

IDAHO STATE UNIVERSITY COLLEGE OF TECHNOLOGY

PROGRAM TITLE: LASER/ELECTRO-OPTICS TECHNOLOGY

Information included in this handout may change at anytime without notice and should not be considered as a binding contract between Idaho State University and students.

Program Options & Length:

Laser/Electro-Optics Technology, Associate of Applied Science
Laser/Electro-Optics Technology, Advanced Technical Certificate

4 1/2 Semesters
4 1/2 Semesters

**Entry dates
for this program:**
August and January

**Approximate cost
for books, tools,
& supplies:**
\$2,250.00
(See below for registration
fees.)

**For more information,
Contact:**
Idaho State University
College of Technology
Student Services Office
Campus Box 8380
Pocatello, ID 83209-8380
208-282-2622
e-mail: ctech@isu.edu
www.isu.edu/ctech/

Job Description: The Laser/Electro-Optics Technician will work with engineers, physicists, scientists and other technicians in developing, operating, repairing, and modifying electronics and photonics systems. This includes the laser, the optics associated with laser, and the analog and digital electronics that powers, controls and monitors the laser system.

Aptitudes and Interests: Basic mathematical ability, interest in science, an inquisitive mind, and a desire to learn and work with new ideas.

Helpful High School Courses:

Algebra/ Trigonometry English Chemistry Drafting Electricity Geometry Physics

TUITION AND FEES

Fees apply to the current Idaho State University fee schedule located at <http://www.isu.edu/finserv/costinfo.shtml>.

Fees include **mandatory** student health insurance, any student with existing health insurance coverage may be exempt and waivers are available at <http://www.isu.edu/stuhlth/insurance/pp.html>.

Idaho State University subscribes to the principles and laws of the State of Idaho and the federal government, including applicable executive orders pertaining to civil rights. All rights, privileges, and activities of the University are made available without regard to race, creed, color, sex, age, disability, national origin or veteran status. The University is an Equal Opportunity and Affirmative Action employer. Evidence of practices that are not consistent with such a policy should be reported to: Leonard E. "Buddy" Frazier, Affirmative Action Director; Museum Building, Room 422 Box 8315. E-mail frazleon@isu.edu, (208) 282-3964.

Idaho State University is committed to equal opportunity in education for all students, including those with documented disabilities. If you have a diagnosed disability or if you believe that you have a disability that might require reasonable accommodations, please contact: Dennis J. Toney, ADA Disabilities and Resource Center Director; Gravelly Hall, Room 123 Box 8121. E-mail tonedenn@isu.edu, (208)282-3599.

Licensure, certification, and/or employment applications related to some degree programs require students to disclose any history of criminal prosecution which may include the student's driving record. Students who have a criminal history are strongly encouraged to contact the licensing agency or meet with the coordinator of the program they are interested in, prior to beginning classes, to discuss potential impediments to licensure, certification, or employment.

ADMISSION STEPS

- Complete and return an Application for Admission along with a check or money order for \$40 (non-refundable), payable to Idaho State University. You may also apply online via the Idaho State University home page: www.isu.edu . Click on Prospective Students.
- Submit official college transcripts, if applicable, from each accredited institution of higher education that you have attended.
- Submit an official copy of your high school transcript or GED scores (Not required if you have completed and submitted proof of 14 or more academic credits from an accredited institution of higher education.)
- Meet with a College of Technology counselor, if desired, to obtain more in-depth information. To make an appointment, call (208)282-2622.
- Either:
 1. Complete the COMPASS Placement test. This test enables us to place you in the appropriate classes to enhance your success in college.
 2. Submit ACT/SAT scores, valid for seven (7) years from the date of testing. ACT scores are not required for acceptance to the College of Technology, however they are required to qualify for some scholarships
- Apply for financial aid if needed. Questions, call (208) 282-2756.
- Former College of Technology students who have been out of school one semester or more must complete the necessary forms in the Student Services office before returning to the program. Re-entering student must meet the requirements as outlined in the catalog effective at the date of their re-enrollment.

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PROGRAM TITLE: LASER/ELECTRO-OPTICS TECHNOLOGY**COURSE SEQUENCE**

1st Year - 1st Semester

ATC	AAS	Course #	Course Title	Credits
x	x	ELTR 141	Applied Mathematics I	4
x	x	ELTR 153	Electronic Theory	5
x	x	ELTR 155	Electronic Laboratory	5
x	x	COMM 101	Principles of Speech	3

1st Year - 2nd Semester

ATC	AAS	Course #	Course Title	Credits
x	x	ELTR 142	Applied Mathematics II	4
x	x	ELTR 154	Electron Control Devices Theory A	5
x	x	ELTR 156	Electron Control Devices Laboratory A	5
x	x	PHYS 101	Essentials of Physics	3
x	x	PHYS 101L	Essentials of Physics Lab	1
x	x	TGE 158	Employment Strategies	2

2nd Year - 3rd Semester

ATC	AAS	Course #	Course Title	Credits
x	x	ELEO 245	LEO Opto-electronics Theory	6
x	x	ELEO 246	LEO Opto-electronics Laboratory	6
x	x	ELTR 269	Electronic Drafting I	2

2nd Year - 4th Semester

ATC	AAS	Course #	Course Title	Credits
x	x	ELEO 247	Laser/Electro-Optics Theory	6
x	x	ELEO 248	Laser/Electro-Optics Laboratory	6
x	x	ENGL 101	English Composition	3

Students will also need to schedule the following classes if they are seeking the Associate of Applied Science degree: three (3) credits from Goal 3; and three (3) credits from Goals 6, 7, 9, 10A, 11, or 12

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PROGRAM TITLE: LASER/ELECTRO-OPTICS TECHNOLOGY**BOOK AND TOOL LIST**

Textbooks may be purchased at the University Bookstore located at the Pond Student Union - Building #14. Textbooks may also be purchased or reserved on-line through www.efollett.com or the bookstore's website at www.isu.edu/bookstor. Payments may be made with cash, check, VISA, Mastercard, American Express, or Discover. A shipping charge will be added for mail orders. See the bookstore's website for more information on purchasing or reserving books or for refund policy information. **Save Your Receipts!**

Approximate total book and tool costs for this program's options are listed below.
Additional book costs will vary depending on the courses taken to fulfill
general education requirements for the AAS degree.
For a breakdown of books by individual class requirements, you must check your course curriculum.

NOTE: PRICES ARE SUBJECT TO CHANGE AT ANYTIME WITHOUT PRIOR NOTIFICATION

****SEE INSTRUCTOR BEFORE PURCHASING****

FIRST SEMESTER – ELECTRONICS CORE

I. BOOKS & SUPPLIES:

DESCRIPTION	APPROXIMATE PRICE	
ELECTRONICS & COMPUTER MATH	0131711372	149.00
GROB'S BASIC ELECTRONICS	0072974751	137.00
Engineering Computational paper		7.00
Single subject spiral notebook		3.00
Jump Drive		20.00
Lab Book		14.00
Lab Lock Deposit (refundable at the end of 2 nd Semester)		(5.00)
TOTAL BOOKS & SUPPLIES – FIRST SEMESTER		\$330.00

II. LAPTOP/NOTEBOOK COMPUTER:

MINIMUM CONFIGURATION GUIDELINES

Processor	Intel Core 2 Duo processor T5500 (1.66GHz)
Memory (RAM)	2GB
Hard Drive	80GB
Optical Drive	CD-RW/DVD
Wireless	802.11b/g
Ethernet	1Gb
Battery Life	3-4 hours
Warranty	3 years
Operating System	Windows Vista Home Premium
Software, Office Suite	MS Office Pro 2007

Laptop/Notebook Computer and Software (approximate minimum cost)	\$890.00
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ISU Bookstore offers the Windows Vista operating system upgrade for \$90.00 and MS Office Professional 2007 for \$200.00. (Check with Bookstore for updated prices.)

Computer Account (needed on all wireless computers). Purchase at Rendezvous Building (#38) Computer Lab or Business Administration Building (#5) Basement A18.	\$25.00
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****NOTE: DO NOT PURCHASE TOOLS UNTIL AFTER STUDENT ORIENTATION****

III. TOOLS

DESCRIPTION	APPROXIMATE PRICE
Wire stripper	4.50
Diagonal Pliers	12.00
Needle/long nose pliers 4 1/2"	10.00
Screwdriver, slotted 3/16 & 1/4" tips	6.25
Screwdriver, Phillips #0 & #1 tips	6.50
Screwdriver, Precision/Jewelers set	5.00
Alligator clip leads	4.20
Soldering Aide	3.25
Soldering Iron/pencil 25 Watt (or less) with holder	25.00
Solder, 1/4 lb 60-40 Rosin Core	4.25
Solder wick (braided flat copper wire)	3.75
Desoldering bulb or pump, 060820 Electronix Express or equivalent	6.00
Circuit board holder, Helping Hands	8.10
Safety glasses	8.00
Proto Board or Bread Board	25.00
Scientific Calculator	15.00
Tool Box with lock (large enough to store volt-ohm meter)	20.00
Digital Volt-Ohm-Millammeter (see specifications below)	65.00
TOTAL TOOLS – FIRST SEMESTER	\$231.80

DIGITAL VOLT-OHM-MILLAMPMETER SPECIFICATIONS:

DC Voltage ranges = 2V, 20V, 200V, 600V
 Resistance ranges = >200Ω, 2KΩ, 200KΩ, 2MΩ, 20MΩ
 AC Current ranges = >200mA, 20A
 DC Current ranges = >20μA, 200μA, 200mA, 10A
 Input Impedance = 10 – 12 MΩ

APPROXIMATE TOTAL BOOKS, COMPUTER, AND TOOLS - FIRST SEMESTER	\$1,476.80
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SECOND SEMESTER - ELECTRONICS CORE**I. BOOKS & SUPPLIES**

DESCRIPTION	APPROXIMATE PRICE	
ELECTRONIC DEVICES:CONV CURRENT VERS (W/CD)	0132429733	140.00
DIGITAL ELECTRONICS (W/2 CDS)	0132435789	137.00
Engineering Computational paper		7.00
Single subject spiral notebook		3.00
TOTAL BOOKS & SUPPLIES – SECOND SEMESTER		\$287.00

Computer Account (needed on all wireless computers). Purchase at Rendezvous Building (#38) Computer Lab or Business Administration Building (#5) Basement A18.	\$25.00
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II. TOOLS

DESCRIPTION	APPROXIMATE PRICE	
Radio Kit (Available from the Program)		25.00
Heat Sink, GC 9077 or equivalent		1.25
Soldering aide tool, GC 9075 or equivalent		2.25
Solder wick (for de-soldering), GC 684/685 or equivalent		3.75
*Solder, 60/40 Rosin Core only, 1/4 lb reel (18GA)		4.25
*Solder Flux paste (non-acid)		3.25
TOTAL TOOLS – SECOND SEMESTER		\$39.75

*These items were purchased for 1st Semester, but additional quantities may be needed.

APPROXIMATE TOTAL BOOKS AND TOOLS - SECOND SEMESTER	\$351.75
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APPROXIMATE TOTAL BOOKS, COMPUTER, AND TOOLS – CORE YEAR	\$1,828.55
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THIRD SEMESTER**I. BOOKS & SUPPLIES**

DESCRIPTION	APPROXIMATE PRICE	
ELTR 269 ELECTRONIC DRAFTING I		
Class fee (ELTR 269)		15.00
ELEO 245 LASER FUNDAMENTALS AND APPLICATIONS THEORY		
APPLIED ELECTRO-OPTICS	0138027117	74.00
PHOTONICS DICTIONARY		36.00
ELEO 246 LASER FUNDAMENTALS AND APPLICATIONS LAB		
Class fee (ELEO 246)		15.00

Pad, Engineer's Computation, National 42-583	3.00
Notebook, Science National 33-688	3.00
APPROXIMATE TOTAL BOOKS & SUPPLIES - THIRD SEMESTER	\$146.00

II. TOOLS

QUANTITY	DESCRIPTION	APPROXIMATE PRICE
1 ea	Compass, Drafting	1.00
1 ea	Eraser, Pencil (Faber Castell)	3.00
1 ea	Guide, Ames Lettering	3.00
1 ea	Lead, non-reproducible (optional)	(1.25)
1 ea	Pencil, Mechanical 0.5 mm	6.00
1 ea	Pencil, Mechanical 0.7 mm	6.00
1 ea	Protractor, Small	1.00
1 ea	Ruler, Metric Scale	1.00
1 ea	Scale, Architect's	7.00
1 ea	Tape Measure, Metric (optional)	(5.00)
1 roll	Tape, Masking	3.00
1 ea	Template, Circle Picket 1005 P	6.00
1 ea	Template, Electronic Rapidesign R 316	10.00
1 ea	Template, Logic Symbol, Pickett 1222	6.00
1 ea	Triangle, 30 - 60 , 8 "	6.00
APPROXIMATE TOTAL TOOLS - THIRD SEMESTER		\$59.00

APPROXIMATE TOTAL BOOKS & TOOLS - THIRD SEMESTER	\$205.00
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FOURTH SEMESTER**I. BOOKS & SUPPLIES**

DESCRIPTION		APPROXIMATE PRICE
2 ea	Disks, Floppy	4.00
2 ea	Folders, Notebook, Plastic (Slide report cover)	2.00
1 ea	Notebook, Science National 33-688	3.00
1 ea	Pad, Engineer's Computation, National 42-583	3.00
Graduation Application fee for first Certificate/Degree		20.00
Optional fee for any additional Certificate/Degree		(10.00)
APPROXIMATE TOTAL BOOKS & SUPPLIES - FOURTH SEMESTER		\$216.00

APPROXIMATE TOTAL BOOKS & SUPPLIES - ENTIRE PROGRAM	\$2,249.55
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ANTICIPATE ADDITIONAL EXPENSES ASSOCIATED WITH THIS PROGRAM:
TEXTBOOKS ASSOCIATED WITH ACADEMIC COURSES,
 TRANSPORTATION, PARKING, CHILD CARE, HOUSING.
 YOU MUST CHECK YOUR CLASS SCHEDULE TO DETERMINE TEXTBOOKS REQUIRED BY INSTRUCTOR.