Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

COLLEGE OF APPLIED MEDICAL SCIENCES
DEPARTMENT OF RADIOLOGICAL SCIENCES

COURSE SPECIFICATION

Course Title: **Radiographic Physiology**
Course Code: **RAD 223**
Course Instructor:

1. **Dr.Ahmed. H.Alfar**
2. **Dr. Tamadur Alramah**

Course Specification

Institution: King Saud University
College/Department: College of Applied Medical Sciences/Radiological sciences

A. Course Identification and General Information

1. Course title and code: Radiographic Physiology, RAD 223
2. Credit hours: 3 (3+0)
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Radiological Sciences
4. Name of faculty member responsible for the course 1. Dr. Ahmed H. Al-Far / Dr. Tamadur Alramah
5. Level which this course is offered: Level 4/ Second year
6. Pre-requisites for this course (if any): CLS 221
7. Co-requisites for this course (if any) : RAD 221
8. Location if not on main campus: N/A

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course. By the end of this course the student should be able to: 1. Acquire knowledge of the functions of the body systems. 2. Recognize normal and abnormal function of the systems that can be demonstrated by medical imaging.
2. Briefly describe any plans for developing and improving the course that are being implemented. (eg increased use of IT or web based reference material, changes in content as a result of new research in the field).

C. Course Description (Note: General description in the form to be used for the Bulletin or Handbook should be attached)

1. Topics to be Covered	No. of Weeks	Contact Hours
Cell and Tissues	2	4
Digestive System	2	4
Cardiovascular system	1	2
Body Fluid & Blood	1	2
Respiratory system	1	2
Urinary system	2	4
Reproductive System	1	2
Endocrine System	2	4
Nervous system	3	6

2 -Course components (total contact hours per semester):

Lecture:	Tutorial:	Practical:	Other:
45	N/A	N/A	N/A

3. Additional private study/learning hours expected for students per week. (This should be an average: for the semester not a specific requirement in each week): N/A

4. Development of Learning Outcomes in Domains of Learning

For each of the domains of learning shown below indicate:

- A brief summary of the knowledge or skill the course is intended to develop;
- A description of the teaching strategies to be used in the course to develop that knowledge or skill;
- The methods of student assessment to be used in the course to evaluate learning outcomes in the domain concerned.

a. Knowledge

(i) Description of the knowledge to be acquired:

By the end of this course the student should be able to:

1. Describe the structure and function of a typical animal cell and its organelles.
2. Classify tissue types and describe the functional characteristics of each.
3. Describe the functions of digestive system and some clinical conditions, which result from disturbances of functions and relevant to medical imaging.
4. Describe the functions of circulatory system and some clinical conditions, which result from disturbances of functions and relevant to medical imaging.
5. Mention the general components of blood and its functions and understand some of clinical conditions occurring due to deficiency of one or more of the blood components.
6. Describe the functions of respiratory system and some clinical conditions, which result from disturbances of functions and relevant to medical imaging.
7. Describe the functions of urinary system and some clinical conditions, which result from disturbances of functions and relevant to medical imaging.
8. Describe the functions of male and female reproductive organs and some clinical conditions, which result from disturbances of functions and relevant to medical imaging.
9. Describe the functions of endocrine system and some clinical conditions, which result from disturbances of functions and relevant to medical imaging.
10. Describe the functions of nervous system and some clinical conditions, which result from disturbances of functions and relevant to medical imaging.

(ii) Teaching strategies to be used to develop that knowledge

- Lectures.
- Group discussion.

(iii) Methods of assessment of knowledge acquired

- Midterms and final written exam (multiple choice, short answer, essay and interpretative questions).

b. Cognitive Skills

(i) Cognitive skills to be developed:

By the end of this course the student should be able to:

1. Integrate physiology with various imaging modalities.
2. Interpret the most important radiological signs to distinguish the normal organ functions from the pathological conditions.

(ii) Teaching strategies to be used to develop these cognitive skills

- Case study.

(iii) Methods of assessment of students cognitive skills

- Essay/interpretative exam questions are used to assess student's ability for critical thinking.

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed:

By the end of this course the student should be able to:

1. Manage time and tasks effectively as an individual and/or as part of a team.
2. Learn by accepting constructive criticism and follow instructions accurately and consistently.

(ii) Teaching strategies to be used to develop these skills and abilities:

- Study assignments.
- Group discussion.

(iii) Methods of assessment of students interpersonal skills and capacity to carry responsibility

- Assessment of assignments.
- Direct observation and supervision.
- Compliance to the attendance and tardiness polices.

d. Communication, Information Technology and Numerical Skills

(i) Description of the skills to be developed in this domain.

By the end of this course the student should be able to:

1. Communicate effectively with colleagues and member of the staff.
2. Use software learning materials.
3. Search the internet to cope with the course demand.

(ii) Teaching strategies to be used to develop these skills

- Group discussion.
- Study assignments.
- Design a professional presentation.

(iii) Methods of assessment of students numerical and communication skills

- Direct observation and supervision.
- Slide presentation.

e. Psychomotor Skills (if applicable)

(i) Description of the psychomotor skills to be developed and the level of performance required:

By the end of this course the student should be able to:

- Identify the most common radiological signs of normal and abnormal functions of body systems, digestive, circulatory, respiratory, genitor-urinary, endocrine and nervous.

- Level of performance: observation.

(ii) Teaching strategies to be used to develop these skills

- Assignments.
- Demonstration (audio visual, medical images)

(iii) Methods of assessment of student's psychomotor skills.

- Assessment of assignments.

5. Schedule of Assessment Tasks for Students During the Semester

Assessment	Assessment task (eg. essay, test, group project, examination etc.)	Week due	Proportion of Final Assessment
1	First midterm written exam	6	20
2	Assignment	4	5
3	Second midterm written exam	11	20
4	Assignment	8	5
5	Assignment	12	10
6	Final written exam	16	40

D. Student Support

1. Arrangements for availability of faculty for individual student consultations and academic advice. (include amount of time faculty are available each week)

- 2 office hours/week (arranged according to the student needs)

E. Learning Resources

1. Required Text(s)

- Evelyn F. Burns and Bushong S.C.: Essentials of Medical Imaging Series: Anatomy and Physiology, McGraw-Hill; ISBN-10: 0070092311.

2. Essential References

- Bontrager K.L.: Textbook of Radiographic Positioning and Related Anatomy.
- Weir J., Abrahams P.H.: Imaging atlas of human anatomy.
- Eisenberg R.L. and Johnson N.M: Comprehensive Radiographic Pathology, Mosby; ISBN-10: 0323036244.

3- Recommended Books and Reference Material (Journals, Reports, etc) (Attach List)

- Tortora G.J. and Bryan Derrickson: Principles of anatomy and physiology. Hoboken, NJ: John Wiley & Sons, Inc., ISBN-13: 9780470084717.
- Dean M.R.E. & West T.E.T: Basic Anatomy and Physiology for Radiographers.
- Nina Kowalczyk and Mace.D: Radiographic Pathology for Technologists, Mosby; ISBN-10: 0323063292.

4-.Electronic Materials, Web Sites etc

5- Other learning material such as computer-based programs/CD, professional standards/regulations

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (ie number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Lecture rooms, laboratories, etc.)
   - Lecture room.

2. Computing resources
   - Data show & computer.

3. Other resources (specify --eg. If specific laboratory equipment is required, list requirements or attach list)
   - Viewing boxes.
   - Different radiographic images.

G Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching
   - Not available but the following strategies are being developed:
     - Numerical questionnaire scores,
     - Open-ended questions ,
     - Focus group interviews.

2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department.
   - Not available but the following strategies are being developed:
     - Self and peer evaluation of teaching.
     - Educational research by individual staff members on different aspects of teaching and assessment.
     - Committees with responsibility for monitoring and evaluating quality and standards.

3. Processes for Improvement of Teaching:
   - Not available but the following processes are being developed:
     - Collect information from a variety of sources.
     - Interpreting this information.
     - Make recommendations.
     - Action plan for improvement.

4. Processes for Verifying Standards of Student Achievement (eg. check marking by an independent faculty member of a sample of student work, periodic exchange and remarking of a sample of assignments with a faculty member in another institution):
   - Not available but the following processes are being developed:
     - A proportion (10-15%) of all work is subjected to sight double marking by another member of staff.
     - A proportion (10-15%) of all exam scripts is subjected to double marking by another member of staff.

5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.
   - Not available but course report will be done at the end of the semester.