Course Description:
The course is designed to provide students with the knowledge and skills necessary to fabricate plastic and metal spinal orthoses. Spinal skeletal structures and biomechanical principles of spinal orthoses are also integrated throughout the course. Interpretation and application of spinal orthometry will be covered. Variations of spinal orthoses will also be covered. Fitting of off the shelf spinal orthoses for the fitter level practitioner is incorporated in the curriculum.

IAI number: N/A

Credit and Contact Hours
* Credit Hours 4
* Lecture/Demonstration 2
* Lab/Studio/Clinical 4

Prerequisites:
OPT 100

Books, Supplies, and Supplementary Materials
- Required Textbooks/Reading list
  No text required. Materials provided by program director
- Supplementary texts/materials
  All supplementary materials developed and provided by program director
- Other resources utilized:
  Curriculum from Northwestern University’s Prosthetic Orthotic Center

Methods of Instruction:
Lecture
Laboratory
Clinical Rotations

Student Learning Outcomes
1. Gather the necessary tools, instruments and materials to fabricate various spinal orthoses
2. Select proper materials for a given spinal orthosis intervention
3. Fabricate various types of spinal orthoses with skill and accuracy
4. Identify anatomical landmarks necessary to fabricate spinal orthoses
5. Modify spinal orthosis casts for proper contours, alignment and biomechanical effect
6. Describe and discuss various trim line options for spinal orthoses
7. Take an impression for a basic spinal orthosis
8. Take measurements and delineations for a spinal orthoses
9. Fit and adjust basic spinal orthoses
General Education Student Learning Outcomes
Students must be able to:
- Math: Calculate percentages, perform metric to English conversions, apply linear measurements with respect to human anatomy, perform basic geometric right angle lay out.
- English and language skills: Communicate verbal and written concepts in a clinical and laboratory environment.

Graded Assignments and Policies

Graded Assignments:
Laboratory projects are separated into technical and clinical sections. Each project is graded according to category. Quizzes and exams are given throughout the course. Attendance is taken and counted as part of the grade.

The following schedule is an estimate of the work that will be included in the final point total; should items be eliminated the same percentages will stand for the adjusted point total. The student's grade is based on the individuals completed and corrected work.

<table>
<thead>
<tr>
<th>Assignments</th>
<th>Number</th>
<th>Points</th>
<th>Total</th>
<th>Grading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Projects</td>
<td>7</td>
<td>10</td>
<td>70</td>
<td>A 100%-92%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>5</td>
<td>20</td>
<td>100</td>
<td>B 91%-87%</td>
</tr>
<tr>
<td>Final Written</td>
<td>1</td>
<td>50</td>
<td>50</td>
<td>C 86%-78%</td>
</tr>
<tr>
<td>Final Project</td>
<td>1</td>
<td>50</td>
<td>50</td>
<td>D 77%-70%</td>
</tr>
<tr>
<td>Class Participation</td>
<td>1</td>
<td>10</td>
<td>10</td>
<td>F Below 70%</td>
</tr>
</tbody>
</table>

Major Tests and Quizzes:
Student performance will be evaluated throughout the semester through the use of section quizzes; project evaluation check lists; midterm and final exams.

Classroom Policies and Procedures

A. General Information
Students must become familiar with the lab safety rules and abide by those rules. Students who are unable to follow the safety rules will not be allowed to continue in the program.

Complete all assignments and projects in a timely manner.

Wear proper clothing for surface anatomy sessions.

Homework assignments are required to be completed prior to the next class session. Homework assignments consist primarily of iCampus video presentations that are essential to understanding and preparing for laboratory projects for the next class meeting.

Open laboratory times are available each semester. The instructor will provide students with the open lab times at the beginning of each semester. Every effort should be made to complete projects during the allotted class time.

Since orthotics and prosthetics is a medical field, a clean and neat appearance is essential. Sleeveless shirts, short pants, or clothing of questionable taste, etc. are not acceptable in the O/P lab.

B. Attendance Policy:
Attendance is essential for the student to develop the sequentially presented skills. If absence is unavoidable, notify the instructor prior to a scheduled class. Because many of the projects build from
what was done in previous class work, it is advisable to attend each class. Attendance is taken and class participation is counted as part of the grade.

Attend all classes. Do not make appointments during scheduled class times (doctors, dentist, personal, business, etc.).

An excused absence may be allowed in the case of personal illness, family emergency, transportation difficulties or as previously arranged with the instructor.

C. Make-up Policy

All work assigned will be due by the assigned date; late work may be accepted at a penalty to the student. The penalty is one-half (1/2) credit for the late assignment. The grade will be on a total point system with points assigned to each activity assigned to the class.

D. Extra-credit Policy

Students have the opportunity to gain extra credit through special projects, assistance in lab set up and other fabrication projects as determined by the department head. All extra credit must be scheduled and approved by the department head. Students may apply the agreed upon credit to projects, quizzes or exams.

E. Final Exam Information

Final exams are given during final exam week. Exams consist of a written exam and a laboratory practical.

F. Academic Honor Code

The objective of the academic honor code is to sustain a learning-centered environment in which all students are expected to demonstrate integrity, honor, and responsibility, and recognize the importance of being accountable for one’s academic behavior. Students who are found in violation of the academic honor code will be required to meet with the program director to determine the severity of the penalty. This may include dismissal from the program, remediation in the form of specific assignments or other measures that are determined by the department head.

G. College Statement about grades of “F” and withdrawal from class.

- Students may withdraw from a course by processing an add/drop form during regular office hours through the Registration and Records Office at Main Campus or Romeoville Campus, or by phone at 815-744-2200. Please note the withdrawal dates listed on your bill or student schedule. Every course has its own withdrawal date. Failure to withdraw properly may result in a failing grade of “F” in the course.

- At any time prior to the deadline dates established, an instructor may withdraw a student from class because of poor attendance, poor academic performance or inappropriate academic behavior, such as, but not limited to, cheating or plagiarism.

H. Intellectual Property

Students own and hold the copyright to the original work they produce in class. It is a widely accepted practice to use student work as part of the college’s internal self-evaluation, assessment procedures, or other efforts to improve teaching and learning and in promoting programs and recruiting new students. If you do not wish your work to be used in this manner, please inform the instructor.

I. Student Code of Conduct

Each student is responsible for reading and adhering to the Student Code of Conduct as stated in the college catalog.

J. Sexual Harassment

Joliet Junior College seeks to foster a community environment in which all members respect and trust each other. In a community in which persons respect and trust each other, there is no place for sexual
harassment. JJC has a strong policy prohibiting the sexual harassment of one member of the college community by another. See Catalog or Student Handbook.

K. **Student Support** [http://jjc.edu/services-for-students/pages/default.aspx](http://jjc.edu/services-for-students/pages/default.aspx)
   
a. Disability Services: [http://jjc.edu/services-for-students/disability-services/Pages/default.aspx](http://jjc.edu/services-for-students/disability-services/Pages/default.aspx). Student Accommodations and Resources (StAR): If you need disability-related accommodations, specialized tutoring, or assistive technology in this class, if you have emergency medical information you wish to share with me, or if you need special arrangements in case the building must be evacuated, please inform me immediately. Please see me privately after class or at my office. New students should request accommodations and support by scheduling an appointment with the Student Accommodations and Resources (StAR) Office, Campus Center 1125, (815) 280-2230.
   
b. Tutoring: [http://jjc.edu/services-for-students](http://jjc.edu/services-for-students)
   
c. Counseling and Advising: [http://jjc.edu/services-for-students/counseling-advising](http://jjc.edu/services-for-students/counseling-advising)
   
d. Academic Resources: [http://jjc.edu/services-for-students/academic-resources](http://jjc.edu/services-for-students/academic-resources)
   
e. Support Programs: [http://jjc.edu/services-for-students/support-programs-services](http://jjc.edu/services-for-students/support-programs-services)
   
f. Technology Support: [http://jjc.edu/services-for-students/Pages/technology-support.aspx](http://jjc.edu/services-for-students/Pages/technology-support.aspx)

L. **Safety**
   Students with an impaired ability to concentrate may jeopardize safety in this classroom for themselves, their classmates and their instructor. If your ability to concentrate is impaired you should discuss this matter with your instructor prior to operating equipment or performing a laboratory procedure. Students are responsible for reporting to their instructor any condition that would impair the ability to concentrate. Failure to notify your instructor of this issue may be a violation of the Student Code of Conduct.

   For safety purposes, students are required to wear closed shoes at all times.

   Safety glasses must be worn in all designated areas.

<table>
<thead>
<tr>
<th>Topical Outline</th>
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</thead>
<tbody>
<tr>
<td><strong>Days</strong></td>
</tr>
<tr>
<td><strong>Week 1</strong></td>
</tr>
</tbody>
</table>
| | Spinal Orthotic Components | **Objectives:**  
1. Identify skeletal anatomy specific to spinal orthotic management  
2. Explain the biomechanical principles used in spinal orthotic management  
3. Identify and describe common components of spinal orthoses  
4. Describe origin and cause of common spinal pathologies |
| **Week 2** | LSO Corset | Lecture/Demonstration, measurement and rationale of |
| Week 3 | LSO Corset Fitting Modifications | Lecture/Demonstration, corset fitting, modifications Critique  
Objectives: 1. Identify proper fit of a corset type LSO including correct height and paraspinal bar contour 2. Integrate fitting parameters in order to modify or correct fitting and alignment errors 3. Utilize a sewing machine to modify a lumbosacral corset |
|---|---|---|
| **Week 4** | LSO Sagittal/Coronal Metal System Rational Measurement | Lecture/Demonstration, measurements, delineation, fabrication of metal LSO sagittal/coronal control. Laboratory project.  
Objectives: 1. Identify the landmarks and measurements needed for fabrication of an LSO metal system 2. Utilize the spinal measurement form for recording anthropometric patient data 3. Duplicate spinal contours utilizing a “flexi –strip” for contouring of paraspinal bars 4. Contour bands for total contact 5. Identify the different types of pelvic and thoracic band designs |
| **Week 5** | LSO Sagittal/Coronal Metal System Fabrication | Lecture/Demonstration, fabrication of LSO metal system. Laboratory Project.  
Objectives: 1. Given circumferences and M-L’s correct band contours and paraspinal bar alignment 2. Align and rivet bands to paraspinal bars |
| **Week 6** | LSO Sagittal/Coronal Metal System Fabrication (Leather Work) | Leatherwork for LSO metal system (Pelvic Band)  
Lecture/Demonstration  
Laboratory Project  
Objectives: 1. Develop a pattern for covering an LSO pelvic band 2. Utilize gluing, sewing and leather techniques |
| **Week 7** | LSO Sagittal/Coronal Metal System Fitting and Modify Semi Rigid Orthoses | Lecture/Demonstration; fitting modification. Laboratory project critique.  
Objectives: 1. Integrate fitting parameters in order to modify or correct fitting and alignment errors 2. Measure and fit off the shelf semi-rigid spinal orthoses 3. Utilize fabrication techniques to modify existing spinal orthosis |
<table>
<thead>
<tr>
<th>Week</th>
<th>Subject</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Rationale and Use of Body Jackets Measurements and Impression</td>
<td>Lecture-demonstration; body jacket impression, fill and seal. Laboratory project. Objectives; 1. Identify anatomical landmarks specific to spinal orthometry, measurements and impressions for an LSO body jacket. 2. Utilize the necessary instruments to take measurements and impressions for an LSO. 3. Perform basic patient management skills with respect to moving, manipulating, and positioning a patient when measuring for an LSO. 4. Transfer anatomical measurements to an orthometry form.</td>
</tr>
<tr>
<td>9</td>
<td>LSO Polymer Body Jacket Modification Fabrication</td>
<td>Lecture/Demonstration, cast modifications, trim line variations, design criteria. Laboratory project. Objectives: 1. Identify the landmarks and measurements needed for the modification of an LSO polymer system. 2. Utilize the spinal measurement form for relating anthropometric patient data to the LSO cast. 3. Modify the cast utilizing anatomic alignment. 4. Perform sealing and impression of LSO body jacket.</td>
</tr>
<tr>
<td>10</td>
<td>Fitting and Modification of Polymer LSO Project Critique Rigid Spinal Orthoses</td>
<td>Lecture/Demonstration, fitting of LSO polymer body jacket, modifications. Laboratory project critique. Objectives; 1. Locate landmarks and fit total contact LSO relative to landmarks. 2. Adjust and modify LSO. 3. Apply knowledge and skills to alternative OTS systems.</td>
</tr>
<tr>
<td>11</td>
<td>TLSO Polymer Body Jacket Rational Measurements</td>
<td>Lecture/Demonstration; trim lines, design, closure systems. Laboratory project. Objectives; 1. Modify a TLSO for balance and symmetry. 2. Identify OTS TLSO systems.</td>
</tr>
<tr>
<td>12</td>
<td>TLSO Polymer Body Jacket Modification Fabrication</td>
<td>Lecture/Demonstration, cast modifications, trim line variations, design criteria. TLSO Laboratory project. Objectives; 1. Develop modification skills for TLSO spinal systems. 2. Vacuum form a bi-valved TLSO system.</td>
</tr>
<tr>
<td>13</td>
<td>Fitting and Modification of Polymer TLSO Project Critique</td>
<td>Lecture/Demonstration, fitting of TLSO polymer body jacket, modifications. Laboratory project critique. Objectives; 1. Apply knowledge and skills to fitting alternative OTS systems. 2. Develop knowledge and skills to fit alternative TLSO systems.</td>
</tr>
<tr>
<td>14</td>
<td>LSO, TLSO CAD Design</td>
<td>LSO, TLSO design systems, fabrication utilizing CAD CAM system software.</td>
</tr>
</tbody>
</table>
| Week 15 | Cervical Orthoses  
Off the shelf Cervical Spinal Orthoses | Lecture; Patient management skills for cervical orthoses  
Laboratory project. Fitting of cervical orthoses  
Objectives;  
1. Identify various scoliosis systems  
2. Fabricate pads for scoliosis systems |
| Week 16 | Final Exam | Course Review and Final Exam. Problem solving (Lab Practical) |

**Effective Date:** 1-16-2012

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Signature of Department Chair: ________________________________