



Broward Community College

Course Outline

STATUS: A

COMMON COURSE NUMBER: RTE 2563

COURSE TITLE: Advanced Vascular/Interventional Radiography

CREDIT HOURS: 3

CONTACT HOURS BREAKDOWN:

Lecture/Discussion	<u>48</u>
Lab	<u> </u>
Other	<u> </u>
Contact Hours	<u>3</u>

CATALOG COURSE DESCRIPTION:

Provides advanced study into Vascular/Cardiovascular/Interventional Procedures for the Special Procedures Radiographer. This course will provide an overall review of current and future Vascular, as well as non-vascular intervention being performed to this date. Emphasis will be on diagnostic and Therapeutic procedures and their application in a clinical setting.

Prerequisite: Graduation from an accredited Radiography Program

Corequisite: None

General Education Requirements - Associate of Arts Degree, meets Area(s): none

General Education Requirements - Associate in Science Degree, meets Area(s): none

UNIT TITLES:

1. General Diagnostic Angiography
2. (Therapeutic) Vascular Interventional Angiography
3. Percutaneous Intervention
4. Miscellaneous Angiography

I. Course Overview:

This course is designed to allow those professionals working in Vascular Radiography an avenue for specialty study. Most of the individuals working in this area learned their techniques on the job without any formal education. The intent of this course is to provide this education.

Unit I - General Diagnostic Angiography

General Outcome:

- 1.00 The student will describe, in general terms, the basic anatomy, normal and abnormal; procedures performed for Vascular Intervention.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 1.1 Describe patient preparation
- 1.2 List indications for cerebral angiography
- 1.3 List contra-indications for cerebral angiography
- 1.4 Discuss importance of contrast media selection
- 1.5 Describe patient positions used in cerebral angiography
- 1.6 Identify possible complications of cerebral angiography and list the emergency equipment which should be available
- 1.7 Differentiate between selective catheterization techniques and carotid puncture techniques used in performing cerebral angiography
- 1.8 Discuss catheter selection and filming
- 1.9 Describe the appearance of the cerebral circulation
- 1.10 Describe pathologies commonly associated with cerebral circulation
- 1.11 Describe exams performed
- 1.12 Describe carotid, vertebral circulation
- 1.13 Describe carotid disease
- 1.14 Embolization of cerebral circulation
- 1.15 List materials used

- 1.16 Describe embolization of carotid circulation
- 1.17 Describe angioplasty - carotid
- 1.18 Describe post angioplasty patient care

Aortic Circulation (Root, Arch, Ascending, Descending, Abdominal):

- 2.0 Describe patient preparation
- 2.1 List the indications and contra-indications for performing aortagraphy
- 2.2 Describe aortic circulation
- 2.3 Describe root injections, technique used, pathology found
- 2.4 Describe arch, ascending, descending and abdominal aortagraphy, technique used, materials used
- 2.5 Describe normal and abnormal pathologies found in aorta
- 2.6 Distinguish traumatic injury
- 2.7 Describe exams performed to visualize aorta
- 2.8 Discuss importance of contrast selections
- 2.9 Describe post-angio care

Selective Angiography: Renal

- 3.0 Describe patient preparation
- 3.1 Describe renal arterial anatomy
- 3.2 Discuss renal pathologies found
- 3.3 Discuss different techniques for performing renal arteriography
- 3.4 Describe indications and contra-indications for renal arteriograms
- 3.5 Discuss importance of contrast selections
- 3.6 Discuss renal angioplasty
- 3.7 Describe possible complications in renal angio's
- 3.8 Describe materials used in renal angioplasty
- 3.9 Describe renal angioplasty procedure, technique and materials used
- 3.10 Describe post-angio patient care

Celiac, Hepatic, SMA, IMA, Brachial, Subclavian

- 4.0 Describe patient preparation
- 4.1 Describe indications and procedures for selective celiac angiography
- 4.2 Describe indications and procedures for selective hepatic angiography
- 4.3 Describe indications and procedures for selective SMA and IMA angiography
- 4.4 Describe indications and procedures for selective subclavian angiography
- 4.5 Describe indications and procedures for brachial angiography
- 4.6 List possible arterial/venous pathology found by these procedures
- 4.7 Describe interventional procedures practiced, i.e.
 - 1. embolization
 - 2. pitressin

Iliacs - Femorals - Popliteals - Posterior Tibials

- 5.0 Describe patient preparation
- 5.1 Describe indications and contra-indications for performing femoral angiography
- 5.2 Describe vessel anatomy
- 5.3 Describe different ways to visualize runoff vessels
- 5.4 Describe postprocedural care

Pulmonary Angiography

- 6.0 Describe indications and contra-indications
- 6.1 Describe patient preparation
- 6.2 Describe procedure techniques and materials needed
- 6.3 List special patient monitoring needs

6.4 Describe post procedural patient care

Venography

7.0 Describe indications and contra-indications

7.1 Describe procedural techniques and materials used

7.2 Identify typical venogram

7.3 Discuss possible complications

7.4 Discuss patient preparation

Cardiac Catherization

8.0 Describe indications and contra-indications

8.1 Describe pre-procedural patient preparation

8.2 Identify coronary anatomy

8.3 Differentiate between left and right heart catherization, ventriculography

8.4 Identify catheters and wires

8.5 List positions and structures seen

8.6 List normal lab values

8.7 List normal pressures

8.8 Discuss possible complications

8.9 Describe brachial cutdown VS femoral stick

8.10 Describe post-procedural patient care

8.11 Given appropriate diagrams, the student will identify and label the three muscles of the heart, major arteries and veins

Circulatory System

9.0 Describe structure of blood vessels

9.1 Describe differences between (1) arteries, (2) veins (3) capillaries (4) lymphatic system

- 9.2 Describe anatomical parts of the heart
- 9.3 Briefly list differences between systolic and diastolic phases
- 9.4 Briefly describe electrical conduction of heart
- 9.5 Identify pulse rate and rhythms; differences between normal and abnormal
- 9.6 Identify basic vascular anatomy and physiology, i.e., cardiac, pulmonary, visceral, peripheral, coronary, cerebral
- 9.7 List basic vascular pathology, i.e., AVM, aneurysms, arteriosclerosis, fibromuscular dysplasia, spasm, traumatic, congenital

Unit 2. - (Therapeutic) Vascular Interventional Angiography

General Outcome:

2.00

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to

2.1 Describe indications and contra-indications for angioplasty

2.2 Describe patient prep for angioplasty

2.3 List materials and techniques used during angioplasty

2.4 Describe post procedural care

2.5 Describe indications and contra-indications for atherectomy

2.6 List materials and techniques used in atherectomy

2.7 Describe patient prep for atherectomy

2.8 Describe post-procedural patient care

2.9 List indications for the use of laser

2.10 List indications and contra-indications for the use of thrombolytic therapy

2.11 List agents used in thrombolytic therapy

2.12 Describe techniques and materials used

2.13 List possible complications of thrombolytic agents

2.14 List post-procedural management guidelines

2.15 Describe future use of intra-arterial stents and their therapeutic value in conjunction with angioplasty

- 2.16 List different kinds of vena cava filters available at this time
- 2.17 Describe patient preparation and post-procedural management
- 2.18 List different kinds of vena cava filters available at this time
- 2.19 Describe filter procedures and techniques and materials used
- 2.20 Describe indications and contra-indications for embolization
- 2.21 Describe pre-procedural patient preparation
- 2.22 List materials needed and techniques used with embolization

Unit 3. - Percutaneous Intervention

General Outcome:

3.0

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 3.1 List indications and contra-indications associated with percutaneous biopsies
- 3.2 Describe anatomical areas accessible to this method - lung, breast, pancreas, abdominal, liver, thyroid, adrenal, bone.
- 3.3 Describe patient preparation and post-procedural care
- 3.4 Describe patient preparation and post-procedural care
- 3.5 Explain QA results successes VS complication rates

Percutaneous Nephrostomy

- 3.6 List indications and contra-indications associated with percutaneous nephrostomy
- 3.7 Describe pre-procedural preparation for percutaneous nephrostomy and post care
- 3.8 List materials used and describe techniques used

Percutaneous Abscess and Fluid Drainage

- 3.9 List indications and contra-indications for percutaneous abscess drainages
- 3.10 Describe procedural and techniques used
- 3.11 Describe technique for aspiration of fluid collections
- 3.12 Describe technique for fluid drainage
- 3.13 List materials needed for percutaneous drainage procedures

Percutaneous Renal Cyst Aspiraton

- 3.14 List indications and contra-indications for percutaneous renal cyst aspiration
- 3.15 Describe procedure and materials used
- 3.16 Describe pre- and post- patient care

Biliary Decompression and Drainage

- 3.17 List indications and contra-indications for biliary decompression and drainage
- 3.18 Describe pre-procedural patient car and post patient care
- 3.19 Describe biliary decompressions and drainage procedures and techniques used
- 3.20 List possible complications

Unit IV - MISCELLANEOUS ANGIOGRAPHY

- 4.0** Emergency Care
- 4.1** Commonly used drugs
- 4.2** Current contrast medias