs</td>
<td>Independent, expert-level 8-hour performance assessments designed for those who are actively preparing for the lab exam. Most labs include configuration and troubleshooting sections</td>
</tr>
<tr>
<td>Self-Paced Lessons</td>
<td>–</td>
<td>–</td>
<td>11 Lessons</td>
<td>Individual self-paced lessons with technology specific hands-on labs and online quizzes</td>
</tr>
<tr>
<td>CCIE R&amp;S Instructor-Led Workshop 1</td>
<td>✓</td>
<td>–</td>
<td>Choice of Workshop 1, Workshop 2 or both</td>
<td>Five-day workshop on core routing and switching skills, including two 8-hour performance assessments</td>
</tr>
<tr>
<td>CCIE R&amp;S Instructor-Led Workshop 2</td>
<td>–</td>
<td>✓</td>
<td>✓</td>
<td>Five-day workshop on advanced routing, switching and troubleshooting skills, including five 8-hour performance assessments</td>
</tr>
</tbody>
</table>
Ordering and Availability

Self-Study Bundles

Table 4 lists some of the self-study bundles frequently considered by CCIE Routing and Switching candidates and offered through Cisco 360 Learning Partners.

<table>
<thead>
<tr>
<th>Bundle Name</th>
<th>Cisco 360 Product SKU</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starter Bundle</td>
<td>CIERSSTARTER</td>
<td>Self-study bundle ideal for students just starting their CCIE study and planning to primarily do self-study, or test the waters. It could also be used by students as a preparation prior to attending the instructor-led workshops.</td>
</tr>
<tr>
<td>Essentials Bundle</td>
<td>CIERSESENTIALS</td>
<td>Self-study bundle that includes the minimum recommended components for developing expert-level networking skills. Contains preassessment lab, workbook, reference library, and all lessons-on-demand, along with four 8-hour graded assessment labs. Students who complete this could go directly on to the CIERS2 Workshop.</td>
</tr>
<tr>
<td>Preferred Bundle</td>
<td>CIERSBASIC</td>
<td>Comprehensive self-study bundle that includes all study materials (VoDs, preassessment, workbook, reference library) along with eleven graded assessments. Ideal for students who are unable to attend instructor-led workshops (e.g. distance education).</td>
</tr>
</tbody>
</table>
Ordering and Availability

Figure 5 compares the components included with Cisco 360 Learning self-study bundles.

Table 5. Feature Comparison for Self-Study Bundles

<table>
<thead>
<tr>
<th>Cisco 360 Component</th>
<th>Starter Bundle</th>
<th>Essentials Bundle</th>
<th>Preferred Bundle</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning Management System</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Online portal for program access</td>
</tr>
<tr>
<td>Practice Lab Workbook</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Includes 35 expert-level scenarios for hands-on practice on student’s own or rented equipment</td>
</tr>
<tr>
<td>Reference Library</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>More than 2000 pages of technical material</td>
</tr>
<tr>
<td>Preassessment Lab</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Assessment of baseline skills</td>
</tr>
<tr>
<td>Performance Assessments (8-hour graded labs)</td>
<td>2 Labs</td>
<td>4 Labs</td>
<td>11 Labs</td>
<td>Independent, expert-level 8-hour performance assessments designed for those who are actively preparing for the lab exam. Most labs include configuration and troubleshooting sections.</td>
</tr>
<tr>
<td>Self-Paced Lessons</td>
<td>-</td>
<td>11 Lessons</td>
<td>11 Lessons</td>
<td>Individual self-paced lessons with technology specific hands-on labs and online quizzes</td>
</tr>
</tbody>
</table>
Ordering and Availability

Flexible Lab and Lesson Bundles

Flexible Assessment, Troubleshooting Assessment, and Lesson bundles provide flexibility to students at various levels of accomplishment, to complement their study. Students can purchase a generic 4-pack while taking advantage of value pricing, and select specific components later through the Cisco 360 Learning portal.

These products are available through Cisco Learning Partners as well as through the Cisco Learning Network Store: https://learningnetworkstore.cisco.com/market/prod/listSubCatCisco360.se.work?TRGT=858/nxt/rcrs/=2523

Table 7 compares the components included with Cisco 360 Flexible Assessment, Troubleshooting Assessment, and Lesson bundles.

Table 7. Comparison of Flexible Assessment and Lesson Bundles

<table>
<thead>
<tr>
<th>Cisco 360 Component</th>
<th>Flexible Assessment 4-Pack</th>
<th>Flexible Troubleshooting Assessment 4-Pack</th>
<th>Flexible Lesson 4-Pack</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance Assessments</td>
<td>✓</td>
<td>-</td>
<td>-</td>
<td>Choice of any four (4) independent, expert-level 8-hour performance assessments designed for those who are actively preparing for the lab exam. Most labs include configuration and troubleshooting sections.</td>
</tr>
<tr>
<td>(8-hr graded labs)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Troubleshooting Assessments</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>Choice of any four (4) medium-to-high-difficulty 2-hour troubleshooting assessments designed for those who are actively preparing for the lab exam.</td>
</tr>
<tr>
<td>(2-hr graded labs)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Paced Lessons</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>Choice of any four (4) individual self-paced lessons with technology specific hands-on labs and online quizzes.</td>
</tr>
</tbody>
</table>